P-1-1  Fcγ receptor polymorphism influences the effect of rituximab on B–cell depletion in ABO–incompatible adult living donor liver transplantation
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The single nucleotide polymorphisms (SNPs) of FCGRA2 [131H/R] and FCGRA3A [158F/V], genes encoding Fc gamma receptor (FcγR), were analyzed in 20 patients who were desensitized with rituximab prior to ABO blood group–incompatible (ABOi) living donor liver transplantation (LT). Consistent with a higher affinity of the isoform encoded by FCGRA2 [131H/H] to IgG1, the effects of rituximab on B cells were more profound in the FCGRA2 [131H/H] than the FCGRA2 [131H/R or R/R] individuals, i.e. the time of B cell reappearance in the peripheral blood was significantly delayed and the serum total IgM levels were significantly lower at the early time after LT in the FCGRA2 [131H/H] individuals. The incidence of infectious complication was also significantly higher in the FCGRA2 [131H/H] individuals, that was associated with their poorer prognosis. Notably, biliary complications in patients with FCGRA2 [131H/H] were tendency to develop more fatal than in patients with FCGRA2 [131R/R or R/H]. Despite the lack of a significant impact of FCGRA2 [158F/V] SNPs on the survival of ABOI liver grafts, the incidence of infectious complication was significantly higher in the FCGRA3A [158F/V or F/F] than the FCGRA3A [158 F/F] individuals. Thus, FcγR SNPs are predisposing factors for severe infectious complication after ABOI living donor LT, despite the lack of a significant influence of those SNPs on the reduction of anti–blood group A/B antibodies.

P-1-2  Erythropoietin treatment reduces inflammatory reaction and improves liver regeneration after major hepatic resection in cirrhotic rat models
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Background
In cirrhotic liver, major hepatic resection may cause a fatal clinical course that it is still a concern. Erythropoietin (EPO) has been known to have anti–inflammatory reaction and stimulator of liver regeneration in previous studies. This study aims to investigate the effect of EPO after major hepatic resection in cirrhotic rat models.
Methods
Cirrhotic liver was induced by an intraperitoneal injection of TAA in seventy Lewis rats. Two groups with (n=35) and without (n=35) EPO (1 IU/g, every other day, 5 times before operation) underwent major hepatectomy (left and a half of median lobes) and biochemical and histopathological parameters and overall survival were compared.
Results
EPO led to significant decrement of aspartate aminotransferase at 24 hr and alanine aminotransferase and interleukin (IL)–β expression at 48 hr. With EPO, hepatocyte growth factor and vascular endothelial growth factor expression at 1hr and IL–6 expression at 24 hr were significantly increased and Ki–67 was also significantly increased at 1hr and 24 hr. Overall survival was significantly improved among EPO–treated rats (P = 0.034).
Conclusion
EPO treatment reduces inflammatory reaction and improves liver regeneration after major hepatic resection which led to improvement of overall survival in cirrhotic rat models.

P-1-3  Pre–hepatectomy gamma–GTP concentration predicts postoperative liver function recovery
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[Objectives] To assess dynamic liver function, we investigated a new parameter of postoperative liver failure and liver function recovery. [Method] Clinical data from 49 patients who underwent hepatectomies, between January 2011 and December 2016, due to liver disease were retrospectively analyzed. Hepatectomies were performed because of hepatocellular carcinoma (16 patients), colorectal metastases (25), hilar cholangiocarcinoma (2), intrahepatic cholangiocarcinoma (3), metastatic liver tumors other than colorectal cancer (3). International Study Group of Liver Surgery (ISGLS) definitions were used to assess posthepatectomy liver failure (PHLF). Postoperative recovery of liver function was determined using the recovery times of the Child–Pugh classification, total bilirubin (TB) and albumin (Alb). [Results] Among our 49 patients, postoperative liver failure was identified in 4 cases. The preoperative concentration of gamma–GTP, surgery time, and the extent of the hepatic resection were significant predictors of postoperative liver failure in univariate models. The preoperative concentration of gamma–GTP (p=0.032) were significant predictors of postoperative liver failure in multivariate models. Using a TB level ≤2 mg/dl and an Alb level ≥3 mg/dl as markers of postoperatively recovered liver function, a preoperative concentration of gamma–GTP <50 IU/l was found to be associated with shorter recovery times. [Conclusion] The preoperative concentration of gamma–GTP provides clinical value for predicting posthepatectomy liver failure and postoperative recovery of liver function.

P-1-4  Preoperative neutrophil–to–lymphocyte ratio was a predictor of long term prognosis after hepatectomy for liver metastasis of colo–rectal cancer
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Background: There is a report that preoperative neutrophil–lymphocyte ratio (NLR) ratio, which is an indicator of the host systemic inflammatory response in many cancer types, is a poor prognostic factor.
Methods
In 249 consecutive patients who underwent hepatectomy for metastasis of colorectal cancer between January 2005 and March 2016, 157 patients were included.
Preoperative NLR was calculated and classified into 4.0 or more (high NLR group 19 cases) and less than 4.0 (low NLR group 137 cases). Independent risk factors after hepatectomy of colorectal cancer were examined.
Results
High NLR group had significant preoperative leukocyte count (7027 vs. 5480 / μL) and platelet count high (27.3 vs. 21.4 x 104 / μL) significantly (p < 0.05) compared with the low NLR group and primary resection to liver metastasis within 1 year (89 vs. 64%), liver metastasis H2 or more (53 vs. 25%).
In univariate analysis, 9 factors (liver metastasis, preoperative NLR high value, tissue type, transfusion at the time of hepatectomy, time of liver metastasis after primary operation, primary lymph node metastasis, primary venous invasion, CEA value at hepatectomy, Adjuvant chemotherapy after hepatectomy) had significantly poor prognosis. Multivariate analysis with these 9 factors revealed liver metastasis H3 (p = 0.037), liver metastasis within 1 year after primary resection (p = 0.018), and preoperative NLR High value (p = 0.022) were independent prognostic factors.
Conclusions
Preoperative NLR was thought to be a useful index for treatment selection by a simple method of evaluating potential biological activity, possibly related to malignancy of colon cancer liver metastasis resected cases.
P-1-5 Interleukin–33, Released with Hepatectomy, Facilitated Recurrence of Cholangiocarcinoma Not through Direct Influence

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Background and Purpose: Cholangiocarcinoma (CCA) is a lethal neoplasm because of frequent recurrence after surgery. IL–33 has been shown to facilitate the development of CCA in a murine model, and IL–33, which binds to nuclear chromatin stably, is an alarmin released during tissue injury. Based on this information, we postulated that IL–33 may be released during liver surgery for CCA, and facilitate recurrent disease. Methods: The expressions of IL–33 in background liver of 50 CCA patients who underwent curative surgery in our institute were evaluated by immunohistochemistry (IHC). To evaluate the direct influence of IL–33 to tumor progression, we performed proliferation assay, wound healing assay, MT assay. Results: IL–33 expression in background liver of CCA varied widely (5.6–181.2 positive cells/HPF). When patients were divided into two groups according to IL–33 expression, the recurrence free survival time (RFST) of the high expression group were significantly shorter than that of the low expression group (Median RFS, high vs low expression group, 11.1 vs 33.0 months, p=0.0149). The exposure of IL–33 did not change any malignant ability in CCA cell lines (HuCCT–1, CCLP–1) as following proliferation: p=0.51 (HuCCT–1), p=0.42 (CCLP–1), Migration assay: p=0.61 (HuCCT–1), p=0.57 (CCLP–1), MT assay for GEM: p=0.70 (HuCCT–1), p=0.93 (CCLP–1), p-value of the difference between with and without IL–33 supplementation. Conclusion: The high expression of hepatic IL–33 is a risk factor for CCA recurrence following surgery. IL–33 does not have any direct influence to CCA cell line, and we need to do further investigation assuming indirect influence.

P-1-6 Role of autophagy on hepatic oval cell proliferation and biliary differentiation

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Purpose: To investigate the role of autophagy on rat hepatic oval cell (HOC) proliferation, apoptosis and biliary differentiation. Methods: Rat HOC were cultured with rapamycin, 3-methyladenine (3-MA), and the cell cycle, apoptosis, expression of cytotkeratin 19 (ck19) were examined by immunofluorescence blot and western blot, and the expression of phosphor–ERK (p–erk)/phosphor–p38 (p–p38) in hoc were examined by western blot analysis. Results: After inhibition of autophagy using 3-MA, the proliferation of hoc was inhibited. Furthermore, the SubG1 population was significantly increased compared to the control group (P<0.05). In rapamycin group, the percentage of the expression of ck19 was considerably increased compared to those in the control group (P<0.05). Furthermore, western blot analysis showed that p–erk and p–p38 were increased in the rapamycin-treated group, while they were not subject to 3-MA parently. Conclusion: The present study indicated that induction of autophagy in hoc increased their SubG1 phase population, promoted their differentiation into cholangiocyte and promoted the expression of ck19. The mechanisms underlying this process may be related to the regulation of autophagy-induced promotion of the MAPK/ERK signaling pathway.

P-2-1 Overexpression of Hepcidin predicts poor prognosis in pancreatic cancer

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Background: Iron is associated with many reactions and is one of the essential minerals for keeping a life cycle. Hepcidin is considered to regulate iron retention, tumor cell survival and poor outcome in prostate cancer. In this study, we examined whether overexpression of Hepcidin was associated with prognosis in pancreatic cancer. Methods: 92 patients with pancreatic cancer underwent surgical resection between 2007 and 2013. The expression of Hepcidin was examined by immunohistochemistry. The patients were divided into strong or weak stained group based on the staining intensity, and then became more gradual, reaching a near plateau after 15 min. A near-infrared (NIR) fluorescence imaging enables quantitative assessment of the fluorescent signal from indocyanine green (ICG) in regions of interest on the liver surface. This method might offer a new promising modality to evaluate regional liver reserve. But there is no data about the relation between liver function and fluorescent signal on the liver surface after intravenous ICG injection. The research for getting this data is necessary in order to use NIR fluorescence imaging as the modality measuring liver function, and then this study was conducted. Methods: This study included 16 patients who underwent open hepato–pancreato–biliary surgery between March 2011 and March 2012. After laparotomy, ICG was injected intravenously at a dose of 2.5 mg/l of liver volume and fluorescent intensity (FI) and signal–to–background ratio on the liver were assessed for 15 min. Intraoperative blood samples were also obtained to measure the plasma clearance rate of ICG (ICGK). Correlations between ICGK and signal–to–background ratio (SBR), and between ICGK and the rate of change of FI were analyzed. Results: FI of the liver increased rapidly after ICG injection, then became more gradual, reaching a near–plateau after 15 min. A significant correlation was seen between ICGK and the rate of change of FI up to 15 min (r²=0.5725, p<0.05). Conclusion: This study showed a relation between liver function and fluorescent signal on the liver surface after intravenous ICG injection. Intraoperative NIR fluorescence imaging with ICG may be useful as a new method for assessing liver function.

P-2-2 The preliminary study for intraoperative real–time assessment of liver function with near–infrared fluorescence imaging

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Background/Purpose: Postoperative liver failure is a serious complication after major hepatectomy. Near–infrared (NIR) fluorescence imaging enables quantitative assessment of the fluorescent signal from indocyanine green (ICG) in regions of interest on the liver surface. This method might offer a new promising modality to evaluate regional liver reserve. But there is no data about the relation between liver function and fluorescent signal on the liver surface after intravenous ICG injection. The research for getting this data is necessary in order to use NIR fluorescence imaging as the modality measuring liver function, and then this study was conducted. Methods: The study included 16 patients who underwent open hepato–pancreato–biliary surgery between March 2011 and March 2012. After laparotomy, ICG was injected intravenously at a dose of 2.5 mg/l of liver volume and fluorescent intensity (FI) and signal–to–background ratio on the liver were assessed for 15 min. Intraoperative blood samples were also obtained to measure the plasma clearance rate of ICG (ICGK). Correlations between ICGK and signal–to–background ratio (SBR), and between ICGK and the rate of change of FI were analyzed. Results: FI of the liver increased rapidly after ICG injection, then became more gradual, reaching a near–plateau after 15 min. A significant correlation was seen between ICGK and the rate of change of FI up to 15 min (r²=0.5725, p<0.05). Conclusion: This study showed a relation between liver function and fluorescent signal on the liver surface after intravenous ICG injection. Intraoperative NIR fluorescence imaging with ICG may be useful as a new method for assessing liver function.
**P-2-3**  TRAIL–secreting mesenchymal stem cells promote apoptosis in heat–shock–treated liver cancer cells and inhibit tumor growth in nude mice

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Background: Liver cancer is one of the top six leading causes of cancer–related death. Radiofrequency ablation (RFA) is an important means of treating liver cancer. Residual cancer after RFA is the most frequent cause of recurrence in cases of liver cancer. The main difference between residual cancer cells and ordinary liver cancer cells is that residual cancer cells experience heat shock. The secretable form of trimeric human tumor necrosis factor–related apoptosis–inducing ligand (stTRAIL) induces apoptosis in a variety of human cancers but not in normal tissues. Methods: Rat bone marrow mesenchymal stem cells (BM–MSCs) were isolated and transduced with a lentivector encoding stTRAIL. (stTRAIL–MSCs, T–MSCs). Cells treated with heat treatment at 43 °C for 45 min served as simulated residual cancer cells.

Results: After treatment with T–MSCs, apoptosis in heat–shock–treated liver cancer cells increased significantly, and caspase–3 was upregulated. When T–MSCs were subcutaneously injected into nude mice, they localized to the tumors and inhibited tumor growth, significantly increasing survival.

Conclusion: Collectively, the results of the present study indicate that BM–MSC can provide a steady source of stTRAIL and may be suitable for use in the prevention of the recurrence of hepatocellular carcinoma after RFA with secretable trimeric TRAIL.

**P-2-4**  Clinicopathological features and evidence based surgical treatment strategy for cholangiocellular and cholangiocarcinoma

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[Aim] The pathological features of combined hepatocellular–cholangiocarcinoma (CHC), cholangiocarcinoma (CLC) and cholangiocarcinoma (CCC) are complicated. Therefore, we reevaluated the characteristics of CHC, CLC and CCC using diagnostic imaging, surgical prognosis and biological characteristics, and we revealed appropriate surgical strategy including chemotherapy. [Subject] Subject were 7 CHC classical, 8 CHC SC–INT, 13 CLC and 58 MF type CCC undergoing hepatectomy from 2001 to 2013. [Preoperative imaging diagnosis] It is possible to distinguish clearly by tumor enhancement patterns, peritumoral enhancement patterns, bile duct dilatation and intratumoral portal vein penetration in quadruple phase dynamic CT study between HCC, CHC, CLC and CCC. Furthermore, CLC has lower SUV of FDG–PET than CCC. [Surgical prognosis] HCC, CHC classical, CLC were significantly better prognostic than SC–INT and CCC. In multivariate analysis, pathological subtype was judged to be a significant prognostic factor independent of pathological stage. Comparing the background liver, the frequency of viral hepatitis and cirrhosis was significantly lower in CLC and CCC. Lymph node metastasis was significantly higher in CCC and relatively higher in CLC. Anatomical wide hepatectomy with extrahepatic bile duct resection and lymph node dissection is necessary for curability of CCC and CLC with progression to hepatic perihilar, but CLC without progression is similar to HCC, classical type and SC–INT can be obtained curability even by non–anatomical hepatectomy, if surgical margin is secured. [Chemotherapy] For CCC and advanced CLC, GEM would be effective, and additional effect of S–1 would be expected.

**P-2-5**  Successful treatment of afferent jejunal varix bleeding after pylorus preserving pancreaticoduodenectomy by coil embolization in laparotomy

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The case was 74 years old man with afferent jejunal varix rupture after pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD). He underwent PPPD for pancreas neuroendocrine tumor 3 years ago, and partial pylorus preserving pancreaticoduodenectomy (PPPD).

**P-2-6**  Hydrogen water – a preliminary therapeutic for Non–Alcoholic SteatoHepatitis (NASH)

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Abstract

Nonalcoholic fatty liver disease (NAFLD) is characterized by a wide spectrum of liver damages spanning from steatosis, nonalcoholic steatohepatitis (NASH), cryptogenic liver cirrhosis, even to hepatocellular carcinoma. Oxidative stress is a strong contributor to the progression from simple fatty liver to nonalcoholic steatohepatitis (NASH).

Methods: Molecular hydrogen is an effective antioxidant that hydrogen water ameliorates the progression of NASH in mouse models. In our investigation we made three experimental groups as follows: (1) Normal diet + Normal water group; (2) MCD diet + normal water group; (3) MCD diet + hydrogen water group. And all the groups were fed for three different periods, which are 8 weeks, 12 weeks, and 16 weeks. We used Hematoxylin and Eosin (H&E) staining and found different effects from each group. We then investigated the effect of hydrogen in the prevention of NASH in C57BL6 mouse, known as the NASH–related model. Hydrogen water was produced by placing a metallic magnesium stick into drinking water.

Results: In the mouse hepatocyte we designed three kinds of groups (Regular Group, Control Group, HW Group). The three groups also showed significantly different serum levels for ROS. As shown in H&E staining, there are more balloons and red fat zone in Control group than HW group. The consumption of hydrogen water for 8 weeks, 12 weeks and 16 weeks reduced reactive oxygen metabolites in the blood of NASH mouse groups.

Conclusion: Daily consumption of hydrogen water reduces nonalcoholic fatty liver disease and may be an effective treatment for NASH by reducing hepatic oxidative stress, apoptosis, and inflammation.
P-3-1  Intracellular TGF-β/Activin A–Smad signaling induces hepatic progenitor cells undergoing epithelial–mesenchymal transiting states

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Background: Epithelial–mesenchymal transition (EMT) contributed to the progression of organ fibrosis and cancer, and recent investigations proved that EMT is a dynamic process that the epithelial–mesenchymal transiting (EMTing) states of cells exists. Hepatic progenitor cells (HPCs) may participate in the progression of liver fibrosis and the initiation of liver cancer, whereas the precise mechanism of this participation still needs further exploration.

Methods: We measured the expression of epithelial markers and mesenchymal transiting markers by phalloidin staining and western blotting. Intracellular levels of TGF-β and Activin A were measured by western blotting and real-time PCR. Knock down of TGF-β, Activin A or Smad4 was performed by transfection of specific siRNAs. The activity of Smad signaling was measured by luciferase reporter analyses and western blot analyses of phosphor–Smads. EMTing related cell migration analyses were performed by wound healing assays and transwell analyses.

Results: In this study, we found that hepatic progenitor cells were undergoing epithelial–mesenchymal transiting (EMTing) states with coexpressing epithelial markers (E-cadherin and Zona Occludin 1) and mesenchymal markers (Fibronectin, Vimentin, Collagen-1 and α-SMA). We further found that TGF-β and Activin A was both intracellular activated and contributed to the maintenance of EMTing in HPCs. Furthermore, we found that both TGF-β and Activin A contributed to this maintenance through Smad signaling in HPCs. Conclusion: Intracrine TGF-β/Activin A–Smad signaling induces HPCs undergoing EMTing states, which may contribute to the progression of liver fibrosis and the initiation of liver cancer.

P-3-2  Terlipressin decreases liver injury and regeneration facilitating functional recovery after 70% hepatectomy in pigs

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Background/Purpose: We aimed to determine the effects of terlipressin and octreotide on recovery of hepatic function and regeneration using porcine 70% hepatectomy model.

Methods: Animals were divided into 4 groups; sham group (n = 3), control group (n = 6), terlipressin group (n = 6) and octreotide group (n = 6). Terlipressin (0.5 mg, i.t.d. SC) and octreotide (0.2 mg, i.t.d. SC) were administered starting immediately before 70% hepatectomy. Portal pressure was measured, and samples of blood and liver tissue were obtained for analysis at various time point. Animals were executed on 7th day.

Results: Portal pressure was significantly decreased in both treatment groups than control. Biochemical and pathologic analysis showed significantly less hepatic injury in terlipressin group (p < 0.021, in histologic scoring; p < 0.014). In contrast, liver regeneration rate was significantly decreased in terlipressin group than control group (p = 0.032).

Conclusions: Terlipressin effectively decreased portal pressure and decreased liver injury after liver resection despite of lower liver regeneration rate. It indicates that these drugs may play an important role in prevention and treatment of posthepatectomy hepatic failure or small–for–size syndrome after liver transplantation maintaining a balance between liver regeneration and functional recovery.

P-3-3  Impact of repeated hepatectomy on liver regeneration in hepatocellular carcinoma

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Hideo Baba1)

Background: Repeated hepatectomy is widely accepted as one of the most curative treatments in patients with hepatocellular carcinoma (HCC). However, little is known whether the remnant liver has the same regenerating ability as primary liver. The aim of this study is to assess the regenerating ability of remnant liver on repeated hepatectomy compared with primary hepatectomy.

Method: This study retrospectively assessed 128 patients who underwent curative anatomical liver resection for HCC between 2009 and 2014. The liver regeneration rate was calculated by SYNAPSE–VINCENT based on dynamic computed tomography before and one month after hepatectomy. The liver regeneration rate was compared between the patients who underwent primary hepatectomy and the second hepatectomy.

Results: The median age of patients was 69 (range 35–83). The all background factors were identical in primary hepatectomy group (n=103) and second hepatectomy group (n=25) including preoperative liver function, operation time, bleeding amount, the degree of fibrosis, planned resection liver volume (300 cm³ vs 348 cm³, P = 0.6599), and planned resection liver volume rate (25.5% vs 30.7%, P = 0.6384). The liver regeneration rate of second hepatectomy group was significantly higher that of primary hepatectomy group (25.4 ± 24.3% vs 15.7 ± 19.9%, P = 0.0382). Among 10 patients who underwent both primary and second anatomical hepatectomy, there was no significant difference in liver regeneration rate between primary and second hepatectomy (19.7 ± 19.1% vs 17.8 ± 13.6%, P = 0.7970).

Conclusions: The regenerating ability of second liver resection has non–inferiority to that of primary liver resection.

P-3-4  Near infrared fluorescence imaging using Indocyanine Green during laparoscopic liver resection of tumors in segments VII and VIII

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Introduction: Laparoscopic liver surgery is increasingly being used worldwide, but it is difficult to resect laparoscopically the liver tumor located in segments VII and VIII. Recently, some reports have stated that indocyanine green (ICG) fluorescence imaging enabled identification of liver cancers in real time during hepatectomy. The purpose of the study is to show the technique and outcome of laparoscopic hepatectomy with a near–infrared fluorescence imaging for dome liver lesions.

Methods: A total of 14 patients underwent laparoscopic partial hepatectomy for tumors in segments VII and VIII in our institution. Of these patients, 7 underwent operations using near–infrared fluorescence imaging. The near–infrared fluorophore ICG was injected (0.5 mg/kg) on two or three days before surgery. Thoracoscopic transdiaphragmatic partial hepatic resection was chosen in three patients due to the tumor’s location and impaired liver function.

Results: Three patients were preoperatively diagnosed with hepatocellular carcinoma, and 4 were metastatic tumor of the colorectal cancer. ICG–fluorescent imaging identified all tumors in 7 patients using a near–infrared light laparoscopic camera system. No conversion to laparotomy occurred. The median blood loss was 110 ml (15–460 ml), and the median operative time was 275 min (158–461 min). A tumor–free resection margin was achieved in all cases. There were no perioperative deaths, and no patients underwent reoperation.

Conclusions: Using detection of tumor with near–infrared fluorescence imaging, laparoscopic hepatectomy can be more safely performed in patients with tumors in segments VII and VIII.
Background: Soft-coagulation system (SCS) is a useful device for hemostasis during hepatectomy. We report two cases of SCS induced late postoperative biliary complications in the hepatic hilum.

Patients: Case 1. A 61-year-old male patient developed a biloma 3 months after left internal sectionectomy for hepatocellular carcinoma (HCC). Endoscopic retrograde cholangiography (ERC) showed biliary leakage accompanied by complete obstruction of the left hepatic duct. Percutaneous tranhepatic biliary drainage (PTBD) and cholangiography showed complete biliary obstruction restricting catheter passage through the left hepatic duct. We performed left lateral sectionectomy and left caudate segmentectomy.

Case 2. A 73-year-old female patient developed a biloma 10 months after left internal sectionectomy for HCC. ERC showed a biliary leakage with complete obstruction of the left hepatic duct. Endoscopic retrograde biliary drainage resulted in biliary pyothorax and biliary–bronchial fistula caused dislocated drainage tube into the thoracic cavity. The biliary–bronchial fistula disappeared 3 months after internal biliary drainage, and left lateral sectionectomy was performed. However, the biliary–bronchial fistula relapsed and endoscopic bronchial embolization was performed.

Discussion: We reviewed operative videos and recognized that hemostasis close to the hepatic hilum was achieved by SCS. We acknowledged that the two delayed biliary disruptions resulted from the thermal injury in the Glisson sheath by SCS.

Conclusions: Hemostasis during hepatectomy by SCS should better exclude the major Glisson's sheath.

P-3-6 Feasibility of laparoscopic liver resection for hepatocellular carcinoma patients with liver damage B

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Aim: Laparoscopic liver resection (LLR) is considered as a minimally invasive surgery. A few studies have been reported about the safety and feasibility of LLR for Hepatocellular carcinoma (HCC) patients with liver cirrhosis. Hence, we aimed to evaluate the feasibility of LLR for HCC patients with cirrhosis grading liver damage B.

Methods: From 2007 to 2016, 42 patients with liver damage B, who underwent open liver resection (OLR) or LLR for the treatment of HCC, were identified retrospectively at our own institution. Short- and long-term surgical outcomes were compared between the LLR and OLR groups.

Results: Among 42 patients, 13 (31.0%) were performed LLR and 29 (69.0%) were done OLR. In short-term outcomes, the morbidity rate, such as postoperative ascites, of the LLR group was significantly lower than that of the OLR group. Furthermore, the duration of hospital stay of the LLR group was significantly shorter than that of the OLR group. As for long-term outcomes, there was no significantly difference between the two groups such as the relapse-free survival and overall survival.

Conclusions: LLR for HCC patients with liver damage B might be a preferable procedure rather than OLR.

P-4-2 Relationship between expression of Casein Kinase 1 (CK1) and tumorigenesis in hepatocellular carcinoma

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Background: Casein kinase type 1(CK1) is highly conserved gene in human, and has essential functions in cell survival and tumorigenesis. The effect of CK1 on the tumorigenesis is different in the various types of tumor cells according to the CK1 isoforms. We evaluated the relationship between CK1 α1 gene expression and the tumorigenesis of hepatocellular carcinomas.

Method: We performed in-vitro study first, using HCC cell-lines (SNU449 and SK-HEP1) which have high expression of CK1α1. CK1α1 gene reduced cell-lines were made from SNU449 and SK-HEP1 cell-lines and compared the function of the cells against the naïve cells. Then, we performed in-vivo study using fresh frozen HCC specimens which were collected from the patients who underwent curative liver resection, in Kore Cancer Center Hospital, Seoul, Korea. The degree of CK1α1 gene expression was measured in these specimens with RT-PCR and Western blot methods.

Results: In MTS cell proliferation assay, cell proliferation was decreased in the CK1α1 gene reduced cell-line compared to the naïve cell-line (p<0.05). In the Colony formation assay, the CK1α1 gene reduced cell-line had decreased colony formation compared to the naïve cell-line also (p=0.044). In 12 cases out of the 15 frozen-stored HCC tissues from patients, CK1α1 gene was activated than normal liver, and 3 cases showed no difference of CK1α1 gene expression between normal liver and HCC tissues. Conclusion: Our results suggest that CK1α1 gene is hyperactivated in the HCC cells. And this finding can be a potentially valuable diagnostic biomarker for HCC. Further study is needed.

P-4-4 Application of percentage of genome changes for Sorafenib response in advanced HCC after resection

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Background: Sorafenib has been administered for advanced hepatocellular carcinoma (HCC) when portal vein thrombosis, lymph nodes metastasis, or distant metastasis occurred. The aim of this study was to analyze the drug response via copy number aberrations (CNA) in HCC specimen. PATIENTS AND METHODS: Twelve HCC patients had surgical resection and recurrence. Sorafenib was administered and the drug response was analyzed using modified RECIST criteria. The study was based on the CNAs in formalin embedded tissues (FFPE) specimen of HCC after resection and Affymetrix Oncoscan genechip, and Nexus software was used to analyze. RESULTS Of the 12 patients with sorafenib administration; 7 patients with complete/partial response/ stable disease, (the drug sensitive group A; the percentage of genome changed by a mean of 19.8 %). Five patients were PD and drug administration was less than 6 months (the drug resistant group B; percentage of genome changed by a mean of 50.02 %). Furthermore, the change of chromosome, amplification or deletion, was the most important in terms of the drug treatment response, that inflammation pathway maybe the key points.

CONCLUSION: Remarkable differences in the percentage of genome changed between groups A and B implied that the higher percentage of alterations in the genome (more than 50% CNAs) in advanced HCC might result in resistance to Sorafenib. Further study will be validate the inflammation pathway.
P-4-3 Is laparoscopic partial hepatectomy with simultaneous colon surgery the risk factor of organ space surgical site infection?

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In: To clarify whether laparoscopic hepatectomy with simultaneous colon surgery influence organ space surgical site infection (SSI).

Patients and Methods: From January 2008 to March 2016, of all patients who underwent laparoscopic hepatectomies in our hospital, those who underwent partial hepatectomies were included in this study. They were divided in the two groups with and without simultaneous colon surgery. Patients' backgrounds such as age, sex, body mass index, serum creatinine level, prognostic nutrition index, comorbidity of diabetes mellitus, and Child–Pugh classification were evaluated between two groups. In addition, risk factors of organ space SSI were analyzed using univariate and multivariate analyses.

Results: Consecutive 74 patients who met inclusion criteria were eligible for this study. Of these patients, 3 had organ space SSIs. Each number of patients with (Group A) and without colon surgery (Group B) was 9 and 65, respectively. No significant differences of patients' backgrounds were observed between two groups. Operation time in Group A (median 289 min) was significantly longer that in Group B (1 case: 1.5%) (p = 0.0374). In univariate analysis, laparoscopic hepatectomy (2 cases: 22.2%) was significantly higher than in Group B (1 case: 1.8%).

Conclusion: Laparoscopic partial hepatectomy with simultaneous colon surgery may increase the risk of organ space SSI.

P-4-4 Hand-assisted laparoscopic splenectomy and devascularization for esophageogastric varices with portal hypertension

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Background/Purpose: To describe our preliminary results of hand-assisted laparoscopic (HALS) splenectomy and devascularization for treatment of esophageogastric varices with portal hypertension.

Methods: From May 2009 to December 2016, seven cases of esophageogastric varices with portal hypertension were treated with HALS splenectomy and devascularization in our institute. The patients included four men and three women who ranged in age from 35 to 71 years. We retrospectively reviewed medical records regarding the perioperative variables, postoperative complications, and postoperative outcomes of the esophageogastric varices.

Results: The median operative time was 455 (range: 310–671) minutes. The median intraoperative blood loss was 695 (range: 15–2395) ml. the weight of removed spleen was 507 (range: 242–1835) g. Postoperative complications were observed in two cases. One was massive ascites and enteritis. Another was intra-abdominal abscess. Both were treated successfully without re-operation. Postoperative hospital stay was 21 (range: 12–81) days. All esophageogastric varices disappeared or improved and no bleeding from esophageogastric varices was observed over a median 56 (range: 45–89) months of follow up. One patient needed endoscopic treatment for bleeding from heterotopic intestinal varices. One patient died of chronic liver failure of recurrent primary sclerosing cholangitis after living donor liver transplantation 52 months after HALS splenectomy and devascularization.

Conclusion: Although the data remain preliminary, HALS splenectomy and devascularization could prove to be an effective procedure in patients with esophageogastric varices with portal hypertension.

P-4-5 Venous drainage guided selective hepatectomy ~Evaluation of the 11 cases performed in our institute

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Background Venous drainage guided selective Hepatectomy (VDGH, VDG hepatectomy) is selective hepatectomy under the guidance of hepatic venous drainage. Conventional selective hepatectomy is performed under the guidance of occlusive area visualized by clamping portal vein and hepatic vein. Hepatic venous occlusion alone produces no visible congested area, this area can be identified by simultaneous occlusion of the hepatic vein and artery. Because the congested area becomes dysfunctional or atrophic due to the absence of portal blood supply, it can be regarded as a first candidate for preventive resection in livers.

Method: 11 cases performed VDGH in our institute from 2008 to Dec 2016 were investigated in this study. Result Operative procedure: 8 cases of extended posterior sectoectomy with RHV resection. 2 cases of extended left lobectomy with MHV resection. One case of extended segment 4 resection with MHV resection. 6 cases were male, 5 cases were female. Averaged age of patient is 72.6 yr (range: 64 ~84yr).

Pathological features: 6 cases of HCC, 4 cases of metastasis from CRC and one case of CCC. Averaged operative time is 143 min (range: 105 ~182min). Averaged intraoperative blood count is 1203 ml (range: 405 ~3030ml). No postoperative complication was observed in this series. Conclusion VDGH is safe and feasible procedure even in general hospital located in provincial city. VDGH is considered to be a possible alternative in liver surgery.

P-4-6 Predictability of postoperative recurrence on hepatocellular carcinoma through the alternating decision tree

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Background: Alternating decision tree (ADT) data mining method could powerfully predict recurrence factors of hepatocellular carcinoma(HCC). ADT data mining method are fold cross validation process. The average and standard deviation of the accuracy, sensitivity, and specificity were 69.0±8.2%, 59.7±14.5%, and 77.7±10.2%, respectively. The identified postoperative recurrence factors were age, viral hepatitis, stage, GGT and T-cholesterol.

Method: ADT data mining method could identify the factors associated at different levels of significance with postoperative recurrence of HCC. These factors could help to predict the postoperative recurrence of HCC.
P-5-1  The role of the renin angiotensin system (RAS) in liver regeneration and its inhibition for the treatment of colorectal liver metastases

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Background: Colorectal cancer results in over half a million deaths/year, with liver metastasis being the predominant cause. Liver resection is the only curative treatment. However, recurrence occurs in 50–75% of patients. Liver regeneration, following resection, induces upregulation of growth factors/cytokines known to promote tumour development. We have shown that inhibition of RAS retards tumour growth while enhancing liver regeneration, with the most likely mechanism being reduced inflammation. Aim: To investigate if Captopril (RAS inhibitor) changes key cytokine expression levels during regeneration and the effects on tumour motility. Methods: Mice underwent major liver resection while on Captopril treatment. Serum was collected at key timepoints. Changes in circulating cytokine expression were investigated using ELISA. In vitro wound healing assays were used to investigate the serum effects on tumour motility. Results: Captopril temporarily altered circulating cytokines during liver regeneration including EGF, TGF-β, VEGF and Angiopoietin-2 in treated animals. Serum collected during regeneration increased tumour motility and this was reversed by Captopril treatment. Conclusions: Captopril alters circulating factors during liver regeneration leading to faster liver regeneration and reduced tumour motility, indicating that RAS modulation with tumour resection may lead to more effective treatment.

P-5-2  Immunohistochemical Markers for Prognosis of Hepatocellular Carcinoma after Liver Resection and Liver Transplantation

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Background: The aim of this study was to assess immunohistochemical (IHC) markers that can predict the prognosis of HCC depending on liver resection (LR) and liver transplantation (LT). Methods: Data were collected from 167 patients who underwent LT (n = 41) or LR (n = 126) for HCC between December 2001 and December 2013. IHC markers including alpha fetoprotein (AFP), p53, Ki–67, cytokeratin 7 (CK7), and cytokeratin 19 (CK19) were compared between the treatment methods in tumor tissue. Results: AFP- and p53–negative patients had a significantly higher survival rate than AFP– and p53–positive patients (AFP: p=0.006 in DFS, p=0.016 in overall survival [OS]; p53: p=0.005 in DFS, p=0.038 in OS) in the LR group. CK19 was related to DFS (p=0.005), while CK7 (p=0.014) and CK19 (p=0.06) were related to OS in the LT group. When we combined factors that were significant in both groups, all negative patients had a higher survival rate in the LR and LT groups (LR: DFS p=0.025, OS p=0.043, LT: DFS p=0.034, OS p=0.008). Conclusions: Both p53 and AFP were predictors for poor prognosis of HCC after LR; CK7 and CK19 could be predictors for poor prognosis of HCC patients after LT.

P-5-3  Surgical procedure in laparoscopic caudal lobectomy

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Purpose: It is possible that laparoscopic liver resection is useful for tumor located at caudate lobe. However, there is little report regarding laparoscopic caudal lobectomy. In this study, we show our surgical procedure in laparoscopic caudal lobectomy and surgical outcomes. Surgical procedure: Patient is set to head-up position, and CVP is set to 3–5mmHg. Making efforts to decrease intraoperative blood loss is important. Mobilization of liver is minimized. Drawing hepatoduodenal ligament contributes to keep the working space. Preceding by ligating and dividing short hepatic vein causes following liver parenchyma is adequately isolated from IVC. Resection of liver surface is performed by LCS, and VIO–CUSA is used for deep part. Materials and methods: Between June 2009 and December 2016, 158 laparoscopic liver resections were performed in our department. Seven laparoscopic caudal lobectomy were performed (6 hepatocellular carcinoma and 1 metastatic liver cancer).

Results: Operation time was 191 minutes (107–251), intraoperative blood loss was 168ml (4–353), and hospital stay after surgery was 6 days (3–7). There was no postoperative complication, and mortality was 0.

Conclusion: Laparoscopic caudal lobectomy is feasible and safe.

P-5-4  Laparoscopic Liver Resection in Cirrhotic Patients with Special Reference to a Difficulty Scoring System

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Aim: Laparoscopic liver resection is widely used for liver tumors. However, its utility in patients with cirrhosis remains controversial. The aim of this study was to assess the surgical outcomes of laparoscopic liver resection in patients with and without liver cirrhosis with specific reference to a difficulty scoring system. Methods: From January 2010 to March 2016, the outcomes of laparoscopic liver resection in 98 patients were retrospectively reviewed. Short–term surgical outcomes were analyzed to identify differences between the liver cirrhosis and non–liver cirrhosis groups. Furthermore, both groups were stratified according to the difficulty score: high (≥ 7) and low (≤ 6). The surgical outcomes of both groups were compared according to the difficulty score.

Results: Overall, 54/98 (55.1%) patients were diagnosed with liver cirrhosis. There were no significant differences in surgical duration, blood loss, postoperative hospital stay, or morbidity between groups, although liver function was worse in the liver cirrhosis group. Multivariate analysis showed that the difficulty score was an independent predictor of increased blood loss. Blood loss was significantly greater in patients with a high difficulty score. Conclusion: Laparoscopic liver resection in patients with liver cirrhosis is as safe as that in those without. However, liver cirrhosis in patients with a high difficulty score requires extra attention, because of a higher risk of perioperative blood loss.
P-5-5 Hepatectomy vs. Radio frequency ablation as first-line treatment for a small hepatocellular carcinoma

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Introduction: Hepatectomy (HR) or radio frequency ablation (RFA for small hepatocellular carcinoma (HCC) were the important therapeutic strategy. The gross classification by The General Rules of the Clinical and Pathological Study of Primary Liver Cancer and tumor size were very important for the small HCC therapy. Because of our surgical outcome and result of pathology based on the gross classification from 1990 to 1994, We determined that HCC nodules for RFA therapy was less than 30 mm and simple nodular type or small nodular type with indistinct margin. In this study, we evaluated the surgical outcome of RFA or hepatectomy, and verify the validity of our indication on the basis of the gross classifications for RFA. Patients and methods: 396 HCC cases, less than 3cm in maximum diameter, undergoing first therapy by hepatectomy (n=238, simple nodular (SN) type or small nodular type with indistinct margin (SNIM): n=160, simple nodular type with extra nodular grows: n=52, other type: n =25) or RFA (n=158) from 1999 to 2011 were studied. We evaluated recurrence free survival, overall survival classified by HR (all cases), HR (simple nodular type or small nodular type with indistinct margin) or RFA group. Result: Between the HR and the RFA group, no significant difference of the rates of disease–free survival and overall survival. The 5 years recurrence free survival rates of HR (all cases), H(SN type and SNIM type), RFA groups were 35.8%, 37.8, 33.1%, and the 5 years overall survivals were 69.5%, 82.0%, 70.2%),. Conclusion: RFA based on our indication, was similar to hepatectomy for HCC (<30 mm) with regard to disease-free and overall survival rates.

P-5-6 The feasibility of laparoscopic liver resection for the super elderly patients

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Background: The feasibility of the laparoscopic liver resection for super elderly patients is still unknown.

Methods: Retrospective analysis of 24 patients who underwent hepatectomy for the super elderly patients (≧85years) was performed. Of the 24 patients, hepatectomy was performed under laparoscopy in 15 patients (laparoscopy group) or under laparotomy in 9 patients (laparotomy group). Perioperative outcome was analyzed in the two groups.

Results: There were no significant differences in the patient’s age, gender ratio, preoperative liver function tests, preoperative comorbidity, tumor location, and tumor size between the two groups. Although there was no significant difference in operation time, the intraoperative blood loss was significantly lower in the laparoscopy group than the laparotomy group (150ml vs 480ml, p = 0.005). There were no significant differences in the incidence of the postoperative complications between the two groups. However, the incidence of postoperative delirium was significantly lower in the laparoscopy group than in the laparotomy group (p=0.027). In addition, earlier ambulation (p=0.007) and earlier food intake (p=0.001) after surgery were observed in the laparoscopy group. There was no mortality between the two groups. The duration of the postoperative hospital stay was significantly shorter in the laparoscopy group than in the laparotomy group (p=0.016).

Conclusions: Even in cases of super elderly patient over 85 years, laparoscopic liver resection shows better short term outcome compared with laparotomy. So, laparoscopic liver resection could be one of the important therapeutic options for super elderly patients.

P-6-1 Effects of ultrasound targeted destruction of echogenic nanobubbles containing doxorubicin in rat liver

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Background: Ultrasound is widely used diagnostic medical imaging modality. Recently, its therapeutic potential has been reported for several decades. Ultrasound–targeted destruction using microbubbles and nanobubbles was introduced to deliver the therapeutic drugs. This study is designed to check whether nanobubble destruction caused by ultrasound is occur and to find the most effective frequency and duration of ultrasound for doxorubicin delivery on the rat liver under ultrasound targeted nanobubble destruction.

Methods: Rats weighing 200 to 250gm were underwent intravenous nanobubble injection via caudal vein. Experiments were divided by frequency and duration of ultrasound irradiation. Experimental group were divided as control group, 5MHz group, 10MHz group and 15MHz group. Another experimental group were divided as control group, 15 minutes group and 30 minutes group. The animals were sacrificed and organs were extracted and fluorescence images were acquired by IVIS2® system.

Results: Under ultrasound irradiation, the more nanobubbles were destroyed and doxorubicin uptake was increased at rat liver. (p<0.05) In frequencies, 5MHz group showed increased fluorescence efficiency of the liver between groups, (p<0.05) By the duration of ultrasound irradiation, ultrasound applied groups showed increased fluorescence efficiency of the liver against control group. (p<0.05)

Conclusion: We found that ultrasound targeted nanobubble destruction was effective on rat liver for doxorubicin delivery. The most effective ultrasound frequency was 5MHz and duration of ultrasound irradiation was 15 minutes for drug delivery by ultrasound targeted nanobubble destruction.

P-6-2 Endoscopic Retrograde Cholangiography for Biliary Strictures after Adult Living Donor Liver Transplantation

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Background: Biliary strictures (BS) are one of the important issues after living donor liver transplantation (LDLT). From Sept. 2006, we started regular check–up of BS by ERC within 6 months after removal of external stents in duct–to–duct biliary reconstructed adult LDLTs. We examined feasibility of the routine post–operative ERCs for BS after adult LDLT.

Methods: We retrospectively evaluated 66 primary adult LDLTs survived over 1 month. We separated those cases to 2 groups; the early cases (from 03/2000 to 08/2006, n=34) and the late cases (from 09/2006 to 12/2016, n=32) and compared the incidence of BS and success rate of endoscopic treatments. Characteristics of the recipients (age, gender, donor age, MELD score, Child–Pugh score, ABO incompatibility operation time, blood loss, number of biliary anastomoses) were not different.

Results: Overall incidence of BS was 36% (29/66). The incidence of BS was 32% (11/34) in the early cases, 56% (18/32) in the late cases. There is no difference of the incidence of BS in 2 groups (p=0.08). BS was successfully treated by endoscopic management in 16 patients (89%) in the late cases and 3(27%) in the early cases (p=0.0007). 10 patients failed with endoscopic therapy were converted to radiological intervention, 8 were successfully treated. 2 patients in the early cases failed with endoscopic and radiological intervention required operative biliary reconstructions. No surgical treatments were required in the late cases.

Conclusions: Early postoperative regular check–up of BS by ERC for duct–to–duct biliary reconstructions may be effective to avoid surgical interventions after adult LDLT.
**P-6-3** Laparoscopic vs Open Hepatectomy for Recurrent Liver Metastasis from Colorectal Cancer: A Retrospective Study

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**[Background]**

Despite of recent improvement in chemotherapy, the standard treatment for non colorectal liver metastasis (CRLM) is liver resection. Laparoscopic approach may be suitable for repeated hepatectomy, but its efficacy and safety for recurrent liver metastasis are as yet unknown.

**[Methods]**

26 Patients who underwent repeated hepatectomy (2 to 4 times) in our department between 2003 and 2015 were included. The patients were divided into two groups; Open Hepatectomy (OH) and Laparoscopic Hepatectomy (LH) groups. We retrospectively investigated about perioperative and prognostic factors between the two groups.

**[Results]**

5 patient belonged to LH group and 21 Patients belonged to OH group. Patient profile showed no significant difference except sex (more male in OH group). Although it was not statistically significant, blood loss was little (253g vs 341g, \( p = 0.265 \)) and operative time was short (253min vs 342min, \( p = 0.303 \)) in LH group. DFS and OS showed no significant difference. Perioperative complication (Clavien–Dindo classification 3 and above) occurred in no case.

**[Conclusion]**

It seemed that laparoscopic repeated hepatectomy was clinically and oncologically safe. It was suggested that laparoscopic hepatectomy could be a standard approach for recurrent CRLM.

**P-6-4** Validation of difficulty scoring system for laparoscopic liver resection in patients who underwent laparoscopic partial resection

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**[Background]**

A difficulty scoring system (DSS) was recently developed to assess the difficulty of various laparoscopic liver resection procedures. We validated DSS in patients who underwent laparoscopic partial hepatectomy (LPH) Methods: Between Apr. 2015 and Nov. 2016, 36 patients who underwent LPH with an introducing under DSS were enrolled. We divided 36 patients into two groups by DSS score 1–3: Low (L group, \( n = 24 \)) and 4–6: Intermediate (I group, \( n = 14 \)), and compared clinical data between two groups retrospectively. Results: There were no significant differences in the patients characteristics including Age (69 vs. 70 years), Gender (M:F = 14:9 vs. 11:2), BMI (25.2 vs. 24.2 kg/m²), ASA–PS (2.1 vs. 2.3), Diagnosis (HCC:Others = 10:13 vs. 8:5), Tumor size (22.0 vs. 28.6 mm) and ICGR–15 (17.0 vs 12.7 %). On the other hand, there were also no significant differences in the perioperative factors including Operation time (234 vs. 296 min), Blood loss (132 vs 272 ml), Surgical margin (5.9 vs. 3.6 mm), Clavien–Dindo (0.1:2=23:0 vs. 11:2) and Hospital days (7 vs. 7 days) except Intercostal trocar (Done:No=1:22 vs. 6:7, \( p<0.05 \)). Conclusion: The case with I group, we can perform LPH safely with an introducing under DSS as is the case with the L group.

**P-6-5** Laparoscopic segmentectomy of right lobe of liver based on vascular anatomy

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**[Methods]**

Between November 2012 and July 2015, 105 consecutive patients who underwent laparoscopic segmentectomy in the right lobe of liver, because the borders between segments 5 and 8 or segment 6 and 7 are unclear. We have evaluated the vascular anatomy of right lobe by 3D imaging and described a case of laparoscopic segmentectomy.

**[Results]**

Anterior segmental portal branch of the portal vein divided into 6. First order portal branches and posterior segmental portal branch divided into 4.1:5. Third–order portal branches. Third–order portal branches divided according to Couinaud classification were only 25%. Segmentectomy according to cone units: Precise preoperative evaluation by 3D imaging enabled us to identify each portal pedicle and hepatic vein. The number of third–order portal branches (cone units) to be resected were decided depending upon the size and location of the tumor. Case: 78–year–old man had hepatocellular carcinoma located in anterior segment. His anterior segment was consisted of 7 Cone Units. We resected 3 Cone units from the hepatic hilum, then the transection of the liver parenchyma followed the demarcated line and MHV.

**Conclusion:** anatomical liver resection according to cone units is useful in segmentectomy of right lobe.
A case of bulky metastasis of hepatocellular carcinoma to adrenal gland diagnosed as primary adrenal tumor preoperatively

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Hepatocellular carcinoma (HCC) uncommonly metastasizes to other organs. Therapy for intrahepatic lesions, however, has been increasing cases with long-term survival. It is nowadays reported that approximately 25% of 10 year-survival cases have extrahepatic metastasis. Among them, lung, bone and lymph node are generally recognized as common metastatic lesions. Metastasis to the adrenal glands is rare (2.2%). We experienced a case of adrenal metastasis of HCC.

Case

A 60-year-old man visited our hospital with epigastralgia and unpleasant feeling after meal. HBV and HCV markers were negative, and serum AFP level was very high (23874ng/ml). He didn’t have any history of diabetes nor hyperlipidemia. Dynamic abdominal CT scan showed hypervascular tumor 5.0 cm in diameter with subcapsular thick low attenuation area in the left lateral segment of the liver. Finally, a diagnosis of HCC with subcapsular hematoma was made. The liver function was almost normal (ICG15 was 12.9%). On complete blood count, the hemoglobin was 9.8 g/dl and the platelet count was 23.5 x 10^4/mm. One month later (just before operation), dynamic CT scan showed that the HCC increased to 11.2cm in diameter projecting to the left medial segment of the liver.No metastatic lesion was shown. As a result, the HCC showed remarkable rapid growth (+124%) during only one month. We carried out left hepatectomy with partial resection of the left diaphragm and the gastric serosa due to firm adhesion. Histopathologically, the hepatic tumor was diagnosed moderately to poorly differentiated HCC with subcapsular hematoma and invasion into the right hepatic vein. The surgical margin was negative.

A Case of Intrahepatic Cholangiocellular Carcinoma Presenting Extrahepatic Growth

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Although several cases of hepatocellular carcinoma presenting extrahepatic growth were seen in some reports, cases of cholangiocellular carcinoma presenting extrahepatic growth are extremely rare. In this present study, we report a case of intrahepatic cholangiocellular carcinoma presenting extrahepatic growth, which was difficult to differentiate from a gastrointestinal stromal tumor of the duodenum. The patient was presented to our hospital, complaining of abdominal pain. Abdominal enhanced computed tomography (CT) scanning revealed a large tumor, 18 cm x 15 cm, under the liver, and the duodenum and transverse colon were shifted to the left by this mass. During the operation, a huge extrahepatic tumor close to the duodenum and transverse colon was identified. Although the tumor was fairly well circumscribed, there were strong adhesions between the tumor and duodenum, transverse colon. Therefore, we performed the partial liver resection of S4a with distal gastrectomy and partial transverse colon resection. In the six months since the operation, there have been lymph node recurrence under the pancreatic head. Therefore, we administered chemotherapy with gemcitabine for half a year. After chemotherapy, there were no additional recurrences. We decided to perform a pancreaticoduodenectomy with a curative intention. The patient was doing well for about four years after the initial operation.

A resected case of hepatocellular carcinomas with diagnostic difficulties

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[Background] Advances in imaging modalities such as US, CT and MRI enabled to relatively easily diagnose typical liver tumors including hepatocellular carcinoma (HCC). However, we encounter a diagnostic difficulty in some cases. [Case] 72 y.o. male regularly came to our hospital because of postoperative gastric cancer and chronic renal failure. 14 months prior to admission, annual abdominal CT pointed out an indistinct liver tumor in segment 7. The tumor enlarged to 3cm in diameter. Besides, new lesion was detected in segment 8/7. Primary diagnosis was metastatic tumors because the 2nd tumor was calcified in plain CT and CEA was elevated. Abdominal MRI suggested the 1st tumor might be HCC because the tumor showed early enhancement followed by wash out. Alpha-fetoprotein and PIVKA-II were elevated. HBs antibody and HBc antibody were positive. After admission, we diagnosed that the 1st tumor was HCC using multiphase contrast enhanced CT. The 2nd tumor slightly shrank and showed prolonged enhancement in rate phase. Tentative diagnosis for the 2nd tumor was HCC, metastatic tumor, and inflammatory pseudo tumor. We performed extended anterior sectectomy. Pathological diagnosis for the 1st tumor was moderately differentiated hepatocellular carcinoma. The 2nd tumor was diagnosed as early hepatocellular carcinoma. [Discussion] We could not make definite preoperative diagnosis because tumor showed various imaging findings and patient had previous diseases. We should keep in mind that HCC might change in imaging findings with time course.
P-7-5 Two resected cases of Hepatocellular carcinoma with Biliary Invasion

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Hepatocellular carcinoma (HCC) with biliary invasion is rare. Generally, tumor growing within bile ducts is not tightly adherent to the duct wall, so it is easy to remove tumor casts from the ducts, and underlying ductal epithelium is well preserved. Thrombectomy was first choice for operative procedure of HCC with biliary invasion.

We experienced 2 cases of HCC with biliary invasion, which needed bile duct resection and reconstruction.

Case1: A 74-year-old female with HBV infection. Serum AFP was elevated and HCC in segment 4/1 was diagnosed by CT. MRCP/DIC–CT was revealed that the hepatic duct of both sides was involved in the tumor and was invaded directly. Left median segmentectomy with bile duct resection and reconstruction was performed. 4 month after operation, multiple recurrence in remnant liver were occurred. Because of bile duct resection and reconstruction, TACE was relative contraindication and systemic chemotherapy had been done. 1 year after operation, she was died for liver failure due to HCC.

Case2: A 55-year-old female with DM and HT, was noted to have jaundice. HCC in S8 with biliary invasion was diagnosed. ERCP revealed that bile duct thrombus was extended from anterior branch to common bile duct. After ERBD and PVE, extended right lobectomy with bile duct resection and reconstruction was performed. 2year and 6month after operation, she was alive without recurrence.

Bile duct resection for HCC is not conducted because ablation therapy and/or TACE are known to result in serious complications after bile duct resection and reconstruction. But bile duct resection should be considered in order to achieve R0 resection.

P-7-7 A Case Of Biliary Cystadenocarcinoma Diagnosed Six Years

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We report a case of biliary cystadenocarcinoma diagnosed over a period of 6 years. A 64-year-old man underwent follow-up evaluations for an abdominal aortic aneurysm at our hospital. In 2009, a computed tomography (CT) scan revealed a simple hepatic cyst in segment 3 of the liver. Annual CT scans showed almost no changes in the size or form of the cyst. The cystic lesion, which measured 5 cm in 2014, had increased to 11 cm in 2015. A solid component was detected within the cyst via ultrasonography and magnetic resonance imaging. A biliary cystic tumor was suspected; therefore, we performed a left lateral hepatectomy. Pathological examination showed that the papillary lesion in the cyst consisted of adenocarcinoma and adenoma, without ovarian–like stroma. Identification of the solid component of the cyst in the image analyses was critical for diagnosis of the biliary cystadenocarcinoma. Other studies have also reported an increase in cyst diameter and intrahepatic biliary dilatation as an important finding for diagnosis.

P-7-6 Hepatocellular carcinoma (HCC) recurrence within 1 year after liver resection in solitary HCC

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Backgrounds : Early recurrence after liver resection for HCC is most important factor for overall survival. Aims of this study are to compare the early and late recurrence group in hepatectomy patients with preoperative solitary HCC and identify the risk factors for early recurrence.

Methods : A total of 1010 patients were identified to HCC recurrence after hepatic resection between 2009 and 2014 in Samsung Medical Center and Seoul National University Hospital. Inclusion criteria were preoperative solitary tumor Child–Pugh class A, and curative hepatectomy. Early recurrence group was defined as HCC recurrence <1 year after surgery.

Results : The overall survival curve of early recurrence group was lower than that in late recurrence group (P<0.001). Early recurrence group showed higher proportion of preoperative Milan criteria, microvascular invasion, and HCC grade 3 and 4 compared with late recurrence group. In addition, Early recurrence group was higher AFP, tumor size. Multivariate analysis showed that HCC grade 3 or 4, tumor size >3cm, microvascular invasion were closely associated early recurrence.

Conclusions : Early and late recurrences have different risk factors and prognosis. Early detection of recurrence is necessary through active postoperative surveillance in hepatectomy patients with poor prognostic factors.

P-8-1 A case of cystic duct papillary adenocarcinoma with early gallbladder carcinoma

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A 79-year-old woman had pointed out liver dysfunction in blood examination at another hospital. The patient was thus referred to our hospital for exploration and treatment. Abdominal CT showed a 40 mm diameter tumor in the cystic duct. ERC and MRC showed a filling defect at the cystic duct. Peroral cholangioscopy showed a papillary protrusion in the cystic duct. Endoscopic transpapillary biopsy was performed, and histopathological examination of the specimen suspected papillary adenocarcinoma component at the cystic duct and common bile duct. Based on these findings, Malignant disease of the cystic duct and the common bile duct could not be denied. We performed pancreatoduodenectomy. Histological examination of the resected specimens revealed the diagnosis of intraductal papillary neoplasm of the cystic duct and the gallbladder carcinoma and suggested the possibility that non–continuous tumors could occur as a type of multicentric growth.
P-8-2 A case report of recurrent gallbladder carcinoma with obstructive jaundice treated successfully with biliary drainage and chemotherapy

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Michiki Narushima

A 60-year-old man who had previously undergone surgical therapy for gallbladder carcinoma was admitted for obstructive jaundice caused by hilar recurrence. He was treated with percutaneous transhepatic biliary drainage. After his general condition was improved, the drainage catheter was changed with an internal drainage catheter. Then, he was treated with chemotherapy using S-1. Sixteen months later CA19-9 level increased to 326 U/mL, and then the chemotherapeutic regimen was changed to gemcitabine. After gemcitabine therapy for 9 months, the hilar recurrence was long stable in size on CT images and CA19-9 level. He remains well and able to proceed with daily activity.

P-8-3 Treatment Strategy for Incidental Gallbladder Cancer after Laparoscopic Cholecystectomy

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Laparoscopic cholecystectomy (LC) has been the gold standard treatment for benign diseases of gallbladder (GB). Although benign GB diseases can be preoperatively diagnosed, incidental gallbladder cancer (IGBC) has been rarely diagnosed following LC. The frequency of IGBC diagnosis during or after LC is 0.2%—2.85%. With increasing number of LCs being performed worldwide, IGBC is also becoming more frequent. We retrospectively reviewed our cases and the relevant literature to confirm the intrinsic risks of LC performed for IGBC. Of the 1341 patients who underwent LC from January, 20007 to June, 2016 at a single institution, 23 (1.72%) with IGBC were reviewed in preoperative diagnosis, additional surgery, pathological diagnosis, prognosis, bile spillage during LC.

The mean age of the patients was 72 years. The preoperative diagnosis of these 23 patients was gallbladder polyp in 4 cases, cholelithiasis in 14 cases, and chronic cholecystitis in 5 cases. The depth of cancer invasion was Tis in two patients, T1a in seven patients, T1b in one patient, T2 in 10 patients, and T3 in three patients. Of these, seven underwent additional surgery. The 5-year survival rate of patients with Tis and T1 was 86%, and for T2 and T3, it was 73%. There was no significant difference between within T1 and over T2. The 5-year survival rate of patients with Tis and T1a was 100% each. Tumors of Tis and T1 are less than mucosal cancer, so-called m cancer. LC may be an appropriate treatment modality in cases of Tis and T1a (m cancer). Surgeons should always prevent bile spillage during LC.

P-8-4 What are preoperative predictors for incidental gallbladder cancer after routine cholecystectomy?

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Introduction: Clinical trials and meta-analyses show that incidental gallbladder cancer (iGBC) occurs in 0.19%—2.8% of patients after routine cholecystectomy. The aim of this retrospective study was to analyze the incidence and preoperative risk factors of iGBC in cholecystectomy at our department. Patients and Methods: In the years Jan. 2006—Oct. 2016, a total of 485 cholecystectomies were performed. Five cases were excluded from this study because of preoperative diagnosed as gallbladder tumor or cancer. Finally we evaluated 480 cases, and we divided the cohort into two groups; iGBC Group (iGBC G) and non—cancer group (nGBC G). Univariate and multivariate analyses using preoperative clinico-laboratory characteristics were performed to investigate the most significant risk factors for patients with iGB C. Results: iGBC G had five patients and nGBC G had 475 patients that were confirmed by histopathology. iGBC G represented 1.0% of all cases, and there were 3 females and 2 males, with median age of 62.7 years. Of this group, one patient underwent an open cholecystectomy, while 4 underwent laparoscopic procedures. Preoperative diagnoses were diverse: 2 patients GB stone, 2 cholecystitis with GB stone, and 1 GB polyp. Adverse preoperative prognostic factors were lymphocyte ratio (odd ratio 0.88; 95%CI; 0.79—0.96, p=0.006) and neutrophil ratio (odd ratio 1.09; 95%CI; 1.02—1.17, p=0.016) in univariate analysis, and lymphocyte ratio (odd ratio 0.76; 95%CI; 0.59—0.96, p=0.023) was significant adverse prognostic factor in multivariate analysis. Conclusion: Preoperative lymphocyte ratio is the most important risk factor for iGBC.

P-8-5 Clinicopathological study for duodenal GIST

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【Aims, patients】Duodenal GIST is rare disease. We report 8 cases of duodenal GIST.【Results】One case accompanied von Recklinghausen disease. Mean age was 54.2 years old. According to the surgical procedure, pancreaticoduodenectomy was performed for two cases, which GIST invaded into the papilla of Vater or pancreatic parenchyma. Wedge resection followed by primary suture was done for other 6 cases. Papilloplasty was done for one wedge resection case because GIST located near the papilla of Vater. Mean length of duodenal GIST was 39.4 mm in resected specimens. Immunohistochemical study revealed positive for c-kit and CD34 in all cases. Mitotic index was under 5 / 50 High Power Field.【Conclusion】1. Local resection of the duodenum is possible for duodenal GIST located at opposite site of the pancreas. 2. Local resection is also available for duodenal GIST located near the papilla after partial duodenal detachment from the pancreas. 3. Papilloplasty is safe for wedge resection of the duodenal GIST located near the papilla of Vater in the point of securement of bile and pancreatic juice flow. 4. Pancreaticoduodenectomy is scheduled for duodenal GIST which the papilla of Vater or pancreatic parenchyma is invaded.
P-8-6  A case of neuroendocrine tumor (NET G1) of the gallbladder
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The frequency of neuroendocrine tumor (NET) of the gallbladder (GB) is extremely rare. We experienced a rare case of primary NET G1 of the GB. A 42−year−old female visited a local clinic for gastroenteritis and was admitted to our hospital with a gallbladder tumor detected incidentally by ultrasonography. Ultrasonography showed an 10 mm diameter polyloid tumor in the GB neck. In abdominal enhanced CT scan, the tumor was strongly enhanced in the arterial phase, and a pale contrast effect was observed up to the equilibrium phase. No invasion was found in the subserosal layer in GB wall. MRI showed a low signal in T1 weighted image and iso signal in T2 weighted image, and enhanced MRI showed strong dense staining of the tumors similar to the CT findings. The endoscopic ultrasonography (EUS) revealed a 10 mm tumor in the neck of the GB. The tumor showed irregular surface and heterogeneous with high echo spots. Based on the above, we suspected inflammatory polyps, gallbladder adenoma and early gallbladder carcinoma and so on. Laparoscopic cholecystectomy was performed. In the macroscopic findings of the resected specimen, a 9 mm papillary neoplasm was found in the GB neck. Histopathologically, homogeneous cells with poor heterozygous tumor proliferate solidly. The tumor was localized within the interstitium of the mucosal epithelium. Immunostaining showed tumor proliferate solidly. The tumor was localized within the interstitium of the mucosal epithelium. Immunostaining showed positive findings for chromogranin A, synaptophysin, and NSE. The tumor did not show any mitotic figures and Ki 67 index was 2% or less, and it was diagnosed as NET G1. The postoperative course was good and she left the hospital on the 4th operative day.

P-9-2  Evaluation of recurrence following curative resection in patients with non−pancreatic periampullary carcinoma
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Aim: The aim of this study was to evaluate pattern of recurrence following curative resection in patients with non−pancreatic periampullary carcinoma.
Patients: Between November 2009 and November 2016, 48 patients with extra−hepatic bile duct cancer or cancer of the ampulla of Vater who underwent curative resection were evaluated. Pattern of recurrence and clinicopathological features associated with recurrence were evaluated.
Results: Of 48 patients, 32 patients had extra−hepatic bile duct cancer. Thirty patients (62.5%) had jaundice at the time of diagnosis. Microscopically, pancreatic, lymphatic, vascular, and peri−neural invasion was seen in 27 patients, 11, 28, 25, respectively. Eight patients (16.7%) had R1 resection (hepatic bile duct, n=4; posterior pancreatic head margin, n=4). Nodal involvement was evident in 26 patients (54.2%). Among them, 11 patients were treated with adjuvant chemotherapy. Eighteen patients had recurrence with median duration until recurrence of 8.3 months (range: 2.9−69.2 months). The most common recurrence site was liver (n=10), followed by intra−abdominal lymphnodes (n=5), lung (n=2) and peritoneum (n=1). On univariate analysis, there was a trend toward disease recurrence in patients with microscopic pancreatic, lymphatic, vascular, and perineural invasion, and positive posterior pancreatic head margin. On multivariate analysis, positive posterior pancreatic head margin was only an independent factor associated with poor disease−free survival. Nodal involvement was not related to disease recurrence.
Conclusions: Adjuvant chemotherapy may be helpful to prevent disease recurrence in patients with positive posterior pancreatic head margin.

P-9-3  Prognostic Factors for Resected Adenocarcinomas of the Ampulla of Vater
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Background: The adenocarcinoma of the ampulla of Vater is a type of periampullary tumor with a better prognosis than pancreatic cancer and bile duct cancer. Patients present with obstructive jaundice, therefore earlier detection can be done. Moreover, high resectability rates and less aggressive tumor characteristics have been the main factors related to longer survival. However, clinicopathological factors to predict tumor recurrence and survival after surgical resection are still controversial.
The aim of this study was to evaluate the prognostic significance of clinicopathological factors in patients with resected adenocarcinoma of the ampulla of Vater, using multivariate analysis.
Materials and methods: We reviewed the medical records of 38 patients with surgically treated adenocarcinoma of the ampulla of Vater between 1998 and 2016. Age, gender, tumor location, tumor type, diameter, depth of invasion, panic, du, n, histological differentiation, INF, ly, v, pn, R, CEA, and CA19−9 were investigated.
Results: The 38 patients (25 males, 13 females) reviewed had a mean age of 68.9 years old (51−81). The total 50% mean survival time was 77.9 months, and the five−year survival rate was 57.3%. Five factors, including histological differentiation, n, tumor type, CA19−9, and R were analyzed as being significant by univariate analysis. Those five factors were reanalyzed by multivariate analysis. The remnant tumor (R) was found to be the significant prognostic factor.
Conclusions: Our results showed the remnant tumor to be the most significant prognostic factor for resected adenocarcinoma of the ampulla of Vater.
P-9-4 Gastric tube–preserving pancreatoduodenectomy after esophagectomy for ampullary carcinoma

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Pancreatoduodenectomy (PD) is a radical treatment for ampullary carcinoma. However, it is sometimes difficult to perform PD, particularly in patients who have previously undergone esophagectomy with gastric tube reconstruction. A 91-year-old woman developed obstructive jaundice, and we diagnosed ampullary cancer. She had undergone esophagectomy for esophageal cancer at the age of 75 by right thoracotomy and laparotomy, with reconstruction using gastric tube through retrosternal route. The alignment of the major related vessels was confirmed by angiography preoperatively. Angiography revealed that the blood flow for the gastric tube was supplied by gastroduodenal artery via right gastroepiploic artery (RGEA) without any collateral flow. Gastric tube–preserving PD was planned for the patient. PD was performed with preservation of RGEA, right gastroepiploic vein (RGEV). The post–operative course was good. A gastric tube for reconstruction after esophagectomy may require blood supply mainly by RGEA. Sacrifice of this vessels might lead to ischemia of the gastric tube. There are 20 case reports, including the present case, of PD after esophagectomy. RGEA was preserved in all cases except for one, and RGEV was preserved in 14 cases. The need for a secondary surgery to treat metachronous primary cancer is expected to increase in the future. The indications for this procedure are extremely limited, therefore the surgeons should consider the curability, safety and invasiveness of the surgical procedures for each individual.

We report a rare case of gastric tube–preserving PD after esophagectomy for ampullary carcinoma.

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P-9-5 Trans–T–tube Biliary Drainage for the Treatment of Postoperative Intractable Biliary Fistula Caused by Friable Common Bile Duct

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Chol Kyoon Cho, Hee Joon Kim, Eun Kyu Park

Background/Purpose: Persistent biliary fistula after biliary operation is not common, but sometimes it is very difficult problem, especially in case of friable common bile duct (CBD). Herein, we report a case of postoperative intractable biliary leakage treated with trans–T–tube biliary drainage (TTBD).

Methods: A 65–years–old man visited because of CBD stone and multiple left intrahepatic bile duct (IHBD) stones. After the left hemihepatectomy and choledocholithotomy, primary closure of CBD was performed because there was endoscopic retrograde biliary drainage (ERBD) catheter inserted already. On postoperative day 7, covered stent insertion in right hepatic artery was performed due to bleeding from hepatic artery branch. On the 5th day after the intervention, bile leakage was observed from drain and re–operation was performed. There was necrosis of CBD wall around choledochotomy site and debridement and T–tube insertion was performed. Persistent bile leakage was observed with average amount of 500ml/day even though well–functioning T–tube until 30 days after re–operation. And two times of ERBD tries were failed. T–tube cholangiography revealed bile leakage from CBD more proximal portion to T–tube insertion site. A drainage catheter through T–tube was inserted with positioning the catheter tip in right IHBD.

Results: Two days after the procedure of TTBD, the amount of bile from drain was dramatically decreased and the drain was removed after 6 days after TTBD. Four weeks after the TTBD, T–tube and TTBD catheter were removed without any problem.

Conclusion: For intractable persistent biliary fistula after choledochotomy, TTBD could be useful option for the treatment.

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P-9-6 Postcholecystectomy syndrome: Symptom clusters after laparoscopic cholecystectomy

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Background: Postcholecystectomy syndrome (PCS) is characterized by abdominal symptoms following gallbladder removal. However, there is no consensus for the definition or treatment for PCS. The purpose of this study was to define PCS among various symptoms after laparoscopic cholecystectomy, and to identify risk factors affecting PCS.

Methods: This prospective study was conducted at Dongguk University Ilsan Hospital, and Chung–Ang University Hospital (2012–2013). Outcomes were assessed using European Organization for Research and Treatment of Cancer QLQ–C30 questionnaire. Symptom cluster for determining PCS was made by Factor analysis. Cluster analysis evaluating risk factors of PCS was made by Ward methods and Dentogram.

Results: Factor analysis revealed three distinct symptom clusters, those are 'insomnia and financial difficulties (eigenvalue 1.707, Cronbach's alpha 0.190)', 'appetite loss and constipation (eigenvalue 1. 413, Cronbach's alpha 0.480)', and 'right upper quadrant (RUQ) pain and diarrhea (eigenvalue 1.245, Cronbach's alpha 0.315)' . Among these symptom clusters, the cluster of 'RUQ pain and diarrhea' was determined as PCS. However, we could not find any risk factors between the patients with PCS and those without PCS.

Conclusion: PCS could consist of RUQ pain and diarrhea. Well–designed prospective trials are needed to determine risk factors of PCS.

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P-10-1

Withdrawn
P-10-2 Clinical outcomes of radical cholecystectomy for gallbladder carcinoma: 15 years experience in a tertiary referral center in Hong Kong

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Background
To evaluate the clinical outcomes of radical cholecystectomy for gallbladder carcinoma from 2001 to 2015. Surgical and clinical outcomes were reviewed.

Results
35 patients (11 male), median age 67, underwent radical cholecystectomy for gallbladder carcinoma. 11 cases were incidentally found in cholecystectomy. Segment 4b5 hepatectomy, hilar dissection and excision of port sites were subsequently performed. Additional procedures were performed for advanced disease (right hepatectomy, n=2; right hemihepatectomy, n=2; Whipple’s operation, n=1, bile duct excision, n=12). Mortality (n=2) and major complications (n=9) were recorded. Pathological result showed T1b (n=2), T2 (n=18), T3 (n=12), T4 (n=2), N+ve (n=9).

Conclusion
Long term survival could be achieved in patients with gallbladder carcinoma. Patients with incidental found gallbladder carcinoma in cholecystectomy specimen have similar survival after radical surgery.

P-10-3 Surgical Outcome of T2 Gallbladder Cancer Based on Location of Tumor and Surgical Treatments

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Background: This study aimed to determine the prognostic impact of tumor location and suggest the optimal surgical strategy in T2 gallbladder cancer (GBCA). Methods: 131 patients with T2 GBCA underwent resection from 1994 to 2014. The location was categorized as “hepatic side” versus “peritoneal side” and “fundus” versus “body” versus “neck” through preoperative image. Results: Among the 131 patients with T2 GBCA, the most significant predicting factor for the survival and recurrence is the nodal status. The 5-year survival rate (5-YSR) was 96.8% for the N0 patients and 79.4% for the N1 patients. Survival was not statistical difference according to location. With respect to surgical procedure, 5-YSR for patients with peritoneal–side cancer was no significant difference according to hepatic resection (HR). However, the 5-YSR was 96.2% for hepatic-side patient with HR, and 60% for those without HR. HR was an important factor associated with survival in patients with hepatic–side cancer (p=0.021). 5-YSR was no statistical difference according to bile duct resection (BDR) in the patients with fundus and body–located tumor. Although the difference was not statistically significant, survival of neck–located patients with BDR was better than that of patients without BDR. 5-YSR was 100% for patient with neck–located cancer with BDR, and 79.5% for those without BDR. Conclusion: Considering the location of tumor, the optimal procedure for each patient should be considered. In patients with hepatic–side cancer, HR is an effective procedure for improving survival. BDR is considered to be additional procedure for improving survival in selected patient with neck–located cancer.

P-10-4 Prognostic factors of Patients with pT2 Gallbladder Carcinoma

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Patients and Methods: Medical records of 23 patients with UICC pT2 gallbladder carcinoma underwent surgical resection in our institution between January 2006 and November 2016 were retrospectively reviewed. We analyzed the effect of surgical procedure and clinicopathological factors on long–term survival. Results: The 23 patients included 10 men and 13 women (median age, 76 years old; range, 52–93 years old), and 17 patients (73%) were more than 70 years old. Gallbladder bed resection and S4a+S5 hepatectomy with lymph node dissection were performed for 10 (43%) and 4 (17%) patients, respectively. Three patients each underwent cholecystectomy with lymph node dissection and cholecystectomy without lymph node dissection for their general status. Pancreato-duodenectomy and right hepatectomy with bile duct resection were performed for 2 and 1 patients, respectively. Six of 23 patients underwent bile duct resection for lymph node dissection. There were 9 tumors (39%) with lymph node metastasis. Twenty patients (87%) had negative surgical margins. Overall survival rates for the 23 patients were 54.9% at 5 years. Site of recurrence were lymph node (3 patients), lung (2 patients), peritoneum (1 patient) and liver (1 patient). Extent of liver resection or bile duct resection did not influence sites of recurrence. Univariate analysis revealed that adjuvant chemotherapy (p=0.05) and surgical margin status (R0, p=0.03) were significant prognostic factors. Conclusions: Adjuvant chemotherapy and R0 resection are important to improve the survival for patients with pT2 gallbladder carcinoma.

P-10-5 Analysis of long–term outcome and optimal surgical strategy for T2 gallbladder carcinoma

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Background: The overall outcome of T2 gallbladder carcinoma has not been favorable, and preoperative diagnosis and surgical strategy are also difficult to establish. The aim of this study was to examine the long–term outcome and unfavorable indicators to clarify optimal surgical strategy.

Methods: Of 135 patients with gallbladder carcinoma who had undergone surgical resection from 1985 to 2016, 69 cases that had proved histology and prognosis were enrolled in this study.

Results: There were 15 patients with T1 carcinoma, 45 patients with T2 carcinoma, 7 patients with T3 carcinoma and 2 patients with T4 carcinoma. In the T2 carcinoma group, there were 28 males and 17 females with an average age of 72 years. Lymph node metastasis was present in 8 patients (17%), and 5–year disease free survival rate was 65%. On the other hand, 5–year disease free survival rate of T1 carcinoma was 100%. Univariate and multivariate analyses showed vessel or perineural invasion were unfavorable indicators. Lymph node metastasis, tumor size, tumor histology and tumor marker were not significant indicators. The presence of vessel or perineural invasion were significant indicators related to unfavorable postoperative disease free survival (5–year disease free survival rate, 50% vs. 82% in the absence of vessel and perineural invasion). Vessel or perineural invasion were seen in 26 cases (56%) for the T2 gallbladder carcinoma group.

Conclusion: In this study, vessel or perineural invasion were recognized as independent predictive factor for the T2 gallbladder carcinoma. Therefore, precise diagnosis of vessel invasion is important to decide optimal surgical strategy.
P-10-6  Clinicopathological Study of Depth of Subserosal Invasion in Patients With Gallbladder Carcinoma

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Purpose: We examined whether depth of subserosal cancer invasion predicts lymph node involvement and survival in gallbladder cancer (GBC) patients with pathological subserosal invasion (pT2).

Methods: Subjects comprised 42 patients with pT2 GBC including 11 incidental carcinoma. Thickness of the subserosal layer and vertical length of cancer invasion into the subserosa were measured under microscopy. Depth of subserosal invasion was divided subjectively into two categories: ss1 and ss2 (invasion of shallower and deeper subserosal layer, respectively). Relationships between subserosal subclassification, histopathological factors, and prognosis were examined.

Results: Depth of cancer invasion into subserosa was 4.20 ± 0.65 mm (range, 0.25 ~ 12.5 mm). Rate of lymphatic permeation, venous permeation, and lymph node involvement significantly increased with deeper subserosal invasion (P=0.014, P=0.027, P=0.018, respectively). Among histopathological factors examined, only subserosal subclassification had a significant correlation with presence or absence of lymph node metastasis. Further, there was a significant correlation (P=0.043) between the degree of subserosal invasion and involved nodal disease (pN0, pN1, and pM1[lymph]). In 5-year survival rates, ss1 group was better prognosis than ss2 group. (ss1, 79%; ss2, 31%), p=0.027

Conclusions: Pathological characteristics tend to become more aggressive with increasing depth of serosal cancer invasion in pT2 GBC. Depth of subserosal invasion is a predictor of presence and degree of lymph node metastasis in pT2 GBC.

P-11-1  Elective cholecystectomy after percutaneous transhepatic gallbladder drainage for acute cholecystitis in over 75-year-old patients: Experiences from a single center

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<Background> Although emergent cholecystectomy is becoming the standard treatment for acute cholecystitis, the mortality rate still remains high (19%) in elderly or critically ill patients. Percutaneous transhepatic gallbladder drainage (PTGDB) is a low–mortality procedure with a high success rate and is recommended to be an alternative choice for treating acute cholecystitis. Herein, we report our experiences of elective cholecystectomy after PTGDB for acute cholecystitis in elderly patients with some literatures.

<Methods > A totally of 32 patients who underwent an elective cholecystectomy after PTGDB between 2010 and 2015 was included in this study. Overall morbidity, mortality and duration between PTGDB and operation were evaluated.

<Result > The average age of the patients was 84 (76–95). Fifty–three percent (n=17) of the patients were females. Ten (31%) patients had a ASA score of 3 or 4 and eight (25%) patients received an antithrombotic treatment preoperatively. Eight (25%) patients were diagnosed as severe when referred to the hospital. The average duration time between PTGDB insertion and operation was 30 days. Five cases were performed by open approach while the rest (84%, n=27) were performed as laparoscopic cholecystectomy. The total morbidity rate was 6% without any perioperative death.

<Conclusion > PTGDB might be a treatment option for elderly patients with acute cholecystitis before elective cholecystectomy.

P-11-2  A case of laparoscopic cholecystectomy (TANKO) for gall bladder torsion with gall bladder cancer

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Fumiki Ochi, Yusuke Takashima, Jun Shibamoto, Mika Kanayama, Kento Kurashima, Mie Ohnishi, Daisuke Itaka, Susumu Nakashima, Junshin Fujiyama, Mamoru Masuyama

Introduction; Gall bladder torsion (GBT) is comparatively rare. They say that GBT develops from several factors such as migratory gall bladder, hunchback, and abdominal pressure. We report a case of laparoscopic cholecystectomy (TANKO) for GBT with gall bladder cancer.

Case; The patient was a 54–year–old woman. She complained about epigastric pain and was estimated by Enhanced CT. GBT and tumor at gall bladder neck were suspected, and ascites was pointed out. We performed the operation. Intraoperative findings; Gall bladder was migrating and almost didn’t attach to liver bed. It was also rotatable 360° around cystic duct and cystic artery, appeared necrosis. The rotation was repaired and gall bladder was removed. Process; Postoperative course had gone well, and she went home 5 days after operation. Pathological diagnosis revealed gall bladder cancer was combined. Discussion; According to Japan Medical Abstracts Society, GBT with gall bladder cancer was reported 14 cases except ours in Japan from 1983 to 2015. No case were performed in laparoscopic cholecystectomy (TANKO). GBT develops frequently from migratory gall bladder. Thus cholecystectomy is often easy. In our case, cancer was suspicious but we didn’t reach to the diagnosis. Thus we chose laparoscopic method. In the operation we perforated gall bladder and bile leaked out. 2 months after first operation we performed live bed resection, but found no disseminated disease. No recurrence is pointed out now. We think laparoscopic cholecystectomy can be acceptable for these case, but it is important to choose the method carefully in consideration of the risk of perforating gall bladder and patient’s condition.

P-11-3  Effect of antiplatelet therapy on excessive blood loss in patients receiving emergency cholecystectomy for acute cholecystitis

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Takahisa Fujikawa, Akira Tanaka, Hiroshi Kawamoto, Tsunenori Yamamoto, Norio Emoto, Yusuke Sakamoto

Background: The effect of antiplatelet therapy (APT) on excessive intraoperative blood loss has not been investigated and the management of surgical patients receiving APT is still controversial.

Methods: We reviewed patients who underwent open or laparoscopic emergency cholecystectomy for acute cholecystitis from 2005 to 2015. Perioperative factors of patients with APT (APT group), such as age, gender, surgical approach, surgical time, and excessive blood loss (>500mL), were compared to those without APT (non–APT group).

Results: The current cohort included 243 patients (median age 72 years, range 30–92) of whom 160 were males. The APT group included 89 patients (37%), among which 24 (10%) received multiple antiplatelet drugs. Patients with APT showed significantly higher frequency of history of cerebral infarction and cardiac failure, and they had higher grade of acute cholecystitis (Grade 3; 46% vs 28%, p=0.005) and less frequently received laparoscopic surgery (34% vs 49%, p=0.022) compared to those in the non–APT group. Although univariate analysis suggested significant differences in the occurrence of excessive blood loss between the groups (12% vs 4.5%, p=0.039), multivariate analysis showed male gender (hazard ratio(HR)=12.99, p=0.017) and severity of acute cholecystitis (HR=2.76, p=0.046), but not APT or laparoscopic surgery, were the independent risk factors.

Conclusions: APT does not pose a risk for excessive blood loss following emergency cholecystectomy for acute cholecystitis, which performed either laparoscopically or via open surgery.
P-11-4 Laparoscopic whole layer cholecystectomy for early gallbladder cancer or lesions suspicious for malignancy: Analysis of 20 cases

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Shutaro Hori, Osamu Itano, Masahiro Shinoda, Minoru Kitago, Yuta Abe, Taizo Hibi, Hiroshi Yagi, Yoko Kitagawa

Background: In ordinary laparoscopic cholecystectomy (LC), the gallbladder (GB) is detached at the inner subserosal layer (SS-1), thereby risking exposure of the proper muscle layer (MP), or GB wall perforation. Thus, LC is not recommended for early gallbladder cancer (GBC) or GB suspicious lesions due to the risk of cancer exposure at the resected margin. In laparoscopic whole layer cholecystectomy (LWLC), the GB is detached at the outer subserosal layer (SS-0) and is performed for early GBC suspicious lesions; however, the clinicopathological aspects of LWLC have not been reported. Methods: We compared the clinicopathological parameters of 20 patients who underwent LWLC for early GBC suspicious lesions (preoperatively diagnosed GB polyp) with those in 274 patients who underwent LC between January 2013 and March 2016. We also evaluated exposure of the MP at the resected margin in specimens removed by LWLC to determine if whole layer cholecystectomy was correctly performed. Results: Clinical background, operative time, blood loss, operative complications, and duration of postoperative hospital stay in the LWLC group were not different from those in the LC group. There were no instances of intraoperative GB wall perforation in the LWLC group, while 49 patients (18%) had GB wall perforation in the LC group. Pathological evaluation found 3 patients (15%) with early GBC. Maximal invasion depth was mucosal layer in 2 patients, and MP in 1 patient. Exposure of MP was observed in 2 patients. One of these had carcinoma in situ. Tumor exposure at the resected margin was not observed. Conclusions: LWLC is not recommended for early GBC suspicious lesions with possible MP invasion.

P-11-5 Current status of training system for laparoscopic cholecystectomy

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Introduction: Laparoscopic cholecystectomy (LC) is considered standard operation for cholecystolithiasis. In recent years endoscopic surgical skill qualification system of the Japanese society of endoscopic surgery (JSES) in LC has changed. Assessment of LC cases is more difficult such as cholecystectomy with adhesion to other organs or acute inflammation. Therefore trainee needs more advanced technique than before.

Aim: To clarify the current status of training system for laparoscopic cholecystectomy in our hospital

Patients and Method: Patients who underwent LC from 2015 to 2016 were included. We analyzed the ratio of operators and short-term outcomes after LC.

Result: Four hundred–twenty–three patients underwent LC; 359 underwent conventional LC, 8 underwent reduce port surgery (RPS), 56 underwent TANKO plus one puncture (POP1). Three–hundred–fifty–nine patients underwent elective, 104 were emergent. Two hundred–thirty–nine patients (56.3%) underwent LC by Q&S; 184 (77.3%) were elective and 54 (22.7%) were emergent. 103 (24.3%) underwent by surgeon applying for QS (AQ5S); 55 (53.4%) were elective and 48 (46.6%) were emergent, and 82 (19.4%) underwent by resident or intern; 80 (97.6%) were elective and 2 (2.4%) were elective. Emergent operation ratio of AQ5S was significantly high (p<0.01), on the other hand, RPS and TANKO POP1 ratio of QS was significantly high (p<0.01). There were no significant different conversion rate (p=0.07) and Clavien–Dindo classification rate (p=0.80) compared QS with AQ5S, resident and intern.

Conclusion: It is available that current status of training system for LC is few complications and increasing difficulty and step–by–step is good for trainee.

P-11-6 Laparoscopic whole layer cholecystectomy for suspected malignant lesion of gallbladder in our hospital

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Kenichi Saga, Yusuke Ome, Yusuke Kawamoto, Kazuki Hashida, Kazuyuki Kawamoto

Introduction: Laparoscopic cholecystectomy (LC) can be justified as a standard treatment for benign diseases. However, most guidelines on gallbladder cancer (GBC) regard laparoscopic surgery as a contraindication. It is sometimes difficult to make a correct diagnosis of GBC and its stage preoperatively. So we undergo laparoscopic whole layer cholecystectomy (LWLC) for suspected malignant lesion (such as polyp, and wall thickening adenomyomatosis) of gallbladder as therapy covered by health insurance, because of less intraoperative bile leakage rate in LWLC than LC, and complete R0 resection of gallbladder wall including outer subserosal layer. When intraoperative or postoperative pathological examination revealed that the depth of tumor invasion was over T1b GBC, regional lymph node dissection (LD) with or without common bile resection (CBB) was considered.

Short–term and long–term results of our laparoscopic approach were analyzed.

Materials and Methods: From April 2014 through November 2016, we performed 24 patients who underwent elective LWLC for suspected malignant lesion of gallbladder.

Results: The mean operative time was 104.5 min (62–221), there was no case of conversion to open surgery. The mean postoperative hospital stay was 3 days (2–8). All patients can start oral intake at POD1 and postoperative complications rate was 0% (6 cases (25%)) were pathologically diagnosed with GBC(T1a; 2, T1b; 0, T2a; 4), all of the surgical margins were negative. In pT2 GBC, 1 case had radical re–surgery.

The mean follow–up period was 10 months (4–31), and there was no case of recurrence.

Conclusion: LWLC is feasible for patients suspected gallbladder cancer.

P-12-1 Surgically resected tract seeding of pancreatic body cancer after EUS–guided FNA

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Yoshio Deguchi1), Nobuyuki Okie 2), Haruhito Inoue 3)

Endoscopic ultrasound–guided fine–needle aspiration (EUS–FNA) has been rapidly expanding as a useful examination technique which enables highly accurate histological diagnosis. Reports of tumor dissemination induced by EUS–FNA are rare. We recently encountered a case in which tumor cells were observed in the puncture line in a surgically resected specimen after EUS–FNA, and in which dissemination in the posterior wall of the upper gastric body was later observed. The patient was a 68–year–old woman. A computed tomography (CT) scan revealed a 2–cm mass in the pancreatic body, which was suspected to be pancreatic cancer. We scheduled distal pancreatectomy, and to obtain a definitive diagnosis the patient underwent preoperative EUS–FNA with a 22–gauge needle (Olympus Medical Systems, Tokyo, Japan) inserted four times, which yielded a diagnosis of adenocarcinoma. No clinical complications developed after EUS–FNA. Distal pancreatectomy was performed 18 days after the EUS–FNA and, intraoperatively, blood clotting and adhesion were observed at the puncture sites. Histopathology of the surgically resected specimen confirmed adenocarcinoma. A small number of tumor cells were found within the resected specimen, similar to the areas of bleeding and adhesion. This case demonstrates EUS–FNA might induced peritoneal dissemination of an intraductal carcinoma. But this method is important to determine the indication of surgical operation. During operation, especially distal pancreatectomy, we have to observe the gastric posterior wall carefully so that we can find a small change and completely resect including the needle tract.
P-12-2 A case of pancreatic schwannoma showing high uptake on FDG–PET

The Department of Surgery, Chugoku Rosai Hospital, Hiroshima, Japan

Sotaro Fukushima, Saburo Fukuda, Koki Imaoka

A 59-year-old woman was referred to our hospital with complaint of lower abdominal fullness. Abdominal CT revealed a large cystic ovarian tumor. Simultaneously, a solid mass in the pancreas head was detected. FDG–PET/CT did not show a significant increased uptake in the cystic ovarian tumor, while an increased uptake was seen in the mass of the pancreas head. After resection of the cystic ovarian tumor, further examination for pancreatic mass was done. Laboratory data including CEA and CA19–9 were unremarkable. Dynamic CT showed a well-circumscribed solid mass with slight, gradual, heterogeneous enhancement. MRCP did not show stenosis or obstruction of the main pancreatic duct. Solid pseudopapillary neoplasm, neuroendocrine tumor or solid type of serous cystadenocarcinoma was suspected and subtotal stomach-preserving pancreatectoduodenectomy was performed. The resected specimen showed a well-encapsulated circumscribed mass, measuring 20 mm, in the pancreas head. Histopathologically, the tumor consists of the spindle cell bundles with palisade arrangement. The spindle cells showed minimal pleomorphic nuclei, but few mitoses were found. Immunohistochemically, the spindle cells were positive for S–100 protein and a diagnosis of schwannoma of the pancreas was made. Although pancreatic schwannoma is a rare neoplasm, this tumor happens to detect at routine physical examination. This rare entity should be considered in one of the differential diagnosis of pancreatic solid tumors.

P-12-3 Impact of normalized CA19–9 levels after curative resections for pancreatic ductal adenocarcinomas

Department of Surgery, Surgical Oncology and Science, Sapporo Medical University, Sapporo, Japan

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Background and Purpose: Surgical resection is an only chance to cure pancreatic ductal adenocarcinoma (PDACs). However, prognosis of PDACs still remains poor even after curative resections with a microscopically negative margins (R0). Several reports revealed that sustained elevations of tumor markers (TMs) after surgeries were related to poor prognosis. The aim of this study is to identify prognostic factors for PDACs among tumor markers and clinicopathological factors, which indicate high–risk patients after curative R0 resections.

Method: We retrospectively analyzed 171 consecutive patients with PDACs. 164 of the 171 cases, TMs were measured in the both pre– and post–operative settings and categorized for three groups depending on changes between pre– and post–operative TM values, Group A: without increase, Group B: with normalizations after operations, Group C: with sustained elevations. Clinicopathological factors, TMs including CEA, CA19–9 and DUPAN–2, and adjuvant therapies were analyzed in the 164 cases.

Results: The Group A, B and C consisted of 46%, 29% and 25% of the 164 cases, respectively. Median survival times (MSTs) of the Group A, B and C were 48.4 months, 38.5 months, and 21.4 months, respectively (P<0.01). The Group C, histological differentiations and residual tumors were significantly independent prognostic factors for overall survivals. The Group C and para–aortic lymph node metastases were independent predictors for early recurrences which were detected within 12 months after operations.

Conclusion: These data showed that sustained elevation of CA19–9 level after resection is an important prognostic factor for pancreatic cancer.

P-12-4 Investigation into pancreatic cancers that were recognized blood flow signals in the lesion with ultrasound examination

First Department of Surgery, Faculty of Medicine, University of Yamanashi

Naohiro Hosomura, Mitsuaki Watanabe, Hidetake Amemiya, Hiromichi Kawaida, Hiroshi Kono, Masanori Matsuda, Hideki Fuji

AIM: Pancreatic cancer is usually explained as a hypovascular tumor. Ultrasound has become a method for assessment of vascularity. We experienced a pancreatic cancer that was recognized blood flow signals in the lesion with ultrasound examination recently. The purpose of this study is to investigate the frequency of pancreas carcinomas that were recognized blood flow with ultrasound examination.

Methods: Between July 2013 and July 2016, we underwent pancreatectomy for 46 patients of pancreatic cancer. 44 patients of them were underwent preoperatively ultrasound examination followed by Advanced Dynamic Flow (Toshiba Co., Ltd., Tochigi, Japan) mode. Advanced Dynamic Flow offers higher resolution in comparison with conventional power Doppler and color Doppler. We evaluated how blood flow signals in the lesion of pancreatic cancer were related with quantity of interstitium or histologic type of excised specimens retrospectively.

Results: We recognized blood flow signals in three cases (6.8%). Quantity of interstitium: < blood flow signals(+)>med 1case(2%) int 2cases(5%) sci 0case(0%), < blood flow signals(-)>med 0case(0%) int 27cases(61%) sci 6cases(14%) unclear 6cases(18%). Histologic type: < blood flow signals(+)>well 0case(0%) mod 1case(2%) por 0case(0%) asc 0case(0%) muc 2cases(5%),< blood flow signals(-)>wel 16cases (36%) mod 21cases(48%) por 2cases(5%) asc 1case(2%) muc 1case (2%)<

Conclusion: Some of pancreatic cancers are recognized blood flow signals in the lesion with ultrasound examination followed by Advanced Dynamic Flow mode. Pancreatic cancers that are recognized blood flow signals are tend to have little interstitium and to be mucinous carcinomas.

P-12-5 A case of suspected needle tract seeding after EUS–guided FNA in pancreatic adenocarcinoma

Division of Digestive Surgery, Department of Surgery, Kyoto Prefectural University of Medicine

Tomohiko Fukunaga, Hisashi Ikoma, Katsutoshi Shoda, Tomohiro Arita, Toshiyuki Kosuga, Ryo Morimura, Yasutoshi Murayama, Atsushi Shiozaki, Yoshiaki Kuriu, Daisuke Ichikawa, Eigo Otsuji

Endoscopic ultrasound–guided fine–needle aspiration (EUS–guided FNA) has become the first–line procedure for tissue diagnosis of suspected pancreatic lesions. The diagnostic accuracy of EUS–guided FNA in differentiating benign and malignant pancreatic lesions is very high with sensitivity and specificity. Gastric wall implantation and needle tract seeding, although exceedingly rare, have been reported as serious consequence of EUS–guided FNA of pancreatic cancer. Here we report a case of suspected needle tract seeding after EUS–guided FNA in pancreatic cancer with some literature review.

The patient was a 82–year–old woman suspected of having pancreatic body cancer underwent EUS–guided FNA for pathologic confirmation. EUS–guided FNA with 5 passing using a 25G needle was conducted through the body of stomach, and the diagnosis of pancreatic adenocarcinoma was confirmed. The patient was performed distal pancreatectomy and remained stable for 7 months with no recurrence. At the time, the patient visited with chief complaint of hematemesis. Esophagogastroduodenoscopy was performed and ulcerative lesions was detected at the posterior wall of the body of stomach. The biopsy specimen was diagnosed as adenocarcinoma and was a histological type similar to the primary lesion. Finally, needle tract seeding was suspected.

Thus, the use of EUS–guided FNA for body/tail pancreatic cancer may be associated with needle tract seeding, and an indication of EUS–guided FNA should be carefully considered, particularly in the case of a surgical candidate.
P-12-6 Evaluation of pancreatic cancer with PALN(UICC 7th)

The First Department of Surgery, Yamanashi University
Mitsuaki Watanabe, Naohiro Hosomura, Hitdeaka Ameimiya, Hiromichi Kawaida, Hiroshi kono, Masanori Matsuda, Hideki Fujii

Background/Aims: The significance of positive para-aortic lymph node (PALN) with resectable pancreatic cancer is unclear. This study sought to evaluate the relationship between prognosis of pancreatic cancer and status of PALN (Stage IV) in comparison with Stage IIA and IIB (UICC 7th).

Methods: A total of 127 patients with pancreatic cancer who underwent surgical resection and had adjuvant chemotherapy between June 2004 to December 2015 were enrolled in this study. These were divided into three groups (Stage IIA : 48 patients, Stage IIB : 68 patients, Stage IV : 11 patients) and these were analyzed.

Results: In patient's characteristics, there was not significant difference in the three groups. In clinical findings, S, RP, PL TS were not significant difference (p=0.8540, 0.9864, 0.8285, 0.0568). In pathological findings, v was not significant difference but ly and ne were significant difference in the three groups (p=0.0001, 0.0129). Furthermore, ly showed a significant difference between IIA and IIB, and between IIA and IIB (p=0.0001, 0.0350). The 1–2–3–years survival rate of Stage IIA were 89.2, 63.1, 45.6% and Stage IIB were 79.1, 44.9, 34.3%, whereas Stage IV were 60.0, 36.0, 36.0%. There was a significant difference between the three groups (p=0.0312). The survival curve of Stage IV was similar to that of Stage IIB and there was not significant difference between the two groups (p=0.626).

Conclusion: Surgical treatment of the patients with PALN may be performed if curative resection is possible.

P-13-2 Long term survivor with metachronous lung metastases from pStage IA pancreatic adenocarcinoma

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2) Department of Surgery, Steel Memorial Muroran Hospital
Mamoru Miyasaka1,2), Takehiro Noji 1), Ryohei Chiba 2), Shoki Sato2), Kazuto Ohtaka 2), Yasuhiro Shoji2), Ryunosuke Hase 2), Tatsunosuke Ichimura2), Naoto Senmaru 2), Satoshi Hirano1)

Case: A 70-years-old woman received distal pancreatectomy for pancreatic ductal adenocarcinoma (PDAC). Thirty–five months after distal pancreatectomy, she was pointed out the other tumor in the pancreatic head. She underwent pancreatecoduodenectomy. Histopathological examination revealed both of them were pStage I PDAC. Sixteen months after the second pancreatectomy, chest CT revealed a 7mm ground–glass opacity in section 3 of the right lung. After five months observation, video assisted thoracoscopic VATS partial lung resection was performed. Because histopathological features were similar to 2nd PDAC, the lesion was diagnosed lung metastasis from 2nd PDAC. Twenty–three months after the second pancreatectomy, chest CT revealed a 12mm nodular shadow in segment 1a of the right lung. The lesion was also diagnosed as lung metastasis from PDAC, VATS partial lung resection for the lesion was performed. Histopathological examination revealed similar feature to previous lung metastatic lesion. Thirty–nine months after the second pancreatectomy, chest CT revealed a 12mm nodular shadow in segment 5 of the left lung. After six months observation, VATS partial lung resection was performed. This lesion was also diagnosed as lung metastasis from 2nd PDAC. The patient is alive without encountering new metastatic lesion for 8 years following the initial pancreatectomy and 3 years following the last lung resection.

Conclusion: We reported a rare case of long term survivor with lung metastases from resected PDAC. This case suggested that repeated surgical intervention for the metastatic lesion from PDAC might be feasible for selected patients.

P-13-3 Prognostic significance of metastasis and micrometastasis in lymph nodes along the superior mesenteric artery in pancreatic head cancer

Department of Surgery, Institute of Biomedical and Health Sciences, Hiroshima University, Hiroshima, Japan
Kenjiro Okada, Yoshiaki Murakami, Kenichiro Uemura, Naru Kondo, Nanya Nakagawa

Purpose: The purpose of this study is to evaluate the prognostic significance of SMA–LN metastasis and micrometastasis in patients with pancreatic head cancer.

Methods: A total of 133 patients with pancreatic cancer who underwent pancreateocoduodenectomy (PD) were eligible. Patient characteristics and clinicopathological factors were compared among the SMA–LN status groups, and the relationship between SMA–LN status and overall survival (OS) was analyzed. Micrometastasis in SMA–LNs was evaluated by immunohistochemical staining of CAM 5.2.

Results: Of the enrolled 133 patients, 18 patients had SMA–LN metastasis detected by HE staining (SMA–LN HE–positive). Of the other 115 patients with SMA–LN HE–negative, 8 patients had SMA–LN micrometastasis identified by CAM 5.2 immunohistochemistry. When SMA–LN HE positive and SMA–LN micrometastasis groups were united (SMA–LN metastasis groups), SMA–LN metastasis groups experienced significantly shorter OS than SMA–LN no metastasis groups (p=0.031). In multivariate analysis, SMA–LN metastasis (p=0.039), surgical procedure (p=0.043), portal vein resection (p=0.001), and lack of adjuvant chemotherapy (p=0.001) were identified as independent risk factors for poor OS. Within a subset of 26 patients with SMA–LN metastasis, histological grade (p=0.013) and lack of adjuvant chemotherapy (p=0.001) were independent prognostic factors for poor OS.

Conclusions: In patients with pancreatic cancer, SMA–LN metastasis was one of the independent poor prognostic factors. However, PD with SMA–LN dissection and postoperative adjuvant chemotherapy may contribute to improvement of prognosis of patients with SMA–LN metastasis.
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<th>P-13-4</th>
<th>The study of early recurrence risk factor for pancreas cancer</th>
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<tr>
<td>Department of Gastroenterological Surgery, Tokai University Hachioji Hospital, Tokyo, Japan</td>
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<td>Hideki Izumi, Kosuke Tobita</td>
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**Introduction** Pancreatic cancer is an extremely poor prognostic disorder. Even it is a resectable pancreatic cancer, postexcisional recurrence could occur in many cases. Early recurrence would often occur within 6 months and it is necessary to comprehend early recurrence risk factors for improvement of treatment outcome and also effective chemotherapy for recurrence prevention. **Purpose** The study aims to clarify early recurrence risk factors by comparing histopathological factors between the early recurrence group and the non–early recurrence group in the resected cases of pancreas cancer. **Subject and method** The study has retrospectively examined 75 resected cases of pancreas cancer in our hospital. The study divided the subjects into 2 groups as the early recurrence group (ER group, n=18) and the non–early recurrence group (NR group, n=57), then compared the histopathological factors. Early recurrence was defined as recurrence within 180 days after surgery. **Result** Total recurrence rate for pancreatic cancer was 69.3%. However, the early recurrence rate within 6 months was 24%. Hepatic metastasis was the largest initial recurrence region in ER group (44.4%) and significantly than NR group (14.0%). When examining the histopathological factors, multiple organ infiltration (OO) and residual tumor (R) were significantly higher in ER group. In multivariate analysis, the study found early recurrence risk factors with an independence of multiple organ infiltration (OO) (p=0.027, odds ratio 19.009, 95%CI:1.39–258.2174). **Conclusion** The early recurrence risk factor for pancreas cancer was multiple organ infiltration (OO). Hepatic metastasis actually occurred most commonly in ER group.

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<th>P-13-5</th>
<th>Pancreatic Cancer in Malaysia: Epidemiology and Outcome of Pancreatic Cancers in a Multiracial Asian Population</th>
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<td>Department of Surgery, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia</td>
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<td>Peng Soon Koh, See Teng Tan, Jun Kit Koong, Kamarajan Ramayah, Boon Koon Yoong</td>
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**Background** Pancreatic cancer is associated with high mortality and poor survival outcomes. Most available data on pancreatic cancer are from Western countries and Asian data remained scarce. The aim of this study is to determine the epidemiology, demographics and outcomes of patients with pancreatic cancer in Malaysia, a multiracial population country comprising of three major ethnic groups. **Methods** All pancreatic cancers from January 2011 to December 2014 in a single tertiary institution were reviewed. Patient’s demographics, tumor status and outcomes were evaluated. Kaplan–Meier method was performed for survival analysis. **Results** 123 patients (male, n=61 and female n=62) were accounted for. Median age was 65 years old. Chinese (60.1%) were the commonest ethnic group, followed by Malays (35.5%) and Indians (6.8%). 43.9% of our patients had stage 4 pancreatic cancer at presentation with the commonest site reported at the head and uncinate (50.7%). Only 19.6% of patients were resectable at presentation where 24 patients had pancreatoduodenectomy and 4 patients had distal pancreatectomy. Median survival was 8.9 months for the resectable group and 3.7 months for the unresectable group (p=0.13). Overall survival at 1-, 3- and 5-years were 40.8%, 8.2%, 8.2% and 24.7%, 6.9%, 4.1% for the resectable and unresectable group respectively (p=0.15). **Conclusion** The incidence of pancreatic cancer in Malaysia is not high compared to other cancers. Its prognosis remained poor despite good perioperative care. In a highly specialized tertiary care center, our findings also concurred and comparable to studies found in literature despite the low incidence of pancreatic cancer in this region.

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<th>P-13-6</th>
<th>Gastroduodenal artery preserving pancreato-duodenectomy post resection of splenic artery aneurysm</th>
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<tr>
<td>Department of Hepato–Pancreas Surgery, Japanese Redcross Kyoto Daiichi Hospital</td>
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<td>KATSUMI SHIMOMURA, Fumihiro Taniguchi</td>
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**Purpose** A patient who underwent splenic artery aneurysm resection developed pancreatic head cancer. We reported a case of Subtotal Stomach–Preserving pancreatico–duodenectomy (SSPPD) preserving gastroduodenal artery(GDA). **Case** A 69 year old male had aneurysm resection for a true aneurysm of the splenic artery 7 years ago. The complaint is jaundice. Pancreatic cancer of 27mm was in the uncus of pancreas, and it was found with dynamic enhanced CT and portal vein CT. Although operative findings showed portal vain invasion, there was no invasion to GDA and TPA. So, it could be confirmed over the term prognosis follow–up and accumulation of similar cases.

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<th>P-14-1</th>
<th>Internal hernia through a transverse mesocolon defect after laparoscopic distal pancreatectomy</th>
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<tr>
<td>Department of Surgery, Division of HBP Surgery, Kobe University, Kobe, Japan</td>
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<td>Yoshihide Nanno, Hirochika Toyama, Sadaki Asari, Tadahiro Goto, Sachio Terai, Motofumi Tanaka, Masahiro Kido, Tetsuo Ajiiki, Takumi Fukamoto, Yonson Ku</td>
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**Background:** Laparoscopic approach for distal pancreatectomy (DP) has gained a wide acceptance as a treatment option for benign or premalignant lesions of the pancreatic body and tail. The pancreatic body is adjacent to transverse mesocolon, which is occasionally dissected intentionally or unintentionally during DP. However, there is no consensus as to whether the mesenteric defect should be closed following laparoscopic DP, and little data exist regarding the complications after not doing so. **Case:** The patient was a 58-year–old man with an intraductal papillary mucinous neoplasm of the pancreatic body who underwent laparoscopic DP. During surgery, an approximately 5 cm defect in the transverse mesocolon was inadvertently made. The opening was not closed as it was thought to be large enough to preclude incarceration. The patient developed a bowel obstruction 2 months postoperatively. Laparotomy revealed that a loop of the proximal jejunum herniated through the defect and was adherent to the stapled pancreatic stump. An additional loop of the jejunum was herniated through the narrowed mesenteric defect. **Conclusion:** We herein present the first case of small bowel incarceration caused by an internal hernia through a mesenteric defect after laparoscopic DP. Laparoscopic DP requires a special consideration for the mesenteric defect because a staple line close to the mesenteric defect could cause adhesion to small intestine and incarceration. Our experience suggests that if a mesenteric defect is present, closure should be attempted.
P-14-2 LAPAROSCOPIC DISTAL PANCREATECTOMY USING PRE/INTRAOPERATIVE NAVIGATION SYSTEM
Department of Surgery, Kurume University School of Medicine
Masafumi Yamasu, Satoki Kojima, Youhei Nakama, Hisamune Sakai, Ryoichi Kawahara, Hiroto Ishikawa, Toru Hisaka, Yoshito Akagi, Koji Okuda

BACKGROUND AND AIM: Three dimensional (3D) visualization has a critical impact on surgical decision making and 3D digital models of patient physical phantom can be made commercially. However, we have experienced not a few cases to be difficult to understand and identify vascular anatomy by the lack of three dimensional perception in the 2D-image. Our institute introduced laparoscopic distal pancreatectomy (Lap DP) using 3D virtual reality(VR) image and 3D printer model for preoperative / intraoperative navigation system.

METHODS: From November 2008 to September 2016, a total of 16 patients underwent Lap DP for benign/low grade malignant pancreatic tumor. CT images containing pancreatic lesions were segmented into pancreas tissue, contrast–enhanced vessels, and pancreatic tumor using Synapse Vincent (Fuji Film, Japan). Stereolithography (STL) files of each segmented object were created and imported to a 3D printer (Qube 3, USA). After test scans, printing materials were assigned to each object and a physical pancreas phantom printed. RESULTS: In Lap DP using pre/intraoperative navigation system, the median blood loss, the median operating time and the postoperative hospital stay were 241ml, 367min and 15.6 days. As complication, pancreatic fistula (ISGPF grade B) occurred in one patient, which was managed conservatively with drains, and one postoperative bleeding requiring re-operation. CONCLUSION: The 3D visualization is useful for optimizing the operation scheme preoperatively and navigation surgery accurately intraoperatively in real time.

P-14-3 Initial experience of artery first approach in laparoscopic pancreateoduodenectomy
Department HPB GEM Hospital and Research Center Coimbatore
Senthilnathan P, VIVEK KAJE, Sandeep C Sabnis, Senthil Anand E, SRIVATSAN GURUMURTHI S, NALANKILLI VP, ANAND VIJAI N, PALANIVELU C

Abstract Minimally invasive laparoscopic pancreateoduodenectomy is technically feasible and safe. An artery first approach to pancreateoduodenectomy is a critical technique to assess the complete oncological resection. We share our experience of artery first approach in laparoscopic pancreateoduodenectomy. Methods Data of 15 patients undergoing elective laparoscopic pancreateoduodenectomy with artery first approach to SMA. Results Among the 15 patients analysed, 8 patients were males and 7 were females. Mean duration of the surgery was 341.33 (+/– 28.5) mins. Mean estimated blood loss during the surgery was 200.3 (+/– 68.12) ml. Mean diameter of main pancreatic duct was 3.8 (+/– 1.32) mm, mean diameter of CBD was 13.6 (+/– 3.62) mm. All the cases were successfully completed by laparoscopic technique. No intraoperative complications were seen. The mean postoperative hospital stay was 11.47 (+/– 1.73) days. There was no mortality, however 2 patients developed Grade A and 1 Grade B delayed gastric emptying, 4 patients had Grade A and 1 patient had Grade B pancreatic fistula, none of them developed Grade C pancreatic fistula and post pancreateoduodenectomy haemorrhage was seen in 1 patient. The carcinoma head of pancreas was seen in 6 cases, distal cholangiocarcinoma in 4 cases, duodenal adenocarcinoma in 2 cases, ampullary carcinoma in 2 cases and neuroendocrine tumor of head of pancreas in 1 patient. Average size of the tumor was 2.48 (+/– 0.809) cm, average number of lymph nodes harvested during the surgery 19.67 (+/– 4.29). R0 resection was achieved in 14 cases. Conclusion Artery first approach in laparoscopic pancreateoduodenectomy is safe and feasible.

P-14-4 Short term outcomes after laparoscopic distal pancreatectomy in patients with pancreatic neoplasms
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Hideaki Takeyama, Hiromitsu Hayashi, Toshihiko Yusa, Katsunori Ogawa, Hirohisa Okabe, Nobuyuki Ozaki, Shinichi Akahoshi, Yoshiaki Ikuta, Kenichi Ogata, Hiroshi Takamori

Background: Laparoscopic distal pancreatectomy (Lap DP) for benign or low grade malignant pancreatic tumor has been indicated from April 2012, and for malignant tumor from April 2016. We have introduced Lap DP for pancreatic tumor since 2013.

Patients and Methods: We performed Lap DP in 10 patients with pancreatic neoplasms between May 2013 and November 2016. We investigated perioperative outcomes. Additionally, we assessed incidence of postoperative pancreatic fistula (POPF) according to different methods of pancreatic closure.

Results: We had performed Hand–assist and hybrid surgery at the beginning of the introduction of Lap DP, since February 2016 we performed pure laparoscopic surgery. Three patients underwent spleen preserved surgery. The patients included 3 men and 7 women, with the median age of 55 years, ranging from 38 to 72 years. Indications for Lap DP were as follows: pancreatic cystic neoplasms (n=7), neuroendocrine neoplasms (n=2), and ductal carcinoma (n=1). Median operation time was 275 min, ranging from 238 to 497 min, and median blood loss was 165 g, ranging from 10 to 630 g. Three patients (30%) suffered from Grade B / C POPF. Average postoperative hospital stay was 19.6 days. Incidence of Grade B/C POPF, according to different methods of pancreatic closure of the pancreas remnant after DP were as follows: hand–sewn closure 67% (2/3), a stapler without absorbable polyglycolic acid (PGA) closure 50% (1/2), a stapler with absorbable PGA closure 0% (0/5).

Conclusion: Lap DP could be safely introduced by starting with hand assisted or hybrid surgery. Incidence of Grade B/C POPF might be diminished using a stapler with absorbable PGA.

P-14-5 Our approach of laparoscopic distal pancreatectomy for pancreatic cancers
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Hiroshi Tajima, Yusuke Kumamoto, Ryo Nishiyama, Hiroshi Kawamata, Takashi Kaizu, Masahiko Watanabe

Introduction: Recently, Laparoscopic distal pancreatectomy (LDP) has been recognized as a standard technique for low malignant potential tumors. LDP for pancreatic body and tail cancers has been categorized in health insurance treatment in 2016. The goals of pancreatic cancer surgery are to obtain tumor–free margins (R0) and to perform a sufficient regional lymphadenectomy. Aim: We underwent the LDP 68 patients. As the experience with LDP has grown, the indication have broadened to include pancreatic cancer in selected patients. We present our surgical technique of LDP for pancreatic cancers. Surgical technique: Our laparoscopic procedure was undertaken using five ports and one retractor for safety. For good on the dorsal side of the laparoscopic operative field, we have gone from the ligament of Treiz and entered the anterior space of the aorta and inferior vena cava. And the left renal vein was exposed. We removed regional nodes along the root of the supra–mesenteric artery. We were able to confirm the absence of retropancreatic invasion and thus easily avoided causing any damage to the retropancreatic organs, including the left renal vein in particular. Conclusion: Laparoscopy is useful in ensuring the retropancreatic margin. Increasing the number of cases, we would like to standardized to the LDP for pancreatic cancers.
**P-15-1** Surgical Outcome of Distal Pancreatectomy with Celiac Axis Resection according to Type of Gastrectomy

Department of Surgery, Ogaki Municipal Hospital
Yuji Kaneoka, Atsuyuki Maeda, Yuichi Takayama, Yasuyuki Fukami

**Purpose:** We investigated retrospectively how the type of gastrectomy could influence the surgical outcome of distal pancreatectomy with celiac axis resection (DP–CAR).**Methods:** Between 1999 and 2016, 29 patients who underwent DP–CAR with curative intent were divided to the type of gastrectomy. Type I indicates no gastrectomy (n=15), II indicates total gastrectomy (n=6), and III indicates proximal gastrectomy (n=8). **Results:** Mean age of the patients was 65.2 years (range 53 – 77), and the male/female ratio was 19/10. Mean operating time and blood loss were: type I, 220 min/632 ml; II, 241 min/810 ml; III, 278 min/537 ml. Morbidity (> Clavien–Dindo IIIa) was occurred in 4/15 (type I), 3/6 (II), and 2/8 (III). One patient of type I died postoperatively due to ischemic gastropathy. Median survival times were 487 (type I), 267 (II), and 266 days (III), and sole one patient of type I has survived over 5 years without recurrence. R0 resections were achieved 80% in type I, 33% in II, and 75% in III. Histologic lymph node metastases were 47% in type I, 83% in II, and 62% in III. Only the stage of tumor was statistically different among the type of gastrectomy, meaning type I showed more early staged disease. There were no differences between type II and III in surgical outcomes but type III revealed less postoperative complications. **Conclusion:** DP–CAR shows dismal survivals in spite of types of gastrectomy. When an apparent invasion to the lesser curvature is recognized, proximal gastrectomy could be an ideal procedure to reduce complications and achieve R0 resection.

**P-15-2** Potential benefit of using fluorescence vascular imaging system for safe preservation of spleen after Spleen preserving distal pancreatectomy with Warshaw technique

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**Background**
Splenic vessels sacrificing spleen preserving distal pancreatectomy, so called Warshaw technique, is reported as good alternative method to preserve spleen. Toug it is low incidence rate, there might be possibility to become insufficient splenic blood perfusion leading to secondary splenectomy after Warshaw technique. The aim of this study is to confirm if intraoperative fluorescence vascular imaging system using indocyanine green (FVI–ICG) is useful to evaluate splenic perfusion after spleen preserving distal pancreatectomy (SPDP) with Warshaw technique.

**Methods**
We evaluated the blood perfusion of spleen with intraoperative FVI–ICG system after SPDP with Warshaw technique. Every patients undertook enhanced computed tomography (CT) a week and a month after surgery to evaluate blood perfusion of spleen. Then, the intraoperative fluorescence status of spleen and the splenic perfusion level evaluated with CT were compared.

**Results**
Five patients including one control case were enrolled in this study. We could see tendency of close relationship between fluorescence level of spleen evaluated by FVI–ICG system after SPDP with Warshaw technique and postoperative splenic perfusion evaluated with CT.

**Conclusion**
This study is the first to report the experience and usefulness of FVI–ICG system to evaluate splenic perfusion after SPDP with Warshaw technique. Application of FVI–ICG system could offer surgeon potential benefit for safe preservation of spleen after SPDP with Warshaw technique.

**P-15-3** The optimization for trans–pancreatic sutures in pancreatojejunostomy as Kakita method

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[Back ground] In Kakita method we used in pancreatojejunostomy, the wrapping pancreatic stump with jejunum is important for the success of anastomosis. We introduced the standardization of trans–pancreatic sutures based on measurement for pancreas thickness and frontaly mattress suture to stabilize the pancreatojejunostomy. This modification enable us to keep appropriate pressure for pancreatic stump without damage to pancreas. However, the appropriate number of trans–pancreatic suture still has not been established. [Aim] we analyze the relationship between the number of trans–pancreatic sutures and post–operative pancreatic fistula(PF) retrospectively, and to clarify the ideal number of trans–pancreatic sutures. [Methods] Thirty–four consecutive pancreaticoduodenectomy were involved. The width of pancreas stump and the number of trans–pancreatic suture were collected from operative records. These patients were divided into two groups (PF(–); no fistula or grade A, PF(+); grade B or C) according to the grade of PF criteria. [results] the number of trans–pancreatic sutures is significantly greater in PF(+) group than PF(–) group. [Conclusions] In preliminary data, the less trans–pancreatic sutures might be beneficial for the prevention of PF under 35mm in width of pancreas stump.
P-15-4  Multimodal treatment including pancreatectomy for pancreatic ductal adenocarcinoma with para-aortic lymph node metastasis

Department of Surgery, Otsu Red Cross Hospital, Shiga, Japan

Yusuke Abe, Kazuhiko Kitaguchi, Katsuki Ura, Hideaki Oe, Eiji Toyoda, Tetsuro Hirose, Syunnichi Ishigami, Ryuichiro Doi

Background: Patients of pancreatic ductal adenocarcinoma (PDAC) with para-aortic lymph node metastasis have a poor prognosis. However, recent postoperative chemotherapy improves survival rate. Further, several reports have demonstrated that multimodal treatment including surgical resection achieved prolonged survival time. Recently, we have experienced several pancreatectomies for PDAC patients with para-aortic lymph node metastasis. We analyze and report the outcome of those patients. Methods: Between 2014 and 2016, seven patients were diagnosed as PDAC with para-aortic lymph node metastasis by histopathological examination. Five patients underwent pancreatectomy, and other 2 patients did not; one patient had positive washing cytology and the other had liver metastasis. Results: All patients received chemotherapy after surgery. In the pancreatectomy group, overall survival time of 3 patients was 16, 23 and 26 months, respectively, and 2 patients are alive with chemotherapy at 6 months after surgery. Overall survival time of 2 patients without resection were 7 and 9 months, respectively. Discussion: Previous studies have shown that the median survival time of unresectable PDAC was 7.9 months. Meanwhile, it has been reported that the median survival time of resected case with para-aortic lymph node metastasis in PDAC was 13 months. In addition to these reports, our experience suggests that multimodal treatment including surgical resection may improve survival time in PDAC patients with para-aortic lymph node metastasis. Further studies will be needed.

P-15-5  Preoperative IVR enable to perform pancreaticoduodenectomy with celiac axis resection (PD-CAR) for locally advanced pancreatic head-body cancer

Department of Surgery, Division of Hepato-Biliary-Pancreatic Surgery, Kobe University

Takuya Mizumoto, Hirochika Toyama, Sadaki Asari, Tadahiro Goto, Sachio Tera, Hideyo Mukubou, Sachiyu Shirakawa, Masahiro Kido, Tetsuo Ajiki, Takumi Fukumoto, Yonson Ku

Background: Pancreatic ductal adenocarcinoma (PDAC) often infiltrates to adjacent major vasculatures, however, direct invasion of PDAC to the inferior vena cava (IVC) is uncommon. Case presentation: We herein report our experience with 3 cases of PDAC directly invading the IVC wall. All 3 patients performed pancreaticoduodenectomy along with wedge resection of the IVC wall without severe postoperative complications. Histopathological studies revealed tumor infiltration to the adventitia of the IVC. All patients achieved negative surgical margin. One patient remains alive 26 months after surgery without tumor recurrence. Two patients experienced recurrence; one patient experienced liver metastasis, but he remains alive 12 months after surgery in a stable state without further tumor progression. Another patient experienced multiple liver metastasis 10 months after surgery, and died of tumor 26 months after surgery.

Conclusions: Pancreatoduodenectomy along with wedge resection of the IVC wall for patients with PDAC which directly invade adventitia of the IVC can be performed safely with acceptable oncological outcome.

P-15-6  Pancreatic ductal adenocarcinoma invading the IVC wall: a report of 3 cases

Department of Surgery, Division of Hepato-Biliary-Pancreatic Surgery, Kobe University

Takuya Mizumoto, Hirochika Toyama, Sadaki Asari, Tadahiro Goto, Sachio Tera, Hideyo Mukubou, Sachiyu Shirakawa, Masahiro Kido, Tetsuo Ajiki, Takumi Fukumoto, Yonson Ku

Background: Pancreatic ductal adenocarcinoma (PDAC) often infiltrates to adjacent major vasculatures, however, direct invasion of PDAC to the inferior vena cava (IVC) is uncommon. Case presentation: We herein report our experience with 3 cases of PDAC directly invading the IVC wall. All 3 patients performed pancreaticoduodenectomy along with wedge resection of the IVC wall without severe postoperative complications. Histopathological studies revealed tumor infiltration to the adventitia of the IVC. All patients achieved negative surgical margin. One patient remains alive 26 months after surgery without tumor recurrence. Two patients experienced recurrence; one patient experienced liver metastasis, but he remains alive 12 months after surgery in a stable state without further tumor progression. Another patient experienced multiple liver metastasis 10 months after surgery, and died of tumor 26 months after surgery.

Conclusions: Pancreatoduodenectomy along with wedge resection of the IVC wall for patients with PDAC which directly invade adventitia of the IVC can be performed safely with acceptable oncological outcome.

P-16-1  A Case Report of Acinar Cell Carcinoma of Pancreas that Proved Difficult to Diagnose

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Since acinar cell carcinoma (ACC) of pancreas is rare, we sometimes meet a case hard to make diagnosis before surgery. We here reported a case of ACC which showed typical findings of pancreatic ductal adenocarcinoma (PDAC). A 43-year old man visit a clinic with a concern of uncomfortable feeling on left side abdomen. CT/MRI examination showed an ischemic tumor, 38×25mm, in the body-tail of the pancreas, and the tumor infiltrated to left renal capsule. ERCP showed the interruption and stenosis of the pancreatic duct at the point adjacent to tumor. Cytological diagnosis of the pancreatic juice was performed twice, but malignant cells were not detected (Class II or III). EUS detected the tumor showing oval shape, but it was not able to perform fine needle biopsy. The tumor abnormally accumulated FDG in PET–CT examination (SUVmax 3.3). So far, we diagnosed the tumor PDAC with infiltrating to the left renal capsule, and the distal pancreatectomy with partial renal resection was performed. The resected specimen showed that the tumor progressed into branch-main pancreatic duct accompanying with fibrosis around pancreatic duct. The tumor was diagnosed ACC with immunohistochemistry; positive to ACC phenotype(α1-antitrypsin, α1-antichymotrypsin, Bcl-10) and negative to neuroendocrine tumor phenotype (synaptophysin chromogranin A). The patient is alive without any recurrence findings for three years after surgery. ACC is tendency to develop expansively and progress into major vessels, and therefore, tumor thrombus in portal vein has been reported several times. However, the case of ACC with progression into the main pancreatic duct is extremely rare, and we here report a case.
P-16-2  Solitary Fibrous Tumor of the Pancreas: A Case Report

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Jeong-Ik Park, Bo-Hyun Jung

Solitary Fibrous Tumor (SFT) is a rare mesenchymal neoplasm of fibroblastic origin, which is the most frequent primary localized spindle cell neoplasm of the pleura. It can also be found in other viscera, however, SFT of the pancreas is extremely rare, and only 16 cases have been reported to date. A 67-year-old woman transferred to our hospital for incidental pancreatic mass. Abdomen computed tomography scan demonstrated a 2.2 cm exophytic enhancing mass in the body of the pancreas, and neuroendocrine tumor was clinically suspected. The patient underwent a laparoscopic distal pancreatectomy. Immunohistochemically, the tumor cells were positive for CD34 and bcl-2 but negative for S100, and are confirmed as SFT of the pancreas. The diagnosis of SFT of the pancreas is difficult to distinguish radiologically from neuroendocrine tumor, is confirmed by immunohistochemical stain. Although the behavior of SFT is rather benign, complete surgical excision and close clinical follow-up are recommended due to a potentially malignant nature.

P-16-3  A case of surgical resection for solid serous adenoma of pancreas

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Pancreatic serous neoplasms are cystic epithelial tumors forming honeycomb-like appearance and are made up of numerous cysts filled with serous fluid. The sizes of cyst range from 0.01–0.5 cm, with a few larger cysts of up to 2 cm in diameter. SCNs have only a minimal risk of malignant transformation and conservative management is reasonable if diagnosed. A solid serous adenoma is a rare type of SCN and difficult to distinguish from other solid tumors because typical cystic structure cannot be found by radiological findings. A 50–year-old woman was referred to our hospital for the investigation of pancreatic body mass. The blood test showed that CEA and CA19–9 were within normal range, and the elevations of insulin and gastrin were not observed. A 19 mm tumor was strongly enhanced by abdominal contrast-enhanced computed tomography scan and magnetic resonance imaging showed low intensity in T1 weighted image and high intensity in T2 weighted image. From these findings, the tumor was suspected to be a nonfunctioning neuroendocrine tumor. Middle segment pancreatectomy was performed. The cut surface of the tumor showed solid and glossy appearance. The histopathological findings revealed multiple microcysts separated by hypocellular, dense collagen fibers. The epithelial cells of the tumor had cytoplasmic periodic acid–Schiff(PAS)–positive and PAS with diastase digestion(PAS)–negative granules, which were negative for chromogranin A and synaptophysin. We diagnosed as solid serous adenoma. Herein, we reported a case of solid serous adenoma of pancreas that was difficult to diagnose preoperatively.

P-16-4  Acinar cell carcinoma of the pancreas with liver involvement: a case of report

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Fuzhen Wan, Xue Zhang, Fubao Liu, Kun Xie, Xiaoping Geng

Acinar cell carcinoma (ACC) is a rare tumor with an estimated frequency of only 1% of pancreatic tumor. Symptoms such as weight loss, abdominal pain, nausea, and vomiting are nonspecific and are related mostly to either locally advanced tumors or metastasis. We report the case of a 58-year-old woman, diagnosed of a pancreatic tumor with liver and lymph nodus metastases that was difficult to distinguish from pancreatic neuroendocrine tumor and solid-false papillome. There are no clear treatment guideline for patients. The role of neoadjuvant or adjuvant chemoradiotherapy remains unproven. The aim of this article is to present current knowledge on acinar cell carcinoma and comprehensive review available literature. Surgical reaction was performed in March histopathology findings reveals PACC.

P-16-5  A male case of solid–pseudopapillary neoplasm of the pancreas preoperatively diagnosed by endoscopic ultrasound–guided fine needle aspiration

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Background: Solid–pseudopapillary neoplasm (SPN) is a rare pancreatic tumor with low malignant potential. SPN is most commonly found in young females, and is relatively rare in males.

Methods: We report an adult male case of SPN and review of the literature.

Results: A 44-year-old man was detected a low–echoic mass in the head of pancreas by the screening abdominal ultrasonography. Contrast enhanced CT and MRI revealed a 3-cm pancreatic head tumor with cystic components, which contained calcification and hemorrhagic change. Endoscopic ultrasound–guided fine needle aspiration (EUS–FNA) was conducted to differentiate SPN, neuroendocrine tumor and acinar cell carcinoma. Cytology and biopsy specimens revealed small tumor cells with round nuclei. Immunohistochemistry revealed positive expression of β-catenin and CD10 of tumor cells. The expression of chromogranin and p53 were negative. From these pathological findings, SPN was preoperatively diagnosed. The patient underwent pylorus–preserving pancreateoduodenectomy with regional lymph node sampling. Postoperative pathological examination revealed no lymph nodal metastasis and Ki–67 index was low. The patient developed postoperative pancreatic fistula and discharged 62–days after the surgery.

Conclusion: Male cases of SPN are rare, but to make collect preoperative diagnosis is necessary to consider proper surgical management. EUS–FNA was considered to be useful to increase the accuracy of the preoperative diagnosis. According to the literature, the low malignant biological behavior of SPN does not depend on the patient's gender. Routine aggressive surgery with complete lymphadenectomy is not recommended for the patients with SPN.
P–16–6 Decreasing size of a pancreatic cyst with mucinous cysto–adenocarcinoma: A case report
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Mitsuki Morimoto1), Katsumi Kurihara1), Mineyuki Tojo1), Kazuya Takahashi1), Rintaro Koike1), Alan T Lefor2)
A 61 year old woman underwent laparoscopic assisted resection of a sigmoid colon cancer (IStage IIa). A mucinous cyst neoplasm (39 x 32mm) in the pancreatic tail was found on preoperative computed tomography (CT) scan and planned for resection after adjuvant chemotherapy. Surveillance CT showed increasing size of the cyst to 48 x 33mm. Magnetic resonance imaging (MRI) showed that the cyst had decreased to 33x30mm with appearance of mural nodules. The distal pancreas and spleen were then resected. Intraoperative echo showed the wall thickness of the cystic lesion compatible with mural nodules. Postoperative course was uneventful. The resected specimen was diagnosed as a mucinous cystic tumor with focal noninvasive adenocarcinoma. This lesion was not involved with the pancreatic duct or gastrointestinal tract. This tumor demonstrates an interesting change in which the cyst size decreased with appearance of mural nodules over a six–month period. The cystic adenocarcinoma cells may have decreased their mucin production, leading to reduced size of the cyst.

P–17–1 Portal vein stenting is a significant risk factor for biliary stricture in adult living donor liver transplantation
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Background Although perioperative portal vein (PV) stenting has been successfully performed to treat steno–occlusive disease in adults living donor liver transplantation (LDLT), the incidence of biliary anastomotic stricture (BAS) after PV stenting was high. This study was designed to clarify the relation between BAS and PV stenting and to suggest the mechanism of BAS and the measures to reduce its incidence.

Methods Forty–four recipients who underwent stenting crossing the line of PV anastomosis regardless of its real location of steno–occlusion were classified as the Stent group and matched 1:3 with a Control, non–stented group (n = 131).

Results The incidence of BAS was higher in Stent than Control group (43.2% versus 17.6%, p = 0.001). Cumulative 6 month and 1, 2, and 5 year BAS rates were 31.8%, 34.1%, 41.4%, and 43.2%, respectively, in Stent group and 13.0%, 13.8%, 16.1%, and 17.8%, respectively, in Control group (p = 0.001). Multivariate analysis showed that PV stenting was an independent risk factor for BAS.

Conclusions In conclusion, intraoperatively innovative methods avoiding PV stenting the line of PV anastomosis might be necessary to reduce BAS postoperatively although PV stenting is a reliable and convenient modality in the treatment of steno–occlusive PV during adult LDLT.

P–17–2 Clinical Experience of Everolimus after Liver Transplantation
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This study was done to assess our experience with the use of everolimus (EVER)–based regimens after liver transplantation (LT) since National Health Insurance permitted EVER usage ofrLT on June 2015 in Korea.

[Patients and methods] Among 146 patients who underwent liver transplantation at UUH 16 patients received Everolimus in addition to Tacrolimus (Tac). The primary end point of this study was to see the reversal of the indication of EVER. The adverse effects and the reasons for discontinuation were investigated.

[Results] EVER was added to Tac 1 ~ 105 (mean, 36.1) months after LT in this study. Among 8 patients with potential renal dysfunction 2 patients discontinued EVER and 4 patients showed slight improvement in kidney function. 1 patient with steroid–resistant rejection wit deep jaundice responded gradually over 4 week–period. 1 patient with acute cellular rejection and interface hepatitis on biopsy showed marginal response. 1 patient with metastatic HCC and 1 with de novo testicular lymphoma were under remission for 20 months and 6 months after multimodality therapy including EVER addition respectively. 1 patient with metastatic HCC did not show any oncologic response. 1 patient with ataxia did not show any improvement and discontinued EVER 4 weeks later.

[Conclusion] EVER introduction even long after LT could improve renal function. Effect of EVER on steroid resistant rejection deserve additional attention. More experience and study on EVER usage are needed to establish its role in liver transplantation.

P–17–3 Long–term outcome of simplified unification patch venoplasty for anomalous portal vein branching in living donor liver transplantation with right lobe graft
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Joo Dong Kim, Dong Lak Choi, Tae Yoon Kim
Living donor liver transplantation (LDLT) using donors with anomalous portal vein branching (APVB) has been considered a challenging procedure in terms of the donor’s safety and the complexity of vascular reconstruction in the recipient. Herein, we describe our experience in 20 adult LDLTs using unification patch venoplasty for reconstruction in right lobe graft with double portal vein orifices.

We analyzed the outcomes via retrospective review of 144 adult LDLT with right lobe grafts including 20 cases of adult LDLT using unification patch venoplasty for APVB from January 2010 to December 2013. Moreover, we compared clinical outcomes with 59 recipients who underwent adult LDLT using right lobe graft with normal PV anatomy in the same period through propensity score matching analysis.

Intraoperative PV stenting was necessary in two patients (10%) among 20 cases with unification patch venoplasty. During a mean follow–up, all PVs remained patent until patient’s death or censoring. No significant difference to vascular complications was observed between two groups in postoperative period. Anomalous PV anatomy was associated with a high (50%) incidence of biliary variations: however, these variations did not result in increased biliary complication rate No major complications requiring reoperation or endoscopic/radiologic intervention occurred in any of the 20 living donors with APVB.

In conclusion, our simplified unification patch venoplasty has a favorable outcome without increasing technical difficulty and could be safe and feasible procedure for reconstruction of double PV orifices in right lobe LDLT with complex PV anomalies.
P-17-4 Portal vein reconstruction technique with portal vein thrombus for liver transplantation

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Background: Portal vein thrombus (PVT) was an absolute contraindication for liver transplantation (LT) because of technical difficulties and inability to gain an adequate portal supply. With recent surgical innovative approaches, PVT is no longer a contra-indication to LT. We focused on the PVT cases with modified portal vein (PV) anastomosis.

Methods: From 2000 to 2014, 72 living donor liver transplantation (LDLT) were performed at Kobe University. Results: Among 72 recipients, 4 (5.6%) had Grade 3 PVT, and 2 (2.8%) had Grade 4. For Grade 3 cases, PV anastomosis was performed using iliac vein as jumping graft. For Grade 4 cases, PV was anastomosed with recipient coronary vein. Among 6 recipients, 1 recipient with jumping graft died of HCC recurrence 1.5 years after liver transplantation. The remaining 5 recipients survived without anastomosis complications. Conclusions; For PVT Grade 3 and 4 recipients, direct anastomosis with recipient PV and graft PV is difficult. However these difficulties can be resolved by using jumping graft or anastomosis with coronary vein. However for LDLT, we cannot have enough vessel grafts. Detailed surgical procedures should be discussed before transplantation. Above all, there are few case reports for PVT cased graded more than 3. Future analysis is necessary for longer survival with these techniques.

P-17-5 Renoportal anastomosis in pediatric left lateral lobe living donor liver transplantation

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In adult liver transplantation, renoportal anastomosis has been introduced as a useful technique for patients with grade 4 portal vein thrombosis and a splenorenal shunt. Here, we report a pediatric case in which renoportal anastomosis allowed left lateral lobe living donor liver transplantation despite portal vein thrombosis and a large splenorenal shunt. At 36 days old, the patient underwent Kasai operation for biliary atresia. At 17 months old, she underwent living donor liver transplantation because of repetitive cholangitis. Pre-transplant examinations revealed a large splenorenal shunt and portal vein thrombosis. Simple end-to-end portal reconstruction and clamping of the collateral route after removing the thrombosis were unsuccessful. Thus, renoportal anastomosis was performed. Although she developed severe acute cellular rejection and chylous ascites, there were no signs of portal vein complications. The patient’s condition was good at her last follow-up, 18 months after transplantation. To our knowledge, there are few case reports of renoportal anastomosis in pediatric left lateral lobe living donor liver transplantation. Although long-term follow-up is necessary, renoportal anastomosis could be a salvage option in living donor liver transplantation in infants if other methods are unsuccessful.

P-17-6 Cell sourcing for recellularization of scaffold's parenchyma and vasculature in decellularized-organ based 3D liver assembly

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Background
Organ decellularization has been used to fabricate a functional liver graft ex vivo. Cell sourcing to reestablish scaffolds’ parenchyma and support components is a remaining major task. This study investigates the potential of liver progenitor cells and liver sinusoidal endothelial cell (LSEC) to give functions to an assembled liver graft.

Methods
Parenchyma and portal tree of the decellularized rat liver were recellularized via its bile duct and through its portal vein, respectively. The quality of recellularization was assessed by histologic evaluation of cell engraftment on liver sections at 2 d of perfusion culture in vitro. Liver grafts assembled with mice E14.5 fetal hepatocytes (LGFH) were compared to those with mice adult hepatocytes (LGAH) regarding metabolic functions at 7 d. Liver grafts co-seeded with rat adult hepatocytes and LSECs (LGAH–LSEC) were compared to those with rat adult hepatocytes but without LSECs (LGAH).

Results
Immunohistochemistry of LGFH revealed that fetal hepatocytes differentiated into hepatocytic and cholangiocyte lineages within the parenchyma. The cumulative albumin production of LGFH was higher than that of LGAH, whilst the amount of urea synthesis was similar. Histologic evaluation of LGAH–LSEC revealed that the portal tree was lined with LSECs (SE–1”). The cumulative production of albumin and urea were both higher in LGAH–LSEC compared to those in LGAH.

Conclusion
Liver progenitor cell provides non–inferior hepatic functions, through its maturation within the native–organ derived scaffold. In addition, LSEC is an essential support cell, not only providing anticoagulation effect but also enhancing hepatocyte functions.

P-18-1 Withdrawn
P-18-2 Hepatitis B Virus Immunoglobulin is Internalized in Hepatocytes via Endocytosis and Induce Auto-phagosome

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Background : HBIG is used long time for prevention of hepatitis B virus recurrence after liver transplantation. According to recent studies, investigated in vitro HBsAg specific IgG is internalized in hepatocytes. The aim of this study was to investigate further mechanism of intracellular action of I.V. HBIG and HBIG–gene in sense of more specific interaction with HBsAg.

Methods: A variety of hepatoma cell lines were exposed to I.V. HBIG, recombinant HBIG–gene and Fab portion of HBIG–gene for 1 hour. Confocal microscopy was used to localize HBsAg specific IgG. Western blot analysis for the level of endogenous LC3 and HBsAg proteins was performed to identify autophagy. ELISA was used for analyzing HBsAg in cell culture supernatant.

Results: HBsAg was colocalized with I.V. HBIG, HBIG–gene and Fab type in the cytoplasm as a punctate pattern of immunofluorescence in HBsAg expression cell lines. I.V. HBIG also localized in cytoplasm with HBsAg in isolated primary hepatocyte from HBsAg positive human liver tissue. Western blot analysis proved that I.V. HBIG and HBIG–gene treated hepatocytes accumulated more intracellular HBsAg than control, but not in Fab type of HBIG–gene treated hepatocytes. And it was also shown with ELISA analysis, I.V. HBIG and HBIG–gene inhibits scretion of HBsAg. Especially, LC3–II which is lipidation of LC3–I form was detected with just HBIG–gene treatment samples.

Conclusions: These results suggest that I.V. HBIG and HBIG–gene are present in FcRn expression hepatoma cell lines and primary hepatocytes by endocytosis and colocalized with HBsAg in the cytoplasm. Furthermore, the immunoglobulin–HBsAg complex induced autophagosome in the cytoplasm.

P-18-3 Assessment of changes in functional volume of the extended left lobe with caudate lobe liver graft in living donor liver transplantation

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Background: We have used S1–added extended left lobe graft without reconstruction of caudate veins in the living donor liver transplantation (LDLT). But we had not investigated the changes of the functional liver volume (FLV) of each segment of the transplanted liver after LDLT.

Methods: We analysed ten cases of LDLT using S1–added extended left lobe graft. In each case, before the surgery of the donor and on POD7 of the recipient, we measured the signal intensity of each segment of S1, S2, S3 and S4 in the EOB–MRI hepatocyte phase and standardized them with the erector spine muscle signal intensities (liver–to–muscle signal ratio: LMR). We measured the volume and FLV of each segment.

Results: The volumes of each segment (S1, S2, S3 and S4) of the preoperative donors were 22±6ml, 76±25ml, 108±23ml and 199±51ml respectively, and those of the postoperative recipients were 26±11ml, 149±38ml, 197±41 ml and 280±54ml respectively. There was no significant difference in the volumes before and after the surgery in S1, the volumes significantly increased in S2, S3 and S4. The LMR of each segment before and after the surgery was significantly reduced in all segments. FLV decreased in S1 before and after the surgery. It increased in S2 and S3. There was no significant difference in S4. S1 had the function of 4.0% of all FLV.

Conclusions: We observed liver regeneration in terms of volume and function in each segment, except S1, on POD7 after transplantation in the extended left lobe graft with caudate lobe. However, in S1, we did not observe liver regeneration in terms of volume and function. Moreover, we found that the caudate lobe had the function of 4.0% of the entire graft.

P-18-4 Experience of Living Donor Liver Transplantation for Polycystic Liver Disease—one case report

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(Introduction) Polycystic Liver Disease (PLD) is basically benign disease. But Patients sometimes suffered dyspea due to increasing size of cysts. Moreover, infection is occurred in the cyst made liver dysfunction. In these reasons, it is difficult to manage patients with PLD. Here we show the case underwent LDLT for the patient with PLD even patients suffered cyst infection repeatedly.

(Case) The patient is a 66–year–old man with PLD. He was given a diagnosis of PLD more than ten years ago. Recently, size of cysts were increased and infection to cysts occurred so he was referred to our hospital. He received percutaneous abscess drainage few times and medication of antibiotics frequently before he arrived at our hospital. So we decided to perform LDLT because of difficulty of control infection and symptoms. Before LDLT we make sure negative outcome of blood bacterial test. After LDLT we felt some difficulty to control infection, and some reoperation for peritonitis was needed. But his general course was good after that. (Discussion) Control infection and symptoms are difficult for the patients with PLD especially a patient with cyst infection. LDLT is a one of the option for a patient with PLD even with cyst infection.

P-18-5 Novel approach for management of liver transplant recipients by induction of artificial pancreas –recognition of serious insulin resistance –

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In liver transplant domain, surgeons should take care for not only surgical technique, but also perioperative management for better outcomes. We introduced some contrivances including artificial pancreas (STG–55, Nikkiso, Tokyo, Japan) for perioperative blood sugar management from 2014. (Patients and Methods) Seven liver transplant recipients were treated with new perioperative management including application of artificial pancreas. We retrospectively analyzed clinical course of these recipients. (Results) The donors were 2 cadaver and 5 living donors. We applied artificial pancreas 11 times, acute phase of perioperative period: 7 times, infectious episode: 2 times and induction of bolus steroid: 2 times. Total dose of insulin and ideal blood sugar (80–110 mg/dL) control rate during 24 hours after application of artificial pancreas were 130IU/16% in detail, acute phase of perioperative period, infectious episode and induction of bolus steroid, dose of insulin and control rate were 131IU/15%, 166IU/25% and 157IU/11%, respectively. From these results, poor glycemic control in perioperative period was pointed out, instead of high dose insulin administration. No adverse event was experienced by application of artificial pancreas. Morbidity of these recipients above Clavien Dindo classification 3a were after bleeding in 3 recipients. But no mortality and graft loss in this period. (Conclusion) In perioperative period of liver transplantation, severe impaired glucose tolerance of recipient was occurred due to various reasons. The results of this study suggest maintenance of therapeutic intervene for liver transplant recipients about severe insulin resistance.
P-18-6  Significance of gallbladder biliary amylase at living donor surgery
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Results: investigated suppressive property of LSECs for HCV portal vein, isolated LSECs by collagenase digestion and cytometric cell sorting

Background: We report a living donor diagnosed with pancreaticobiliary maljunction (PBM) without dilatation of the common bile duct (CBD) by a gallbladder biliary amylase examination at living donor surgery. Methods: The subjects were five living donors who underwent living donor liver transplantation at our institution between July and December 2016. The donor’s median age was 38 years old (range: 22–53 years). The gallbladder was resected early after laparotomy and bile from the resected gallbladder was gathered. The amylase of both the gallbladder bile and blood samples at laparotomy was examined. Results: In 1 donor, the gallbladder amylase was higher than the serum amylase (4472 vs 45 U/L), and the intrapancreatic junction of the pancreatic and biliary ducts was retrospectively confirmed by preoperative computed tomography. Therefore, this donor was diagnosed with PBM. The resected gallbladder showed cholesterolosis on a pathological examination. In the other 4 donors without PBM, the gallbladder and serum amylase were 10±7 U/L and 47±9 U/L, respectively. Conclusions: PBM without dilatation of CBD may be diagnosed by a gallbladder biliary amylase examination at living donor surgery. The long-term follow-up of this case is necessary to demonstrate the effectiveness and safety of living donors with PBM as marginal donors.

P-19-1  M-CSF expressed in non–cancer tissues provides predictive powers for recurrence in HCC
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AIM: This study was to investigate the role of macrophage colony–stimulating factor (M–CSF) in patients with hepatocellular carcinoma (HCC) after resection.
METHODS: Expression of M–CSF, distribution of macrophages (Mfs) and CD163–positive M2Ms, and angiogenesis were assessed in liver tissues containing paired tumors and peritumoral regions. Prognostic values of these and other clinicopathologic factors were evaluated. Hepatic Mfs or the monocytes were isolated from mice and cultured with media containing M–CSF. The concentration of vascular endothelial growth factor (VEGF) in media was assessed. Furthermore, the role of the M–CSF–induced hepatic Mfs on proliferation of the vascular endothelial cell (VEC) was investigated.
RESULTS: A strong correlation between the expressions of M–CSF and CD163 was observed in the peritumoral area. Also, groups with high density of M–CSF, CD163 or CD31 showed a significantly shorter time to recurrence (TTR) than low density groups. Multivariate analysis revealed the expression of M–CSF or hepatic M2Ms in the peritumoral area as the most crucial factor responsible for shorter TTR. Moreover, the expression of M–CSF and hepatic M2Ms in the peritumoral had better predictable power of the overall survival. Values of VEGF in culture media were significantly greater in the hepatic Mfs compared with the monocytes. Proliferation of the VEC was the greatest in the cells co-cultured with the hepatic Mfs when M–CSF was present in media.
CONCLUSIONS: M–CSF increases hepatocarcinogenesis, most likely by inducing an angiogenic factor derived from the hepatic Mf and could be a useful target for therapy against HCC.

P-19-2  Investigation of immunological role of liver sinusoidal endothelial cells in anti–HCV immune response using mouse model
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We have previously shown that liver sinusoidal endothelial cells (LSECs) suppress anti–donor response in liver transplantation and the immunosuppressive property of LSECs is impaired in portal hypertension, resulting in an accelerated anti–donor reaction. In this study, we investigated tolegeneicity of LSECs for anti–HCV immunological response using mouse model.
Method: In this study, we injected HCV–specific antigen (NS protein) to Balb/c mice via portal vein, isolated LSECs by collagenase digestion and cytometric cell sorting and evaluated phenotype of LSECs and endotoxins of NS protein. Further, we investigated suppressive property of LSECs for HCV–specific T cell response by suppression assay and cytotoxic assay in vitro.
Results: Phenotypic analysis revealed that LSECs express MHC class II and co–stimulation molecules along with PD–L1 and endocytosed injected NS protein. The suppression assay revealed LSECs significantly attenuated anti–HCV specific T cell proliferation and cytotoxicity and attenuated IFN–γ secretion by T cells. Tetramer assay showed suppression of specific T cell clone. Furthermore, suppression of HCV specific proliferation and cytotoxicity was abrogated by PD–L1 blockade.
Conclusion: The results suggest that LSECs suppress anti–HCV T cell response by antigen presentation and PD–L1/PD–1 axis in HCV infected livers and might contribute to immune evasion of HCV. However, it also implies that LSECs suppress excessive immune reaction and avoid liver damage. Therefore, together with previous results, collapse of LSECs suppressive function might be one of underlying mechanism of post–operative liver failure after major surgery of the HCV infected liver.

P-19-3  The carinoembryonic antigen change rate is a predictive factor of early recurrence after hepatectomy for colorectal liver metastases
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Background: A hepatectomy is a key treatment for resectable colorectal liver metastases. Several studies suggested that perioperative carinoembryonic antigen (CEA) could be a factor of prognosis and survival. However, reports of short–term recurrence after liver resections are limited. This study aimed to evaluate the impact of various CEA applications as a risk factor of early recurrence after hepatectomy.
Methods: A total of 31 consecutive patients who underwent a negative margin hepatectomy for colorectal liver metastases from January 2009 to December 2015 in our institution were enrolled. We evaluated preoperative CEA (pre–CEA), postoperative CEA (post–CEA), perioperative CEA change rate (%CEA), and 1–year recurrence of colorectal cancer after an R0 hepatectomy. In this study, we excluded patients with normal CEA levels during all perioperative periods.
Results: %CEA and post–CEA had higher areas under the curve for predicting liver recurrence 1 year after hepatectomy than pre–CEA. The optimal cut–off values of pre–CEA, post–CEA, and %CEA for a 1–year recurrence were 30.7, 5.5, and 26.7, respectively. Based on a multivariate analysis, %CEA ≤ 26.7% (HR = 11.6; 95% CI = 2.34–66.8; P = 0.004) was independent risk factors for liver recurrence within 1 year. Furthermore, %CEA was associated with 1–year hepatic and any recurrence–free–survival (log–rank P = < 0.001 for all parameters).
Conclusion: %CEA is a potential prognostic factor of early recurrence after hepatectomy for colorectal liver metastases.
P-19-4 Establishment of a Model of Hepatic Oligometastases of Colorectal Cancer

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Introduction: Oligometastasis is a clinically distinct subset of metastasis characterized by a limited numbers of metastases and low rates of progression potentially curable with localized therapies. Yet, little is known about molecular basis of oligometastatic disease. Animal models are critical to study pathophysiological mechanisms and new treatments for patients with metastatic diseases. We propose here (i) outcomes of patients with colorectal liver metastases who underwent resection and (ii) establishment of a xenogenic animal model of hepatic metastasis of colorectal cancer that simulate oligometastases.

Methods: (i) From 2007 to 2016, 26 patients with metachronous colorectal liver metastases who underwent metastatectomy in our institute were enrolled in this study. DFS and OS were evaluated in patients with oligo- and polymetastases. (ii) We generated a panel of monoclonal HCT116 cell lines double-labeled with luciferase and fluorescent protein. Hepatic tumors were generated by injecting cells into spleens in mice. Monoclones resulted as limited number of liver tumors and wide spread tumors were selected as oligo- and poly-clones. Gene expressions of these clones were analyzed.

Results: (i) 5 years DFS and OS in patients with oligo- (10 cases) / polymetastases (16 cases) were 70/20% (p=0.03) and 48/32% (p=0.58). (ii) We found 756 differentially expressed genes in poly-clones as compared to oligo-clones. Pathway analysis demonstrated poly-clone was enriched by constitutively expressed genes associated with inflammatory responses.

Conclusion: This animal model may facilitate evaluation of biological mechanisms discriminating oligo- and polymetastases in liver.

P-19-6 Significance of hepatic venous congestion at the future liver remnant after anatomically limited hepatectomy

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[Background]
Takuya Okamoto, Takehito Yamamoto, Masashi Horiguchi, Yoichiro Uchida, Toru Goto, Hiroaki Terajima, Akimori Miki, Ryo Ohno, Hiroyuki Matsubara, Akimori Miki, Ryo Ohno, Hiroyuki Matsubara

We reported the results of anatomically limited hepatectomy (ALH) based on detailed preoperative simulation, which was an ... resection was performed for a 50-year-old woman. [Conclusion] The negative impact of venous congestion of FLR on liver regeneration must be considered in planning ALH with concomitant resection of MHV.

P-19-5 Liver functional assessment of individual segments by indocyanine green–fluorescent technique

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Introduction: Indocyanine green (ICG) test is conventionally used to evaluate liver function. However, it cannot examine the segmental liver function separately. Herein, we present the usefulness of ICG-fluorescent technique (ICG-F test) to individually evaluate the hepatic lobule function in mouse model of portal vein ligation (PVL).

Methods: In anesthetized C57Bl/6J male mice, the left portal vein branch was microscopically ligated. As ICG-F test, the fluorescent intensity (FI) of the liver was measured until 15 minutes after ICG injection with the fluorescent imaging system before and 7 days after PVL. Average FI was calculated at 15 minutes after ICG injection.

Results: The weight of non-PVL liver lobe (nPVLL) significantly increased 7 days after PVL compared to PLV lobe (166.5 vs 120.2, P<0.001). When the value calculated by multiplying FI by liver weight reflected the functional liver volume, the functional liver volume of nPVLL significantly increased 7 days after PVL (40.6% to 75.3% of the whole liver, P<0.001).

Conclusion: ICG-F test would be useful to evaluate the hepatic lobule function after portal vein embolization.

P-20-1 A resected case of adenomyomatous hyperplasia of the papilla of Vater

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[Background] Adenomyomatous hyperplasia rarely occur in the papilla of Vater. As no characteristic diagnostic imaging findings have been suggested, accurate preoperative diagnosis is difficult. Here, we report a case of adenomyomatous hyperplasia that occurred in the papilla of Vater.

Case: A 71-year-old woman was referred to our hospital for detailed examination of elevation of hepatobiliary enzyme levels. Levels of tumor makers, CA19–9, CEA, and DUPAN–2, were not increased. Contrast-enhanced computed tomography revealed a 15 mm low density mass in the distal bile tract. Distal bile tract stenosis and common bile duct dilation were revealed by endoscopic retrograde contrast enhanced computed tomography revealed a 15 mm low density mass in the distal bile tract. Distal bile tract stenosis and common bile duct dilation were revealed by endoscopic retrograde cholangiography and bile cytology was positive for malignant cell. The patient was diagnosed with the distal bile tract cancer preoperatively and pylorus preserved pancreaticoduodenectomy was performed. Histopathological examination revealed that atypical gland and adenomyomatous hyperplasia of the papilla of Vater was diagnosed finally and malignant lesion was not detected. Postoperative course has been uneventful and she is doing well.

Conclusion: In cases with benign bile tract stenosis, accurate preoperative diagnosis is often difficult. We experienced a rare case of adenomyomatous hyperplasia with bile tract stenosis which is diagnosed bile tract cancer in preoperative examination.
P-20-2  A Case of Idiopathic Spontaneous Hematoma of Spleen

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Background/Purpose: Spontaneous splenic hematoma (SSH) and rupture is a very rare and can cause critical life threatening condition. Most common cause of splenic hematoma is trauma and pathologic splenic hematoma is less frequently encountered secondary to diseases affecting the reticuloendothelial system such as CMV or EBV infection. The criteria for the diagnosis of SSH is as follows; no traumatic history or signs, no evidence of systemic or local disease in organs and normal spleen aside hematoma on both gross inspection and histological examination.

Methods: A 63-year-old male visited due to weight loss and left upper quadrant pain. He had no trauma history and he received medication of anti-hypertensives and peripheral vasodilators for spinal stenosis for more than 5 years. He was chronic alcohol drinker and heavy smoker. On clinical examination, tender palpable mass was detected on left upper quadrant area. The abdominal CT and MRI showed 12.2 x 9.6 cm sized splenic hematoma with partial infarction area and 2 cm sized benign cyst in pancreas tail. Serological tests for CMV or EBV virus infection showed non-specific findings.

Results: In operation, adult fist sized hematoma was found around pancreas tail and spleen and distal pancreatectomy and splenectomy was performed. On histological examinations of resected spleen, only hemorrhage and fibrosis was observed and the diagnosis of splenic hematoma was confirmed.

Conclusion: Idiopathic SSH is very rare disease and diagnosis is challenging. Through history taking, diagnostic imaging, and laboratory work up for neoplastic, infectious, inflammatory and genetic disorders should be evaluated for proper management.

P-20-3  A resected case of the ruptured splenic metastasis from the breast cancer

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Background: As splenic metastasis of breast cancer is rarely reported, the treatment strategy is not established.

Case presentation: A 51-year-old woman underwent partial mastectomy for breast cancer. The pathological examination showed triple negative breast cancer without lymph node metastasis. She had adjuvant radiation therapy to the remnant breast tissue but declined to receive pharmacological therapies. Liver and splenic metastasis were diagnosed 9 months after surgery and she agreed with chemotherapy by paclitaxel. After 11 days from the start of the chemotherapy, left upper abdominal pain was appeared without any trauma. Contrast-enhanced computed tomography revealed extravasation from the spleen which was diagnosed to rupture of the splenic metastasis. Although the pain could controlled with analgesic and anemia did not progressed, she had experienced the same episode one month later. To control the ruptured splenic metastasis, she underwent splenectomy. The pathological examination revealed splenic rupture related with metastasis from the breast cancer. She was discharged on the 8th day after operation without complication. She has currently received chemotherapy to the liver metastasis.

Conclusion: We had experienced a rare ruptured case of the splenic metastasis from breast cancer. By elective splenectomy, she could continue to receive chemotherapy to the liver metastasis.

P-20-4  Two cases of a perforated duodenal diverticulum

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Case 1 was a 42-years-old woman who was admitted because of abdominal pain. Abdominal CT scan showed a duodenal diverticulum containing an enterolith and fluid collection in the retroperitoneum. She was diagnosed as having a retroperitoneal abscess arising from perforation of the duodenal diverticulum. We performed an emergency laparotomy, direct closure of the perforated diverticulum, drainage of the retroperitoneum and duodenum and biliary tract. She was caused a pancreatic fistula but recovered conservatively, and she was discharged from the hospital on day 48. Case 2 was an 85-years-old man who was admitted because of fever and abdominal pain. Abdominal CT scan showed a duodenal diverticulum containing an enterolith and air in the retroperitoneum. He was diagnosed as having a perforation of the duodenal diverticulum. We performed an emergency laparotomy, direct closure of the perforated diverticulum, drainage of the retroperitoneum and duodenum and biliary tract. He was also caused a pancreatic fistula but recovered conservatively, and he was discharged from the hospital on day 33. Treatment with Octreotide was effective for improvement of pancreatic fistula in these cases.

P-20-5  Undifferentiated carcinoma of the papilla of Vater

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Introduction: In most cases, the prognosis for carcinoma of the papilla of Vater is better than for bile duct carcinoma or pancreatic carcinoma. However, undifferentiated carcinoma of the papilla of Vater is poor prognosis.

Presentation of case: A 65-year old male patient was admitted for liver dysfunction and rise of biliary enzyme. Abdominal contrast-enhanced computed tomography and magnetic resonance imaging revealed a mass at the duodenal papilla and intrahepatic bile duct dilatation. Endoscopic biopsy specimen was diagnosed as poorly differentiated adenocarcinoma. Pancreatoduodenectomy was performed. The tumor was histopathologically diagnosed as undifferentiated carcinoma. Multiple liver and lymph node metastasis occurred three months after the operation and the patient died.

Conclusion: This disease must be detected early and effective chemotherapy implemented to improve prognosis.
P-20-6 A case of laparoscopic cholecystectomy for a true left–sided gallbladder without right–sided round ligament

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[Background] A so-called left–sided gallbladder is rarely reported and a ‘true’ left–sided gallbladder is even rarer. Most of the so-called left–sided gallbladder is placed on the extension of middle hepatic vein, therefore it is not malposition of gallbladder but should be considered as a result of right–sided round ligament, and it is sometimes called ‘false’ left–sided gallbladder. We present a case of laparoscopic cholecystectomy for a left–sided gallbladder which is placed to the left of the round ligament and the middle hepatic vein. [Case Report] A 74–year–old man with known gallbladder stones presented with jaundice by a distal common bile duct stone. He was admitted to our hospital and endoscopic sphincterotomy and removal of the stone was performed. During the elective laparoscopic cholecystectomy, a left–sided gallbladder was accidentally recognized. Lifting the round ligament with prolene, we safely performed retrograde cholecystectomy. [Discussion] With preoperative computed tomography, we detected the anterior portal branch arising from the left portal vein, but the gallbladder seemed in the normal position. It may suggest that the gallbladder was formed normally and after its development its fundus was attached to the left side of the undersurface of the liver in some contribution of the portal vein variation.

P-21-1 A case of surgical resection for needle–tract seeding of hepatocellular carcinoma after percutaneous radiofrequency ablation therapy

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[Background] Percutaneous radiofrequency ablation therapy (RFA) has been a well–established treatment for small hepatocellular carcinoma (HCC). Although the complications associated with RFA are relative low, a needle–tract seeding of HCC can occasionally be occurred following this therapy. In addition, it has recently been reported that local control of this seeding could lead to long term survival. Herein, we report a case of surgical resection for the needle–tract seeding of HCC after RFA. [Case] A 79–year–old man was referred to our hospital for the treatment of intrahepatic recurrence (S2/3, 25 mm) five months after RFA for HCC, and a laparoscopic lateral segmentectomy was performed in Jan. 2015. Histological examination showed a moderately differentiated HCC (pT2N0M0, pStageII). Two months later, several subcutaneous tumors along the RFA needle tract were pointed out by abdominal CT, and tumorectomies were performed. In addition, 14 months after the initial hepatectomy, a 33 mm tumor was detected on the front of the spleen by abdominal CT, leading to the diagnosis of the needle–tract seeding for a second time. Although radiation therapy was undergone, the tumor kept on growing (49 mm). Accordingly, a laparoscopic tumorresection was performed in Sep. 2016. Histologically, his resected tumors were morphologically identical to his primary HCC. The patient had remained recurrence–free for four months after the second tumorectomy. [Conclusion] Our case demonstrated the utility of surgical resection for the needle–tract seeding of HCC following RFA.

P-21-2 Utility of ICG Imaging System for Recurrent HCC Prior Treated by RFA Therapy: A Case Report

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[Background and aim] Needle tract implantation and peritoneal seeding sometimes occur by Radiofrequency ablation (RFA) therapy for hepatocellular carcinoma (HCC). We experienced one patient who was incidentally detected these lesions by indocyanine green (ICG) imaging system during the operation for recurrent HCCs prior treated by RFA therapy. Here, we reported this patient and discussed about the utility of ICG imaging system.
[Case] A 76–year–old man underwent medial sectionectomy for HCC in July 2009. Then he underwent repetition of RFA therapy for recurrent HCCs at S3 in June and October 2012 and at S6 in October 2012, moreover we performed repeat hepatectomy for recurrent HCCs at S8 in March 2013. However, we detected intrahepatic spread of HCCs at S3 in December 2016. As this lesion localized in the left lateral section, we performed left lateral sectionectomy. During the surgery, we used ICG imaging system to detect intrahepatic metastasis in the remnant liver. Although there was no signal on the remnant liver, we observed two tiny signals in the abdominal wall and larger omentum. These two lesions were resected and proved to be HCC metastases pathologically.
[Discussion and conclusion] ICG imaging system is reported its usefulness to detect small HCC recurrence on the liver surface. In this patient, we incidentally detected needle tract implantation and peritoneal seeding with this system. As the incidence of needle tract implantations and peritoneal seeding after RFA therapy was from 0 to 12.5%, using ICG imaging system may be helpful to find out such a lesion in treating local recurrent HCCs prior treated by RFA therapy.

P-21-3 Catheter–assisted portal thrombus aspiration after left hepatectomy for hilar bile duct carcinoma: A case report

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[Background] Portal vein thrombosis (PVT) after hepatectomy is a rare but serious complication. We report a rare case of successful catheter–assisted portal thrombus aspiration after left hepatectomy for hilar bile duct carcinoma.
[Case] A 74–year–old man underwent extended left hepatectomy, portal vein reconstruction, and hepatico–jejunostomy for hilar bile duct carcinoma in our hospital. The postoperative course was uneventful, but the serum transaminase levels were abruptly elevated, suggesting liver failure 10 days after the surgery. Computed tomography showed a thrombus located in the right branch of the portal vein. Subsequently, we decided to remove the portal thrombus by using the interventional technique. A catheter was inserted into the ileocolic vein after small laparotomy of the right lower abdomen. Intraoperative portography showed no blood current in the remnant right hepatic lobe, and catheter–assisted portal thrombus aspiration was performed immediately and following balloon angioplasty for kinking of the portal vein influenced by postoperative inflammation. After this procedure, portal vein recanalization was obtained, and postoperative liver failure was prevented.
[Conclusion] (1) With regard to the risk of postoperative bleeding, catheter–assisted portal thrombus aspiration seems to be a safe and effective treatment for patients with PVT occurring in the early days after major hepatectomy.
(2) In selected cases with the correct indications, anticoagulation therapy should be considered in addition to this procedure.
P-21-4 Management of critical complications in laparoscopic hepatectomy: A case report

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Background: Laparoscopic hepatectomy (LH) has been widely performed. Now LH is as safe as open hepatectomy in experienced institutes. However, the lack of wide overview and tactual sense may cause critical intraoperative complications such as hepatic vein injury and bile leakage.

Case presentation: A 77-year-old female with chronic hepatitis due to HCV was diagnosed as 30-mm solitary HCC in the segment VII of the liver and cholelithiasis. Pure laparoscopic partial resection of the HCC in segment VII was performed and the Difficulty Score was 6 points. After choledochojejunostomy, the falciiform and right coronary ligaments were dissected by ultrasonic shears to mobilize the right hemi-liver. Then an injury at the root of right hepatic vein was occurred. The injury was successfully repaired by continuous sutures using a 4-0 Prolene and bile leakage was placed for decompression of biliary tract. The bile leakage continued after long term repair. Hopefully with the ALPPS procedure, there will be a survival benefit of patients with metastatic pancreatic neuroendocrine tumor is 2 years. A 65-year-old woman without an appreciable past history was diagnosed with advanced cholecystitis, and underwent the PTGBD. Because she had a progression of anemia 5 days after PTGBD, CT was performed. CT showed hematoma in S4 and S6, furthermore, revealed more than 10 hepatic artery aneurysms (HAA) throughout the liver. Only a conservative treatment improved the hematoma because the patient had stable vital signs and all of the HAAs were smaller than 2cm in diameter. Although the cholecystitis got better, cholecystectomy was performed in advance of the treatment of the HAA. CT 4 months after surgery showed the HAAs disappeared almost completely, and then we decided to make a watchful waiting for the aneurysms. HAA is reported to be caused mainly by traumatic injury including iatrogenic trauma, arterial sclerosis, polyarteritis nodosa, and other autoimmune disorders. The incidence of HAA caused by bacterial infection accounts for only 5% among HAAs. In this case, the HAAs were assumed to be caused by acute cholecystitis, because 1) PTGBD was successfully done without trouble, 2) the patient did not suffer from diabetes or hypertension, 3) the levels of serum rheumatoid factor and ANCA were normal and the patient had no skin diseases, moreover, her body temperature and the values of WBC and CRP decreased without an administration of corticosteroid, 4) the patient had no visceral aneurysms except for HAAs, and 5) her HAAs got almost complete shrinkage following antibiotic therapy and cholecystectomy. To our knowledge, there is no reports about multiple HAAs which are caused by acute cholecystitis and make an improvement without a treatment for HAA itself such as our case.

P-21-5 A case of multiple hepatic artery aneurysms assumed to be caused by acute cholecystitis which disappeared almost completely only with undergoing antibiotic therapy and cholecystectomy

Department of general surgery, Toyohashi Municipal Hospital

Naoya Yamaguchi, Kazuhiro Hiramatsu, Taro Aoba, Takehiro Kato

A 65-year-old woman without an appreciable past history was diagnosed with advanced cholecystitis, and underwent the PTGBD. Because she had a progression of anemia 5 days after PTGBD, CT was performed. CT showed hematoma in S4 and S6, furthermore, revealed more than 10 hepatic artery aneurysms (HAA) throughout the liver. Only a conservative treatment improved the hematoma because the patient had stable vital signs and all of the HAAs were smaller than 2cm in diameter. Although the cholecystitis got better, cholecystectomy was performed in advance of the treatment of the HAA. CT 4 months after surgery showed the HAAs disappeared almost completely, and then we decided to make a watchful waiting for the aneurysms. HAA is reported to be caused mainly by traumatic injury including iatrogenic trauma, arterial sclerosis, polyarteritis nodosa, and other autoimmune disorders. The incidence of HAA caused by bacterial infection accounts for only 5% among HAAs. In this case, the HAAs were assumed to be caused by acute cholecystitis, because 1) PTGBD was successfully done without trouble, 2) the patient did not suffer from diabetes or hypertension, 3) the levels of serum rheumatoid factor and ANCA were normal and the patient had no skin diseases, moreover, her body temperature and the values of WBC and CRP decreased without an administration of corticosteroid, 4) the patient had no visceral aneurysms except for HAAs, and 5) her HAAs got almost complete shrinkage following antibiotic therapy and cholecystectomy. To our knowledge, there is no reports about multiple HAAs which are caused by acute cholecystitis and make an improvement without a treatment for HAA itself such as our case.

P-21-6 Case Report: Associated Liver Partition & Portal Vein Ligation (ALPPS) for extensive neuroendo-crine liver metastasis

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Timothy Zhe Hao Teo1), Martin Brand2), Jee Keem Low2)

Background

Patient is a 33-year-old lady with bilobar neuroendocrine liver metastasis. She had previously underwent a Whipple’s operation for the primary tumor several years back. An ALPPS procedure was planned as her future liver remnant was not sufficient post resection.

Methods

As her liver metastasis was bilobar, wedge resection of liver neuroendocrine tumor was performed in segment 2, 3 & 4b. Intra-operatively microwave ablation of segment 3/4b liver lesion was performed as well. Subsequently, we proceeded with Stage 1 of ALPPS. An extended right hepatectomy was performed for stage 2 of ALPPS, 7 days after the first operation.

Results

After stage 1 ALPPS, liver hypertrophy was significant. Future liver remnant increase by 63%.

She had no complications post-operatively and discharged 14 days after admission to hospital.

Recurrence of liver metastasis occurred 201 days post operatively. Patient was well at her one-year follow-up and planned for TACE of the neuroendocrine recurrences in her remnant liver.

Conclusion

Base on a study from the National Cancer Institute Surveillance, Epidemiology, and End Results database (SEER), the median survival of patients with metastatic pancreatic neuroendocrine tumor is 2 years. Hopefully with the ALPPS procedure, there will be a survival benefit for the patient.

P-22-1 Anaplastic carcinoma of the pancreas with unusual metastasis: Report of a case

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A 69-year-old male who visited a hospital due to abdominal pain was suspected to have malignant lymphoma of the spleen, and was referred to our hospital to carefully investigate and treat the tumor. Abdominal computed tomography (CT) revealed a huge tumor located mainly in the pancreas tail, which invaded to surrounded organs. A metastatic tumor was also found in the right femoral muscle. Upper gastrointestinal endoscopy also demonstrated the tumor invasion through gastric wall. We diagnosed stage IV pancreatic cancer, but to control bleeding from the invaded gastric lesion, we performed distal pancreatectomy with combined resections of stomach, left kidney, transverse colon, left adrenal gland, and diaphragm. Histological examination revealed pleomorphic type anaplastic carcinoma of the pancreas. The postoperative course was uneventful, and chemotherapy was started 4 weeks after the operation. However, metastases of abdominal rectus muscle and peritoneal dissemination emerged and rapidly spread. The patient died of the carcinoma 3 months after the operation. Anaplastic carcinoma of the pancreas has a propensity to metastasize to unusual sites and a relatively poor prognosis, therefore operative indication should be carefully considered.
P-22-2  Anaplastic carcinoma of the pancreas originating from IPMN. Report of 2 cases

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Anaplastic carcinoma of the pancreas is a subtype of invasive ductal carcinoma, has poorer prognosis than common pancreatic ductal carcinoma. We report two cases of anaplastic carcinoma originating from intraductal papillary mucinous neoplasm with long-term survival. The first case was 66-year-old female patient who presented with obstructive jaundice and revealed a multicellular cystic tumor 35 mm in diameter with contrast enhancement in the pancreatic head. The patient was diagnosed for branch main duct–intraductal papillary mucinous carcinoma and underwent subtotal stomach–preserving pancreaticoduodenectomy. The pathological diagnosis was anaplastic carcinoma originating from intraductal papillary mucinous neoplasm, osteoclast–like giant cell type. The patient remains disease–free at six and a half years postoperatively. The second case was 70-year-old female patient who presented with abdominal distention and revealed main pancreatic duct dilation. The patient was diagnosed for main duct–intraductal papillary mucinous carcinoma and underwent subtotal stomach–preserving pancreaticoduodenectomy. The pathological diagnosis was anaplastic carcinoma originating from intraductal papillary mucinous neoplasm, spindle cell type. The patient remains disease–free at five and a half years postoperatively. In anaplastic carcinoma, there is the difference clinical course depending on histological type and origin, and the case with long–term survival as a result of the R0 resection similarly to our experiences.

P-22-4  A case of small anaplastic pancreatic cancer, protruding into the main pancreatic duct and metastasizing to lymph node

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Anaplastic pancreatic cancer (APC) is a rare subtype of pancreatic cancer. It was generally known that APC is very large aggressive neoplasm and has poor prognosis. We report a case of small APC. A 82–year–old woman referred for the failure of diabetes control was found to have a mass 12mm in diameter in the pancreatic head in US and CT scan. Fine needle aspiration from the mass revealed poorly differentiated carcinoma. We diagnosed as pancreatic head cancer (cT1c, N0, M0, Stage (General Rules for Study of Pancreatic Cancer. The 7th edition)). Thus we performed subtotal stomach preserving pancreaticoduodenectomy. The histological findings showed a tumor 9×6mm in size occupying the main pancreatic duct, being continuous with a part of pancreatic duct epithelium and infiltrating into stroma. In the tumor, spindle cell component was dominant but ductal adenocarcinoma component was also included slightly. In immunohistochemical findings, cytokeratinAE1/3 was expressed scarcely and vimentin was expressed diffusely. It was findings of APC spindle cell type. In addition, anaplastic cancer metastasized to lymph node. Histological staging was pT1b, N1a, M0, StageIIb. This patient is alive without recurrence for nine months after surgery. The small APC less than 1cm in size with lymph node metastasis is extremely rare. This case may present a rare oncological character.

P-22-3  A CASE OF CYSTOID MACULAR EDEMA SECONDARY TO ALBUMIN–BOUND PACLITAXEL (nab–PTX) THERAPY FOR PANCREATIC CANCER

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Tadao Ito

73–year–old woman who had been diagnosed as unresectable pancreatic cancer was started weekly gemcitabine (GEM) plus albumin–bound paclitaxel (nab–PTX) therapy. 4 months after starting nab–PTX, she presented to the ophthalmology clinic with urgent decreased vision in left eye. On admission, her visual acuity was decreased and optical coherence tomography (OCT) showed cystoid macular edema (CME) only in her left eye. She discontinued nab–PTX therapy immediately. Her visual acuity improved on follow–up 4 months later, whether CME findings on OCT was reduced but not completely disappeared. CME is rare adverse event by nab–PTX and only 14 cases had been reported since 2008 in literature. Most of the reported cases were patients with breast cancer, and a case of a patient with pancreatic cancer has not been observed. The time to CME onset from starting nab–PTX therapy was reported from 3 to 30 months, but the clac predilection time was not recognized. There were many reports that symptoms improved in short period after discontinuation of nab–PTX, but effective treatment was not established except discontinuation of nab–PTX. It was thought that to confirm the sense of incongruity about the ophthalmologic domain was important in daily medical treatment for early detection of CME.

P-22-5  Five cases of anaplastic carcinoma of the pancreas in our hospital

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Anaplastic carcinoma of the pancreas is a rare tumor with 0.3–0.5% of total pancreatic cancer. They tend to invade locally and metastasize to other organs, and are known to be associated with poorer prognosis than ordinary pancreatic ductal carcinoma. Clinicopathological examination of 5 patients with anaplastic carcinoma of the pancreas experienced at our hospital was conducted between 2005 and 2015. Subjects comprised 2 men and 3 women, with an average age was 59.6 years. Localization of the lesion was 2 pancreatic head sections, 1 part of pancreatic body and 2 cases of pancreatic tail. The mean tumor diameter was 51.6 mm. Pancreaticoduodenectomy was performed in 2 cases (portal vein resection was performed in one case), and distal pancreatectomy(body and tail) was performed in 3 cases. In the pathological findings, pleomorphic type was one case, mixed cancer of pleomorphic type and adenosquamous carcinoma was 1 case, giant cell carcinoma of osteoclastoid type was 2 cases. Chemotherapy was performed in 4 cases, TS–1 was 1 case, GEM was 1 case, and GEM → TS–1 was 1 case. The average time to recurrence was 4 months on average with a mean survival time of 9.4 months. Recurrent organs were 1 lung, 1 liver, 2 liver and lung, 1 peritoneal dissemination. Only 2 cases survived for more than 1 year after surgery. Patients with anaplastic carcinoma of the pancreas are particularly poor prognostic in pancreatic duct carcinoma, and cases with recurrence immediately after surgery are not uncommon. However, since cases with relatively long–term survival are also present, surgical treatment should be actively considered if there is no general non–excision factor.
P-22-6 A case of metachronous multiple primaries including pancreatic anaplastic carcinoma with spindle cell type
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A 66-year-old woman with no complaints, who was treated for multiple lung adenocarcinomas (both lesions were pT1aN0) at the age of 65, and breast cancer (pT2N0M0, Stage2A) at age 64, was pointed out a dilation of main pancreatic duct in follow up CT. So further examinations were performed in our division. Serum chemistry showed no elevated tumor markers (CEA, CA19-9, DUPAN2, Span1, elastase1, SCC, CYFRA). Abdominal Computed Tomography revealed that a solid tumor existed in the head of pancreas, which was 36mm in the diameter.

Magnetic Resonance Imaging showed that the tumor was low intensity in T1, slightly high intensity in T2, and decreased in diffusion weighted imaging. Maximum standardized uptake value on 18F-FDG PET/CT of this lesion was 19. Cytology revealed poorly differentiated squamous cell carcinoma originating from small cell carcinoma from ultrasonic endoscope guided biopsy. So we diagnosed as pancreatic cancer and underwent pancreaticoduodenectomy.

Her postoperative course was uneventful. She was discharged from the hospital at postoperative day 11. She administered S1 as adjuvant therapy after surgery.

Microscopic examination revealed that the tumor cells had spindle type cells with components of ductal carcinoma. We diagnosed it as anaplastic carcinoma with spindle cell type (Ph, TS2(25×20mm), nodular type, pT2.int, INFB, ly0, v0, ne0, mpd0, pCH0, pD0U, pS0, pRP0, pPV0, pA0, pPL0, pPO0, pPCM0, pBCM0, pDPM0, pM0, M0, CYX, stageB2).

We present a case of metachronous multiple primaries including pancreatic anaplastic carcinoma with spindle cell type, which is relatively rare disease. We also review the literatures about multiple primaries.

P-23-2 Lymphoepithelial cyst of the Pancreas with markedly elevated CA19-9 level: A rare case report
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Background: Pancreatic lymphoepithelial cyst (LEC) is a very rare true pancreatic cyst, lined by stratified squamous epithelium. We report a case of surgically confirmed pancreatic LEC with markedly elevated CA19-9 level. Case report: A 70-year-old male was admitted to our hospital for examination of alcoholic hepatitis. Dynamic enhanced CT and MRCP demonstrated a cystic lesion approximately 8 cm in diameter in the pancreatic body, which was not directly connected with main pancreatic duct. He has no history of pancreatitis or trauma. His CA19-9 levels were gradually elevated from 208 U/ml to 706 U/ml.

With size development and raised CA19-9 levels, a provisional diagnosis of carcinoma of pancreatic body was made. He underwent distal pancreatectomy. Postoperative course was uneventful. At 2 months after operation, he is asymptomatic with no recurrent lesion in residual pancreas and CA19-9 level is normal(35 U/ml). Microscopic evaluation from the resected specimen showed multilocular cysts lined by squamous epithelium, some of which had sebaceous glands. Keratinization was seen in the cyst. Lymphatic follicles with germinal centre formation were seen around the cyst. Diagnosis of LEC was confirmed. Conclusion: Most of pancreatic LECs are surgically resected without preoperative diagnosis. For accurate diagnosis, EUS–FNA is mentioned to be important. However, we recommended for the present case because of raised CA19-9 levels and size development, which made it difficult to exclude malignancy. An accurate cytopathological examination may be necessary before surgical approaches are carried out. We experienced a rare case of pancreatic LEC.

P-23-3 Main pancreatic duct division in a 3-year-old child with multiple traumata: Report of a case
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A 3-year-old girl was admitted to our hospital by air ambulance with a complaint of right lateral abdominal pain after being run over by a car. Computed tomography (CT) demonstrated pulmonary contusion and pelvic fractures, but damage to the pancreas and spleen was not revealed. Her general condition was unstable, and respiratory intubation and artificial respiration management were performed under sedation at the ICU and the pelvic fracture was externally fixed. Abdominal distension appeared on day 3 after the admission, and CT suspected injury of the pancreas, division of the main pancreatic duct and hemorrhage from spleen. Since abdominal distension and anemia were progressive, we performed emergent distal pancreatectomy on day 4. Pancreatic injury IIb and splenic damage IIIa + HV were intraoperatively diagnosed. The postoperative course was uneventful, and she was discharged on postoperative day 44. She is doing well, and pancreatic function has remained well-preserved for 6 months postoperatively. There have been several reports that patients with type IIIb pancreatic injury were successfully treated. Various treatments, such as conservative, endoscopic, and operative therapies have been performed in these patients. Therefore, operative procedures have to be carefully selected. In addition, pancreatic injuries are rare in pediatric patients and the standard therapy has not been established. In this case, we successfully treated a 3-year-old child with type IIIb pancreatic injury by the pancreatectomy.
**P-23-4** Conversion surgery after Etoposide/Cisplatin therapy for the huge neuroendocrine carcinoma – A case report –

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Background: Neuroendocrine carcinoma (NEC) is known as rapid tumor growth, high grade malignancy and poor prognosis. We report a case of huge NEC successfully performed conversion surgery after Etoposide/Cisplatin (EP) therapy.

Case presentation: 70 year–old female patient was presented to our hospital with appetite loss and severe back pain requiring immediate hospitalization. CT scan revealed huge tumor, 15cm in diameter, locating at ventral side of the pancreas with possible involvement to liver, stomach, common hepatic artery and left gastric artery. Peritoneal dissemination and para–aortic lymph node metastasis were also suspected. Blood test showed remarkable elevation of LDH, EUS–FNA showed neuroendocrine carcinoma with almost 100% positive staining rate of Ki–67. We immediately started EP therapy following the protocol for small cell lung carcinoma. After 6 courses of EP, The tumor shrank remarkably to 40% of its initial size and LDH level was elevated gradually. Also renal impairment could not afford to continue EP therapy. Therefore we decided to precede conversion surgery. Intraoperative findings: There were no peritoneal metastases. The tumor was attached to the lesser curvature and lateral segment of the liver, however common hepatic artery and left gastric artery were able to preserved. We successfully performed distal pancreatectomy with splenectomy and partial hepatectomy and para–aortic lymph node dissection.

Summary: We report a case of huge neuroendocrine carcinoma with conversion surgery after EP therapy.

**P-23-5** Xanthogranulomatous Pancreatitis mimicking potentially malignant pancreatic neoplasm : Report of a Case

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4) Yoon Jin Hwang

Xanthogranulomatous pancreatitis (XGP) has been reported only 15 cases in literatures written in English. We report a case of XGP, which was initially suspected as malignant cystic neoplasm of the pancreas. A 64-year old man had been incidentally found 1.8cm sized hypodense lesion at body of pancreas during examination for lung cancer. The patient was a smoker with diabetes, but had no reported history of alcohol intake, gallstones, or abdominal trauma. All laboratory tests were within normal limits, except for carcinoembryonic antigen being elevated to 31.3 ng/ml. Imaging study showed 1.8cm sized, well demarcated, low–attenuated mass at body pancreas with heterogeneous high intensity on the T2–weighted images. Under the impression of 1. pancreatic cystic neoplasm, 2. rare case of male solid–pseudopapillary tumor, or 3. pancreatic metastasis of lung cancer, laparoscopic distal pancreatectomy with splenectomy was performed. Microscopically, the mass had many foamy histiocytes with cholesterol clefts, consistent with a xanthogranulomatous inflammation. Xanthogranulomatous pancreatitis is a rare benign disease that may mimic or be associated with other pancreatic disease in imaging studies. Therefore it is important to consider in the differential diagnosis of pancreatic disease.

**P-23-6** Giant pancreatic cystic lymphangioma with mediastinal extension

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FRANCISCO Sanchez–Bueno, Miguel Torres, Gil Pedro, Alvaro Gomez, Jesus De la Peña, Eduardo Ortiz, Pascual Parrilla

Background. Cystic lymphangioma of pancreas is a rare benign tumour having described less than 100 cases. The aim of this paper is a clinical case of a pancreatic lymphangioma with mediastinal affection which was treated with a complete surgical resection.

Methods. A 56–year old male was admitted to emergency service with fever over 12 hours and pain located in the epigastrium and left hypochondrium. Physical examination revealed a great mass located in the epigastrium and left hypochondrium. The CT scan and MRI described multicystic mass of 29 cm x 17 cm with inferior mediastinum extension. The surgical procedure was a total pancreaticoduodenectomy with splenectomy getting a complete resection, in block, of the tumour.

Results. The tumour measured 25 x 16 x 6 cm, it had a macronodular structure with a smooth surface and reddish colour, the cysts contained a serous yellow–brown liquid. Microscopic description notes a coating of cysts with endothelial cells presenting immunohistochemical markers of CD31 and D2–40 positive and negative for CKA/E/AE3, CK7 and CD34. There were no malignant elements. The definitive histopathological diagnosis was pancreatic cystic Lymphangioma.

Conclusion. We presented the first case of the giant pancreatic cystic lymphangioma with inferior mediastinum extension in the literature worldwide.

**P-24-1** Phase II clinical trial using novel peptide cocktail vaccine as a postoperative adjuvant treatment for surgically resected pancreatic cancer patients

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Purpose: We investigated peptide cocktail vaccine OCV–C01 containing epitope peptides derived from KIF20A, VEGFR1, and VEGFR2 combined with gemcitabine in the adjuvant treatment for resected pancreatic cancer patients.

Methods: A single–arm multicenter phase II study was performed on 30 patients with pancreatic ductal carcinoma who underwent pancreatectomy. At each 28–day treatment cycle, patients received weekly subcutaneous injection of OCV–C01 for 48 weeks, and gemcitabine was administered intravenously at 1,000 mg/m2 on days 1, 8, and 15 for 24 weeks. Patients were followed for 18 months. The primary endpoint was disease–free survival (DFS) and secondary endpoints included safety, overall survival (OS) and immunological assays on peptide–specific cytotoxic T lymphocyte (CTL) activity and KIF20A expression in resected pancreatic cancer.

Results: The median DFS was 15.8 months (95% confidence interval (CI), 11.1–20.6), and the DFS rate at 18 months was 34.6% (95% CI, 18.3–51.6). The median OS was not reached and the OS rate at 18 months was 69.0% (95% CI, 48.8–82.5). The administration of OCV–C01 was well tolerated. In the per protocol set, there were significant differences in DFS between patients with KIF20A–specific CTL responses and without (p=0.027), and between patients with KIF20A expression and without (p=0.014). In addition, all four patients who underwent R0 resection with KIF20A expression had no recurrence of pancreatic cancer with KIF20A–specific CTL responses.

Conclusions: OCV–C01 combined with gemcitabine was tolerable with a median DFS of 15.8 months, which was favorable compared with previous data for resected pancreatic cancer.
P-24-2 Reappraisal of overall survival of patients with pancreatic ductal adenocarcinoma who underwent negative–surgical margin followed by adjuvant chemotherapy

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In 2015, JASPAC 01 trial showed that adjuvant chemotherapy using S1 for resected pancreatic ductal adenocarcinoma (PDAC) not only delayed recurrence, but also improved survival compared with gemcitabine (GEM). We evaluated overall survival (OS) of patients who underwent surgical resection followed by adjuvant chemotherapy (AD) using S1 since 2013.

<Result>
Between 2011 and 2015, 120 PDAC patients who had negative CY who underwent R0/1 resection (R0: n=102, 85%; R1: n=18, 15%). We have used S1 in 67 patients (S1 group) and gemcitabine in 31 patients (GEM group) as AD. 22 patients did not received AD therapy for several reasons (control group).

The median overall survival time in the patients received AD was 59 months which was significantly better than in control group (30 months, p=0.001). There was no significant difference in OS between S1 and GEM groups (3 year OS; S1: 76%, GEM: 61%, p=0.112). 40 patients (60%) in S1 group and 17 patients (55%) in GEM group completed the AD and OS in these patients were significantly longer than the patients discontinued before completion. (3 year survival rate: S1, 90% vs 53%, p=0.003. GEM, 82% vs 33%, p=0.004)

(In univariate analysis, Pbt cancer, AD. Completion of AD, R0 resection, blood loss<770ml and Operation time<360 were related to the prognosis.

In multivariate analysis, Completion of AD (hazard ratio and range: 0.519 and 0.348 – 0.795) and R0 resection (hazard ratio and range: 0.519 and 0.348 – 0.795) and AD resection were significantly important prognostic factors (p=0.001)

<Conclusion>
Completion of AD and R0 resection were important factors for improving prognosis in patients with PDAC.

P-24-3 A case report of adjuvant surgery for metastatic pancreatic cancer after mFOLRINOX therapy

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A 50–year-old man was referred to our hospital with high level of serum lipase. The pancreas head mass was detected by CT scan, and PET scan showed no distant metastasis. The patient was diagnosed with resectable pancreatic head cancer, and scheduled to have resection. However, two small hepatic mass, which were 4mm in diameter, each, were found after laparotomy, one of them were resected and intraoperative diagnosed as metastasis of the liver. So the operation was ended as exploratory laparotomy. The patient had mFOLRINOX a month after the surgery. Six months later, the CT scan showed no evidence of liver metastasis and pancreatic head cancer, which size was smaller in diameter, suggesting that this regimen achieved PR. After 14 courses, the patient suffered peripheral neuropathy, the chemotherapy pursed without 1–OHP. After 22 courses, CT and PET scan showed pancreas head carcinoma without any evidence of liver metastasis. Therefore, the patient underwent SSPPD with portal vein resection.

The histological examination of the resected tissues revealed no residual cancer cells in the resected liver tissue, but viable invasive ductal carcinoma cells in the head of the pancreas, suggesting the effect of the chemotherapy was minimally (Grade 1a). We herein present the case of a patient with pancreatic head cancer with liver metastasis, who was undergone pancreatic–duodenectomy after 22 courses of chemotherapy by mFOLRINOX regimen with review of the literature.

P-24-4 Survival and prognostic factors of pancreatic cancer patients who received curative resection and followed by S–1 adjuvant chemotherapy

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<Background>
In 2016, the Japan Adjuvant Study Group of Pancreatic Cancer trial demonstrated the effective of S–1 adjuvant chemotherapy for Japanese patients undergoing curative resection for stage II or stage III disease with combined resection of the celiac artery. However, about 60% of the patients still develop recurrence after a curative resection followed by adjuvant S–1. The objective of this retrospective study was to clarify the survival and prognosticators of these patients.

<Methods>
The study selected patients who underwent curative surgical resection with S–1 adjuvant therapy between 2007 and 2015 and experienced recurrence confirmed by imaging studies. The prognostic factors in patients were analyzed by univariate and multivariate analyses.

<Result>
A total of 53 patients were evaluated. 28 male and 25 female. Median age was 67 (49–81). Thirty-one patients received gemcitabine–based chemotherapy, 2 received S–1-based regimens, 1 received FORFILINOX regimen, 11 received gemcitabine plus nab–Paclitaxel regimen, and 1 received gemcitabine plus S–1 regimen as the first–line chemotherapy. 7 patients did not received chemotherapy. Univariate analyses showed that the liver recurrence was the only significant prognostic factor. Multivariate analyses also showed the liver recurrence was the most independent significant factor (p=0.025).

<Conclusion>
Liver recurrence was the most significant prognostic factor in patients who experienced recurrence after adjuvant S–1 chemotherapy.

P-24-5 Inflammation-based prognostic score in patients underwent chemotherapy for inoperable pancreatic cancer

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<Background>
Several inflammation–based prognostic score have been reported as prognostic factor in patients with various types of cancer. The aim of this study was to evaluate the clinical significance of inflammation–based prognostic score in patients with pancreatic cancer who underwent chemotherapy.

<Patients and Method>
From April 2011 through November 2016, 46 patients with unresectable (n=28) or recurrent (n=18) pancreatic cancer who underwent chemotherapy in our institution were enrolled in this study. The Glasgow Prognostic score (GPS), modified GPS (mGPS), neutrophil to lymphocyte ratio (NLR), platelet to lymphocyte ration (PLR), prognostic index (PI) and prognostic nutritional index (PNI) scores were calculated. The prognostic significance of each score was evaluated.

<Result>
Median age was 71 (52–83). The median overall survival was 199 days (35–1169). Five types of chemotherapy were administered as first line therapy (gemcitabine, gemcitabine + S–1, gemcitabine + nab–paclitaxel and FOLRINOX). Overall survival was significantly (p<0.05) worse in the patients with high GPS (>1), mGPS (>1), NLR (>3), PI (>1) and PNI (>45). Two patients have been alive for more than 1000 days.

<Conclusion>
Inflammation–based prognostic score could be a predictor of a poor prognosis after chemotherapy for unresectable and recurrent pancreatic cancer.
**P-24-6** Clinicopathological features of small pancreatic cancer.

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Increasing chemoradiation therapy, and this case has performed adjuvant treatment because of tumor recurrence. Two cases are still alive. A complicated case which was resected adrenal metastases after informed consent.

**P-25-1** Significance of skeletal muscle mass in neoadjuvant chemotherapy for pancreatic cancer

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Background: It has been reported that chemotherapy-induced adverse events occur frequently in patients with sarcopenia in colon and breast cancer. We investigate the relationship between skeletal muscle mass and incidence of adverse event in pancreatic cancer during neoadjuvant chemotherapy.

Materials and Methods
43 patients who underwent surgical resection after neoadjuvant chemoradiation therapy (NACRT) (GEM + TS–1 therapy 2 courses, radiotherapy total 30 Gy) from January 2014 to February 2016 were enrolled in this study. Muscle mass was measured at the third lumbar (L3) level skeletal muscle area calculated by abdominal CT before NACRT. The median value of skeletal muscle index (SMI) was 40.79 as the cutoff value defining sarcopenia. The adverse event incidence rates between the sarcopenia and non–sarcopenia group were compared.

Results:
Adverse events of Grade 3 and above occurred in 32 cases (74.4%). There were 26 cases of neutropenia (60.5%), 4 cases of leukocytopenia, 3 cases of platelet depletion, 5 cases of skin rashes, 1 case of diarrhea.

Hematologic toxicity of Grade 3 or higher was observed 16 cases (72.7%) in the sarcopenia group, which was significantly higher than 5 cases (23.8%) in the non–sarcopenia group. The GEM dose per lean body mass (LBM), calculated from the L3 level skeletal muscle area, was 45.71 on average in the sarcopenia group and 37.64 in the non-sarcopenia group.

Conclusion:
It was suggested that skeletal muscle mass may be related to the occurrence of adverse events in NACRT for pancreatic cancer. Further study is needed to clarify the true mechanisms of the relationship between skeletal muscle mass and adverse event expression.

**P-25-2** Conversion Surgery for patients with initially unresectable pancreatic cancer

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(Background) The patient's prognosis after diagnosis as a pancreas cancer is dismal because of failure of modern treatments including surgery, radiation and chemotherapy. Previously, we have reported the higher effective rate of new regimen, albumin conjugated paclitaxel (nabPac) and Gemcitabine (GEM). Recent subject is the conversion surgery after these effective chemos or chemoradiation therapy.

(Methods) 4 cases were nominated to conversion surgery between February 2015 and November 2016. Our indication of this surgery is "stable disease or partial response with chemo or chemo/radiation treatment for at least 6 months," "tumor markers are negative or slightly increasing," "no evidence of new distant metastasis" and "patient will after informed consent." (Results) A partial response case with liver metastasis was only performed portal laparotomy due to peritoneal dissemination. A complicated case which was resected adrenal recurrence after chemo/radiation/immunotherapy was died 94 days after surgery because of tumor recurrence. Two cases are still alive. A partial response case with arterial invasion was completely resected after nabPac/GEM and chemo/radiation therapy. However, this case has been showed multiple liver metastasis 122 days after surgery and started chemotherapy. A partial response case with paraaorta lymph node metastasis was also resected completely after chemo and chemoradiation therapy, and this case has performed adjuvant chemotherapy.

(Discussion) The role of conversion surgery is still controversial. Conversion surgery may be a part of systemic therapy and continuous treatment after surgery should be needed.

**P-25-3** The Effect of Neoadjuvant chemotherapy followed by surgery for borderline and unresectable pancreatic cancer: retrospective Multi–institutional study

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(Aim) The effect of neoadjuvant chemo (radio) therapy/NACRT/T on PDAC patients is not well established.

[Patients and methods]
From January 2005 until July 2016, 29 patients with pancreatic cancer who received neoadjuvant chemoradiation therapy were retrospectively enrolled. Patients were enrolled from the department of Surgery and Science, Kyushu University and affiliated hospitals. According to the preoperative imaging, patients were divided to Resectable(R), Borderline Resectable(BR) and Unresectable(UR) pancreatic cancer. The impact of NAC(R)T for patients with PDAC may induce excellent outcome with OS and RFS. The mortality and morbidity were acceptable. The results of prospective study will be awaited.
P-25-4 Preoperative Gemcitabine/nab–Paclitaxel with Concurrent Radiation Therapy for Borderline Resectable Pancreatic Cancer: A Phase I study

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Purpose: The primary objective of this study is to assess the toxicity of preoperative Gemcitabine (G)/nab–Paclitaxel(nP)–based chemoradiation therapy (CRT) for the patients with borderline resectable pancreatic cancer (BRPC), which consists of the induction chemotherapy and the subsequent CRT, and to determine the maximum tolerated dose (MTD) and the recommended dose (RD) of G/nP with concurrent RT.

Methods: The patients with BRPC involving arterial systems were enrolled in this study. The patients received the full dose of G (1000mg/m²)/nP(125mg/m²) on days 1, 8, and 15 during each 4-week cycle; this was repeated for 2 cycles as induction chemotherapy. After the induction chemotherapy, patients proceeded to G/nP-based CRT and were scheduled to receive G/nP at seven dose levels as with the induction chemotherapy: Level 1 (400/50) to Level 7 (1000/125). Radiation therapy was concurrently delivered through 8 fields as a total dose of 60 Gy (2.4Gy/fr). Dose–limiting toxicity (DLT) was defined as grade 4 thrombocytopenia, grade 3 non–hematologic toxicity, febrile neutropenia, and the interruption of RT.

Results: A total of 38 patients were enrolled and initiated the induction G/nP. Among those patients, 30 patients proceeded to G/nP-based CRT. Three of 6 patients experienced DLTs at Level 6(MTD), and the RD was determined to be Level 5 (800/100). The DLTs included the interruption of RT, thrombocytopenia, febrile neutropenia, and peripheral neuropathy. Twenty-four of 30 patients received pancreatectomy (80%) and the R0 resection rate was 96%. Conclusion: The RD of G/nP–based CRT following the induction G/nP was G(800mg/m²) and nP(100mg/m²) in the patients with BRPC.

P-25-5 Neo–adjuvant chemoradiotherapy in pursuit of optimal treatment of locally advanced unresectable pancreatic cancer

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Background/Purpose: The treatment of locally advanced unresectable pancreatic cancer remains extremely challenging, particularly as the effectiveness of concurrent chemoradiotherapy (CRT) remains unclear.

Methods: We studied 93 patients (8.0%) with locally advanced unresectable pancreatic cancer without distant metastases from among a total group of 1168 patients who were diagnosed with pancreatic cancer from March 2005 to November 2015 at Kochi Health Sciences Center. Results: Of the 93 patients with locally advanced unresectable pancreatic cancer, 35 patients (37.6%) were subsequently classified as having resectable disease following CRT. The median overall survival of patients who received CRT alone for locally advanced unresectable pancreatic cancer was 8.0 months, and all died within 3 years. On the other hand, the overall 1–, 3–, and 5–year survival rates in patients who were reclassified as having resectable tumor after CRT were 71.3%, 39.2%, and 23.5%, respectively. Our pathological assessments after surgical resection suggested that CRT might be associated with a significant reduction in the risk of lymph node metastases in patients with locally advanced unresectable pancreatic cancer.

Conclusions: The results of this study suggested that CRT is clinically effective in improving survival, particularly in association with the resultant possibility of curative resection.

P-25-6 A phase 1 study of gemcitabine/nab–paclitaxel/S–1 (GAS) combination neoadjuvant chemotheraphy for patients with locally–advanced pancreatic adenocarcinoma

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Purpose: To determine a recommended dose for a biweekly combination neoadjuvant chemotherapy including gemcitabine, nab–paclitaxel, and S–1 (GAS) for patients with locally–advanced pancreatic ductal adenocarcinoma (LAPC). Methods: Patients with borderline resectable or unresectable LA–PDAC without distant metastasis were eligible for this study. The planned dosages of gemcitabine (mg/m², day 1), nab–paclitaxel (mg/m², day 1), and S–1 (mg/day, days 1–7) were 800/100/60–100 at level 1, and 1000/125/60–100 at level 2. The treatment cycle was repeated every 2 weeks, and patients were assessed for resectability and response to the treatment after 6 cycles. This study was registered with UMIN Clinical Trial Registry (UMIN000016630). Results: We enrolled 16 patients with LAPC in this study. At dose level 1, one of 8 patients experienced dose limiting toxicity (DLT). One of the next 8 patients also experienced DLT at dose level 2. Based on these results, level 2 was considered the recommended dose for this regimen. Pancreatectomy with curative intent could be performed in 13 of the 16 patients. R0 resection was performed in 12 of 13 patients. Conclusion: In conclusion, recommended doses for a biweekly GAS chemotherapy regimen were determined as nab–paclitaxel: 125 mg/m², gemcitabine: 1000 mg/m² on day 1, S–1: 1–1.25 mg/m², 60 mg: 1, 25–1.5 mg/m², 80 mg: ±15.5 mg/m², 100 mg twice a day on days 1–7. GAS chemotherapy showed good preliminary efficacy with mild toxicity in this study, and warrants a further phase 2 trial to investigate the efficacy of the GAS regimen for LAPC.

P-26-1 Pancreatic neuroendocrine tumors: A single institution's experience with surgically treated patients

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Background: Pancreatic neuroendocrine tumors (pNET) are a rare disease, and comprise variety in both histology and its clinical presentation. Only few reports have evaluated large cases series of pNET. The aim of this study is to evaluate the outcomes of patients following surgery.

Method: We retrospectively reviewed patients who underwent operation between January 2003 and December 2016 in our institution. Result: Twenty patients diagnosed as pNET were identified with a median age of 58 years (range 19–83). Non-functioning tumor comprises of 9 cases followed by insulinoma 7 cases and gastrinoma 4 cases. Mean maximum tumor size is 22.2±13.5mm. Two cases were associated with Multiple Endocrine Neoplasia–type 1 (MEN1), and one case was associated with Von Hippel Lindau disease (VHL). The details of the surgical procedure were distal pancreatectomy (DP) in 10 cases, pancreateodudenoectomy (PD) in 4, enucleation in 2, total pancreatectomy in 1, central pancreatectomy in 1, partial pancreatectomy in 1, PD with enucleation in 1. Curative resection was achieved in 19 cases, while one patient with multiple metastasis underwent cytoreduction surgery. Histopathological examination was performed according to the 2010 World Health Organization (WHO) classification, demonstrating that NET G1, G2, and mixed aden–neuroendocrine carcinoma (MANEC) were 15, 4 and 1 of those, respectively. On the follow up period, there was no mortality, but recurrence was observed in two cases, both of which were diagnosed as NET G2. Conclusion: Surgical resection for pNET results good long–term survival, and pathological malignancy may be associated with recurrent disease.
P-26-2 Role of lymph node metastasis and its evaluation in non–functional pancreas neuroendocrine tumor

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Background: There are controversies in how to manage lymph node (LN) metastasis in non–functional pancreas neuroendocrine tumor (NFPNET). The aim of this study is to reveal the role of LN metastasis and evaluate effects of surgeries with LN dissection for NFPNET.

Methods: Patients who underwent curative resections for NFPNET without distant metastasis from 2003 to 2016 were selected. Clinicopathological factors were retrospectively analyzed. We applied techniques of laparoscopic gastric surgeries for additional LN dissection along common hepatic, left gastric or splenic arteries during laparoscopic distal pancreatectomy (LapDP) for NFPNET. Effects of the additional LN dissection in LapDP were evaluated.

Results: 31 patients with the median age of 63 (range: 26–77) were selected and the number of G1, G2 and NEC were 16, 14 and 1, respectively. 7 patients with the median tumor size of 45 mm (18–80) had LN metastasis. 2 patients got recurrences after the curative resection but all patients survived in the median observational period of 40 months (1–147). LN metastasis was significantly associated with the recurrence after the curative resection (p=0.0452). The patients with LN metastasis showed significantly bigger tumor sizes and higher frequencies of G2 grade and vessel invasions than those without LN metastasis. LapDP with the additional LN dissection was performed in 5 out of the 31 patients and 6 LNs at average were evaluated in addition to the adjacent LNs.

Conclusion: It is suggested that LN status is important to predict recurrence after curative resection of NFPNET. The additional LN dissection in LapDP enables us to do further evaluation of the LN status.

P-26-3 The clinicopathological features of insulinoma

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Introduction The identification of an insulinoma is recommended to perform complete surgical resection of the tumor. The aim of this study was to clarify the clinicopathological feature of insulinoma including the utility of the arterial calcium stimulation with hepatic venous sampling (ASVS) test.

Patients and methods Nineteen insulinoma patients who received surgical resection in our department from 1995 to 2016 were enrolled. The demographic and clinicopathological factors were analyzed.

Results: The average age was 52.5 years old. There were 5 male and 14 female cases. Eighteen cases were single insulinoma and only one case was multiple.

The average disease duration was 30.6 months (2 months to 9 years) and 2 patients were diagnosed as neurological and mental disease before diagnosis of Insulinoma. The increase of body weight was correlated with the preoperative serum insulin level and minimum value of blood glucose level. All patients were diagnosed as Insulinoma before operation, and 15 patients were performed ASVS test before operation. The accuracy of ASVS in localizing Insulinoma was 100%. Enucleation was performed in 4 patients. Partial pancreatectomy and total pancreatectomy was performed in one patient respectively. Only one case was diagnosed as malignant pathologically and he got liver metastasis. The mean observation period was 43 months. One patient died due to Insulinoma in malignant Insulinoma, however, 18 patients had no recurrence within our observation period.

Conclusion: The analysis of insulin secretion from the tumor has potential to provide useful information for clinical assessment in diagnosis and surgical resection of insulinoma patient.

P-26-4 A case of duodenal neuroendocrine tumor accompanied by gastrointestinal stromal tumors in a type 1 neurofibromatosis complicated by life–threatening vascular lesions

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Introduction: Type 1 neurofibromatosis (NF1) is associated with an increased risk of developing neurologic and gastrointestinal (GI) malignant neoplasms. However vascular lesions are rarely reported, as well as the actual incidence remains unknown.

Presentation of case: A 45-year-old woman with a background of NF1 was addressed to our hospital for evaluation of fecal occult blood positivity. An abdominal contrast enhanced computed tomograph scan demonstrated a duodenal tumor enhanced strongly of 4.0 cm in diameter. Gastroendoscopy revealed partially obstructive irregular mass. Endoscopic ultrasonography–guided fine needle aspiration biopsy revealed NET–GI. We planned a subtotal stomach–preserving pancreaticoduodenectomy. The abdominal structure including vessel systems was abnormally fragile, and it was very difficult to obtain satisfactory hemostasis even by using energy devices.

Conclusion: This case is the rare presentation of the coincidence of a NET with solid NF1 which led to unfortunate outcome because of the extreme fragility of vessel wall. Because the patients with NF1 may involve vessel fragility, full surgical preparation is necessary for major surgery.

P-26-5 Clinicopathological characteristics of well differentiated non–functioning pancreatic neuroendocrine tumors with cystic component

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Background: Most pancreatic neuroendocrine tumors (PNETs) morphologically present solid appearance, while some have cystic component. This study aimed to analyze the clinicopathological characteristics of well differentiated non–functioning PNETs (NF–PNETs) with cystic component.

Methods: Medical records of 64 patients with well differentiated NF–PNETs who underwent resection at our institution between April 1999 to October 2016 were retrospectively reviewed. Clinicopathological factors were compared between the NF–PNETs with and without cystic component.

Results: There were 31 male and 33 female with the median age of 57 years (range 23–79 years). There were 47 patients with NET G1 and 17 with NET G2, and 21 (32%) had cystic component. There were 7 patients (11%) with lymph node metastasis and 4 (6%) with liver metastasis. Recurrences were observed in 5 patients (8%), including 3 with lymph node metastasis and 2 with liver metastasis. Compared with solid NF–PNETs, NF–PNETs with cystic component had significantly larger tumor size (15 mm vs. 26 mm, P<0.01), and higher prevalence of lymph node metastasis (24% vs. 3%, P<0.05). On the other hand, there was no significant difference for the disease free survival rate between NF–PNETs with and without cystic component (P=0.52).

Conclusion: Well differentiated NF–PNETs with cystic component may have a favorable prognosis after resection despite their larger tumor size and higher incidence of lymph node metastasis than those with solid NF–PNETs.
P-26-6  Pancreatic neuroendocrine tumor with clear cell changes: a case report

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Background: Pancreatic neuroendocrine tumor (PNET) with clear cell changes has been mostly reported in von Hippel–Lindau (VHL) disease and MEN-1. Clear cell changes are reported with adenocarcinoma and vacuolated cytoplasm after hematoxylin–eosin staining. PNET with clear cell changes is rarely reported without VHL disease and MEN-1.

Case: An 82-year-old woman was followed up with a cystic lesion in the pancreatic body. The patient had no evidence of either VHL disease or MEN-1. Enhanced computed tomography (CT) revealed multiple ring enhancing lesions in the pancreatic body and tail at a distance from the cystic lesion. Multiple lesions up to 2 cm in diameter were detected. FDG-PET/CT showed that FDG was up-taken in the lesions. Endoscopic ultrasound-guided fine needle aspiration (EUS–FNA) was performed for the largest lesion, located in the pancreatic tail. Histopathological findings of EUS–FNA confirmed PNET. Distal pancreatectomy with splenectomy was subsequently performed as the curative treatment. Histopathological and immunohistochemical findings demonstrated PNET grade2 with clear cell changes in the pancreatic tail. Other lesions around the main tumor were metastatic lymph nodes, and a cystic lesion in the pancreatic body was serous cystadenoma. The patient is alive 16 months after the surgery, although multiple liver metastases were detected 13 months after the surgery.

Conclusion: The clinicopathological characteristics of PNET with clear cell changes and its distinction from the usual PNET remain unclear. We report a rare PNET with clear cell changes, not associated with VHL and MEN-1.

P-27-2  Successful early removal of external pancreatic duct stent

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External pancreatic duct stent (ES) reportedly reduces postoperative pancreatic fistula formation. Median postoperative hospital stay (PHS) in Asian countries remains long, ranging from 19 to 28 days. ES is conventionally removed 3 weeks after pancreatecduodenectomy. We examined whether early removal of ES contributed to shortening PHS without pancreatic fistula. Using 25 patients who underwent pancreaticoduodenectomy with ES from April 2015 to October 2016, the period until removal of ES, postoperative hospitalization days, inflammatory findings after removal of ES were examined. ES was fixed to the posterior wall of the pancreatojejunostomy using Vicryl–rapidie. Median age was 72 years old. The diagnoses were pancreatic cancer in 16, bile duct cancer in 5 and others in 4 of 25 patients. The grade of pancreatic fistula (none / A / B / C) was 23 / 2 / 0 / 0. ES was removed on 13th after pancreateoduodenectomy (9 – 28). Differences in WBC and CRP after the removal were 0 /ul and –0.25 mg/dl without fever. Median length of PHS was 20 days. Except 5 DGE-patient, the length was 18 days (13 – 31). Conclusion: Early removal of external pancreatic duct stent from 10 to 14 days after pancreaticoduodenectomy contributes to shortening postoperative hospital stay.

P-27-1  Review of the fifteen cases of postpancreatectomy hemorrhage

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Background Postpancreatectomy hemorrhage (PPH) is a serious complication with a high mortality rate.

Patient and Method: 237 patients received pancreatectomy between January 2012 and December 2016. We reviewed them to investigate predictive factors for PPH.

Result: Fifteen of the 237 patients developed PPH (6.3%) included two patients of pseudoaneurysm rupture threats. Eleven patients were men, and the average age was 64 years (31–77). Diagnoses included invasive ductal carcinoma (n=4), IPMC (n=2), other pancreatic tumor (n=2), biliary tract carcinoma (n=4), and others (n=3). The surgical procedures were PD (n=10), DP (n=4) and PD+DP (n=1). Five patients had previously taken anticoagulant medications. Eight patients had histories of cardiovascular diseases. The median interval after surgery for onset of PPH was 10 days (1–25). Five patients had sentinel bleeding. Seven of fifteen patients were asymptomatic. Eleven patients were diagnosed with postoperative pancreatic fistulas according to ISGPF criteria. Twelve patients had delayed high values of CRP (>1.0) until PPH onset after surgery. IVR teams consulted with all fifteen PPH cases. The bleeding sites were detected or suspected in GDA (n=4), SPA (n=3), LHA/RHA (n=2), CHA (n=1) and others. The median treatment times from the onset was 183 minutes (53–431). All patients were successfully treated by IVR with no mortality.

Conclusion: History of cardiovascular disease and administration of anticoagulation medications might be predictive risk factors for PPH. Delayed high values of CRP with inflammation might be an early signifier for PPH. Immediate treatment by an IVR team contributes greatly to reducing PPH mortality.

P-27-3  Perioperative tight glycemic control using an artificial pancreas is useful for pancreatectomized patient with impaired glucose tolerance

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Background: Surgical stress–induced hyperglycemia is a risk factor for postoperative complications. We examined whether tight glycemic control using an artificial pancreas (TGC–AP) prevents postoperative complications in patients with impaired glucose tolerance.

Methods: 8 patients undergoing TGC (target blood glucose range of 80 to 110 mg/dL), and 7 patients undergoing conventional glycemic control (range of 110 to 180 mg/dL) were performed pancreatic surgery. We examined the incidence of surgical site infection (SSI) and remote infection (RI). Perioperative factor (surgical time, bleeding volume, insulin dose, hypoglycemic event), hematological examinations associated with infection (WBC, CRP, Procalcitonin), and insulinogenic index as well as insulin resistance were also measured.

Results: TGC–AP maintained target blood glucose zone without severe hyperglycemia (>40mg/dL). In the TGC–AP group, surgical time (469±92 vs 342±86 min; p<0.05) and insulin dose (26.0±12.5 vs 33±4.4 U; p<0.01) were markedly increased compared to control group, though there were no differences about background (age, sex, disease, BMI, HBA1c) and hematological examination. In addition, the TGC–AP group relatively decreased the incidence of SSI/RI (25% vs 71.4%; p=0.10) and prevented marked insulin resistance (1.6±0.7 vs 2.8±1.1; p=0.11) developed by surgery. Conclusion: TGC–AP may be an effective method to prevent postoperative infectious complications via prevention of insulin resistance after pancreatic surgery.
P-27-4  A preliminary study for establishing the evaluation method of surgical difficulty of pancreatoduodenectomy

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Aim: Pancreatoduodenectomy (PD) includes complicated procedure and requires high-end performance of well-trained surgeon, while education is indispensable for trainee under safe condition. An evaluation method of surgical difficulty of PD is demanded to assess whether difficult or not. As a preliminary study, we analyzed the characteristics of a difficult case. Methods: Original questionnaire survey about surgical difficulty were carried out for eight months in 2016 (n=37). Surgeons were subjectively assessed surgical difficulty whether easy/moderate or “difficult” with evaluation of severity of intra-abdominal fat and adhesions around pancreas head. Background, intraoperative and postoperative findings were compared between two groups. Results: A “difficult” case was 19 percent (7/37). Among patient/tumor factors, there were no significant differences between two groups in age, BMI, history of neo adjuvant therapy, tumor size and main pancreatic duct size, while male was majority in “difficult”. Among intraoperative findings, massive fat, severe adhesion around pancreas head and portal vein invasion were frequently observed in “difficult” with a statistical significance. As outcome, “difficult” demonstrated prolonged operative time (486 vs 374 min), more blood loss (1304 vs 764 ml), longer postoperative hospital stays (18 vs 10 days) and higher Clavien–Dindo score (2 vs 1) with a statistical significance. Conclusion: A difficult case of PD was characterized by male, massive fat, severe adhesion and major vessel invasion. Outcome of “difficult” was certainly rather worse. These findings might contribute for establishing the surgical difficulty of PD.

P-27-5  Outcomes of spleen–preserving distal pancreatectomy

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Background: When distal pancreatectomy is planned for benign diseases, preservation of spleen should be considered in terms of immunity. Spleen–preserving distal pancreatectomy (SpDP) with or without ligation of splenic vessels remains to be discussed. Here we review our SpDP cases as a single institute experience.

Patients and Methods: Between March 2001 and November 2016, patients who underwent SpDP were recruited. Operative outcomes and follow-up outcomes of these patients were retrospectively reviewed.

Results: Sixteen of 114 patients who underwent distal pancreatectomy were enrolled as SpDP cases. Average age was 56.3, and 11 of them were female. Diseases of the patients were pancreatic neuroendocrine neoplasm (pNET, n=5), mucinous cystic neoplasm (MCN, n=2), serous cystic neoplasm (n=2), solid pseudopapillary neoplasm (n=3), intraductal papillary–mucinous neoplasm (n=1) and others (n=4). All lesions located in the pancreatic tail. Median operative time and operative blood loss were 205min and 373ml, respectively. No patients required perioperative blood transfusion. Median postoperative hospital stay was 17days. Postoperative pancreatic fistula (Grade B or C, ISGPF) was occurred in 2 cases. Three cases (pNET: 2, MCN: 1) were laparoscopically performed (LAP–SpDP). In all LAP–SpDP, splenic vessels were divided (Warshaw’s procedure). There was no mortality. During the follow–up period, spleen–associated disorder was not observed. For cases of Warshaw’s procedure, no splenic infarction has been observed.

Conclusions: SpDP is a feasible procedure for benign diseases located in the pancreatic tail. Also feasible is Warshaw’s procedure, especially in LAP–SpDP.

P-27-6  A retrospective study of pancreatic dissection method in distal pancreatectomy: stapler only versus stapler plus polyglycolic acid mesh

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Pancreatic fistula (PF) is a significant complication of distal pancreatectomy, the rate ranges from 13% to 64%. To reduce the rate of postoperative PF, the stapling technique laying polyglycolic acid (PGA) mesh on cut surface was introduced in our institution. Statistical analysis was performed retrospectively on the postoperative short–term outcomes comparing stapler only (S) group and stapler plus PGA (S+PGA) group. From May 2013 to November 2016, 34 cases of distal pancreatectomy were performed, 2 trauma cases were excluded. There were 20 cases in S group and 12 cases in S+PGA. There was no statistically significant difference in drain indwelling period (4 vs 4, p=0.873), postoperative hospital stay (11.5 vs 14, p=0.787), drain fluid amylase on POD1 (POD1AMY; 2943 vs 1816, p=0.555), drain fluid amylase on POD3 (POD3AMY; 553 vs 483.5, p=0.447), drain fluid amylase reduction amount (POD1AMY – POD3AMY; 1116 vs 1556, 5, p=0.826), drain fluid amylase reduction rate ((POD3AMY – POD1AMY)/POD1AMY: -69.0% vs. -72.7%, p=0.246) and postoperative complications (6/20 vs 2/12, p=0.676). Although there was no statistically significant difference, 2 cases (2/20, 10%) with PF of ISGPF grade B or more were found in S group, whereas 0 cases (0/12, 0%) in S+PGA group. PGA mesh might reduce drain fluid amylase amount and PF incidence of grade B or more.

P-28-1  The impact of the intraoperative fluid balance on respiratory complications after pancreaticoduodenectomy in octogenarians

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Background: We assessed the impact on intraoperative fluid balance (IFB) on postoperative complications after pancreaticoduodenectomy (PD) in octogenarians.

Method: We reviewed demographic data, intraoperative findings, intraoperative fluid data, including total amount of infusion, blood transfusion, blood loss and urinary output, and postoperative complications for 43 consecutive elderly (80 years old and over) patients undergoing PD between November 2006 and December 2015 in our hospital. FB was determined as the following formula: ([total amount of infusion [mL]] – [blood loss [mL]] – [urinary output [mL]]) / [ (body weight [kg]) * [operation time [hr]]]. Patients were divided into two groups in average of the IFB: higher IFB vs lower IFB. The relationships between the IFB and postoperative outcomes were evaluated by logistic regression analysis.

Result: There were no statistical difference in age (83 years old vs 82 years old), body mass index (21kg/m2 vs 22 kg/m2), American Society of the Anesthesiologists score (2 vs 2) and Charlson comorbidity index (2 vs 2) between the two groups. Higher IFB (more than 9mL/kg/hr) was not associated with occurrence of pancreatic fistula (grade B/C) (22% vs 36%), delayed gastric emptying (grade B/C) (11% vs 12%), delirium (44% vs 36%), or superficial surgical site infection (28% vs 28%). However, it was significantly associated with respiratory complications, including pneumonia, pleural effusion or atelectasis requiring medications or interventions (odds ratio 4.67, P=0.049).

Conclusion: Higher IFB was associated with respiratory complications after PD. Restrictive fluid administration may improve postoperative outcomes for octogenarians.
P-28-2 Anthropomorphic distribution predicts development of severe pancreatic fistula after pancreaticoduodenectomy

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Introduction: The development of a pancreatic fistula (PF) is among the most concerning of postoperative complications. In this study, we investigated the clinico-pathological variables, including anthropomorphic factors evaluated by preoperative computed tomography (CT) that are associated with PF development.

Methods: All consecutive patients with pancreatic and extrahepatic biliary malignancy following PD who were treated in our department were enrolled.

Results: The median age of subjects was 72 years, 69 patients were male and 30 patients were female. The overall mortality and morbidity rates in the 99 patients were 1.0% and 36.4%, respectively. The incidence of PF was 30.3% (30/99 patients), of which 25.3% of cases (25/99 patients) were classified as grade B in and 5.1% of cases (5/99 patients) were classified as grade C. The median postoperative drain Amy level on post-operative day one (POD1) was 583 IU/L. Univariate analysis identified that body mass index ≥25kg/m2 (p = 0.032), vesicle adipose tissue area (VATA/skeletal muscle index (SMI)) ≥ 2.0 (p = 0.002), main pancreatic duct diameter ≤ 3mm (p = 0.001) and drain amylose (Amy) ≥ 5000IU/L at postoperative day (POD) 1 (p = 0.001) were significantly associated with severe PF after PD. Multivariate analysis indicated that VATA/SMI ≥ 2.0 (p = 0.009), pancreatic duct diameter ≤ 3mm (p = 0.003) and drain Amy ≥ 5000IU/L on POD1 (p = 0.032) were independent risk factors for PF.

Discussion: The preoperative evaluation of muscle and adipose volume was effective in predicting postoperative infectious complication after PD. This assessment will help surgeons determine individual surgical procedures and provide perioperative management.

P-28-3 Impact of antithrombotic agent on the clinical course after pancreaticoduodenectomy

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[Purpose] Recently, many patients take antithrombotic agents (ATA) for the prevention of several thrombotic diseases. ATA may affect surgical complication, particularly in high risk surgery such as pancreaticoduodenectomy (PD). However, to date, there is little known about clinical impact of ATA on the clinical course after PD. The aim of this study was to clarify the effect of ATA on the postoperative complications after PD.

[Methods] Between 2007 and 2013, a total of 254 patients underwent PD at Nara Medical University Hospital. Thirty-five patients (13.8 %) who have been received ATA before surgery were defined as ATA group, and the others were defined as control groups. [Result] Patients in the ATA group were significantly older than those in the control group (71.5 vs. 66.4 years; P = 0.005), although there were no differences in gender, BMI, and pathological diagnosis. There were no significant differences between two groups in intraoperative blood loss, rate of transfusion, and operative time. Postpancreatectomy hemorrhage (PPH) Grade A/B/C (ISGPS) was significantly more frequent in the ATA group (14.3 vs. 3.7 %; P = 0.021). The incidence of thrombotic events, pancreatic fistula, and other complications were not significantly different between two groups. In univariate analyses, ATA use (P = 0.021), intraoperative blood loss (P < 0.001), transfusion (P = 0.047), and operative time (P = 0.033) were associated with PPH. In multivariate analysis, ATA use (OR: 4.1, P = 0.040) as well as intraoperative blood loss (OR: 8.0, P = 0.019) was significant risk factor of PPH. [Conclusion] Our data demonstrated that ATA use was a significant risk factor of the hemorrhage after PD.

P-28-4 Pancreaticogastrostomy Prevents Postoperative Pancreatic Fistula of Portal Annular Pancreas During Pancreatectoduodenectomy

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Potal anular pancreas (PAP) is an asymptomatic congenital pancreatic anomaly in which the uncinate process of the pancreas extends and fuses to the dorsal surface of the body of the pancreas by surrounding the portal vein and or the superior mesenteric vein. During pancreato-duodenectomy (PD), the presence of PAP significantly increased risk for postoperative pancreatic fistula (POPF) because specific management of 2 pancreatic resection planes with 1 or 2 pancreatic ducts is required for pancreatico-intestinal reconstruction. To reduce the risk of POPF, a shift of the resection plain to the left for 1 anastomosis is recommended. We report a case of PAP that was successfully performed PD with pancreaticogastrostomy (PG). PG was conducted with invagination of the 2 resected pancreatic planes together into the stomach to minimize resected volume of the pancreas. A 78-year-old male patient with PAP underwent PD due to a duodenal adenocarcinoma. Intraoperatively, the uncinate process extended extensively behind the portal vein and fused with the dorsal surface of the pancreatic body above the splenic vein. For pancreatico-intestinal reconstruction, PG was performed with invagination of the 2 resected pancreatic planes together into the stomach. The postoperative course was uneventful, and he was discharged on postoperative day 12. Endocrine and exocrine function of the pancreas were maintained well at 10 months after surgery. PG is one of the useful choices for patients with PAP to prevent POPF while maintaining the pancreatic endocrine and exocrine function after PD.

P-28-5 Continuous negative pressure drainage and irrigation treatment combined with open necrosectomy for infected walled-off pancreatic necrosis

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Background

Patients with infected walled-off pancreatic necrosis (WOPN) need adequate drainage. Open necrosectomy (NS) is still one of the option. However even by open NS, complete removal of necrotic tissue is sometimes difficult. So we have applied a continuous negative pressure drainage and irrigation treatment (NPD-I) combined with open NS for WOPN.

Method

The system consists of nasogastric tube with irrigation route, continuous suction unit and continuous infusion device (Figure1). Normal saline was administered at a speed of 5-20ml/h and continuous suction was applied at a pressure of ~10cm H2O.

Results

Six patients were treated by NPD-I between 2013 and 2016. Four patients were successfully treated without recurrence and their NPD-I duration and postoperative hospital stay ranged 7-64 and 26-139 days respectively. Two patients died for sepsis due to insufficient drainage. (Table1) One autopsy case demonstrated that PD treatment is effective and cavity had been shrank at lesion where tube was placed, while the place where the tube didn’t reach, viscid necrotic substance still existed.

Conclusion

NPD-I treatment with NS is promising for WOPN, however in case of prolonged uncontrolled infection, additional NS has to be considered if patient condition is tolerable for re-operation.

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Figure 1. Negative pressure drainage and irrigation treatment.
P-28-6 Ruptured portal vein pseudoaneurysm after pancreaticoduodenectomy: report of a case

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[Case Report] A 69-year-old man was treated for a diagnosis of distal bile duct carcinoma by subtotal stomach-preserving pancreaticoduodenectomy (PD). Since postoperative day (POD) 1, he developed serious pancreatic anastomotic leakage. On POD 12, after sentinel bleeding he developed shock because of massive intra-abdominal hemorrhage. Emergency computed tomography (CT) scan demonstrated no evidence for arterial leak or pseudoaneurysm of visceral arteries. He was managed by transfusion and intravenous fluids. Then recurrent hemorrhage was still continued. On POD 16, massive hemorrhage was occurred again, but emergency angiography did not identify an active bleeding source or the pseudoaneurysm at the portal vein. On POD 26, after massive hemorrhage again, CT scan demonstrated no arterial pseudoaneurysm, but revealed the portal vein pseudoaneurysm. On POD 31, open drainage after making a small median incision was performed. Although intra-abdominal hemorrhage was continued, amount of bleeding was reduced. Then he remained free of further hemorrhage and pancreatic anastomotic leakage was improved. He was discharged on POD 109.

[Discussion] Portal vein pseudoaneurysm after PD is quite rare complication. Therefore, it was very difficult to choose the method of treatment, among re-operation, endovascular repair and conservative therapy. In the current case, the conservative therapy was performed finally. This possibility must be kept in mind in following the patient undergone PD.

P-29-1 Pancreaticoduodenectomy for patients over the age of 80

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Purpose: We evaluated perioperative and long-term outcomes of elderly patients who underwent pancreaticoduodenectomy (PD).

Method: Twenty-one patients with over 80 years of age who underwent PD were enrolled.

Results: Five pancreatic cancer, 6 bile duct cancer, 6 ampullary cancer, 2 duodenal cancer, and 2 other malignant diseases were included. Preoperative performance status (PS) was 1 or 0 in all patients. The portal vein resection was performed in 2 patients with pancreatic cancer. The median surgical time and blood loss were 508 min and 870 ml, respectively. Eleven patients had grade A postoperative pancreatic fistula (52%). However, no patient had grade B or C pancreatic fistula.

Grade B delayed gastric emptying was observed in 2 patients (9.5%). No patient had complications with Clavien–Dindo classification grade III or more. The median postoperative hospital stay was 18 days. Duration of hospital stay became shorter by early drain removal, postoperative ambulation, and oral intake. The median overall survival (OS) after surgery was 19.6 months for pancreatic cancer patients. By contrast, the median OS of patient with the other disease was 53.0 months. No pancreatic cancer patients underwent neoadjuvant therapy, and only 1 patient (20%) underwent postoperative adjuvant therapy.

Conclusions: PD for elderly patients over 80 years of age could be safely performed by selecting good PS patients and careful postoperative management. A good prognosis can be expected pancreatic cancer. However, neoadjuvant therapy or adjuvant therapy may be necessary to achieve better prognosis for pancreatic cancer patients.

P-29-3 Investigation of Pancreatic fistula after distal pancreatectomy and closure of the pancreatic stump

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Background: Pancreatic fistula (PF) after distal pancreatectomy (DP) is a frequent complication. There have been numerous discussions concerning the closure method of pancreatic stump, but no conclusion have been drawn. At our department, we ligate the main pancreatic duct and hand sew (fish-mouthed suture closure) (HS) as a principle. Now, we have done several cases of laparoscopic surgery (LDP), and introduced the mechanical stapler device (MS) to close pancreatic stump in both LDP and laparotomy (ODP). We here report the closure technique of pancreatic stump and occurrence of PF after DP in our department. Method: Between January 2012 and November 2016, 16 patients underwent DP in our department. They were subjected to ODP (n=10) or LDP (n=6) and were subsequently retrospectively reviewed.

Result: In all six cases of LDP, MS were used. Out of the 10 ODP cases, 2 cases used MS and 8 cases were HS. There were 6 cases (37.5%) with PF, of whom 4 cases underwent LDP (66.7%) and 2 cases underwent ODP (20%). Both of the 2 cases with PF after ODP used MS as the closure method. The incidence of PF was significantly higher when MS were used, compared to when HS. Patients that underwent LDP had longer median hospital stay compared with those of ODP (21 vs 12 d). Conclusion: LDP may be beneficial, since there is less abdominal wall destruction and is cosmetically more tolerable. However, closure of pancreatic stump with MS showed a tendency of prolonged hospital stay due to the many complications of PF. Based on the results of this study, we have decided to hand sew the pancreatic stump with a minimal laparotomy above the transection line, and not use MS.
P-29-4 The predictive factors for postoperative pancreatic fistula after pancreaticoduodenectomy for soft pancreas

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Background: Pancreaticoduodenectomy (PD) is one of the standard surgical treatment used for resection of malignant and benign neoplasm in periampullary region. Despite recent advances in surgical techniques, the incidence of postoperative pancreatic fistula (POPF) remains high. One of the most important risk factor is soft pancreas. The purpose of this study was to investigate the risk factors for POPF after PD for soft pancreas. Method: A total of 54 patients who had undergone PD for soft pancreas at Yamanashi University from January 2012 to November 2016 were retrospectively analyzed. Result: POPF was classified into two groups, 13.0% (7/54) patients had Grade B or C (B/C group) and 87.0% (47/54) patients had non or Grade A (N/A group). Patient characteristics were not significant difference in two groups. The drain amylase level (D–Amy) on POD 1 and 3 in the B/C group was significantly higher than that in the N/A group (2046±5949 vs 4256±593, p<0.0001, cut off level : 4300 IU/l and 1866±283 vs 511±83, p<0.0001, cut off level : 753 IU/l). In laboratory data, WBC and CRP on POD 3 showed a significant difference between the two groups (1139±1122 vs 8693±491, p=0.0451, cut off level : 10910/ml and 19.1±2.2 vs 12.5±1.0, p=0.0172, cut off level : 18.7mg/dl). Conclusion: D–Amy on POD1, 3, and WBC, CRP on POD3 were the significant predictive factors for developing POPF of Grade/C.

P-29-5 Pancreaticoduodenectomy in elderly patients—Preoperative risk assessment and postoperative short-term outcome—

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Since surgical procedure and perioperative care for pancreaticoduodenectomy (PD) has been improved, PD has been performed in elderly patients. We examined the association between preoperative risk and postoperative complications in PD for elderly patients. Methods: From January 2013 to November 2016, 110 patients underwent PD in our hospital. Of 110 patients, 31 patients (28.2%) were elderly patients (> 75 years). We analyzed perioperative outcomes for elderly patients. We also compared patients’ characteristics and perioperative outcomes between elderly group and non elderly group (< 75 years). Results: Comorbidities of elderly patients were as follows: heart disease (6.5%), lung disease (22.6%) and diabetes (35.5%). ASA PS of elderly patients were Class I/II/III = 2/21/8. Between elderly group and younger group, there was no significant difference in patients’ background, including gender, primary disease, and comorbidities. In the surgery related factor, the operative time of elderly group was significantly shorter than younger patients (471±83 vs. 509±93min). There is no significant difference in blood loss (678±437 vs. 640±489ml) between the 2 groups. Incidence of Clavian Dindo IIIa or more complications was no significant differences between the 2 groups (43 vs. 32%). Incidence of Grade B/C postoperative pancreatic fistula was also no significant difference between the 2 groups (25.8 vs. 25.3%). Hospital stay after surgery (23 vs. 20days) was also similar between the 2 groups. Hospital death was experienced in only 1 patient in the younger group. Conclusions: Even elderly patients could obtain perioperative outcome equivalent to non–elderly patients with PD.

P-29-6 Factors influencing clinically significant pancreatic fistula after distal pancreatectomy

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Background: Pancreatic stump leak is among the most serious complications after distal pancreatectomy (DP). In this study, we explored the risk factors and techniques for prevention of PF after DP. [Methods] A total of 58 patients who underwent DP at the Steal Memorial Muroran Hospital was retrospectively analyzed, and the factors associated with clinically relevant PF were explored. With regard to the closure techniques of the pancreatic stump, we adopted surgical technique of pancreatic stump closure among them. The thick pancreatic stump is a high risk factor for PF, therefore, the pancreatic stump reinforcement should be added. In our study, staple line reinforced with PGA sheet significantly reduced PF rate.

Results: The median age at the time of surgery was 66 years, and 34.9% of all patients were women. The overall incidence of clinically relevant PF was 11 cases (19%), and the thickness of pancreatic stump was strongly associated with formation of PF (PF(+): 19mm vs. PF(−): 11.1mm). ROC analyses determined the cut-off value of the size of cross-section for PF detection to be 15mm with a sensitivity of 66.7% and with a specificity of 83.7% (AUC 0.86). With regard to the pancreatic remnant closure technique, staple closure with PGA sheet significantly reduced PF rate compared with that without PGA sheet, (0% vs. 33.3 %, p=0.031), whereas there were no differentiation between hand–sewn and stapler closure.

Conclusion: The thick pancreatic stump is a high risk factor for PF, therefore, the pancreatic stump reinforcement should be added. In our study, staple line reinforced with PGA sheet significantly reduced PF rate.

P-30-1 Does The Pancreatic Volume Reduction Rate Using Serial Computed Tomographic Volumetry Predict New Onset Diabetes After Pancreatico-duodenectomy?

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Background: Volume reduction of the pancreatic tissues following a pancreatectomy can lead to the deterioration of glucose homeostasis. The objective of this study was to investigate the occurrence of new–onset DM and evaluate the risk factors, including the pancreas volume reduction rate in patients undergoing pancreaticoduodenectomy.

Methods: Sixty–six patients without preoperative DM underwent PD between 2007 and 2012 These patients underwent abdominal CT scan 7 days, 6 months, 12 months, 24 months, and 36 months after the operation. The pancreas volume reduction rate was calculated by computed tomography volumetry. The patients were divided into two groups according to the postoperative development of DM.

Results: After PD, newly diagnosed DM occurred in 16 patients. In the multivariate analysis, the pancreatic volume reduction rate 6 months after PD was the only significant predictive factor for the development of new–onset DM (p=0.002).

Conclusions: This study suggests that the pancreatic volume reduction rate 6 months after PD was the only significant predictive factor for the development of new–onset DM. CT volumetry of the pancreas may be useful as a predictor of new–onset DM after PD.
P-30-2  Analysis of Pancreatic fistula after distal pancreatectomy

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Go Ohira, Ryosuke Amano, Kenjiro Kimura, Sadaaki Yamazoe, Kohei Nishio, Naoki Kamehata, Kosei Hirakawa, Masaichi Ohira

**Background**: Pancreatic fistula (PF) after distal pancreatectomy (DP) is a major complication and treatments for PF frequently takes many days. There were no appropriate methods for reducing PF after DP.

**Methods**: We retrospectively analyzed clinical records of 175 patients who had undergone DP at our institution from January 2006 to December 2016.

**Results**: Men/Women was 83/92, and the average age of 175 patients was 64.4 years.

The disease of 175 patients were pancreatic cancer (n=74), IPMN (n=32), NET (n=11) and the others (n=59). Stapler group (S-group) were 128 patients, and Non–stapler group (N-group) were 47 patients. All patients' PF (Grade B/C) were 44%, S group: 39.8% and N group: 55.3% (p=0.0858). There was no significant risk factor of PF between S and N group. In S group, the risk factors of PF were pancreatic thickness>11.02mm, drainage, and WBC (>13100/μl) of postoperative day 3 (POD3), operation time (>204 minutes), blood loss (>780ml) and transfusion in univariate analysis.

In multivariate analysis, the risk factor of PF were thickness >11.02mm (p=0.0306) and drain's amylase (>1020U/L) and C–reactive protein (>10.42mg/dl) and WBC (>13100/μl) of postoperative day 3 (POD3), operation time (>204 minutes), blood loss (>780ml) and transfusion in univariate analysis.

**Conclusion**: The risk factors of PF were pancreatic thickness and drain's amylase of POD3. It was very important that we perform appropriate drainage and prevent grade C of PF.

P-30-3  Stump closure using stapler closure in distal pancreatectomy

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**Background**: The appropriate surgical stump closure after distal pancreatectomy (DP) is still controversial. The aim of this study was evaluated for staple closure during DP.

**Methods**: A retrospective analysis was conducted for 38 consecutive patients who underwent a distal pancreatectomy in which the staple closure was used (including for pancreatic cancer in 13, intra–ductal papillary mucinous neoplasm in 10). In the present study, we defined pancreatic fistula worse than grade A by the International Study Group on Pancreatic Fistula (ISGPF) guidelines. Only 1 of 38 patients underwent laparoscopic DP, and all the others underwent open DP. The pancreas parenchyma was divided by using the stapler closure (liner type in 22, TA type in 16) after pre–compression.

**Results**: Four patients had additional procedures other than DP (e.g., gastrectomy for gastric cancer). The median operative time and intraoperative blood loss were 294 minutes (range, 172–641), and 313ml (range, 50–2749). No in–hospital death occurred in this study. Pancreatic fistula (worse than grade A by ISGPF guidelines) occurred in 8 patients (21%; all of 8 as grade B). All of these patients were treated conservatively. The median postoperative–hospital stay was 16 days (range, 7–46).

**Conclusion**: In this study, staple closure during DP was relative safe with no grade C pancreatic fistula, and this technique was useful to standardize the procedures in spite of approach.

P-30-4  Revision pancreaticojenunostomy for pancreatic duct obstruction after pancreaticoduodenectomy

The Department of Surgery, Hallym University, Seoul, Korea
Joo S Kim

(bg) The indication of pancreaticoduodenectomy (PD) has expanded to broad spectrum even to benign lesions. Thus surgeons have faced the long–term complication after PD. (material) Two patients underwent surgical revision of prior pancreaticojenunostomy for intractable pain after PD. The 39–year old male patient underwent PPPD for duodenal rupture after ERCP. Nine years after first operation, the patient developed intractable pain. Reoperation was done. The original pancreaticojenunostomy (PJ) was identified. A enterotomy was done, but the pancreatic duct was not entered. The pancreas was resected. The revision PJ was performed in HY fashion. After second operation, the patient is completely free from the pain. The 73 year old male patient underwent standard PD for EGC and pancreatic duct stricture. After 92 months, the patient suffered epigastric pain. A swelling of pancreas was depicted. The symptom was not relieved after conservative treatment. The patient underwent second operation. The procedure was same as the first patient. The patient is doing well. (Conclusion) The pancreatic duct obstruction is one of late–onset complication after PD with the incidence of 5%. When intractable pain developed, operative correction of original PD is suggested. The takedown of prior PJ and revision PJ was feasible and safe.

P-30-5  2-year experience of Peng's binding pancreatico-gastrostomy after PPPD

Department of Surgery, Chungnam National University Hospital
KwangSi Chun, Mi Kim, InSang Song

Methods:
From October 2011 to April 2014, 50 consecutive cases of PPPD with BPG were performed. Short–term outcomes of BPG including postoperative morbidity, mortality, and pancreatic fistula–related complications were analyzed prospectively.

Results:
The mean patient age was 68 years. 42 were malignant and 8 were benign. Bile duct cancer and pancreatic cancer were the most common whereas intraductal papillary mucinous neoplasm (4 cases) was the most common in benign. Nineteen morbidities developed in 13 patients, and 4 patients developed more than 2 complications. According to the Clavien–Dindo Classification, morbidities were grade I in 8 cases, grade II in 6 cases, grade IIIA in 2 cases, grade IIIB in 2 cases, and grade V in 1 case. The morbidity rate was 38%. The median time to drain removal after surgery was 8 days, and the median length of hospital stay after surgery was 14 days. POPF occurred in 4 cases, resulting in a POPF rate of 8%. POPF–related mortality occurred in 1 case.

Conclusion:
Peng's BPG is a good surgical option to minimize the occurrence of POPF. However, preservation of a sufficient length of the pancreatic stump is important to reduce the risk of serious BPG–related complications.
P-30-6  Can we predict postoperative diabetes mellitus in patient with distal pancreatectomy?

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Takanori Ochiai1), Atsushi Kudo1), Shinji Tanaka1), Minoru Tanabe1)

Background and purpose: It is generally known that postoperative diabetes mellitus (DM) often occurs after pancreatectomy especially in distal pancreatectomy (DP), and reduces the patient's quality of life. The purpose of this study is to investigate whether the onset of postoperative DM in patient with DP can be predicted.

Subjects and Methods: The subjects consisted of 23 patients without preoperative DM who were performed DP between October 2014 and December 2015, followed up for at least 6 months. The patients were classified by 2 groups whether the patient had developed DM at 6 months after DP. We compared clinicopathological factors between the DM group and no DM group.

Results: Eight patients, 35% of the total subjects had developed DM. Regarding preoperative factors, the value of HbA1c was significantly higher in the DM group (p: 0.0084), however there was no difference in age, gender, BMI, and primary disease. Further details of high HbA1c were examined, there was no difference in blood C-peptide, urinary C-peptide, HOMA-IR, and insulinogenic index. Regarding operative factors, there was no difference in operation time, blood loss, range of lymph node dissection, method of stump closure, dilation of main pancreatic duct, and site of pancreatic dissection. Regarding postoperative factors, there was no difference in incidence of pancreatic fistula, blood C-peptide, and urinary C-peptide.

Conclusions: In patients performed DP without preoperative DM, the higher preoperative value of HbA1c, the higher incidence of postoperative DM.

P-31-1  A case of aggressive surgery of recurrent colon cancer underwent pancreaticoduodenectomy, SMV segmental resection and partial resection of IVC and revision of previous anastomosis of colon

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Aim: Aggressive surgery improves prognosis of colorectal cancer and resection of metastatic tumor in the HBP area is challenging in hepatobiliary surgeon. Case; 51 year old male was admitted for epigastric pain. He has the history of transverse colon cancer. In another hospital, he received laparoscopic assisted right hemicolecotomy in 2013. The initial stage of colon cancer was T4aN1aM0. He visited our hospital at April, 2014 for recurrent tumor of abdominal wall, consistent with port site metastasis. Metastatic abdominal wall mass was excised widely. During follow up, he complained frequent epigastric pain in May 2015. Abdominal CT scan showed huge recurrent mass at anastomosis site of colon, invading duodenum and SMV and IVC. On exploration, firm mass was seen in the previous anastomosis site of colon, and it was also fixed hard in the retroperitoneal area. Pancreaticoduodenectomy and SMV partial resection with artificial graft interposition replacement and IVC partial resection due to cancer invasion, and revision of anastomosis site of colon was performed. Postoperatively, Grade A pancreatic fistula developed and discharged at postoperative day 30. He received chemotherapy and did not show any recurrence yet. Conclusion; Aggressive surgery of metastatic cancer of HBP area could improve the prognosis.

P-31-2  SOFA scoring system is useful in prediction for acute pancreatitis

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Purpose: The aim of this study is to access and compare the efficacy and predictiveness of Ranson scoring, APACHE II systems, and SOFA scoring in predicting the serial severity and the outcome of acute severe pancreatitis in ICU patients.

Patients and methods: Patients who had necessity for intensive care were enrolled in this study and cases of traumatic–related pancreatitis were excluded. The etiology, severity, treatment and outcome were analyzed.

Results: The most common etiology of acute pancreatitis is alcoholism, followed by biliary problem. The ICU stay is 8±13 days in survival and 28±38 days in deceased patients, and the mortality rate 17%; the mean of hospital stay is 30 days, and 28±26 days in survival and 48±72 days in deceased patients. The patients are dichotomize to two groups: survival (n=110) and deceased (n=28), and there was significantly different in age and ICU stay.

There are statistically significant differences between these three scoring systems in different time points for patients between survival and deceased group. All the scores were found to be reliable in predict the ICU mortality and total survival rate, but the Ranson scoring system is the lowest. SOFA scoring system has higher AUC, and the best time prediction was the 7th days, which is 0.95 in ICU mortality and 0.86 in total survival rate.

Conclusion: Our data suggested that SOFA scoring system is the best scoring system in prediction for acute pancreatitis, and there is difference in clinical parameters between early and late mortality in Ranson, APACHE II, and SOFA scoring systems.

P-31-3  Preoperative 6-minute walk distance accurately predicts postoperative complications after operations for hepato–pancreato–biliary cancer

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Background: Among open abdominal surgeries, surgery for hepato–pancreato–biliary cancer is one of the most invasive, with a high postoperative morbidity and mortality rate. The purpose of the present study is to investigate whether a preoperative 6 minute walk distance (6MWD) can predict major postoperative complications after surgery for hepato–pancreato–biliary diseases.

Methods: A total of 81 participants who underwent pancreaticoduodenectomy (PD), major hepatectomy with extrahepatic bile duct resection (EBDR), or hepatopancreatoduodenectomy (HPD) were included. The 6MWD was performed within one week before surgery. Patients were categorized into two groups based on surgical complications, “Clavien–Dindo grade <3” and “Clavien–Dindo grade ≥3”. Clinical differences between the two groups were analyzed. Multivariate logistic regression analysis was performed to identify risk factors for postoperative complications that were categorized as Clavien–Dindo grade ≥3.

Results: The multiple logistic regression model revealed a significant correlation between major postoperative complications and preoperative low 6MWD, low body mass index (BMI), and major blood loss. In patients with 6MWD less than 400 m (1312 feet), the Clavien–Dindo grade was considerably higher than patients with more than 400 m.

Conclusions: The 6MWD is useful in identifying patients with a higher chance of developing major postoperative complications after surgery for hepato–pancreato–biliary cancer.
P-31-4  HPB surgery using a 3D printer
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[Objective] Preoperative simulation with a 3-dimensional model (3D model) prepared using a 3D printer has been increasingly reported in the liver surgery field, and we previously reported a low-cost preparation method. [Methods] Using MDCT data and Vincent, 3D images of the artery, portal vein, tumor, outer shell of the liver and pancreas were prepared, converted to an STL file employing the 3D mode, fused in 3D software, and output at 50–60%. The file was sent to a 3D printer (list price: 160,000 yen) and models were prepared. [Results] In the 3D mode, it is difficult to extract small vessels but the positional relationship of the vessels is accurate. In the liver analysis mode, the small vessels can be extracted but the many blood vessels were fused or missed in the process of smoothing images. Liver model preparation mode, the pancreatectomy mode uses 3D mode. The 3D model could be prepared at a cost of about 5,000 yen. Ten–twelve hours were required for preparation. [Discussion] Preoperative navigation using a 3D printer is useful. Although its preparation requires labor and time, the 3D model may be easy to use during surgery.

P-31-5  Preoperative simulation and navigation with computer aided surgery in open and laparoscopic liver resection
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Purpose: Our aim is to adopt the simulation and navigation system to computer-aided surgery (CAS) for liver resection and assess its usability, by comparing the quality of 3D images reproduced by surgeons with various postgraduate years.

Methods: By using our original software, Liversim, which enables real–time deformation of the liver is used for the virtual hepatectomy of laparoscopic liver resection, we have validated the quality of the 3D images created by SYNAPSE VINCENT prior to virtual hepatectomy. The number of segmented portal and hepatic veins were compared between a group of 1–2 year surgical residents and a group of 3–8 year residents. In addition, to validate the usability of the SYNAPSE VINCENT, the required time to create the 3D image was also measured.

Results: [i] We performed 11 virtual laparoscopic liver resections. Since the Liversim provides effective specific visual development from a caudal view in endoscopic surgery, in laparoscopic left lobectomy, we could perform preoperative surgical rehearsal by lifting the left lobe and cutting the V4 along with the resection line from the caudal side toward the head similar to the actual surgery. [ii] No significant differences were observed in terms of the number of segmented portal and hepatic veins in the 3D–liver models between the two resident groups. The time required for the reconstruction of the liver model was shorter for those who had more experience generating reconstructions.

Conclusion: Preoperative simulation and navigation with CAS helps us to simulate and practice the procedure of the liver surgery prior to surgeries. Less experienced surgeons can create an accurate 3D image using SYNAPSE VINCENT.

P-31-6  Prospective study about safeness of perioperative intensive insulin treatment using artificial pancreas in hepato–biliary–pancreatic surgery
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[Introduction] In hepato–biliary–pancreatic (HBP) surgery, surgeons should take care not only for surgical technique, but also for perioperative management. Efficacy about intensive insulin treatment (IIT) by artificial pancreas (AP) with a closed–loop glycemic control system (STG–55, Nikkiso, Tokyo, Japan) for perioperative period was reported in general surgery. In this study, we prospectively analyzed safeness and efficacy about perioperative IIT by AP in HBP surgery.

[Patients and Methods] Between 2014 and 2016, perioperative IIT using AP was performed in 97 patients who undergoing hepatic resection above 2 sectors (Hr2), pancreateoduodenectomy (PD) or liver transplantation (LT). The target blood glucose range was 80 to 110 mg/dl. Using AP, a patient was considered satisfied if the glycemic control was between 80 to 110 mg/dl. AP was used for 24 hours before surgery and during the perioperative period. AP was used for 35±18 hours in HBP surgery.

[Results] Eighty–six patients were satisfied with the glycemic control. The glycemic control was between 80 to 110 mg/dl. The target blood glucose range was 80 to 110 mg/dl. The unexpected event was experienced by application of artificial pancreas, including hypoglycemia. Total dose of insulin and rate of the time about ideal glycemic control during 24 hours from start of surgery were 811U/20%. Postoperative hospital stay was 44. There was no mortality in this study period. (Conclusion) In HBP surgery, perioperative application of artificial pancreas for IIT was safe. Although, poor glycemic control in perioperative period, instead of high dose insulin administration suggested marked insulin resistance during perioperative periods. Therefore, this study also suggested importance of therapeutic intervene for severe insulin resistance in HBP surgery patients.

P-31-7  Peribiliary cysts coexisting with intrahepatic bile duct dilatation due to pancreas cancer: a case report
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Background: Peribiliary cysts are cystic dilations of peribiliary glands in the liver. They are usually asymptomatic and can imitate abnormal bile duct dilatation (e.g. obstructive jaundice) on imaging. Awareness of this condition is essential to avoid misdiagnosis leading to inappropriate treatment. Here we report the case of a 67–year–old man whose left intrahepatic bile duct dilatation did not improve after bile duct drainage.

Case presentation: The patient visited a hospital because of yellowish skin and itching. The serum bilirubin level was 16.7 mg/dl. CT revealed a 3cm mass at the pancreas head and dilatation of the intrahepatic bile duct, suggesting obstructive jaundice due to pancreatic head cancer. Liver cirrhosis was also observed. He underwent bile duct drainage. In the ERBD and his symptoms were relieved. The level of serum bilirubin increased (1.8 mg/dl), however, CT showed the dilatation of left intrahepatic bile duct remained. DIC–CT showed the dilated lesion did not communicate with the biliary tract. This condition was diagnosed as peribiliary cysts without apparent obstruction and we performed subtotal stomach–preserving pancreaticoduodenectomy (SSPPD).

Conclusions: Although peribiliary cysts can be diagnosed on imaging, it is not easy to rule out the coexistence of intrahepatic cholangiocarcinoma when obstructive jaundice is observed. Some reports described hepatectomy for peribiliary cysts on the suspicion of cholangiocarcinoma. In this case, we did not think hepatectomy necessary based on the DIC–CT findings. Peribiliary cysts should be considered in cirrhotic patients with cholestasis and biliary dilatations.
P-32-2 Isolated biliary fungal infection mimicking hilar cholangiocarcinoma

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«Conclusion» We experienced a case of isolated biliary fungal infection with granulomatous cholangitis. Section of resection margins were negative for tumor. Final pathological diagnosis showed fungal infection with granulomatous cholangitis.

P-32-3 Risk Prediction of Post–Hepatectomy Liver Failure in Patients with Perihilar Cholangiocarcinoma

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PURPOSE: To develop a prediction model for post–hepatectomy liver failure (PHLF) after combined liver and extrahepatic bile duct resection in patients with perihilar cholangiocarcinoma (PHC).

METHODS: Between October 2001 and December 2012, 143 patients who underwent major liver resection with PHC were included. To ensure safety, preoperative biliary drainage and portal vein embolization were performed as needed. Clinically relevant PHLF was defined as liver failure corresponding to grade B or C of the International Study Group of Liver Surgery. Multivariate logistic regression was used to develop the PHLF risk model. Model performance was evaluated internally by area under the curve (AUC) analysis (discrimination) after 1000 bootstrap resampling and by the Hosmer–Lemeshow goodness-of-fit test (calibration).

RESULTS: PHLF occurred in 43.4% of patients and 90–day mortality was 9.8%. In multivariate logistic regression, PHLF was significantly associated with future liver remnant ratio (odds ratio [OR] per 10% = 0.68), estimated blood loss (OR per 1 L = 1.82), and prothrombin time (INR) > 1.20 (OR = 3.22). The PHLF risk score model showed good discrimination (AUC = 0.708, 95% CI 0.623–0.793) and calibration (P = 0.227). In addition, good accuracy was demonstrated when classified as four (low, moderate, high, and very high) risk groups according to predicted risk (AUC 0.697, 95% CI 0.618–0.776).

CONCLUSION: In this study, a PHLF risk score model including three risk factors was devised. The strength of this model is that statistical prediction of PHLF risk is possible in patients with PHC. This will guide how to control certain risk factors and ensure the minimum safety.

P-32-4 A case report of perihilar cholangiocarcinoma with hepatic arterial flow insufficiency to the remnant left lobe even after repeated arterial reconstruction

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Hepatic arterial flow of the remnant liver must be well maintained after major hepatectomy for perihilar cholangiocarcinoma (CCA).

P-32-5 The Optimal Surgical Resection Approach for T2 Gallbladder Carcinoma: evaluating the role of surgical extent according to the tumor location

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Background: The clinical behavior of T2 gallbladder cancer varies among patients. The aims of this study were to identify prognostic factors for survival and recurrence, and to determine the optimal surgical strategy for T2 gallbladder cancer.

Methods: We conducted a retrospective analysis of 78 patients with T2 gallbladder cancer who underwent surgical resection for gallbladder cancer.

Results: Twenty–eight (35.9%) patients underwent simple cholecystectomy and 50 (64.1%) underwent extended cholecystectomy. Among 56 patients without LN metastasis (n = 20) or unknown LN status (no LN dissection, n = 36), the 5–year disease–free survival rates were 81.6%, and 69.8% (P = 0.080). In an analysis according to tumor location, patients with tumors located on the hepatic side (n = 36) had a higher recurrence rate than patients with tumors located on the peritoneal side only (n = 35) (P = 0.043). On multivariate analysis, R1 resection and lymph node metastasis were significant, independent prognostic factors for poor disease-free and overall survival.

Conclusion: R0 resection and LN dissection are an appropriate curative surgical strategy in patients with T2 gallbladder cancer. Tumors located on the hepatic side show worse prognosis than tumors located on the peritoneal side only, hepatic resection should be considered.
P-32-6  Widespread perihilar cholangiocarcinoma underwent left lobectomy and pancreatoduodenectomy with right hepatic resection: a case report

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Purpose: Perihilar cholangiocarcinoma sometimes invades right hepatic artery (rHA) and needs right lobectomy for curative resection, however, remnant liver volume is not sufficient and disables us to perform curative resection. Herein, we reported a patient who successfully underwent hepatopancreatoduodenectomy (HPD) with rHA resection and microscopic reconstruction.

Patient: A 64-year-old male was diagnosed as perihilar cholangiocarcinoma. Tumor located in the bifurcation of the perihilar bile duct and spread to distal pancreatic bile duct. Imaging studies suspected invasion to rHA. We planned right lobectomy + PD with rHA resection and microscopic reconstruction. Therefore, we performed left lobectomy + PD with rHA resection and microscopic reconstruction. Operation time was 626 minutes and blood loss volume was 1,290ml. Pathological findings showed moderately invasive carcinoma. Operation time and estimated blood loss were 112 (20–700) mL. The patients discharged median 3 (1–70) days after operation.

Discussion and conclusion: R0 resection is preferable for perihilar cholangiocarcinoma to obtain good prognosis. In general, right lobectomy + PD would be performed for this case. However, in such a situation of insufficient remnant liver function, left lobectomy + rHA resection and reconstruction would be an optional procedure if R0 could be obtained with this procedure.

P-33-1  Prognostic Impact of OPN and DKK1 in Patient of Hepatocellular Carcinoma after Hepatectomy

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The new biomarkers are essential for improving the survival and prognosis of hepatocellular carcinoma(HCC) patients. AFP is a marker that is already used, but sensitivity is low. Recent study validated the diagnostic capability of osteopontin(OPN) and dickkopf-1(DKK1). From January 2006 to December 2008, patients undergoing hepatectomy for hepatocellular carcinoma were screened serum that has been stored in the Bank of tumor. To target the selected patient, it was confirmed that the remaining tissue specimen is stored after diagnosis. Serum of the patients was used to investigate the OPN and DKK1 by ELISA. In the paraffin block were prepared unstained slide and OPN and DKK1 level checked by IHC. It examined the correlation between prognosis and biomarkers through statistical analysis. AFP, OPN-serum level) and DKK1-serum level) are an independent prognostic factor for overall survival(OS) in HCC after hepatectomy (n=60, P=0.0294, 0.0167 and 0.0455 respectively). New biomarkers combinations based on the AFP existing biomarker are showed a falling curve of the overall survival(OS) and disease-free survival (DFS) in Kaplan Meier curve.

In conclusion, combination of OPN, DKK1 and AFP as a biomarker could support the correct diagnosis for HCC after hepatectomy.

P-32-7  RNA Sequencing of Intrahepatic Cholangiocarcinoma Reveals Two Prognostic Subclasses

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BACKGROUND & AIMS: There is a need for improved understanding of the pathogenesis of cholangiocarcinoma in order to develop better diagnostic, prognostic markers and identify novel targets for therapy. METHODS: We performed Next Generation RNA sequencing of 30 surgically resected intrahepatic cholangiocarcinomas resected at KMU DSMC in Korea. Twenty–seven samples had paired normal tissues. RNA expression, RNA variants and fusions were analyzed and correlated with demographic, clinical and pathologic features and patient survival. Next Generation RNA sequences from thirty–five intrahepatic cholangiocarcinomas resected at Mayo Clinic were used for validation. RESULTS: There were 2500 differentially expressed genes between the tumor and normal samples. Unsupervised clustering classified the tumors into two subclasses, which showed a significant difference 5-year disease free survival (42.2% vs 9.5%, P<0.004) and 3-year disease free survival (48.5% vs. 14.2%, P<0.04). For validation, we identified 160 genes allowing classification of the two subclasses and applied the subclassification to the Mayo Clinic samples. The two Mayo Clinic subclasses also had significant differences in survival. Overall, the two subclasses had similar clinical and pathologic features except for higher CEA levels in the poor prognostic subgroup. On gene set enrichment analysis, inflammation related pathways, TGF beta and ERBB2 related pathways were enriched in the poor prognostic group.

CONCLUSIONS: We used an integrative genomic analysis to identify two subclasses of intrahepatic cholangiocarcinoma, characterized by better and worse prognosis and by activation of different signaling pathways.

P-33-2  Unaided Laparoscopic Liver Resection by a Novel Method

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Background
The laparoscopic approach has become the standard procedure for many abdominal surgeries. Based on its minimal invasiveness and cosmetic advantages, these minimal access surgery is moving toward reduced size and fewer ports. We introduce reduced port or single incision laparoscopic liver resection with a novel method.

Methods
Twenty patients underwent unaided laparoscopic liver resection (15 patients with hepatocellular carcinoma, 1 growing teratoma syndrome. 2 biliary strictures with IHD stone, 2 metastatic carcinomas) between June 2015 and May 2016. Laparoscopic liver resection was performed by the operator alone, using a manual laparoscopic scope holder which could make a safe surgical view without limit activity range from a scopist.

Results
Three patients underwent left lateral sectionectomy and patient underwent tumorectomy by 3 ports. Three patients underwent left hemihepatectomy and 13 patients underwent tumorectomy without inflow occlusion by a trans–umbilical single incision. All procedures did not require open conversion and additional port. Median BMI was 25.4 kg/m2 (range 18.3–34.0) and tumor size was 17.5 (10–59) mm. Operation time and estimated blood loss were 112 (20–260) min and 200 (0–700) mL. The patients discharged median 3 (1–9) days after the operation. Two patients with postoperative abdominal fluid collection required a percutaneous drainage.

Conclusion
Unaided reduced port or single incision laparoscopic liver resection might decrease a hospital stay. With the risk of bleeding and technical difficulties, candidates should be carefully selected to obtain the benefit from this surgical technique.
P-33-3 Liver resection for non–colorectal, non–neuroendocrine liver metastases

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Background: The benefits of liver resection for liver metastases from colorectal cancer or neuroendocrine tumor is well known, but the significance of resection for non–colorectal non–neuroendocrine tumor liver metastasis (NCNNLM) remains unclear. This study examined the outcomes of liver resection for NCNNLM in our hospital.

Methods: We retrospectively studied short–term outcomes and long–term prognoses in 34 patients who underwent liver resection for NCNNLM from 1995 to 2015.

Results: The primary cancer sites in 34 cases include stomach (n=16), esophagus (n=4), breast (n=4), prostate (n=2), gallbladder (n=2), and other sites (n=4). Primary histology types were adenocarcinoma (n=31), squamous cell (n=4), gastrointestinal stromal tumor (n=2), solid–pseudopapillary neoplasm (n=1). There was no perioperative mortality and significant complications were occurred in 5 patients (14.7%). The 1–, 3–, and 5–year survival rates were 61%, 26%, and 9%, respectively, and time of metastasis, localization, and adjuvant chemotherapy were correlated with prognoses. In patients with metachronous metastasis and localization in either lobe, the 1–, 3–, and 5–year survival rates were 72%, 44%, and 17%, respectively. Especially in patients with liver metastasis from stomach cancer, good outcomes were obtained with 100%, 67%, and 55% of the 1–, 3–, and 5–year survival rates. Conclusion: Liver resection for NCNNLM is a safe treatment option. Although it is necessary to carefully consider and select individual cases, there is a possibility that prolonged survival can be achieved by performing liver resection even in patients with NCNNLM.

P-33-5 Laparoscopic parenchyma–sparing anatomical liver resection by using Glissonian approach

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Objective: We performed laparoscopic parenchyma–sparing anatomical liver resection for malignant liver tumors for the purpose of preserving liver volume as much as possible. The aim of this study was to assess the feasibility and safety of laparoscopic parenchyma–sparing anatomical liver resection by using Glissonian approach.

Methods: From June 2015 to December 2016, 51 patients underwent laparoscopic liver resection.

Among these 51 patients, anatomical sectionectomy, segmentectomy and subsegmentectomy were performed on 18 patients. During operation, by clamping the corresponding Glissonian pedicle, we made the tumor–bearing segment become an ischemic area and then resected this segment along demarcation lines and hepatic veins.

Results: In these 18 patients, 15 patients accepted pure anatomical resection, and 3 patients accepted anatomical resection combined with non–anatomical wedge resection. No patient was converted to laparotomy. The mean tumor size was 36.2 mm. The mean resection margin was 5.9 mm. The mean time of operation was 361 minutes, and the mean blood loss was 157 mL. The median post–operative hospital stay was 9 days. One patient expired on the 13th postoperative day.

Conclusions: Laparoscopic anatomical liver resection needs advanced technical skills and profound knowledge of liver anatomy. With the concept of preserving liver volume becoming popular and laparoscopic hepatectomy becoming in vogue, parenchyma–sparing anatomical resection is the future direction in liver surgery and laparoscopic anatomical liver resection by using Glissonian approach will fit this direction perfectly.

P-33-4 Usefulness of the laparoscopic liver resection for colorectal liver metastases

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Background: Although usefulness of the laparoscopic liver resection (LLR) was been repeated recent years, it is still unknown whether LLR is feasible for patients with colorectal liver metastases (CRLM). This study aimed to compare the short and long–term outcomes between LLR and open liver resection (OLR) for CRLM in our hospital.

Methods: Retrospective analysis of 67 patients who underwent partial hepatectomy for CRLM were classified into two groups; LLR (n=41) and OLR (n=26). Results: There were no significant differences in preoperative liver function test including ICG15R. Although there were no significantly differences in the ratio of the repeated hepatectomy and preoperative chemotherapy, the ratio of synchronous liver resection was significantly more than metachronous in the OLR group (15/26 vs 12/15, p=0.02). However, the resected liver weight (36.4 g vs 270 g, p=0.03) were significantly more in the OLR group. The operative time (256 min vs 427 min, p=0.001) and intraoperative blood loss (50 cc vs 538 cc, p<0.01) were shorter and lower in the LLR group. There was zero mortality and no open conversion and two patients had morbidity above Clavien’s grade II in the OLR group. The duration of the hospital stay was significantly shorter in the LLR group (8 days vs 11days, p=0.004). The 3–year overall survival rate was 83.1% for LLR and 81.7% for OLR. The 3–year disease–free survival rate was 66.7% for LLR and 64.2% for OLR. Conclusions: LLR for CRLM showed better short–term outcomes and equal long–term outcomes compared with OLR. LLR may be a valuable option for CRLM which often needed multidisciplinary treatment.

P-33-6 A useful procedure for resection of undetectable colorectal liver metastasis by intraoperative ultrasonography

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We herein report a useful procedure for colorectal liver metastases (CRLM) by intraoperative segmental staining for poor localization by ultrasonography and review the literature. A 56–year–old man with dyschezia was admitted to our hospital for further treatment. Colonoscopy revealed a rectal carcinoma, and subsequent abdominal CT showed CRLMs (x3, in segment (S) 8, 3 and 6) and prostate invasion of rectal carcinoma. After three courses of neo–adjuvant chemotherapy with ZELOX, partial response was obtained for the primary tumor and CRLMs. Therefore liver–first surgical treatment was planned for CRLMs. Although pre–operative enhanced MRI showed three metastatic lesions, ultrasonography detected only two of them, in S3 and 6. Pre–operative contrast–enhanced CT demonstrates that the blood supply of CRLM in S8 was mainly from the ventral branch of P8. Liver metastasis in S8 was not visualized by intra–operative ultrasonography. Therefore anatomical liver resection of the ventral part of S8 was completed with hepatic segmental staining by injection of indigocarmine to the segmental portal vein under intra–operative ultrasonography, which delineated the ventral part of S8 which included liver metastasis. The pathological exam of the surgical specimen demonstrated negative margin.
**P-34-1** Extended safe hepatic resection criteria in Hepatocellular carcinoma by modern combine test (AHR + FLR) in Thailand

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Verawat Piyaratanawong, Rawisak Chanwat, Chairat Bunchaliew

**Objective:** To evaluate the post-operative clinical outcome and complication, morbidity, mortality and long-term survival in patients undergoing a liver resection for HCC based on "Criteria for safe hepatic resection" compared with extended indications by modern combine test [ Allowance hepatic resection (AHR %) combine with CT liver volumetry (future liver remnant: FLR) ]

**Material and methods:** A prospective cohort database in Thailand (NCI). Patients undergoing liver surgery for HCC between October 2013 – November 2016 were included in this study 30 cases and then we finding 5 cases for suitable extended indications by modern combine test (AHR + FLR). Routinely perform the ICG clearance test (ICG-R15) for all patients and demonstrate AHR (%). CT liver volumetry program was done for evaluation for future liver remnant. The primary endpoint was 1 year survival, disease free survival and overall survival. Secondary endpoints were all complications: a liver surgery–specific complication and other postoperative complications.

**Result:** No major intraoperative complication or death during surgery. This study haven’t got any 30–days mortality. No post–operative major complication such as a liver surgery–specific complication and other postoperative complications. 1 year survival rate was 100%. DFS and OS were > 13 months (13–33 months) and we will collected the data go on through the future.

**Conclusion:** Liver resection for HCC with extended indication criteria seems justified. This study showed that we can extend the safety limit of extended indications by modern combine test (AHR + FLR) group in some good risk patients for more curative resection and survival.

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**P-34-2** Outcome of ALPPS and two–stage hepatectomy for colorectal liver metastasis

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Background: Associating liver partition and portal vein ligation for staged hepatectomy (ALPPS) has been reported to have high morbidity rate for liver metastasis of colorectal cancer. To determine the safety, feasibility of ALPPS, we compared short–term outcome of conventional two–stage hepatectomy and ALPPS surgery for colorectal liver metastasis.

Methods: We retrospectively reviewed medical records of 49 patients who underwent conventional two–stage hepatectomy (CTH) group and 8 patients underwent ALPPS surgery (A group) for colorectal liver metastasis from 2001 to 2015.

We compared complication incidence rate between two groups. Results: ALPPS procedure was completed for all patients in A group, on the other hand conventional two–stage hepatectomy was not completed for 2 patients in CTH group(2/49,96.9%). There were no significant difference in operative blood loss and operative time of initial operation between two groups. Operative blood loss (709±756ml vs 673±302ml, P=0. 026) and operative time (465±147min vs 260±90min, P=0.001) of secondary operation was larger in CTH group.

Although there were no significant difference in incidence rate of postoperative complication which was greater than grade III according to the Clavien–Dindo classification(24.4% 12/49 vs 25% 2/8, P=0.639), One mortality case was found in A group.

Conclusion: In this study, ALPPS procedure was completed for all patients, operative bleeding was smaller and operative time was shorter in A group. However, one mortality case was found in A group, perioperative management of ALPPS surgery should be carefully considered.

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**P-34-3** One–surgeon technique for laparoscopic liver resection using a silicone band retraction method

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Hisamune Sakai

**BACKGROUND/AIMS**

The aim of this study was to evaluate the safety and efficacy of one–surgeon technique during laparoscopic liver resection using a silicone band retraction method.

**METHODS**

We retrospectively analyzed 82 patients who underwent laparoscopic liver resection, including partial resection and left lateral sectionectomy at our institution from 2010 to 2016. The 82 patients were divided into two groups (conventional group and one–surgeon group). Liver transection was conducted using CUSA and HIQ Suction and Irrigation System in 47 patients (conventional group). In 35 patients (one–surgeon group), a one–surgeon technique during liver transection, the CUSA handled by the main surgeon’s right hand and HIQ Suction and Irrigation System handled by the left hand using a silicone band retraction method.

**RESULTS**

Median estimated blood loss (EBL) in one–surgeon and conventional group was 40 and 60 mL, respectively. Median operative time in one–surgeon and conventional group was 275 and 339 min respectively (p < 0.05). The postoperative hospital stay was shorter in the one–surgeon group at 8 days compared to 11 days in conventional group (p < 0.007). Perioperative complications were documented in 1 (2.8%) and 3 (6.3%) % in one–surgeon and conventional group, respectively. There were one (2.2%) and three (6 %) open conversions in one–surgeon and conventional group, respectively. No perioperative mortality occurred.

**CONCLUSION**

One–surgeon technique using a silicone band retraction method is a useful approach that results in a safe laparoscopic liver resection.

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**P-34-4** Laparoscopic deroofing of nonparasitic giant liver cyst with greater omentum flap: A case report

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Laparoscopic deroofing is the standard therapy for simple nonparasitic liver cysts. We here report a case of a nonparasitic giant liver cyst undergoing laparoscopic deroofing with greater omentum flap. In 2015, a 80–year–old woman was diagnosed with a giant liver cyst 15cm in diameter in the right lobe. She had right upper abdominal pain, so she was hospitalized for treatment. We performed laparoscopic deroofing with greater omentum flap. No complications occurred during and after surgery. She had recurrence 8cm in diameter as determined by CT 7 months later, but she has no symptom. In our department, we have experienced 2 cases of laparoscopic deroofing without greater omentum flap and 5 cases with greater omentum flap. All patients developed a recurrence of the cyst, but they have remained completely asymptomatic after the surgery. It is controversial whether a greater omentum flap has influence on the recurrence rate of simple nonparasitic cysts, so we need to accumulate the cases of laparoscopic deroofing.
P-34-5  Assessment of clinicopathological character of hepatocellular carcinoma developed after sustained virological response by interferon therapy

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[Background and Aims] Recently, a number of patients undergoing resection for HCV-related HCC developed after SVR by IFN therapy. [Patients and Methods] Among 308 HCC patients entered in this study, 59 patients achieved SVR and received hepatectomy after SVR (pre SVR group: n=36) or before SVR (post SVR group: n=23), while the remaining 249 patients did not receive Interferon (IFN) therapy, or without SVR.

[Results] The preSVR group had no significant differences about tumor characteristics (tumor size/number, histological portal vein invasion etc.) and had significant low level of serum ALT and histological A grading, comparing to other groups. The 5years survival rates (OS) of the preSVR, post SVR and control groups are 87, 89 and 65%, respectively. Both of the preSVR group and postSVR group is significantly favorable in comparison with the control group, however, there is no significant difference between the preSVR group and the postSVR group. The disease free survival rates (DFS) also have no significant differences between both of the SRV group.

[Conclusion] There is no significant tumor character of HCC developed after SVR. Although activity of hepatitis is mild in patients of HCC developed after SVR, there is no advantage of postoperative long term survival and recurrence in comparison with patients achieved SVR after surgery.

P-34-6  Surgical Treatment of Liver Metastatic Lesions at Colorectal Cancer

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Purpose: improvement of surgical treatment results for liver metastatic lesions. Materials and Methods: In recent 5 years, 205 patients were operated for primary and metastatic lesions of liver. In 95 cases, operations were carried out for metastatic cancer of colon and rectum. The age range varied from 24 to 82 years. In 59 cases metastatic liver lesions were detected simultaneously with the primary colorectal tumor. In all cases, the combined surgery was performed. At simultaneous operations atypical liver resection was the most commonly performed – in 35 (59.3%) cases, including in combination with radiofrequency thermoablation (RFA). The isolated RFA was used in 19 (32.2%) patients. In case of large metastatic nodes, 5 (8.5%) right side hemihepatectomies (2 of them were advanced, 2 in combination with atypical resection of the remaining lobe) were carried out. 36 patients underwent operations on liver due to occurrence of metastatic lesions as a result of tumor progression. The time interval after the surgical treatment of the primary tumor varied from 6 months to 8.5 years. Hemihepatectomy was performed in 7 patients. In 4 cases bi- or trisegmentectomy was made, in patients older than 75 years with lesion in the 4th liver segment.

Results: Complications after operations were observed in 18 (18.9%) patients. There were no deaths within 30 days of the postoperative period. The survival median was 26.8 months, 3 and 5 year survival rate ~ 48.4% and 37.9%, respectively.

Conclusions: Surgical removal of liver metastases at colorectal cancer can significantly extend the life of patients.

P-35-1  Robotic assisted Right Posterior Segmentectomies for Liver Lesions- an Evolutional Method of Left Semi-lateral Positioning for Minimally Invasive Hepatectomy

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[Background] There are limitations in approaching right posterior liver lesions for minimally invasive surgery. Some laparoscopic techniques have been developed, but they were limited in very few experienced hands and bounded to the rigid instruments. We tried to treat these difficult lesions via the aid of robotic system based on the flexibility of the robotic instruments.

[Methods] Two different methods of patient positioning were tried for right posterior lesions, including supine position and left semi-lateral decubitus setting, about 30 degrees between the patient’s back and the operating table. The peri-operative outcomes were analyzed in regard to different positioning groups.

[Results] Totally 25 patients with lesions of right posterior segments underwent robotic resection. 13 patients were placed in supine position, and 12 patients were placed in left semi-lateral position. The left semi-lateral group had significantly shorter operation time (306.0 min v.s. 416.8 min, p=0.023), less blood loss (203.9 ml v.s. 1092.3 ml, p=0.03) and lower transfusion rates (0% v.s. 46.2%, p=0.015).

[Conclusion] We described an evolutional technique for robotic right posterior segmentectomies with patient placed in left semi-lateral position, which overcome the difficulty in manipulating the right posterior lesions for MIS. It is demonstrated as a safe and feasible approach in selected patients.

P-35-2  No-touch Radiofrequency Ablation for small Hepatocellular Carcinoma ≤ 3cm in diameter: A Retrospective Cohort Study

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AIMS: The aim of this study was to evaluate the efficacy of no-touch radiofrequency ablation (No–touch RFA) with curative intent for all detectable lesions in patients with small hepatocellular carcinoma ≤ 3cm in diameter (small HCC).

METHODS: 36 patients with small HCC were enrolled in this retrospective study; 18 patients who received no-touch radiofrequency ablation (No–touch RFA) were compared with a control group treated with Conventional Radio–frequency ablation (C–RFA). The two patient groups were selected with a predefined criterion and matched in terms of their clinical and tumor characteristics at baseline. The primary end point of the study was the incidence of post–RFA HCC recurrence. Secondary end points were overall survival (OS).

RESULTS: During a median follow–up of 61.6 weeks, 1 patients died and 35 survived. The 1 year cumulative incidences of post–RFA recurrence were 11.1% in the No–touch RFA group, and 38.9% in the C–RFA group. The 1 year OS rates were 100 % in the No–touch RFA group, and 94.4% in the C–RFA group. Thus, the No-touch RFA group exhibited better survival than the C–RFA group.

CONCLUSIONS: No-touch RFA was associated with a lower incidence of post–RFA recurrence and better OS than C–RFA in patients with small hepatocellular carcinoma ≤ 3cm in diameter (small HCC).
P.35-3  Comparison between anatomical resection and non-anatomical resection in patients with hepatocellular carcinoma

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Deciding on appropriate resection range for preservation of postoperative hepatic function is an important surgical consideration. The present study compared result of anatomical or non-anatomical resection. One hundred and thirty-one patients who underwent liver resection with HCC between January 2007 and February 2015 were divided into two groups, those who underwent anatomical liver resection (n = 88) and those who underwent non-anatomical liver resection (n = 43). Kaplan–Meier survival analysis and Cox regressions were used to compare the disease-free survival (DFS) and overall survival (OS) rates between the groups.

The mean follow-up periods were 27 and 40 months in the anatomical and non-anatomical groups, respectively (p = 0.229). The 3 and 5-year DFS rates were 70% and 60% in the anatomical group and 62% and 48% in the non-anatomical group, respectively. The 3 and 5-year OS rates were 94% and 78% in the anatomical group, and 86% and 80% in the non-anatomical group, respectively. The anatomical group tended to show better outcomes, but the findings were not significant. But a relative risk of OS between the anatomical and non-anatomical group was 0.234 (95% CI, 0.061–0.896; P = 0.034), which was statistically significant.

Although statistical significance was not in survival curves, anatomical resection showed better results. In this respect, the authors recommend the anatomical resection, especially in patients who do not have severe underlying liver conditions and who have good liver function.

P.35-4  Relation to the obesity on the hepatectomy

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[Background] The obesity is reported as one of the risk factors for hepatectomy. The aim of this study is to analyze the influences before and after operation in obese patients undergone hepatectomy. [Patients and Methods] We studied 275 patients who underwent liver resection at Showa University Hospital from Jan. 2011 to May 2016, and analyzed retrospectively patients characters, preoperative data, operative factors and so on, dividing patients into two groups of high BMI (body mass index) group (BMI>=25) and low BMI group (BMI<25). [Results] There was 59 patients in high BMI group (HBMi) and 216 patients in low BMI group (LBMI). There were more male patients in HBmi significantly, however, there was not significant difference in tumor factors. In LBMI, the values of platelet(10^4/mm^3) (18.2±8.0 vs 22.3±7.9, p=0.001), prothrombin time(%) (85.8±10.8 vs 89.0±11.4, p=0.050) and ICGR15% (indocyanine green clearance rate at 15 min) (17.2±9.3 vs 10.7±6.1, p<0.001) were better than in HBmi significantly. There was not significant in operative time, blood loss or rate of laparoscopic surgery. However, the blood loss of LBMI (297g) was less than HBmi (434g). There was not significant difference in particular the rate of postoperative complications or the hospital stay after operation either, but the rate of complications was the tendency that was good in LBMI group. [Conclusions] There were more obese patients in male patients, and their preoperative liver functions tended to decrease. The obese patients were needed attention for perioperative management because operative blood loss tended to increase, and it was thought with potential risk factor of the complications.

P.35-5  The impact of aspartate aminotransferase/platelet count ratio index on prognosis in patients with hepatocellular carcinoma in the absence of liver fibrosis

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Background
Aspartate aminotransferase/platelet count ratio index (APRI) is calculated using only aspartate aminotransferase and platelet count. Originally, APRI was invented to be a biomarker of liver fibrosis (LF) and liver cirrhosis (LC), and has been one of the representative noninvasive tests for LF. Recently, this simple index is reported to predict the prognosis in patients with hepatocellular carcinoma (HCC). However, little is available focusing on patients without significant LF or LC. The aim of this study was to determine the impact of APRI on prognosis in patients with HCC in the absence of LF or LC.

Methods
Between 2006 and 2013, consecutive 195 patients who underwent initial hepatic resection with curative intent for HCC were enrolled. Patients who underwent preoperative therapy, such as transarterial chemoembolization, radio–frequency ablation, or percutaneous ethanol injection, were excluded. Of these, 77 patients were diagnosed without LF or LC. The APRI was calculated as AST (IU/l)/(upper limit of normal)/platelet count (*10^9/litre) ×100. The optimal cut off value of APRI was determined using receiver operating characteristic curve for predicting recurrence free survival. Results
The area under the curve of APRI was 0.758. The optimal cut off value of APRI was 0.739. The 5-year overall survival and recurrence free survival of 77 patients were 72.1% and 45.3%, respectively. Patients with low APRI showed a significantly better 5-year overall (89.1% vs 50.5%, P=0.003) and recurrence free (68.2% vs 15.0%, P<0.001) survival rate.

Conclusion
The APRI is a simple and noninvasive prognostic biomarker in patients with HCC in the absence of LF or LC.

P.35-6  Neutrophil to lymphocyte ratio as a prognostic predictor in patients with unresectable hepatocellular carcinoma after transcatheter arterial chemoembolization

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Background: Accumulating evidence indicates that systemic inflammation response is associated with the prognosis of various cancers. The aim of this study is to investigate the neutrophil to lymphocyte ratio (NLR), which is one of the systemic inflammation markers, in the prognosis of unresectable hepatocellular carcinoma (HCC) after transcatheter arterial chemoembolization (TACE).

Methods: We reviewed our experience in 88 cases with HCC who underwent TACE as the initial treatment. Serum complete blood counts were used to calculate the NLR before and 1 month after TACE. We identified three groups of NLR trends: Group A; NLR remained low both before and after TACE, all cases were identified three groups: Group A; 46 cases (52.3%), median survival time (MST) 29.4M, Group B; NLR increased (>5), Group C; NLR always high both before and after TACE. We evaluated the independent prognostic predictor of NLR and other clinical factors. Results: The median age was 68 (range: 35–88) years and median NLR was 2.7 (range: 0.8–23.5, low NLR 67 patients/high 21). After treatment of TACE, all cases were identified three groups: Group A; 46 cases (52.3%), median survival time (MST) 29.4M, Group B; 27 cases (30.7%), MST 16.6M, and Group C; 15 cases (17.0%), MST10.5M (P=0.008). Multivariate Cox regression analysis showed that high NLR (P=0.006), serum Alb (P=0.039), AFP (P=0.024), Treatment Effect (P=0.001) were independent factors affecting the survival rate of HCC after TACE.

Conclusion: Along with other clinical factors, periprocedural trends of NLR may be helpful in providing prognostic information and monitoring response to treatment of TACE.
**P-35-7** Tumor Budding as a Prognostic Factor in Intrahepatic Cholangiocarcinoma

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Background: Tumor budding is defined as the presence of isolated single cancer cells or small clusters composed of fewer than five cells in the stroma at the invasive tumor front. Tumor budding has been suggested to be a prognostic factor in various cancers, but has never been studied in intrahepatic cholangiocarcinoma (ICC). Recent studies have shown that tumor budding is closely associated with the Epithelial–mesenchymal transition as a critical mechanism of tumor dissemination and metastasis in epithelial malignancies. The aim of the present study was to identify the pathological prognostic factors for survival after hepatectomy in patients with primary ICC.

Methods: The subjects consisted of 31 patients with ICC who had undergone curative hepatectomy. All cases were classified as "low" or "high" tumor budding group (RBG) according to the number of tumor buds (≤5 buds vs >5 buds). Next, patients were divided into three groups: the budding group (FBG) (RBG ≤5 buds), the high budding group (HBG) (RBG >5 buds), and the rare budding group (RBBG) (RBG ≤1 bud).

Results: The 1-, 3-, and 5-year survival rates in the FBG (66.7%, 30.3%, and 30.3%, respectively) were significantly lower (p=0.002) than those in the RBG (100%, 85.7%, and 57.1%, respectively). The disease–free 1-, 3-, and 5-year survival rates in the FBG (33.3%, 13.3%, and 13.3%, respectively) were significantly lower (p=0.018) than those in the RBG (69.2%, 39.6%, and 39.6%, respectively). The univariate and multivariate analysis indicated that the tumor differentiation and tumor budding were independently associated with overall survival.

Conclusions: Tumor budding was independent predictor of a poor prognosis. This result is useful in determining treatment strategies.

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**P-36-1** Indocyanine green retention test as noninvasive marker of portal hypertension in patients with compensated cirrhosis

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**Background:** The aim of our study was to evaluate the performance of the ICG retention test as a noninvasive marker of portal hypertension (PH) and to evaluated reliability of various parameters which reflecting portal pressure by comparing with the direct measurement.

**Methods:** Between January 2000 and January 2007, 96 patients with compensated cirrhosis and hepatocellular carcinoma (HCC) who received hepatectomy were included. Patients with portal vein thrombosis were excluded. All patients underwent laboratory tests, imaging study, upper gastrointestinal endoscopy, measurement of portal venous pressure (PVP), and the ICG 15–minute retention (ICG–R15) test. The intraoperative PVP was directly assessed by measuring the pressure of right gastroepiploic vein which communicated with superior mesenteric vein. The aim of this study was to evaluate the short term efficacy of transarterial chemoembolization with drug-eluting beads (DEB–TACE) for hepatocellular carcinoma (HCC).

**Patients and Methods** A retrospective study was performed on 91 patients treated with DEB–TACE during 2014–2016 in our institute. Short-term efficacies at 1 month after TACE were assessed using Response Evaluation Criteria in Cancer of the Liver(RECIST)2015 revised version.

**Results** A total 91 patients (73 men and 18 women, mean age 76 years) participated in the study. 70 Patients were Child–Pugh class A and 21 were class B. 33 patients had single tumor and 58 had multiple tumors. The mean tumor size was 31 mm in diameter. Tumor locations were perihilar in 41 patients and peripheral in 50. 35 tumors were homogeneously enhanced and 56 were heterogeneous. Mean HepaSphere dose was 5.0 mg. Loaded anticancer drugs into HepaSphere were Cisplatin in 66 cases and Doxorubicin in 25. We underwent selective TACE in 67 patients and non–selective TACE in 24. TE (Treatment Effect) 1, TE2, TE3 and TE4 at 1month after TACE were 7 (8%), 31 (34%), 26 (29%) and 27 (30%), respectively. Local response rate (TE3+4) was 58%, PD, SD, PR and CR were 15(16%), 29(32%), 34(37%) and 13(14%), respectively. Factors associated with local response (TE3+4) were tumor size less than 30mm in diameter (p=0.0104), peripheral tumor location (p=0.0056), and selective TACE (p=0.0072). Multivariate analysis reveals a tumor size less than 30mm in diameter (OR 3.56, p=0.0481) and selective TACE (OR 4.96, p=0.0218) as independent response factors.

**Conclusion** TACE for tumor less than 3cm in diameter improves therapeutic efficacy of DEB–TACE.

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**P-36-2** Developed operation method for patient–driven orthotopic xenograft model of hepatocellular carcinoma

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Recent studies use the ectopic model for hepatocellular carcinoma (HCC) but this model don’t reflect likewise the tumor state of patient. For exact prognosis, it is need to establish patient–derived orthotopic xenograft (PDX) mouse model of HCC. Based on former PDX research, we develop the new protocol using direct injection technique. From 2015 to 2016, consent about getting tumor piece to the patient of hepatocellular carcinoma. The pieces is stored in media and moved –driven orthotopic xenograft model of hepatocellular carcinoma. The pieces is stored in media and moved from operation room to research room immediately. For PDX model, 8–10weeks old NOD SCID and NSG male mouse is used. The tumor pieces cutted to the cube size 1mm. For stop the bleeding, inferior vena cava is blocked using Bulldog Clamp and the cube is directly injected median lobe to 3 places randomly. After clear the Bulldog Clamp, a left lobe is removed using tie and weighted. After 3 months, the PDX mouse is checked for cancer growth using MRI or PET–CT. Successful PDX model is sacrificed.

The rate of success of PDX model is about 10%. Formed tumor is verified by H&E staining. Based on protocol established, further study plan is required for improving on the rate of success to establish PDX model and clinical application.

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**P-36-3** Selective TACE for tumor less than 3cm in diameter improves therapeutic efficacy of DEB–TACE.

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【Aim】The aim of this study was to evaluate the short term efficacy of transarterial chemoembolization with drug–eluting beads (DEB–TACE) for hepatocellular carcinoma (HCC).

【Patients and Methods】A retrospective study was performed on 91 patients treated with DEB–TACE (HepaSphere) during 2014–2016 in our institute. Short-term efficacies at 1 month after TACE were assessed using Response Evaluation Criteria in Cancer of the Liver(RECIST)2015 revised version.

【Results】A total 91 patients (73 men and 18 women, mean age 76 years) participated in the study. 70 Patients were Child–Pugh class A and 21 were class B. 33 patients had single tumor and 58 had multiple tumors. The mean tumor size was 31 mm in diameter. Tumor locations were perihilar in 41 patients and peripheral in 50. 35 tumors were homogeneously enhanced and 56 were heterogeneous. Mean HepaSphere dose was 5.0 mg. Loaded anticancer drugs into HepaSphere were Cisplatin in 66 cases and Doxorubicin in 25. We underwent selective TACE in 67 patients and non–selective TACE in 24. TE (Treatment Effect) 1, TE2, TE3 and TE4 at 1month after DEB–TACE were 7 (8%), 31 (34%), 26 (29%) and 27 (30%), respectively. Local response rate (TE3+4) was 58%, PD, SD, PR and CR were 15(16%), 29(32%), 34(37%) and 13(14%), respectively. Factors associated with local response (TE3+4) were tumor size less than 30mm in diameter (p=0.0104), peripheral tumor location (p=0.0056), and selective TACE (p=0.0072). Multivariate analysis reveals a tumor size less than 30mm in diameter (OR 3.56, p=0.0481) and selective TACE (OR 4.96, p=0.0218) as independent response factors.

【Conclusion】Selective TACE for tumor less than 3cm in diameter improves therapeutic efficacy of DEB–TACE.
P-36-4 Evaluation of the hepatocellular carcinoma using the ICG fluorescence method

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Background: In recent years, indocyanine green (ICG) fluorescence imaging is widely being used in various fields of surgery. In the field of liver surgery, the usefulness of the ICG fluorescence method are reported in resection domain navigation and tumor identification. In this study, we examined about ICG fluorescence pattern and a clinicopathological factor about the HCC.

Methods: Between March 2015 to December 2016, total of 33 cases (34 tumors) HCC underwent to treatment hepatic resection. The patients had the characteristics: 8 had hepatitis B, and 2 had hepatitis C. We classified accumulation patterns of the ICG fluorescence in a homogeneity [HO] type, a heterogeneous [HE] type, a ring [RI] type, and breakdown was 15 cases, 9 cases, 10 cases each.

Results: We compared the association between accumulation pattern and clinicopathologic factor. The tumor size of HO type was 7–27mm (mean 16.2mm), the HE type was 7–90mm (mean 38.2mm), the RI type was 9–90mm (mean 29.3mm). AFP of HO type was 1.97–806.3 (median 10.5), HE type was 1.9–15.7 (median 4.68), RI type was 3.23–13217 (median 13.3). With HO type, a pathological differentiation degree of tumor was well–differentiated 10cases, and moderately–differentiated were 5cases. With HE type, well–differentiated were 4cases, mode–differentiated were 5cases. In RI type, well were 4 cases, mode were 5 cases, poor was 1 case. The tendency that a differentiation degree decreased in order of RI type, a HE type, HO type was seen.

Conclusion: The significant difference was not recognized, but the possibility that connection was seen in a fluorescence pattern of ICG and a malignancy of HCC was suggested.

P-36-6 The validity of Albumin–Bilirubin model (ALBI) in predicting surgical outcome after hepatectomy for hepatocellular carcinoma –Comparison to Child Pugh score–

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[Background/Purpose] Recently, the superiority of Alubumin–Bilirubin model (ALBI) for Child Pugh (CP) classification in assessing liver function of hepatocellular carcinoma (HCC) has been reported. However, there is no report which compared ALBI grade with CP score of classification. This study aimed to compare the discrimination ability of ALBI grade and CP score for postoperative outcome in surgically resected patients.

[Methods] All consecutive 528 patients who performed initial liver resection for HCC were enrolled. The ALBI score was calculated according to the formula, and stratified into three risk categories as grade 1 (A1), grade 2 (A2), grade 3 (A3) in order of the better function.

[Results] Of 528 patients, almost all patients fell into A1 (n=270; 51%) or A2 (n=256; 48%) in ALBI grading, and CP score 5 (n=396; 75%) or score 6 (n=103; 19%) in CP scoring. The incidence of PHLF showed 10% in A1 vs. 19% in A2 (P=0.006), while 12% in CP score 5 vs. 22% in score 6 (P=0.011). 10 years OS revealed 56% in A1 vs. 27% in A2 (P<0.001), while 44% in CP score 5 vs. 25% in score 6 (P=0.001). In patients who underwent more than segmentectomy, ALBI grade stratified the patients significantly in PHLF and OS (P=0.025, P=0.003), whereas CP score did not (P=0.08, P=0.105).

[Conclusions] ALBI grade predicted PHLF and survival in surgical patients for HCC similar, or more accurately than CP score in extended resection. ALBI grade may be able to select the candidates with a better outcome for liver resection compared to CP score.

P-36-5 Usefulness of converted–ICGR15 calculated from 99mTc–GSA scintigraphy LHL15 values for hepatic resection

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Introduction: To avoid post-operative liver failure, it is important to accurately evaluate liver function. ICGR15 has been widely used, however, it can be affected by various factors. 99mTc–GSA scintigraphy is another evaluation method that shows liver function from a different viewpoint. We examined the usefulness of 99mTc–GSA scintigraphy.

Methods: Subjects were 234 patients who underwent liver resection after both 99mTc–GSA scintigraphy and ICGR15 analysis from June 2006 to May 2016 at our department. We divided the subjects into two groups, the 'former period' including 103 patients and 'latter period' including 199 patients. We calculated converted–ICGR15 values using a linear regression model from 99mTc–GSA scintigraphy LHL15 (receptor index: uptake ratio of the liver to the liver plus heart at fifteen mins) values of the 103 patients in the former period. We performed liver resections on patients in the latter period after determining resectable liver volumes based on converted–ICGR15.

Results: We established the following easy formula, named converted–ICGR15, for converting 99mTc–GSA scintigraphy value into ICGR15 values: converted–ICGR15=119–115×LHL15. Furthermore, we demonstrated that converted–ICGR15 had a high correlation with histological activity index (HAI) scores than ICGR15. In the 199 latter period patients, we performed liver resections based on converted–ICGR15, and we succeeded in reducing morbidities and mortalities compared with the former period.

Conclusion: Resectable liver volumes should be determined based on converted–ICGR15, especially in dissociated cases.

P-37-1 The Liver Combine Test: Calculation tool for safe major hepatectomy

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Background: Post–operative liver failure is the major cause of mortality after major hepatectomy. A lot of selective criteria were proposed to avoid this complication. We here to report our calculation tool "The Liver Combine Test' (LCT) for safe major hepatectomy.

Methods: LCT calculation is based on the additive value of allowed hepatic resection (AHR) and future liver remnant (FLR). AHR is calculated based on AHR graft which is plotted using results from ICG–R15, a graft that is proposed by Tokyo Women’s Medical University Hospital, Japan. FLR is calculated using CT or MRI volumetry based on OsiriX, a DICOM viewer program.

We studied patients from our center who were planned for major hepatectomy (resection of 3 segments of liver or more), with Child–Pugh score A and ECOG 0–1. We hypothesized that LCT value of more than 100 is considered safe for major hepatectomy.

Results: From October 2013 to November 2016, 53 patients were included in the calculations for LCT. Twenty–three patients failed to pass the test. Remaining 30 patients, 1 patient denied surgery and 2 patients failed surgery due to advanced disease. Leaving 27 patients succeeded operation. 1 patient developed Grade A liver failure due to accidental injury of MHV during operation. He subsequently recovered and was discharged1 week after operation. One patient died from Grade B liver failure due to left bile duct injury caused by stapling device. The remaining patients recovered and were discharged without any significant complications.

Conclusion: We conclude that LCT may be a useful predictive tool for safe major hepatectomy.
The ImageJ showed considerable liver volume estimation accuracy, comparing to commercial CT volumetry. The weight/volume ratio was 0.92 ± 0.04 (Standard error) by ImageJ. CONCLUSIONS: The ImageJ showed considerable liver volume estimation accuracy, comparing to commercial CT volumetry.

In most cases, surgical resection for non–colorectal and non–neuroendocrine liver metastases failed to cure. However, there might be a possibility of long–term survival including a cure by undergoing surgical resection of liver metastases only in cases with a striking effect from systemic chemotherapy.

Purpose: Liver resection for colorectal metastases with concomitant extraphepatic disease is still a controversial topic. We clarify the long term outcome of liver resection for colorectal metastases with concomitant extraphepatic disease and identify the prognostic factors. Patients and methods: We retrospectively analyzed the 76 consecutive patients with liver metastases in presence of extraphepatic disease, who underwent first hepatectomy in our institution from 2001 to 2015. Results: Among the 76 patients with extraphepatic metastases (lung n=38, lymph node n=13, peritoneal dissemination n=10, multiple site n=7, local n=5, other n=3), the 3– and 5– year survival rate was 41.0 % and 29.9%. 50 patients (65.8%) underwent prehepatectomy chemotherapy. 36 patients with surgical resection for colorectal metastases failed to cure. However, there might be a possibility of long–term survival including a cure by undergoing surgical resection of liver metastases only in cases with a striking effect from systemic chemotherapy.

Conclusion: Liver resection for colorectal liver metastases with resectable extraphepatic disease may provide the possibility of long term survival, but a worse outcome is associated with aggressive liver metastases, that is difficult to achieve R0 liver resection.
**P-37-6** The management of abdominal drainage after hepatic resection

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**Background:** Routine drainage after partial hepatic resection has been controversial since long.

**Methods:** Thirty-three and twenty-eight patients who underwent hepatic resections for liver tumors without biliary-enteric and gastrointestinal anastomoses were analyzed using a propensity score matching analysis with respect to if and when a prophylactic drain was used and how long the prophylactic drain was inserted for. The criteria for drain placement were established and validated.

**Results:** Our criteria for drain placement were decided upon risk factors for postoperative percutaneous abdominal drainage, and organ-space surgical site infections (SSIs), the method of hepatic resection, intraoperative bile leakage, and operative time (≥300 min). The organ-space SSI rate was significantly lower in the group with abdominal drain removal occurring two days after surgery. We decided to remove the abdominal drains on post-operative day two when the drain-fluid bilirubin concentration was less than three times the serum bilirubin concentration. After our criteria for drain management were developed in 2011, the number of inserted drains, postoperative percutaneous abdominal drainages, postoperative complications, SSI rates, and postoperative hospital stays were significantly lower.

**Conclusions:** Our criteria for abdominal drain management provide an effective for postoperative outcome.

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**P-38-2** Our experience of Laparoscopic Liver Resection: The Comparison between Pure Laparoscopic Resection and Hybrid Laparoscopic Resection

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**Purpose:** Laparoscopic liver resection (LLR) is widely performed in the world. But LLR is still a challenging procedure because of the difficulty of controlling bleeding, negative margin, and a lack of experience. We performed 33 LLRs from January 2012 and developed the procedure from laparoscopic assist hybrid LLR (hybrid-LLR) to totally laparoscopic liver resection (pure-LLR). We present our experiences of LLR and examine our results of LLR.

**Methods:** Between January 2012 and December 2016, 33 LLRs were performed. The 11 LLRs were performed under hybrid-LLR and 22 LLRs were performed under pure-LLR. In the 22 pure-LLRs, 5 patients were performed left lateral segmentectomy and 17 patients were performed partial resection. In the 11 hybrid-LLRs, all patients were performed partial resection. We compared the pure-LLR group and the hybrid-LLR group about the operative duration, blood loss, length of postoperative hospital stay, and complication.

**Results:** The mean age, body weight and ICGR15 in the hybrid–group and pure–group were 61 years old and 60 years old, 62 kg and 64 kg, 11.3 and 15.9 respectively. There were no significant differences. The mean operative duration, blood loss and length of postoperative hospital stay in the pure group and in the hybrid group were 140 minutes and 212 minutes, 74 ml and 357 ml, 5.9 days and 8.6 days respectively. There were significant differences in all operative outcomes between the two groups. There were 2 postoperative bleedings in the hybrid group.

**Conclusion:** The pure-LLR is significantly superior in the mean operative duration, blood loss and length of postoperative hospital stay in our experience.

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**P-38-3** Changes of Hepatitis B surface antigen after hepatitis B immunoglobulin injection during liver transplantation using hepatitis B virus graft

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**Introduction** Hepatitis B immunoglobulin (HBIG) has allowed to reduce the rate of hepatitis B virus (HBV) re-infection for hepatitis B related liver cirrhosis patient after liver transplantation. This mechanism is thought to bind and neutralize with hepatitis B virus surface antigens (HBsAg) in serum and hepatocyte. To clarify the effect of HBIG, we investigated distribution of HBsAg and HBIG in HBV graft during liver transplantation using immunofluorescence staining.

**Method** The patient were enrolled from January to February in 2015. Their liver samples were taken before HBIG injection and after HBIG injection during liver transplantation. We performed immunofluorescence staining to localize for HBsAg and HBIG. In one patient, further analysis was performed to identify autophagy such as endogenous LC3 and HBsAg, p62 protein by Western blot.

**Results** Total three patients were enrolled. All of the patients underwent deceased donor liver transplantation using HBV graft for HBV related cirrhosis. HBsAg exist many in the hepatocyte before HBIG injection but after HBIG injection, HBsAg was reduced in hepatocyte. HBIG exist many around the blood vessels.

**Conclusion** HBIG can be distributed in a hepatocyte and neutralize HBsAg rapidly. One of the mechanism is autophagosome formation by HBIG.

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**P-38-4** The short- and long- term outcomes in elderly patients with hepatocellular carcinoma after curative surgery: A Case-controlled Study with Propensity Score Matching

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**Background** The incidence of hepatocellular carcinoma (HCC) has been rising due to an increased life expectancy. The aim of the present study was to clarify the short- and long-term outcomes of surgical treatment in elderly patients (>75 years) using propensity score matching.

**Methods** The present study included 420 patients who underwent hepatectomy as their initial treatment with curative intent. Those patients were divided into elderly (n=111) and the non–elderly (n=309) groups. Propensity score matching was performed to minimize the preoperative effect of potential confounders (the statuses of hepatitis B virus antigen and liver damage and the values of prothrombin time, alanine aminotransferase and α-fetoprotein).

**Results** After matching, 89 patients from each group were matched. The preoperative confounding factors were balanced between the two groups. No significant differences were detected in the survivals between the two groups. However, the rates of morbidity (Clavien grade 3 or more) and death due to other diseases in the elderly group were significantly higher than in the non–elderly group (P = 0.031 and P = 0.016, respectively).

**Conclusions** The present study showed that hepatectomy for HCC in elderly patients was justified though the surgeon should pay attention to postoperative complication and other diseases during follow–up.
P–38-4 Surgical and oncological outcomes after hepatectomy for colorectal liver metastasis in patients with autologous blood transfusion: a single-institute retrospective analysis

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PURPOSE: Although preoperative autologous blood donation (ABD) is a useful alternative to allogeneic blood transfusion, the need for it during liver surgery has decreased because hepatocarcinomas have become safer. Moreover, there is concern over the possibility that the blood contains cancer cells. In this retrospective study, the perioperative and oncological outcomes of patients with colorectal liver metastasis (CRLM) who received autologous blood transfusion (ABT) were investigated.

METHODS: Between January 2006 and December 2015, patients who underwent R0 or R1 hepatectomy for CRLM at our institute were included and those with repeat or synchronous hepatectomy were excluded. The incidence of allogeneic red blood cell (RBC) transfusion, changes in hemoglobin (Hb) values, recurrence-free survival (RFS), and overall survival (OS) were compared among 37 patients who received ABT (ABT group) and 35 patients who did not receive ABT (non-ABT group). RESULTS: Allogeneic RBCs were transfused into 1 patient (2.5%) with ABD and into 5 patients (15.6%) without ABD (p = 0.045). Although preoperative Hb values were lower in patients with ABD than in patients without ABD (p = 0.047), those on postoperative day 7 were higher in patients with ABD than in patients without ABD (11.5 ± 1.2 vs. 10.5 ± 1.6 g/dL; p = 0.021). Median RFS did not significantly differ between the ABT and non-ABT groups (p = 0.714), and the two-year OS was 72.2% and 60.2%, respectively (p = 0.527).

CONCLUSIONS: In patients with CRLM, ABT reduced the incidence of allogeneic RBC transfusion and did not worsen postoperative oncological outcomes.

P–38-5 Preoperative lymphocyte–to–monocyte ratio is useful for stratifying the prognosis of HCC patients with low CLIP scores

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Background/Purpose: Recent studies have reported that preoperative lymphocyte–to–monocyte ratio (LMR) was useful for prognosis of patients with various cancer. Although cancer of the liver Italian program (CLIP) scores is useful for predicting postoperative outcome after surgery for hepatocellular carcinoma (HCC), previous study reported that CLIP scores could not stratify postoperative outcomes for HCC patients with low CLIP scores (0–1). In order to resolve this problem, we examined whether LMR could stratify the prognosis of such patients.

Methods: We retrospectively reviewed 329 patients with newly diagnosed primary HCC who underwent liver resection. Among them, we selected patients with low CLIP scores. Univariate and multivariate analyses using the Cox proportional hazards model were performed to detect clinical factors that correlated with overall survival (OS), and their cut-off values were identified using receiver operating characteristic (ROC) curve analyses.

Results: Multivariate analysis revealed that LMR (<4.35/4.35) was significantly associated with OS (hazard ratio [HR], 1.903; 95% CI, 1.039–3.485; P = 0.037), as well as C–reactive protein (>0.3/≤0.3, mg/dL) indocyanine green retention rate at 15 minutes (>13/≤13, %) and maximum tumor size (>3.5/≤3.5, cm). Kaplan-Meier analysis and the log–rank test were used for comparison of OS.

Conclusion: Preoperative LMR is useful for stratifying the prognosis of HCC patients with low CLIP scores (0–1).

P–38-6 Prophylactic Impact of Endoscopic Treatment for Esophageal Varices in Liver Resection: A Prospective Study

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Objective: Prophylactic treatment for esophageal varices has been performed without adequate supporting evidence. We prospectively assessed the feasibility of prophylactic and follow-up treatment for high–risk esophageal varices.

Design: Patients with HCC were screened prospectively and followed up for esophageal varices and gastroduodenal ulceration. High–risk esophageal varices (huge F3 varices or intermediate F2 varices positive for red color signs) were treated prophylactically. Follow–up endoscopy was performed to assess the impact of prophylaxis and changes in varices 1 week, 1 month, and 6 months after operation. If high–risk varices were found during follow–up, secondary prophylaxis was performed according to the same criteria.

Results: Among 251 patients with HCC, 81 (32.3%) had esophageal varices on screening endoscopy. Prophylactic endoscopic treatment was required by 13 patients (1 with F3 varices and 12 with F2 varices positive for red color signs). Ten varices worsened, and 4 varices progressed to high–risk varices requiring endoscopic treatment. No F0 or F1 varices at screening endoscopy progressed to high–risk varices, and no bleeding event occurred during 6 months of preplanned follow–up. A preoperative platelet count of less than 10 x 10^4/µL (odds ratio: 4.21, 95% confidence interval: 3.11–10.6; p<0.001), the presence of splenomegaly (2.87, 2.16–21.8; p=0.011), and an indocyanine green retention rate at 15 minutes of greater than 30% (2.31, 1.88–24.6; p=0.026) were independent predictors of worsening varices.

Conclusions: Our protocol for prophylactic and follow–up treatment of high–risk esophageal varices was feasible in patients with HCC.

P–38-7 Primary Hepatic T-cell Lymphoma mimicking Hepatocellular Carcinoma: A Case Report

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Primary hepatic lymphoma is rare type of non–Hodgkin’s lymphoma (NHL). Among them, peripheral T–cell type is extremely rare. Herein we describe a case of a previously healthy 50 year old man who developed primary hepatic T–cell type of NHL. The patient had abnormal carcinoembryonic antigen (CEA) level (5.7 nm/L). On abdomino–pelvic computed tomography for evaluation, the 7cm sized hepatic mass on segment 5 was found. Because there was no lymphadenopathy, splenomegaly or bone marrow involvement, primary diagnosis was hepatocellular carcinoma. We performed right hemihepatectomy. The final pathologic report confirmed peripheral T–cell NHL by histopathological examination with immunohistochernical staining of the tissue. After surgery, the patient has been treated chemotheraphy for 6 cycle and followed up out–patient clinic with no recurrence.

Primary hepatic T–cell lymphoma is rare disease which is difficult to diagnose with imaging, clinical and biochemical markers. Because histology can confirm differential diagnosis, surgical resection should be considered in case of isolated hepatic mass.
P-39-2 A Case of Primary Hepatic Neuroendocrine Carcinoma which has been obtained the recurrence-free survival

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Case] 46-year-old women [Chief complaint] levels of γ-GTP were elevated [Present illness] She had given a diagnosis with multiple sclerosis and treated in our hospital from 2-years ago. From April 2013, she treated with Avonex (IFNβ). In February 2015, she was pointed out the levels of γ-GTP were elevated. A low echoic hepatic tumor 28mm in diameter in the lateral lobe was found in ultrasonography. So, She was referred to our Department. Laboratory data on admission, were WBC 4360/μl, Hb 12.7 g/dl, Plt 28.3 x104/μl, alb 4.7g/dl, T-bil 0.6mg/dl, AST 27 U/l, ALT 28 U/l, ALP 248 U/l, AFP 8.5 ng/ml CA19-9 23U/ml, CEA 1.1ng/ml, and hepatic viral markers were HCV Ag(+), HbcAb(+), HbsAb(+). In plain computed tomosynthesis (CT), the tumor was revealed as a low density area. In the arterial phase and portal phase, the tumor was enhanced peripherally, and the dilatation of the intrahepatic bile duct was observed in the periphery of the tumor. We suspected the tumor as intrahepatic cholangiocarcinoma and performed left hepatectomy in June 4, 2015. Immuno-histochemically, tumor cells were positive for CD56, Synaptophysin and Chromogranin, whereas the Ki-67 index was 30%, leading to a definite diagnosis of neuroendocrine carcinoma. After operation, the patient received chemotherapy (cisplatin + Etoposide). Primary hepatic neuroendocrine carcinoma is extremely rare and prognosis is dismal. The patient has, however, been followed up for 19 months without evidence of recurrence.

P-39-3 A case of reactive lymphoid hyperplasia of the liver in a young patient

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We report a case of reactive lymphoid hyperplasia (RLH) of the liver in a young patient. The patient was a 35-year-old woman. She had been medicated for fever of unknown origin for 10 years. In November 2015, 20 mm single nodule was incidentally found in surface of the medial segment of the liver by ultrasonography of the health screening. All laboratory tests including hepatic enzymes and tumor markers were all within the normal limits, and all viral markers were negative. Computed tomography revealed a relatively hypodense lesion in segment 3 and 4, which was mildly enhanced. Surrounding area of the lesion was strongly enhanced in arterial phase and isodense in late phase, suggesting arterioporal shunt. In magnetic resonance imaging, the lesion was relatively enhanced in arterial phase and low intense in hepatocyte phase. Since these radiological findings could not rule out malignancy and the demarcation of the tumor was unclear, we performed left hepatectomy. The postoperative course was uneventful. Histological findings revealed well-defined, nonencapsulated and milky white mass measuring 12×11mm in segment 3 and 4. The mass was composed of lymphoid follicles with inflammatory cell infiltration. No atypical cells were identified. According to these findings, the diagnosis was RLH of the liver. RLH has been reported in various organs, including orbit, skin, lung, intestine and thyroid, whereas its occurrence in the liver is rare. To our best knowledge, the present patient is the youngest case in reports of our country and we report with literature review.

P-39-4 A case of primary hepatic mucosa–associated lymphoid tissue (MALT) lymphoma

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A 65-year-old female presented with back pain. CT scan showed a hepatic tumor, and she was referred to our hospital for further examinations. There was neither history of hepatitis B nor hepatitis C viral infection. Abdominal US showed an approximately 6 cm hypoechoic mass in diameter located in the left liver. CT examination revealed an irregular low density mass with poor contrast enhancement associated with upstream intrahepatic biliary dilatation. There are no swollen lymph nodes in the abdominal cavity. MRI showed a low intensity mass on T1 and a high intensity on T2 weighted image. The tumor was homogenous and its boundary was relatively clear. As differential diagnoses, we assumed cholangiocellular carcinoma and primary malignant lymphoma of the liver. Although serum CEA and CA 19–9 level were within the normal range, soluble IL – 2 receptor showed a high value of 846 U/ml (normal range : 145–519 U/ml). We performed left hemihepatectomy under a tentative diagnosis of primary hepatic malignant lymphoma. The operation time was 194 minutes and intraoperative blood loss was 115 g. Pathologic findings showed small to intermediate lymphoid cells proliferating along with the Glissonean sheath in the tumor. CD20 and BCL–2 were positive, CD10 and cyclin D1 were negative in the immunohistochemical staining which were compatible with mucosa–associated lymphoid tissue (MALT) lymphoma. The postoperative course was stable and the patient is well without showing any signs or symptoms of tumor recurrence during 5 months after surgery. We experienced a rare MALT lymphoma in the liver.

P-39-5 A solitary necrotic nodule in the liver is difficult to distinguish from HCC

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Hepatic solitary necrotic nodule is a rare benign lesion, with a necrotic core, hyalinized fibrotic tissue, and elastic fibers. It is difficult to differentiate from hepatocellular carcinoma (HCC), cholangiocarcinoma and hepatic metastasis because of a similar radiologic appearance. The natural history of solitary necrotic nodule remains unclear. We report a 70-year-old man with an incidentally detected hepatic mass. The mass was 25mm located in segment 3. Ultrasonography showed an isoechoic area with halo and posterior echo enhancement, MRI showed a low intensity area on T1 weighted images with high intensity on T2 weighted images, and dynamic CT scan showed a hypervascular lesion in the early phase and washed out in the late phase. Serum tumor marker levels were not elevated. We diagnosed the tumor as HCC, and performed a laparoscopic partial hepatectomy. Histopathologically, the lesion was diagnosed as a solitary necrotic nodule. This could not be distinguished from HCC preoperatively.
A case of multiple inflammatory hepatic pseudotumor protruding from the liver surface after colonic cancer

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The patient (67) had undergone hemicolecction for colonic cancer (stage II) 2 years. One year after the hemicolecction, the patient required cholecystectomy. He was well without obvious recurrence. However, the CEA level was marginally elevated (7.1 ng/mL). CT revealed two irregular, peripherally enhanced S6 tumors protruding from the liver surface. MRI could not be performed because the patient had a tattoo. The patient underwent S6 partial hepatectomy because of suspected malignancy. He had an unremarkable postoperative course, and was discharged, 7 days. On histological examination, a remarkable infiltration of inflammatory cells was observed. An inflammatory hepatic pseudotumor (IHPt) was diagnosed, which is a relatively rare benign lesion of the liver that may mimic malignant tumors when found in a patient with a history of malignancy. We performed a literature search for “Inflammatory Hepatic pseudotumor” in the Ichushi-Web (Japan Medical Abstracts Society) and PubMed databases from April 2000 to October 2016. During this period, 193 cases of IHPt were reported. There were 44 patients (22.8%) with malignant tumors and past malignant history, 16 patients (8.3%) with multiple type tumors and 9 patients (4.7%) with both. We herein report a case of resection of multiple IHPt after colonic cancer

A case of the third hepatectomy for recurrent gastric cancer liver metastases

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SUMMARY The efficacy of repeat hepatectomy for recurrent hepatocellular carcinoma and colorectal liver metastases is widely accepted. However, the benefits of repeat hepatectomy for intrahepatic recurrence of gastric cancer liver metastasis remain unknown. Herein, we report a 68-year-old male patient who underwent the third hepatectomy for intrahepatic recurrence of gastric carcinoma liver metastases. Firsty, he underwent distal gastrectomy for stage IIIB gastric cancer seven years ago. Liver metastases were detected just one year after gastrectomy, systemic chemotherapies were indicated for three and a half years with three regimens, thereafter he was referred to our hospital. The first hepatectomy (right hemic) was undergone for large coalesced liver metastases. Four months after the first hepatectomy, intrahepatic recurrences were detected and the second hepatectomy (S4 resection) was performed with two months intervals of the detection of the recurrence. With the 17 months interval from the second hepatectomy, intrahepatic re-recurrences were detected, the third hepatectomy was undergone successfully without any complications. Six months has passed after the third hepatectomy, he was followed by outpatient clinic with adjuvant chemotherapy without any signs of recurrence. This case suggested that repeat hepatectomy can be one option for the treatment of recurrent gastric cancer liver metastases.

A primary tumor of mixed histological type is a novel poor prognostic factor for patients undergoing resection of liver metastasis from gastric cancer

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Background: Surgical resection can be an option for the treatment of metastatic liver tumors originating from gastric cancer, however, its prognostic impact is controversial. The aim of this study was to identify prognostic factors in patients with surgical resection of liver metastasis from gastric cancer.

Methods: We retrospectively analyzed the clinicopathological features of 38 consecutive patients undergoing hepatectomy for metastatic tumors from gastric cancer in our institution.

Results: The median overall survival of the patients was 28 months. The 5-year survival rate was 33.9%. Primary tumors of a mixed histological type, and residual tumors during the course of treatment were identified as significant independent poor prognostic factors.

Conclusions: Histological evaluation of primary tumors may aid to identify patients suitable for undergoing surgical resection of liver metastasis from gastric cancer.
P-40-4 Metachronous liver metastases of duodenal neuroendocrine tumor G2 20 years after distal gastrectomy

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We report a case of metastatic liver tumors of duodenal neuroendocrine tumor, which was resected two decades ago. The patient was 79 years old female who underwent distal gastrectomy due to duodenal neuroendocrine tumor 20 years previously at our hospital. Since then she’d never had any sign of recurrent and follow up was terminated more than decade ago. This time the patient visited the clinic because of upper abdominal discomfort, and CT scan showed two tumors 30 mm in diameter in S4 and 10 mm in diameter in S4/3 of the liver with swollen lymph node in the para-aortic area. Gd-EOB-DTPA dynamic MR image showed early enhancement in the arterial phase and hypo-intense signals in the hepatocellular phase. Diffuse-weigh MR image revealed the presence of hyper-intense masses in the liver. Percutaneous liver biopsy was examined and the diagnosis was neuroendocrine tumor, G1.

We performed medial segmentectomy and para-aortic lymph node biopsy. The pathological findings were neuroendocrine G2 tumors of the liver with no metastasis in the para-aortic lymph nodes. The patient went well for 33 months without any sign of the recurrence.

We report this quite rare neuroendocrine tumor of duodenum developed 20 years after the primary resection.

P-40-5 A surgical case of metachronous liver metastasis of hepatoid adenocarcinoma of the stomach

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A 69-year-old male was aware of tarry stool and was point out severe anemia upon a regular outpatient visit for a follow-up of autoimmune pancreatitis. Endoscopic examination found a Type 3 tumor of the stomach, with pathological diagnosis of moderately-differentiated adenocarcinoma. The patient had total gastrectomy and then started adjuvant chemotherapy with S-1. However, an enhanced CT scan at the tenth month after gastrectomy detected a 4cm tumor at the posterior segment in the liver. In addition of an increased serum level of AFP, ultrasonography and enhanced MRI also revealed that the tumor was suspicious of hepatocellular carcinoma rather than the metastatic tumor. Surgical resection of posterior segment of the liver was performed and its histological examination demonstrated that it was metastatic hepatoid adenocarcinoma, presumably from the gastric cancer resected a year ago. Retrospective study with immunohistochemistry showed a diffusely positive staining of Glypican-3 and CK19, and a focal staining of AFP, both in the liver tumor and in the original gastric cancer. Pathologically, the liver tumor formed tumor thrombus in the second branch of the portal vein. After hepatectomy, the patient received five courses of the second chemotherapy with cisplatin and docetaxel until quitting it by his own will. He is alive without any recurrence more than two years.

AFP-producing hepatoid adenocarcinoma is thought to be aggressive and to easily metastasize to distant organs, resulting in poorer prognosis than other types of gastric cancer. Here we report this long-term surviving case with a review of some previous articles.

P-40-6 Simultaneous Kidney and Liver Resection for Renal Cell Carcinoma with Liver Metastases: Case Series

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Introduction. Simultaneous Kidney and Liver Resection is an uncommon surgical procedure. Each procedure is related to a substantial morbidity, let alone a combine procedure. The most commonly cited indication in the literature is locally advanced renal cell carcinoma (RCC) with direct extension into adjacent liver parenchyma.

Method. We herein discuss two cases of simultaneous kidney and liver resection for left sided (RCC) with metastases to the right liver, segment 5 in 17 years old male patient and segment 6 in 64 years old female patient, respectively. Result. After a standard left nephrectomy, a right posterior sectionectomy for S6 lesion and right anterior sectionectomy for S5 lesion was commenced. We used Glissonean approach with meticulous dissection in both cases. During the hepatic parenchymal resection, the liver was suspended with the tape and transected. The patients were discharged from the hospital on the 10th postoperative day with an uneventful clinical course.

Discussion. In majority of simultaneous resections, liver resection were done first to allow rehydration after parenchymal transection. Thus prevent under hydration, which may lead to impaired renal function. One exception to this approach, as also seen in our series, is right hepatectomy in patient with a bulky renal tumor on the left side. Portal venous pressure increases in the liver remnant after major hepatectomy. Conclusion. A proper patient selection and a strict adherence to basic principles of liver resection is the key to a safe simultaneous kidney and liver resection.

P-41-1

Withdrawn
Withdrawn

P-41-4  A case of pneumothorax treated with conservative therapy after laparoscopic cholecystectomy
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We reported a case of pneumothorax treated with conservative therapy after laparoscopic cholecystectomy. A 67-year-old woman was admitted to our hospital due to gallbladder stones. We scheduled laparoscopic cholecystectomy. She had a past history of asthma. But bra and blebs were not detected on CT 7 months before operation. Her respiratory function test was normal. The operation was started with general anesthesia. We used carbonic acid gas and the pressure of pneumoperitoneum was 10 cmH2O. The operation was finished without complications. Operation time was 2 hours, blood loss was 2 ml. We had no problem with anesthetic management. After the operation, she was returned to the general room. 11 hours after operation she got right chest pain and dyspnea. Oxygen saturation was 94% under oxygen therapy. Subcutaneous emphysema was not found. Her right lung respiratory sound was falling on auscultation. On chest X-ray enlargement of mediastinal shadow was detected. Right pneumothorax and pleural effusion was detected on CT. She was diagnosed of pneumothorax with classification I and conservatively treated with oxygen only. Her symptoms gradually improved. 7 days after operation pneumothorax was not detected on CT. Pneumothorax associated with laparoscopic cholecystectomy occurs almost during operation. This is rare case, so we reported with some literature review.

P-41-5  A case of rupture of cystic artery pseudoaneurysm successfully treated with emergent cholecystectomy
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We reported a case of ruptured pseudoaneurysm of cystic artery successfully treated with emergent cholecystectomy. A 94-year-old woman was referred to our hospital for treatment of gallstone, who had developed acute cholecystitis resulting from the stone one month ago. His past medical history included old myocardial infarction and sick sinus syndrome, and antithrombotic drugs were prescribed. He was planned to receive scheduled cholecystectomy for the gallstone. While waiting for the surgery, he suddenly developed fever and epigastric pain. Laboratory examinations revealed inflammatory response and elevation of hepatobiliary enzymes. Enhanced CT examination demonstrated recurrence of cholecystitis and a pseudoaneurysm of cystic artery. The cystic artery pseudoaneurysm was ruptured and accompanied by formation of hematoma inside the gallbladder and in liver bed. Under preoperative diagnosis of acute cholecystitis and ruptured pseudoaneurysm, an emergent laparotomy was performed. At the laparotomy, the gallbladder was distended and adhered to the surrounding tissue. Hematoma was identified in liver bed and removed. After dissection of cystic artery, cystic duct and the adherence, the gallbladder was extirpated. Lumen of the removed gallbladder was filled with blood. There were no serious postoperative complications in him. We experienced the case with rupture of cystic artery pseudoaneurysm successfully treated with emergent cholecystectomy. While development of cystic artery pseudoaneurysm is associated with cholecystitis, its incidence is very low when compared to cholecystitis. Considering the rarity, this case would be useful to keep in mind possibility of such cystic artery pseudoaneurysm.
P-41-6 A patient with acute pancreatitis complicating biliary pseudolithiasis caused by ceftriaxone

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We encountered an 84-year-old woman with acute pancreatitis resulting from biliary pseudolithiasis. She was treated with ceftriaxone for urinary tract infection at our hospital beginning 14 days earlier. One week after discharge, she was transported to the hospital and readmitted with complaints of vomiting and epigastralgia. Laboratory results included P-amylase, 3670 U/L; AST, 335 U/L; ALT, 159 U/L; γ-GTP, 577 U/L; WBC, 16900 /µL; and CRP, 0.33 mg/dL. Computed tomography (CT) showed diffuse swelling of the pancreas and apparent calcified stones in the gallbladder. Contrast CT demonstrated a fluid collection extending to the lower pole of the left kidney as well as calcified stones in the gallbladder. Contrast CT demonstrated a fluid collection extending to the lower pole of the left kidney as well as calcified stones in the gallbladder. Contrast CT demonstrated a fluid collection extending to the lower pole of the left kidney as well as calcified stones in the gallbladder. Contrast CT demonstrated a fluid collection extending to the lower pole of the left kidney as well as calcified stones in the gallbladder. Contrast CT demonstrated a fluid collection extending to the lower pole of the left kidney as well as calcified stones in the gallbladder.

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We then performed a fluid collection extending to the lower pole of the left kidney as well as diffuse pancreatic enhancement. She was diagnosed with severe acute pancreatitis related to passage of gallstones. On hospital day 4, CT reflected passage of the apparent stones from the gallbladder into the common bile duct; ultrasonography showed only sludge remaining in the gallbladder. We now believe that pseudolithiasis was initiated by ceftriaxone about 8 days before clinical onset of acute pancreatitis. By hospital day 13 acute pancreatitis had improved, permitting oral food intake. On hospital day 17, CT showed no pseudolithiasis affecting either the gallbladder or the common bile duct. A few previously reported cases of acute pancreatitis have similarly arisen from pseudolithiasis caused by ceftriaxone.

P-42-2 Removal of Common Bile Duct Stones by Percutaneous Transhepatic Interventional Radiology (PTIR) – The Experience at Taipei Veterans General Hospital

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Purpose: Common bile duct (CBD) stones can be removed by surgical methods (laparotomy or laparoscopic cholecodocholitotomy) or less invasive methods (Endoscopic retrograde cholangiopancreatography, ERCP; percutaneous transhepatic cholangioscopy, PTCS). The purpose is to clarify the effectiveness and complication of percutaneous transhepatic interventional radiology (PTIR) to remove common bile duct stone(s) at a single center.

Materials and Methods: Retrospective analysis of patients who received PTIR from the database at our hospital was done, ranging from May 2010 to April 2015. The PTIR procedure involved balloon dilation and/or basket lithotripsy methods for stone extraction or expulsion into duodenum. Results: A total of 46 patients with CBD stone(s) alone or combined intrahepatic duct (IHD) stone(s) were recruited for study. The reason for receiving PTIR included failure of stone removal by PTCD as the first aid at emergency room (21.7%) or ERCP failure (8.7%), combined CBD and IHD stones (6.5%), large CBD stone (>2cm) (6.5%), and abnormal gastrointestinal anatomy (54.3%). The effectiveness of PTIR for stone removal revealed successful rate of 82.6%, and a 17.4% failure rate. The overall complication rate was 10.8%, including 2 cases with wound infection (4.3%), 2 cases of biliary tract infection (4.3%), and a case of pseudoaneurysm (2.2%). There was no procedure related mortality.

Conclusion: Percutaneous Transhepatic Interventional Radiology (PTIR) is a safe and effective alternative procedure to remove common bile duct stone(s) besides ERCP and surgery.

P-42-1 A new double-layered self-expandable metal stent for malignant biliary obstruction

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Percutaneous Transhepatic Interventional Radiology (PTIR) is a safe and effective procedure to remove common bile duct stone(s) at a single center. The effectiveness of PTIR for stone removal revealed successful rate of 82.6%, and a 17.4% failure rate. The overall complication rate was 10.8%, including 2 cases with wound infection (4.3%), 2 cases of biliary tract infection (4.3%), and a case of pseudoaneurysm (2.2%). There was no procedure related mortality.

Results: The technical success rate was 100% (20/20) and clinical success was achieved in 100% (20/20). The overall procedure related adverse events occurred in one patient (0.05%, 1/20). The median follow-up period was 105 days (range, 30–142). The rate of stent obstruction was 40% (8/20) during follow-up period (median 48 days, range, 12–145). The most common cause of the stent obstruction was biliary sludge formation (30%, 6/20). Neither stent migration nor tumor ingrowth was observed during follow-up period. Conclusion: This study showed that the newly developed double-layered metal stent might reduce stent-related adverse events. However, relatively high rate of stent obstruction due to biliary sludge formation remain to be resolved.

P-42-3 Initial experience of endoscopic stent placement above the Oddi (inside-stent) for preoperative malignant biliary obstruction

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Background/Purpose: Endoscopic nasobiliary drainage (ENBD) has been accepted in patients with resectable malignant hilar obstruction because of less invasiveness or sufficient patency. However, maintenance nasal catheter might cause irritation of nasopharynx and lower the quality of life. Therefore, the optimal approach to preoperative biliary drainage remains controversial. We evaluated the feasibility and safety of placing a plastic stent above the Oddi (inside-stent, IS) and compared the perioperative results with those of ENBD.

Methods: A total of 76 patients with malignant hilar obstruction (cholangiocarcinoma, n = 58; gallbladder carcinoma, n = 18) were recruited for the evaluation of catheter placement either IS (n = 27) or ENBD (n = 49). We compared preoperative time to recurrent biliary obstruction and postoperative complication between the two groups.

Results: Recurrent biliary obstruction occurred in 18 (37%) patients in the ENBD group and 5 (19%) in the IS group (P = 0.098). In the IS group, non-obstruction rate at 30 days was 79%; this was significantly greater than that in the ENBD group (57%, P = 0.049). 65 (86%) of 76 patients underwent tumor resection. Both severe morbidity rate and infectious complication rate was similar between the two groups (25% vs. 29%, P = 0.759; 68% vs 48%, P = 0.217, respectively). The length of hospital stay was 31 days in the ENBD group and 34 days in the IS group (P = 0.763).

Conclusions: A plastic stent above the Oddi (inside-stent) is safe and effective, and might be an alternative therapeutic option as a preoperative biliary drainage method in patients with malignant hilar obstruction.
P-42–4 A case of intraductal papillary neoplasm of the bile duct (IPNB) with invasive adenocarcinoma and lymph node metastasis

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Intraductal papillary neoplasm of the bile duct (IPNB) is a rare bile duct neoplasm characterized as a precursor lesion of cholangiocarcinoma. An invasive component is present in approximately 40%–80% of reported cases and lymph node metastasis is sometimes detected. We describe a case of IPNB with invasive adenocarcinoma and lymph node metastasis. A 72-year-old man presented to our hospital in September 2015 due to liver dysfunction. The patient has required home parenteral nutrition for more than 30 years because of short bowel syndrome. Ultrasonography revealed a left intrahepatic bile duct dilation and a papillary mass in the bile duct. Abdominal enhanced computed tomography (CT) demonstrated a gradually increasing tumor mass in the left hepatic duct. Positron Emission Tomography (PET) CT showed abnormal accumulation in the same site and in the periporal lymph nodes. Direct cholangiography with endoscopic retrograde cholangiography (ERC) showed the diffuse bile duct dilatation in left lobe and cytological examination revealed the presence of atypical cell. The step biopsy was performed to assess that the tumor was confined to the left bile duct. It was diagnosed as IPNB–derived intrahepatic cholangiocarcinoma (T1 N1 M0 Stage II). He underwent the extended left hepatectomy and caudate lobectomy and lymph node dissection without extrahepatic bile duct resection. Histopathological findings showed mucin producing papillary mass dilating the bile duct lumen and adjacent to infiltrative poorly differentiated adenocarcinoma. The hepatic resection margins were negative for tumor. We report a case of IPNB with an associated invasive adenocarcinoma and lymph node metastasis.

P-42–5 Clinicopathological study of intraductal papillary neoplasm of the bile duct in comparison with papillary and non–papillary type cholangiocarcinoma

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Background: The differentiation between intraductal papillary neoplasm of the bile duct (IPNB) and papillary type cholangiocarcinoma is still unclear. Objective: To clarify the clinicopathological features of IPNB in comparison with PCC and non-papillary type cholangiocarcinoma (non-PCC).

Tumor classification: IPNB was diagnosed in accordance with the 2010 WHO classification. PCC was defined as papillary mass arising in the bile ducts revealed by gross examination, which did not fulfill the criteria of IPNB. Non–PCC was defined as grossly solid nodular or stricture type tumor. Methods: A total of 303 consecutive surgically resected cases with a diagnosis of bile duct tumor were enrolled to this study. Among them, 22 patients were diagnosed with IPNB, 15 with PCC and 232 with non–PCC. Then clinicopathological features were compared. Results: Non–PCC extended beyond the wall more frequently than the others (IPNB: 6%, PCC: 19%, non–PCC: 20%, p<0.001). Moreover, non–PCC showed significantly high incidence of lymph node metastasis than the other (IPNB: 43.1%, PCC: 20%, non–PCC 34.1%). Patient with non–PCC tended to show poorer overall survival rate (OSR) than that with PCC. Moreover, OSR of PCC patients was significantly worse than that of IPNB patients. Conclusion: It is reasonable to distinguish among IPNB, PCC and non PCC, as significant contrast was observed among the groups.

P-42–6 A successful percutaneous trans–cystic duct metallic stenting for the common bile duct obstruction

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Background: Percutaneous transhepatic gallbladder drainage (PTGBD) is widely accepted when the obstruction is located below the cystic bifurcation. However, unlike endoscopic retrograde biliary drainage (ERBD) or percutaneous transhepatic cholangial drainage (PTCD), the route of PTGBD is not applicable for further treatment of the common bile duct (CBD) obstruction. Herein, we report a case in which the CBD obstruction was successfully treated by a trans–cystic duct metallic stent through PTGBD route.

Case: An 82–year–old man with jaundice was diagnosed as an unresectable pancreatic head carcinoma with the CBD obstruction by computed tomography. Both ERBD and PTCD failed due to severe CBD obstruction and inadequate intrahepatic bile duct dilatation, respectively. PTGBD was temporary performed with a 7F biliary tube. Then, a metallic stent (LUMINEXX, Bard, U.S.A) was successfully placed passing through the CBD obstruction via the cystic duct using PTGBD tube. Radifocus guidewire (Terumo, Tokyo, Japan) and Jagwire (Boston Scientific Japan, Tokyo, Japan) were used in this technique. The serum bilirubin level decreased from 18.3 mg/dl to 0.9 mg/dl 4 months later, and this contributed to improve the patient’s QOL.

Conclusion: In the selected cases, percutaneous trans–cystic duct biliary stenting can be a therapeutic option for the CBD obstruction.

P-42–7 The advantage of cholangioscopy with narrow–band image in hepatobiliary malignant tumor

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Background: Recently, cholangioscopy with narrow–band image (NBI) using percutaneous approach has been used as a diagnostic modality for better visualization in hepatobiliary malignant tumors, however, there are few reports on it. Our aim is to evaluate the advantage of cholangioscopy with NBI using percutaneous approach in hepatobiliary malignant tumors.

Methods: Between January 2007 and December 2016, 152 cholangioscopies using percutaneous approach were conducted in total 123 patients. Among these, 36 patients were suspicious of hepatobiliary malignant tumors. Thirteen patients with an ambiguous margin on ERCP or MRCP of them, to whom NBI tipped the balance in diagnosis of lesion and decision of lesion extent by adding NBI, were involved in our study.

Results: Underlying diseases were all malignant in 13 patients (11 bile duct cancers, 1 liver cancer, 1 pancreas cancer with common bile duct invasion). In 7 cases with papillary type tumor, minute superficial spreading tumor was detected by NBI more easily, and NBI provided a better visualization of tumor vessel and margin evaluation in 4 cases with infiltrative type tumor. In 2 cases with mucin–hypersecreting tumor, NBI showed better penetration through the mucin and give us a better clear image.

Conclusion: In conclusion, cholangioscopy with NBI using percutaneous approach is very useful for evaluation of suspected hepatobiliary malignant tumors with an ambiguous margin on ERCP or MRCP. It can give us an accurate pathologic mapping, and this information seems to be essential before deciding a treatment strategy.
P-43-1 Transcutaneous and transhepatic endobiliary operations in the treatment of malignant tumors, complicated by obstructive jaundice

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Purpose: Analysis of clinical material of mini–invasive transhepatic and transcutaneous endobiliary operations at malignant tumors. Materials and Methods: In the period from 2008 till 2015, 1271 transcutaneous transhepatic endobiliary operations (TTEO) were performed. External transcutaneous transhepatic cholangiostomies (TCH) and stenting of the bile ducts were made in 977 and 294 patients, respectively. In 94.6% of cases (924 patients) TCH was carried out in relation to malignant tumors, complicated by obstructive jaundice. In 745 (76.3%) of cases TCH was carried out at the first stage of treatment. Subsequently, pancreaticoduodenal resections were carried out in 216 patients, and palliative biliodigestive anastomosis were formed in 235 cases. Results: Complications after TTEO developed in 7 (0.7%) patients. In 3 cases the occurrence of bile leakage was noted, that were further drained by puncture without laparotomy, in 1 case – damage of liver round ligament with intra–peritoneal bleeding occurred. In 3 patients the development of gastrointestinal bleeding was noted on the background of sharply expressed blood coagulation system malfunction. Laparotomy was performed in 2 patients; in one case the bleeding was stopped by needling of the bleeding zone in the area of hepatoduodenal ligaments; in another case sanitation and abdominal drainage were performed. In 2 patients gastrointestinal bleeding was stopped conservatively. Complications at stenting of bile ducts were observed in 26 (8.8%) patients. Overall postoperative mortality after TTEO was 0.16%. Conclusion: performance of TTEO is the effective method of treatment of patients with obstructive jaundice.

P-43-2 Multilocular Cystic Intrahepatic Cholangiocarcinoma: A Case Report

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Background: We report a rare case of intrahepatic cholangiocarcinoma with multilocular cystic change, which could not be diagnosed radiologically because of its unique morphology.

History: A 54-year-old woman was referred to our clinic for evaluation of an enlarging multilocular cystic lesion in the S6 segment of the liver, which was found incidentally as a 10-cm hepatic cyst at outside hospital in 2008. An initial ultrasonographic evaluation revealed an irregular 5-cm hepatic lesion in the right subcostal region. Markers of inflammation and hepatobiliary enzymes were within normal limits. Abdominal CT showed a multilocular cystic lesion involving the S6 segment with increased radiodensity. MRI diffusion scan showed thick internal walls dividing the lesion into multiple compartments with enhanced signal intensity in the interstitium. PET–CT showed an increased uptake with an SUV level of 1.93. The intraoperative frozen section examination revealed adenocarcinoma. The postoperative pathology showed intrahepatic cholangiocarcinoma with multilocular cystic change, well to moderately differentiated, H2, St–AP, 7.5cm, eg, lc (+), fc–inf (+), sf(–), s0, n0, v0, v0, v0, b0, p0,sm(–), f0, pT2 pN1(13a) cM0. The patient was discharged home on post-operative day 16 with outpatient treatment of TS–1.

Discussion: The multilocular hepatic cyst was found to be an intrahepatic cholangiocarcinoma with lymph node metastasis on pathological evaluation despite the negative finding on preoperative radiological examination.

Conclusion: A timely excision of an enlarging hepatic cyst is warranted given the poor diagnostic reliability of radiologic examination for this type of lesion.

P-43-3 Mass forming intrahepatic cholangiocarcinoma had relation between inflammation and prognosis, and usefulness of FDG–PET as inflammatory predictive factor

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Background: Intrahepatic cholangiocarcinoma (IHCC) is characterized by poor prognosis, and its incidence is increasing throughout the world. Although surgical therapy is the most effective therapy for IHCC, postoperative recurrence remains an problem to be solved. Thus, prognostic markers for PDAC are greatly needed. Recently, inflammatory factors (NLR, mGPS) were reported to be related to tumor progression and recurrence in various cancers. Therefore, we evaluated inflammatory factors for its potential for predicting IHCC prognosis, and usefulness of FDG–PET as inflammation predictive factor.

Methods: We retrospectively evaluated 50 patients for PDAC are greatly needed. Recently, inflammatory factors (NLR, mGPS) were reported to be related to tumor progression and recurrence in various cancers. Therefore, we evaluated inflammatory factors for its potential for predicting IHCC prognosis, and usefulness of FDG–PET as inflammation predictive factor.

Results: The recurrence group exhibited significantly higher neutrophil counts (P = 0.0011), and the optimal cut-off value was 3.70 1/µl. Poor recurrence–free survival (RFS) was associated with high neutrophil levels (RFS; P = 0.0098). In multivariate analysis, D-dimer was correlated with PDAC prognosis and independently predicted RFS (P = 0.04749). In addition, FDG uptake of primary lesion had correlation to neutrophil counts (R2 0.468, P=0.00340).

Conclusion: High neutrophil counts were associated with poor RFS, and FDG–PET uptake had positive correlation to neutrophil counts. Therefore, neutrophil counts could predict recurrence, and FDG–PET is useful as predictive factor of inflammation.

P-43-4 The Impact of Sarcopenia on Outcomes Following Resection of Intrahepatic Cholangiocarcinoma

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Background: Sarcopenia has been identified as a poor prognostic factor for various cancers. The aim of this study is to determine the impact of preoperative skeletal muscle mass on outcomes in patients with intrahepatic cholangiocarcinoma (ICC) after the operation. Methods: A retrospective analysis was performed of 50 patients undergoing resections of ICC between January 2007 and December 2015. The lengths of the major and minor axes of the psoas muscle were simply measured at the caudal end of the third lumbar vertebra, and the area of the psoas muscle was calculated. We defined the cut off levels as 800 cm2 for men and 380 cm2 for women on the basis of the data of the other group for healthy donors (Masuda T, et al, Liver Transplantation 2013). The impacts of sarcopenia on outcomes after ICC resections were analyzed. Results: The median calculated area of the psoas muscle was 510.0 cm2 for all patients (range 216.2–968.8 cm2), 639.8 cm2 for male patients (range 309.7–968.8 cm2), and 396.3 cm2 for female patients (range 216.2–703.5 cm2). Twenty of the 50 patients (40.0%), including 24% (6/25) of the male patients and 46.0% (14/25) of the female patients, were diagnosed with sarcopenia. When we compared the clinical characteristics of patients with sarcopenia and patients without sarcopenia, there was no significant difference between them. In recurrence free survival and overall survival, patients with sarcopenia showed no significant difference in comparison with patients without sarcopenia (P=0.5498 and P=0.4217). Conclusions: In this study, sarcopenia is not a predictor of recurrence free survival and overall survival in patients following the resection of ICC.
P-43-5 Risk factors for refractory ascites after hepatectomy with cholangiocarcinoma

Aim: To clarify risk factors of refractory ascites after hepatectomy for patients with cholangiocarcinoma.

Methods: Of the 227 patients, postoperative ascites was present in 16 patients (7.0%). In multivariate analysis, preoperative intraabdominal abscess (hazards ratio (HR) 23.7, P<0.001) and presence of postoperative intraabdominal infection (HR 6.6, P<0.001). Among 129 patients who underwent extended hepatectomy, postoperative ascites was present in 13 patients (10.1%). In multivariate analysis, presence of postoperative intraabdominal abscess (HR 11.8, P<0.001) was the only significant risk factor for refractory ascites.

Conclusion: In the present study, extended hepatectomy and the presence of postoperative intraabdominal abscess significantly associated with refractory ascites.

P-44-1 Cholangiolocellular carcinoma in 3 patients

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Aim: Cholangiolocellular carcinoma (CoCC), a rare type of primary liver cancer, is considered to originate from the ductules of Hering, where hepatic progenitor cells are located.

Methods: Recently 3 patients with CoCC underwent hepatectomy. All of them had no hepatitis B and C.

Results: Case 1: The patient was a 66-year-old man with a CoCC who was diagnosed with liver hemangioma at another hospital, whereas this tumor was increased in size. Child–Pugh class was A, and ICGR15 was 6%. A high density tumor, 36 mm in diameter was seen in early phase CT scan, and this tumor showed delayed enhancement. He underwent segmentectomy No 7, and pathological findings were CoCC. He survives for 15 months after hepatectomy with no recurrence of CoCC.

Case 2: Next patient was an 81-year-old man with a CoCC which was detected on medical check up. A high intensity tumor, 67 mm in diameter was seen in early phase and the tumor showed delayed enhancement. Child–Pugh class was A, and ICGR15 was 13%. He underwent left hepatectomy based on the diagnosis of HCC. Pathologically, the tumor was diagnosed with CoCC.

Case 3: Last patient was a 68-year-old man with a CoCC and alcoholic hepatitis. A high density tumor, 30 mm in diameter, in segment 4 was seen in early phase CT scan, and this tumor showed delayed enhancement. Child–Pugh class was A, and ICGR15 was 12%. He underwent medial segmentectomy. Pathologically, this tumor was given a diagnosed CoCC because cancer cells were positive for EMA with liner pattern. After hepatectomy, recurrences in the liver and lymph node were seen, and he survives for 11 months under chemotherapy.

Conclusion: All patients showed typical clinical findings of CoCC.

P-43-6 A Case of Solitary Paraaortic Lymph Node Recurrence after Surgical Resection for Intrahepatic Cholangiocarcinoma

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A 66-year-old man underwent extended right hemihepatectomy for cholangiocarcinoma. There was solitary mass in S8 and the size was 9.5 cm. The tumor was attached to the inferior vena cava and the resection margin was involved at the peri–hilar region. He received postoperative radiotherapy (45Gy/25Fx) with 5–fluorouracil plus leucovorin after hepatectomy. However, solitary paraaortic lymph node recurrence was detected on computed tomography 23 months after surgery. The size of lymph node was 25 mm and FDG uptake was increased. Histologic examination revealed solitary paraaortic lymph node metastasis. The patient underwent repeat salvage radiotherapy (45Gy/25Fx) and the size of metastatic paraaortic lymph node was decreased. He remains alive and healthy with stable state of disease 60 months after the initial hepatectomy. This case shows that radiotherapy is potentially curative for solitary paraaortic lymph node recurrence from colorectal cancer.

P-44-2 A case of advanced intrahepatic cholangiocarcinoma treated with repeated surgical resection and chemotherapy

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Surgical resection is the only therapy for the cure of intrahepatic cholangiocarcinoma (ICC) patients. However, the postoperative recurrence rate is still high and prognosis is not satisfactory. Several reports suggested that combined repeated surgery and chemotherapy could contribute to the survival of the patients with recurrences. We report a case of advanced ICC treated with repeated surgical resection and chemotherapy.

A 25-year-old man was referred to our hospital for liver tumor treatment. Contrast–enhanced abdominal computed tomography (CT) showed a tumor–like mass of 60mm in size, spread from left lobe to hepatic hilar area, with findings implying the invasion both to main trunk of portal vein and right and left hepatic artery. We performed left hepatic trisegmentectomy with PV and HA resection and reconstruction. Gemcitabine (GEM) was administered as adjuvant chemotherapy. However, abdominal CT revealed peritoneal metastasis 8 months after hepatectomy. A combination chemotherapy with GEM, cisplatin, and TS–1 was selected as treatment. Since peritoneal metastasis maintained stable disease during chemotherapy, laparoscopic resection of peritoneal metastasis was performed 17 months after hepatectomy. Additionally, low anterior resection of rectum and bilateral vasoectomy was performed for pelvic peritoneal metastasis 25 months after hepatectomy. Although PET–CT examination revealed novel peritoneal metastasis 35 months after hepatectomy, the patient is still alive 43 months after hepatectomy with receiving chemotherapy.
**P-44-3** Treatment Strategy for Intrahepatic Cholangiocarcinoma: Risk factors of overall survival and early recurrence

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**Background:** Postoperative recurrence is a serious problem of intrahepatic cholangiocarcinoma (ICC). It is necessary to take effective strategy to reduce tumor recurrence. We attempted to investigate the predictors of overall survival and postoperative recurrence and reviewed the patients who preoperatively treated with chemotherapy.

**Patients and Methods:** We retrospectively investigated the clinicopathological features and outcome of 38 consecutive ICC patients who underwent surgery at our hospital, including 4 patients who initially diagnosed as locally advanced (LA-ICC) or metastatic (M-ICC) tumors. The risk factors for the overall survival (OS) and early tumor recurrence (ETR) were evaluated. **Results:** Curative resection (R0) was performed 35 patients (92.1%). Postoperative recurrence was observed twenty–three patients (60.5%) and the three–fourth relapses were observed within 2 years. Peri–portal invasion, serosal invasion, multiple tumors, and residual tumor (R1/2) were identified as significant risk factors of OS and the former two were associated with ETR. On the other hand, four patients diagnosed as LA– or M–ICC initially treated with systemic chemotherapy or intra–arterial infusion. Three of 4 patients, who decreased CA19–9 within normal limits or estimated as PR using RECIST criteria after chemotherapy, have survived more than two years after surgery with or without tumor recurrence. **Conclusion:** Peri–portal invasion, multiple tumors were the risk factors of OS and postoperative ETR of ICC patients. The reduction of serum CA19–9 level and the decrease of the tumor size after chemotherapy might be a useful marker to predict surgical outcome in ICC patients.

**P-44-5** A successful anatomical liver resection using intrabiliary injection ICG–fluorescence imaging to identify hepatic segments containing dilated intrahepatic bile duct

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**Presentation case:** A 74-year-old man with intrahepatic bile duct dilation was referred to our hospital. He had abnormally large incarcerated stones in the neck of the gallbladder and his aberrant right posterior hepatic duct (PHD) drained into the common hepatic duct (CHD). Additionally, the Coinaud’s segment V hepatic duct (B5) drained into the PHD. Near the CHD, the PHD was occluded by mechanical compression of the incarcerated stones and the peripheral side of the intrahepatic bile ducts (B5, B6 and B7) were markedly dilated. Thus, we planned to perform an extended right posterior sectionectomy (including Segment V) and a cholecystectomy. During surgery, to identify the region containing the dilated intrahepatic bile ducts (B5, B6 and B7), we directly injected ICG–fluorescence into the PHD and which allowed us to clearly visualize the planned resection regions (S5, S6 and S7). The demarcation line on the liver surface was easily recognized and so the planned anatomical liver resection was accomplished precisely.

**Conclusion:** In addition to intravenous injection, intrabiliary injection ICG–fluorescence imaging could also be a rational technique for anatomical liver resection.

**P-44-4** Three cases of surgical resection for recurrent foci after hepatectomy to treat intrahepatic cholangiocarcinoma

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**[background]** The significance of surgical resection for recurrence of ICC is presently unclear. The aim of this study is to evaluate the effect of repeat hepatectomy for ICC. **[Patients and methods]** Twenty–two patients who experienced ICC resection at our hospital were included in this study. Twelve patients experienced recurrence after hepatectomy. We divided these cases into 3 groups. The RF group contained 10 cases with recurrence–free survival. The R group contained 9 patients that experienced non–resectable recurrence. The RS group contained 3 cases with resection of the recurrence. **[Results]** Contrary to the R group among which cases, at least hepatic lobectomy (HR) were performed in all cases, less than lobectomy (Hr1, Hr5, Hr0) were performed among the RS group. Bile duct resection was performed in 4 cases among the RF but none among the RS group. The median recurrence–free period was 8 and 47 months in the R and RS groups, respectively. PI type gross morphology was observed in 2 cases in both the RF and R groups. The mean tumor diameter in the RS group was significantly smaller than those in the R group(p<0.03). Currently, the 5-year overall survival rates are 86(RF), 22(R), and 100%(RS). The cases without recurrence and the cases in which recurrence foci of ICC was resected achieved a good prognosis. **[Conclusions]** Notably, no recurrence is apparent necessary requirement for longer survival after ICC resection. Based on our results, a controlled status of recurrent foci may also be considered an equal requirement. Repeat hepatectomy is suitably indicated for patients with single metastasis in the residual liver within a certain time interval after the initial surgery.

**P-44-6** Left hepatectomy with right hepatic artery resection and reconstruction for intrahepatic cholangiocarcinoma in a patient

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A 77 year–old woman presented at a local hospital with upper abdominal pain.

A tumor 40 mm in diameter in the left liver was detected, and, she was referred to our hospital. No abnormality was seen in serum examination or tumor markers.

A tumor, 43 mm in diameter, was seen in the left liver. This tumor invaded to portal vein and right to proper hepatic artery at the hepatic hilus. An accumulation in the tumor (SUV max 11.92) was seen on PET–CT, whereas no metastasis was seen in other organs.

She was given a diagnosis of mass–forming intrahepatic cholangiocarcinoma with invasion to the right hepatic artery, she underwent left hepatectomy with right hepatic artery and portal vein resection and reconstruction. This tumor was diagnosed ICC because the main tumor was located in the liver and cancer cells were adenocarcinoma. A part of the tumor grew to the extra–liver and this part invaded to the right hepatic artery and portal vein.
P-45-1  Surgical outcome of incidental gallbladder cancer
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BACKGROUND: Recently Incidental gallbladder cancer (IGBC) has been reported to increase as the prevalence of laparoscopic cholecystectomy (lap-c). PATIENTS and METHODS: From April 2001 to March 2016, 19 patients were diagnosed with IGBC incidentally on histology after cholecystectomy. These patients were retrospectively analyzed and compared with those who underwent surgery for preoperatively-diagnosed gall bladder cancer. RESULTS: Initial surgery was lap-c in all cases. Pathological T stage was T1a in one patient, T2 in 11 cases, and T3 in seven cases. Five-year survival was 50.0%, which was comparable to those of non-IGBC cases. Additional surgery was performed in 16 cases. Three cases did not undergo surgery due to distant metastasis or patient condition. Operative procedure of the additional surgery was liver bed resection and lymph nodes dissection basically, and the bile duct resection was additionally performed in seven cases. Nine cases had complete curative resection, and the eight of those did not have residual disease in the reoperation specimen. Five-year survival of T2 cases was 78.8%, while the prognosis of T3 cases was worse, five cases of which were dead of recurrence. Nine cases had bile leakage during the first surgery and two of those were dead of peritoneal recurrence. CONCLUSION: Although surgical outcome of the IGBC group was comparable with that of non-IGBC group, two recurrent cases of peritoneal dissemination were thought to be due to intraoperative bile leakage. T3 ≤ case has poor prognosis and the indication of additional surgery should be strictly considered in case of high risk patients.

P-45-2  Clinicopathological Features and Prognosis of Advanced Cystic Duct Carcinoma
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[Background/Purpose] Cystic duct carcinoma (CDC) had been defined according to "Farrar's criterion (histopathological diagnosis of a carcinoma limited to the cystic duct)". However, CDC is thought to invade beyond the wall of the cystic duct easily. In addition, the American Joint Committee on Cancer (AJCC) classified CDC into a subtype of Gallbladder (GBC) since 7th edition. The aim of this study is to clarify clinicopathological features and disease-specific survival (DSS) of "advanced (pT2 or more depth of invasion according to AJCC 8th edition)" CDC, center of which was located in the cystic duct.

[Methods] Clinicopathological features and DSS of 48 advanced CDC were compared with 199 perihilar cholangiocarcinoma (PHCC), 101 distal cholangiocarcinoma (DCC), and 43 conventional GBC.

[Results] there was no significant difference in most clinicopathological features between advanced CDC and PHCC, excluding gender ratio and frequency of the duodenum invasion. Patients with advanced CDC (median DSS, 28 months) had significantly worse prognosis compared with those with PHCC (47 months, p = 0.023). However, there was no difference in DSS between 36 patients with CDC not invading the duodenum and those with PHCC (p = 0.404). On multivariable analysis, regional lymph node metastasis (p = 0.001), the main portal vein invasion (p < 0.001), and the hepatic artery invasion (p = 0.023) were selected as independent prognosis factors of advanced CDC.

[Conclusion] Patients with advanced CDC tended to have worse prognosis than those with PHCC, because CDC tends to invade beyond the serosal membrane compared with PHCC.

P-45-3  CARCINOMATOUS MENINGITIS FROM GALL-BLADDER CARCINOMA: A RARE RECURRENT PATTERN AFTER RESECTION
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Case presentation
An 85–year-old woman, who underwent extended cholecystectomy and lymph node dissection for gallbladder (GB) cancer (T2, N0, M0, Stage II) two years before, presented with vomiting and impaired awareness. She had no evidence of recurrence, with no chemotherapy, until two years of this episode. Computed tomography (CT) and magnetic resonance imaging (MRI) showed right hydropneumothorax and hydrocephalus. Spinal tap showed elevated cerebrospinal fluid (CSF) pressure over 270 mmH2O, and the CSF cytology showed adenocarcinoma cells. Urine cytology was negative. Upper gastrointestinal endoscopy and CT colonography showed no tumor lesion. We diagnosed carcinomatous meningitis and peritoneal dissemination of the GB cancer. She received the optimum supportive care, and died 1 month later.

Discussion
Only 10 cases of GB cancer with carcinomatous meningitis have been reported in the English literature. But, carcinomatous meningitis after curative resection has never been reported. Hematogenous and lymphogenous metastasis, or the direct invasion might lead to the carcinomatous meningitis. In this case, the histopathological finding showed mild lymphatic invasion, but no venous invasion. However, CT showed no lymph node metastasis except for peritoneal dissemination at the time of diagnosis; thus, hematogenous route or direct invasion might be responsible for the carcinomatous meningitis in this case. The possibility of carcinomatous meningitis should always be considered in patients presenting with neurological symptoms after curative resection of GB cancer.

P-45-4  Carcinosarcoma of the gallbladder with extramural growth: report of a case
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Background: Carcinosarcoma of the gallbladder is one of the rarest malignancies. Carcinosarcomas are defined as malignant tumors that contain both epithelial and mesenchymal components intermingling. Knowledge and experience regarding this disease are limited.

Case report: A 60–year-old man presented with abdominal pain in the upper right quadrant. Abdominal computed tomography revealed 16cm solid and expansive mass which surrounded gallbladder. The boundary between tumor and duodenum, liver or the hepatic flexure of the colon was unclear. Tumor markers (carcinoembryonic antigen and carbohydrate antigen 19–9) were normal in laboratory analyses. Initial diagnosis suggested gallbladder tumor or mass–forming type of malignant mesothelioma. At laparotomy, the tumor involved gallbladder and duodenum, however, did not invade liver and colon. Pancreaticoduodenectomy was performed. A macroscopic examination of the specimen showed extramural growth of 2 cm tumor with a polyoid structure, which originated from the fundus of the gallbladder. Histologically, the tumor contained two distinct components: adenocarcinoma and sarcoma component consisting of malignant spindle cells. An immunohistochemical examination showed positive staining for vimentin and no staining of AE1/AE3, CAM5.2 in the sarcomatous components, and positive staining for AE1/AE3, CAM5.2 in the adenocarcinoma components. The final diagnosis was carcinosarcoma of the gallbladder with extramural growth.

Conclusion: We report a rare case of gallbladder carcinosarcoma which was difficult to be preoperatively diagnosed and review the previous literature.
**P-45-5** A case of filling type gallbladder cancer changed over time

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[Case] 56, female [Course] The case involved a 56-year-old woman who was admitted to our hospital because of lower abdominal pain. Gall bladder tumor of uplift type had been pointed out during follow-up of uterine fibroids. After one year, Abdominal CT showed that Gallbladder tumors grew enough to fill in the gallbladder in dynamic study. Abdominal ultrasonography showed a rupture of the gallbladder wall outer layer. These suggested that Gall bladder tumor was gallbladder cancer r with S5 invasion. Based on these findings, the tumor was diagnosed as advanced cancer of the gallbladder and S4a+S5 resection, bile duct resection, lymph node dissection, and cholecdocho-jejunostomy were performed. Histopathological diagnosis of the tumor was well differentiated tubular adenocarcinoma, filling type, ss, pT2, pN0, and Stage II. The postoperative course was uneventful. At the last follow-up, 6 months after discharge, the patient remained well. [Discussion] We reported a case of filling type gallbladder cancer changed over time. We also reviewed the Japanese literature of filling type cancer of the gallbladder.

**P-45-6** Discordance in histological type between primary gallbladder carcinoma and metachronous lymph node metastatic carcinoma: report of a case

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Background: In many cases histological types of primary and metastasis tumors are identical. The same histological type between primary and metastatic tumor is important in terms of its diagnosis, especially in case of metachronous recurrence. We herein report a case in which histological discordance between primary gallbladder carcinoma and metachronous lymph node metastatic carcinoma was shown. Case report: Because the thickening of gallbladder wall with stone was detected in medical checkup, a 72-year-old man visited a nearby doctor. After some medical examinations, he was diagnosed cholecystolithiasis with cholecystitis and had laparoscopic cholecystectomy in June 2015. Pathological diagnosis was the papillary-well differentiated adenocarcinoma with subserosa invasion (pT2 in UICC TNM classification). Then former doctor consulted our department for further treatment in May 2016. We discussed and decided that it was necessary to perform 2nd operation for radical operation. In May 2016 we performed liver bed resection, extra hepatic bile duct resection and regional lymph node dissection. He was discharged with a relatively uneventful postoperative course. Pathological examination was shown that there was a para-cystic duct lymph node metastasis and the histology was poorly differentiated adenocarcinoma. Discussion: Although there was histological discordance, we diagnosed the lymph node metastasis as gallbladder carcinoma because any other malignant diseases was not detected by general examination and metastatic lymph node was located at para-cystic duct. In this case the low grade differentiated carcinoma cells were metastasized to lymph node of para-cystic duct.

**P-46-1** Patterns of lymph node metastases in intrahepatic cholangiocarcinoma: Clinical implication of compartment classification

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Objectives: To define the role of lymph node dissection for intrahepatic cholangiocarcinoma (ICC), this study aimed to evaluate the patterns of lymph node metastases and establish lymph node compartment classification. Methods: A retrospective cohort analysis was conducted for 56 consecutive patients who underwent resection for ICC from 1990 to 2015. Lymph nodes in the hepatic hilum and around the pancreas head (and lesser curvature/left gastric artery for left–sided tumors) were systematically removed. Positive lymph nodes were classified into 3 compartments based on metastatic rates and prognoses. Results: 19(34%) patients had lymph node metastases. The overall and recurrence free survival rates at 3 years were 66% and 33%, respectively(4 in-hospital deaths excluded). Cox multivariate analysis revealed lymph node metastases [hazard ratio (HR) 6. 3, 95% confidence interval (CI) 1.9–21.7, P = 0.003] and R1 resection (HR 7. 8, 95% CI 1.6–38.3, P = 0.01) as independent negative predictors of overall survival. Patients with ≥ 4 positive nodes (n = 7) had significantly worse survival compared with those with 1–3 positive nodes (n = 10, P = 0.005). Metastatic lymph nodes were classified into compartments I (metastatic rates, ≥10%; longest survival, ≥3 years), II (5%–10%; 1-year survival, ≥50%), and III (<5%; 1-year survival, <50%). Lymph nodes in the suprapyloric area/celiac trunk/paraaorta belonged to compartment III and appeared less important to be dissected. Conclusion: Systematic lymph node dissection for ICC provides accurate staging and may prolong survival in patients with positive nodes ≤3. Compartment classification is useful to determine the extent of dissection.

**P-46-2** Is lymph node dissection necessary for small mass–forming type intrahepatic cholangiocarcinoma located at peripheral sites of the liver?

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Purpose: The necessity of curative or prophylactic lymph node dissection for intrahepatic cholangiocarcinoma (ICC) is still controversial. This study is aimed to determine the indication of prophylactic lymph node dissection for mass–forming type ICC located at peripheral sites of the liver.

Methods: The subjects were 39 patients with mass–forming type ICC located at peripheral sites of the liver. The peripheral type ICC was defined as a tumor involving the smaller ducts comparable in size to the segmental branches. Lymph node metastasis was detected by sampling or lymph node dissection during the operation. Postoperative lymph node recurrence was detected by CT with or without positron emission tomography. When the lymph node metastasis was not detected during the operation and the lymph node recurrence as initial recurrence site after the operation was not detected, the patients were assumed to "no lymph node metastasis". The clinicopathological findings were compared between patients with lymph node metastasis (positive group, n=8) and those without lymph node metastasis (negative group, n=31).

Results: There were no differences in age, sex, laboratory test results including tumor markers, operative factors, and pathological findings between the groups. The tumor size was significantly higher in the positive group than in the negative group (p < 0.01). The lymph node metastasis was not detected when the tumor size was 3 cm or less.

Conclusion: The results of this study show that the prophylactic lymph node dissection may be unnecessary for the small (3 cm or less) mass–forming type ICC located at peripheral sites of the liver.
P-46-3 Predictive factors for cholangiocarcinoma associated with hepatolithiasis determined on the basis of Japanese Multicenter study

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[Background and Aims] The aims of this study are to delineate predictive factors for cholangiocarcinoma in patients with hepatolithiasis, and to establish optimal management for hepatolithiasis from the viewpoint of carcinogenesis on the basis of a Japanese nationwide survey for hepatolithiasis. [Patients and methods] The Hepatolithiasis Research Group was organized in 2006 by the Ministry of Health, Labor and Welfare of Japan, and conducted a nationwide survey. The research group collected data on 336 cases of hepatolithiasis in 2006, in a cross-sectional survey involving 2592 institutions in Japan. Predictive factors for cholangiocarcinoma associated with hepatolithiasis were analyzed by univariate and multivariate analyses of clinicopathological and therapeutic factors. [Results] Twenty-three patients had cholangiocarcinoma. Histories of choledochoenterostomy and liver atrophy were found to be significantly predictive factors by multivariate analysis. In 87.5% of cases of cholangiocarcinoma with liver atrophy, cholangiocarcinoma was located in the atrophic lobes. The method of reconstruction did not affect the incidence of cholangiocarcinoma (choledochoejunoanastomosis vs. choledochocholedochoenterostomy; side-to-end vs. side-to-side anastomosis). [Conclusions] Choledochoenterostomy and liver atrophy may increase the risk of developing cholangiocarcinoma. Choledochoenterostomy is thus contra-indicated in patients with hepatolithiasis. An aggressive resection strategy is recommended for an atrophic segment.

P-46-4 Surgical and chemotherapeutic strategy in patients with intrahepatic cholangiocarcinoma

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[Background] Cholangiocarcinoma (ICC) is a primary adenocarcinoma of the liver arising from the intrahepatic bile duct. Hepatectomy with curative resection is the standard treatment for ICC. [Patients and methods] Ninety patients with ICC who underwent hepatectomy in our institution between 1986 and 2016 were investigated to determine prognostic factors and to evaluate the impact of surgical and adjuvant chemotherapeutic treatment for ICC using univariate and multivariate analyses. [Results] Median patient age was 60 years, and 61% were male. Most patients had a solitary (74%), median size 4.2 cm tumor of the mass-forming type (72%). The patients had lymph node metastasis (32%) or vascular (42%), perineural (51%), or biliary invasion (33%). Five-year overall survival (OS) and disease-free survival (DFS) were 45% and 33%, respectively. Factors to predict a shorter OS on univariate analysis included multiple tumors, maximum tumor diameter greater than 4cm, positive lymph node, R1/2 resection, blood transfusion, estimated blood loss greater than 600g, microscopic venous invasion, microscopic lymphatic invasion, intrahepatic metastasis, expansive tumor growth (eg), CEA value equal and greater than 48.5ng/dL, CA19–9 value equal and greater than 463.7U/L. According to multivariate analysis, the independent factors of poor prognosis were R1/2 resection and estimated blood loss greater than 600g. Adjuvant chemotherapy improved survival rates in R1/2 resection group compared to R1/2 without adjuvant chemotherapy. [Conclusion] R0 resection with blood loss less than 600g can provide prognostic survival for patients with ICC.

P-46-5 Neoadjuvant chemoradiation therapy for locally advanced cholangiocarcinoma

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Aim: To elucidate the treatment outcome of neoadjuvant chemoradiation therapy for locally advanced cholangiocarcinoma. [Methods] Nineteen cholangiocarcinoma patients underwent neoadjuvant chemoradiation therapy (CRT) or radiation therapy (RT). The clinical courses of these patients were retrospectively reviewed. [Results] The eligible 19 patients were composed of 10 hilar cholangiocarcinomas and 9 intrahepatic cholangiocarcinomas. Three patients received neoadjuvant CRT and 16 patients received CRT. The indication of neoadjuvant therapy was perineural invasion in 7 patients and vascular invasion in 8 patients. The other 3 patients received neoadjuvant therapy for the extended tumor progression along the bile duct. Surgery was not applied in 4 patients, due to tumor progression, lung metastasis, intrahepatic metastasis and adverse effect of CRT. Remaining 15 patients received surgery, and peritoneal dissemination was detected at laparotomy in 1 patient. Finally, 14 (74%) patients received radical surgery after neoadjuvant CRT or RT. Surgical procedure included 5 left lobectomies, 4 right lobectomies, 2 left trisegmentectomies, 1 right trisegmentectomy and 2 segmentectomies. No R2 resection case existed. One patient showed postoperative liver failure resulting in–hospital death. Seven of 14 patients showed tumor recurrence after the surgery. Median survival time was 36 months, and survival rate at 1 year, 3 year and 5 year was 84.6%, 42.3% and 21.3%, respectively. [Conclusion] The rate of radical surgery and median survival time in the current study indicates that neoadjuvant chemoradiation therapy might be an acceptable treatment option for locally advanced cholangiocarcinoma.

P-46-6 Could the adjuvant chemotherapy be the standard treatment for intrahepatic cholangiocarcinoma (ICC)?

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[Background] This study aimed to evaluate the role of adjuvant chemotherapy (AC) for ICC with R0 resection. [Methods] Seventy patients underwent R0 resection were divided into groups received treatment before (first period) and after 2006 (second period) when new treatment options for AC were approved. Nine cases underwent repeat hepatectomy (n=7) or RFA (n=2) for recurrence and 2 cases with IG type were excluded from this study. [Results] In R0 resection group, lymph node metastasis (n=1) and higher CA19–9 levels (>180 U/ml) were identified as important prognostic factors for survival. The AC was performed for the 25 patients in second period R0 group. In patients who received the AC, 72% were administered GEM-based regimes as the first line. 8 patients with GEM-based chemotherapy were received either GEM and cisplatin (15 patients) or gemcitabine (11 patients) therapy at some point in their treatment. In the high risk group: the patients with n1 or CA19–9>180 U/ml (n=17), OS were significantly better in the patients with GC therapy (n=7) than in the patients without GC therapy (n=10) (p=0.03). Fifteen patients (58%) were suffered recurrence in the low risk group; the patients without n1 and CA19–9>180 U/ml. Disease-free survival time in the low risk group were significantly better in the patients with AC (n=6) than in the patients without AC (n=9) (p=0.02). [Conclusion] It was suggested that preoperative therapy for patients with poor prognostic factors could improve surgical outcomes.
P-47-1 Significant of early additional resection for incidental gallbladder cancer

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Background
Even though the improvements of diagnostic imaging systems, the cases that have not been diagnosed as gallbladder cancer (GBC) before surgery are sometimes encountered.

Aims
The aim of this study is to clarify the significance of early additional resection for incidental GBC.

Patients and methods
38 patients underwent cholecystectomy with the diagnosis of benign disease and were diagnosed pathologically as GBC after initial surgery. Overall survival (OS) of these 38 incidental GBC patients were compared with other 85 non-incidental GBC patients who underwent surgery between 1990 and 2016 at our hospital. Survival curves were calculated using the Kaplan–Meier method, and survival comparisons were made by the log–rank test.

Results
Pathological diagnosis of incidental GBC were pT1/2/3/4: 10/18/10/0, respectively. Among 38 patients of incidental GBC, 26 patients underwent early additional resection. Early additional resection was performed on 4 cases of T1 and 22 cases of T2. In the additional resection group, 5-year OS for the T1 and T2 groups were 100% and 71.1%, respectively. In non–additional resection group, 5-year OS for the T1/2 (7 cases) and T2 (5 cases) groups were 80% and 33%, respectively. For incidental GBC with T2, the additional resection group had significantly better prognosis than the non–additional resection group (p=0.0068). During the same period, 5-year OS in non–incidental GBC for T2 was 32.2% and had a poorer prognosis than early additional resection group (p=0.0032).

Conclusion
For the incidental GBC patients with T2, early additional resection is necessary to achieve the same survival as non–incidental GBC.

P-47-2 Incidental gallbladder carcinoma after cholecystectomy

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Aim:
Incidental gallbladder carcinoma is an uncommon malignancy. With ever increasing numbers of laparoscopic cholecystectomies being performed worldwide, an incidental diagnosis of gallbladder carcinoma is becoming more frequent. We aimed to evaluate incidental gallbladder carcinoma in our hospital.

Methods:
We performed cholecystectomy (laparoscopy in 161 cases and open in 97 cases) for 258 patients in our hospital between January 2012 and December 2016. Of these patients, 4 were found to have gallbladder carcinoma diagnosed by histological examination after surgery. We retrospectively analyzed 4 cases of incidental gallbladder carcinoma.

Results:
Incidental gallbladder carcinoma was detected 4 of 258 (1.5%) patients. The median age was 77.5 years. The patients were 2 men and 2 women. Preoperative diagnosis was gallbladder stone in 2 cases, acute cholecystitis in 1 case. One case was cholecystectomy during hepatectomy. Laparoscopic cholecystectomy was performed in 2 cases and open cholecystectomy done in 2 cases. One case (stage II) had resection of the liver bed as an additional resection. According to TNM staging, the patients were divided into; one case with stage I (T1, N0); two with stage II (T2, N0); one with stage III (T2, N1). Three cases survive for 543 days, 134 days, and 81 days after initial surgery, respectively. One case died 222 days after surgery due to pneumonia.

Conclusion:
Because preoperative diagnosis is difficult in gallbladder carcinoma with cholecystitis and numerous stones, we recommend taking histological examination of frozen sections after surgery in patients with cholecystitis and a long history of gallbladder stones.

P-47-3 pT1b/T2 incidental gallbladder carcinoma after laparoscopic cholecystectomy—single institute experience

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[Background] Some patients with gallbladder cancer are incidentally diagnosed after laparoscopic cholecystectomy. Managing these patients with pT1b and T2 is unclear whether reoperation or observation. The aim of this retrospective study was to analyze the patients with incidental pT1b and T2 gallbladder cancer after laparoscopic cholecystectomy.

[Methods] January 2006 to December 2015, 1092 patients underwent laparoscopic cholecystectomy at our institute. Thirteen patients (1.19%) were diagnosed gallbladder cancer after laparoscopic cholecystectomy. In the present study, we retrospectively analyzed 12 patients with pT1b and T2 gallbladder cancer.

[Results] Three patients had pT1b gallbladder cancer and 9 patients had pT2 gallbladder cancer. Five year disease–free survival rate of pT1b gallbladder cancer in our study is 100%, but its rate of T2 gallbladder cancer in our study is 55.6%. The patients with additional surgery (resection of the liver bed including hepatic parenchyma, extra–hepatic bile duct and regional lymph nodes) were 3 patients (T1b; 1, T2; 2). In pT2 gallbladder cancer patients, patients with additional surgery tended to be good prognosis.

[Conclusion] It may not necessary to perform the re-operation for any patients who diagnosed pT1b gallbladder cancer after laparoscopic cholecystectomy. However, it may necessary to reoperate the patients who diagnosed pT2 gallbladder cancer after laparoscopic cholecystectomy.

P-47-4 Treatment for unsuspected T2–cholecystocarcinoma diagnosed after single incision laparoscopic cholecystectomy

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Single incision laparoscopic cholecystectomy (SILC) has been introduced, and performed world wide recently. We report here a case of unsuspected cholecystocarcinoma diagnosed after SILC. [Case] A 78–year-old female was pointed out the elevation of liver enzyme values without any symptom in follow–up of hypertension. She was diagnosed as cholecysto–lithiasis by ultrasound examination. ERCP and MRCP showed cholecystolithiasis, cholelithiasis, which was removed after endoscopic sphincterotomy. SILC was performed without any trouble including the bladder injury, bleeding, or bile leak. Macroscopic examination showed a small ulcerative lesion in the free peritoneal wall of the bladder fundus. Pathological findings revealed a well differentiated adenocarcinoma, ss, INFβ, ly2, v0, n0, curative resection. She was discharged from the hospital without any complication. She received an adjuvant chemotherapy with S–1, though she was not willing to undergo additional hepatic resection. She has been well without recurrence of the cancer for 4 years after surgery.

[Conclusion] It would be difficult to early diagnose small flat–type gall bladder carcinoma, which has been reported to show a relatively good prognosis. In elderly patients, it should not always be absolutely indicated to additional hepatic resection. SILC should be performed paying attention not to cause the organ injury and bile leak, since there has been several reports of port site recurrence. Follow–up including image studies and tumor markers should be kept, even the risk of recurrence would be minimal since a small cancer located in the free–side gall bladder wall without any organ injuries.
The averaged diameter of tumor was 13.8 mm. Six full thicknesses were found in 9 cases and wall thickness of gallbladder were found in 3 almost all cases. Tumor lesions protruding into the gallbladder lumen were found in 16 cases. Magnetic resonance cholangiopancreatography were performed in the contrast findings and pathological findings were analyzed.

Twelve cases were performed open cholecystectomy because gallbladder disease was treated in our institution.

Ki-67 index of 1 case was less than 1 cmin size with lymph nodal metastasis. A 65 year-old man without past or family history of von Hippel–Lindau disease (VHL) was admitted with epigastric pain. He underwent laparoscopic cholecystectomy for cholecystolithiasis. Postoperatively, a 0.8–cm node was found in the neck of the gallbladder. Histologically, the tumor cells showed nests or trabecular growths, and had rich clear cytoplasm and small round–to–oval nuclei. Immunohistochemical examination revealed that the tumor cells were positive for chromogranin A and synaptophysin but negative for α–inhibin, and Ki–67 labeling index was less than 1.0%. The tumor proved to be NET G1. In addition, it was diagnosed as clear cell variant without VHL.

The tumor infiltrated muscular layer but not through serosa, and one cystic duct node contained a metastatic NET. As radical second resection, he underwent dissection of regional nodes, which contained no metastasis histologically. After R0 resection, he received no adjuvant chemotherapy and remains alive and well with no evidence of disease 5 months after radical second resection. This case indicates that NET G1 of the gallbladder, even less than 1 cm in size, has metastatic potential. Once NET G1 of the gallbladder is incidentally detected in the resected specimen, the state of the cystic duct node should be examined histologically to guide whether radical second resection is performed.

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Background/Purpose: It is often difficult to select the optimal surgical procedure for gallbladder tumors, because histological assessment cannot be achieved preoperatively. Although according to the Japanese clinical practice guidelines, open cholecystectomy is recommended for patients with suspected gallbladder cancer, most of gallbladder tumors of 1–2 cm do not include adenocarcinoma. Taking into account the recent advance in laparoscopic hepatobiliary surgery, laparoscopic approach for gallbladder tumors could be less invasive for histology–based diagnosis and treatment. Currently, we are conducting research on laparoscopic surgery for gallbladder tumors with approval by IRB.

Methods: The patients who had tumor of 1–2 cm in the body or fundus of gallbladder were enrolled. They underwent laparoscopic extended cholecystectomy and resected specimens were examined intraoperatively. When diagnosed as malignancy, laparoscopic sampling of hepatic hilar lymph nodes was added.

Results: Sixteen patients were treated. Their demographic was as follows: median age 70 y.o. (41–81 y.o.), male:female=11:5. They all underwent laparoscopic extended cholecystectomy, and six of them (38%) were diagnosed as cancer, and received laparoscopic sampling of the hilar lymph nodes. Histological analysis of the six cases revealed the following data: median tumor diameter was 33 mm (15–65 mm), pTis:pT1:pT2:pT3=2:0:3:1 (depth of invasion, UICC). There were no lymph node metastases. No severe complications (greater than Clavien–Dindo Grade IIIa) were observed postoperatively.

Conclusion: Our strategy for gallbladder tumor based on laparoscopic hepatobiliary surgery was induced safely.
P-48-3 Surgical treatment for the postoperative recurrence of intrahepatic cholangiocarcinoma

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Background: Treatment strategy for the postoperative recurrence of intrahepatic cholangiocarcinoma (ICC) has not been established yet. In our hospital, surgical treatment has been performed aggressively for the localized recurrence. Validation of our treatment strategy was performed. Methods: Between 2007 and 2016, hepatectomy was performed in 55 patients with ICC. Recurrence was confirmed in 35 patients. Surgical treatment was performed in 14 patients (group S). In the remaining 21 patients, treatment other than surgery was performed (group NS). Background characteristics and survival duration after recurrence were compared between the two groups. Results: In group S, recurrence was limited to liver in 10 patients, liver and peritoneal dissemination in 1 patient, lymph nodes in 1 patient, and lung in 2 patients. The proportion of patients undergoing major hepatectomy (resection of three or more Couinaud segments) for the first operation was higher in group NS (76.2%) than group S (35.7%) (P = 0.033). Median duration between the first operation and recurrence was 256 days in group S and 139 days in group NS (P = 0.157). Distant metastasis was identified in 2 patients (14.3%) in group S and in 12 patients (57.1%) in group NS at the time of recurrence (P = 0.016). Median survival duration and five year survival rate after recurrence were enrolled. A cure was defined as RFS of >5 years after surgery. Conclusion: The prognosis of patients in group S was favorable and there were some long-surviving patients. The results of the present study suggest that surgical treatment may improve the prognosis of patients with localized recurrence of ICC.

P-48-4 Operative outcome for intragrowth type of Intrahepatic Cholangiocarcinoma in a single center

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[Background and aim] Intrahepatic cholangiocarcinoma (ICC) is classified based on the macroscopic findings as follows; Mass Forming (MF), Periductal Infiltration (PI), Intraductal Growth (IG) type. The aim of this study is to evaluate the operative outcome of IG type ICC. [Patients and method] Total 75 ICC patients who had undergone liver resection were enrolled. IG dominant type was recognized in 11/75 (15%) cases. Comparison between IG type and MF or PI dominant type was performed. [Results] In patient’s background, there were no cases with HBsAg positive or HCVab positive in IG type (HBSAg; IG vs MF or PI=0% vs 17%, p=0.14, following the same order, HCVab; 0% vs 9%, p=0.29). Intrahepatic cholelithiasis coexisted in 36% cases of IG type (vs 5%, p=0.01). Regarding to tumor marker, there were no cases with abnormal value of CEA in IG type (0% vs 35%, p=0.02). In pathological findings, there were no cases with positive lymph node metastasis in IG type (0% vs 40%, p=0.01) and microscopic vessel invasion was found only in 2 cases (18%), however surgical margin positive rate at bile duct stump was as high as 36% (4/11 cases) in IG type. Though 5-year overall survival in IG type was definitively better than MF or PI cases (90% vs 21%, p=0.01), there were 3 cases (27%) with cancer recurrence (bile duct margin; n=2, lung; n=1) in IG type. [Conclusion] Though IG type ICC has good prognosis, precise intraductal examination of transected part of bile duct is required to prevent the positive ductal margin. Furthermore, it is important to recognize that there are potential risk of distant metastasis even in IG type ICC.

P-48-5 Potential of a cure after hepatic resection in patients with intrahepatic cholangiocarcinoma

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Background: Intrahepatic cholangiocarcinoma (ICC) is the second most primary hepatic cancer next to hepatocellular carcinoma and one of the poor–prognosis cancers. Surgical resection is the only option for long–term survival and cure. Herein, we aimed to define the rate of cure after hepatic resection for ICC, based on the 5–year recurrence–free survival (RFS), and identify the predictive factors for cure. Methods: Among the 96 patients who underwent R0 resections for primary ICC between 1990 and 2011, those who followed for >5 years after surgery were enrolled. A cure was defined as RFS of >5 years after surgery. Results: A total of 81 patients who were followed >5 years after surgery were eligible for this study. The 5–year overall survival (OS) and RFS rates were 55.0% and 41.7%, respectively. A potential cure was achieved in 37 patients (45.7 %) after R0 surgery. A multivariate logistic regression analysis identified operation time >500 minutes (RR 3.3, p=0.028) and absence of microvascular invasion (RR 5.1, p=0.0011) as the independent predictive factors for achieving a cure. Conclusion: R0 resections could achieve a potential cure in 45.7 % of patients with ICC. The predictive factors for cure identified in this study such as operation time >500 min. and absence of microvascular invasion would be helpful for selection of the patients who are good candidate for surgery.

P-49-1 Withdrawn
P-49-2 Distal bile duct cancer developed in a patient with autoimmune pancreatitis

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A 68-year-old male who had been followed up with autoimmune pancreatitis for 14 months admitted to our hospital due to obstructive jaundice. CT findings showed intrahepatic bile duct dilatation and intrapancreatic bile duct stenosis with enhanced–wall thickening. Diffuse enlargement of the pancreas previously observed was not showed. To confirm the histologic finding, cholangioscopic examination was performed and it was no clear evidence of malignancy. It was difficult to differentiate distal bile duct stricture accompanying autoimmune pancreatitis from distal bile duct cancer, and steroid treatment was started. Four weeks later, radiologic examinations did not show improvement of the stricture at the distal bile duct and cytology revealed atypical cells. Distal bile duct cancer was highly suspected, therefore pylorus preserving pancreaticoduodenectomy was performed. Histopathological diagnosis was well-differentiated adenocarcinoma in the distal bile duct and pancreatic invasion. The patient was discharged on postoperative day 26 in good condition. We present a case of distal bile duct cancer with autoimmune pancreatitis, with a review of the literature.

P-49-3 The usefulness of Three-dimensional fusion images of hepatic vasculature and bile duct for preoperative simulation

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(Background) 3D fusion images of the hepatic vascular and biliary systems are useful for understanding the spatial relationship among the anatomical structures. However, conventional fusion images need a cholangiographic agent, including direct cholangiography via biliary drainage catheter.

(Aim) To reconstruct a 3D fusion image of the hepatic vascular and biliary systems from MDCT and MRCP and evaluate its efficiency as a preoperative simulation prior to liver resection.

(Subject) In 16 cases who underwent both MDCT and MRCP without biliary drainage for cholangiocarcinoma, 3D fusion images were reconstructed between April, 2010 and December, 2014.

(Methods) 3D fusion images was reconstructed from both MDCT and MRCP using the workstation (Synapse Vincent®). We evaluated the spatial relationship between the hepatic vascular and the biliary systems at the hepatic hilum using 3D fusion images, and compared those assessments with intraoperative findings.

(results) We reconstructed an excellent 3D fusion image in 17 cases. In all patients, there was no difference between radiological and intraoperative anatomical findings about the relationship between the hilar bile duct and the hepatic vasculatures.

(Conclusion) We succeeded in reconstruction of 3D fusion images from MDCT and MRCP. It was thought that 3D fusion images was useful as a preoperative simulation.

P-49-4 Two cases of the intraoperative repair for iatrogenic bile duct perforation by ERBD tube

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[Introduction] In Japan, the most patients with obstructive biliary tract disease undergo ERCP and EST. The post–ERCPR pancreatitis and post–EST hemorrhage are well known as major complications. However, it is not well known that the biliary tract is incidentally injured by the liver side tip of an ERBD tube. We experienced two cases of the injury of biliary tract by ERBD tube at the time of cholecystectomy. [Case 1] A 73-year-old man received ERCP/EST and ERBD (5Fr pig–tail catheter). When we underwent laparoscopic cholecystectomy, we found that the CBD wall was about to be perforated by an ERBD tube. We sutured laparoscopically its serosa. After the operation, ERCP was performed and ERBD tube was removed. [Case 2] The patient was a 87-year-old woman. Her medical history was remarkable for rheumatoid arthritis and nonspecific interstitial pneumonia. She had taken steroid for a long period. ERCP/EST and ERBD (5Fr pig–tail catheter) was performed. Because acute cholecystitis happened, she underwent urgent open cholecystectomy. Intraoperative findings were perforation of gallbladder and cholecystectomy. Furthermore, we found the tip of ERBD tube stuck out from liver bed close to the gallbladder neck. We removed ERBD tube and sutured the fistula and insert a C–tube through the CBD.

[Conclusion] It seems that the iatrogenic bile duct injury by ERBD tube is one of the lesser–known complications of ERCP. In this report, the tip of tubes did not stick out in peritoneal cavity. However, if bile duct was completely perforated, they might become iatrogenic cholecystectomy. Furthermore, some types of ERBD tube such as pig–tail catheter may be easy to injure the bile duct.

P-49-5 Neuroendocrine carcinoma of the extrahepatic bile duct

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[Background] Neuroendocrine carcinoma (NEC) of the bile duct is rare. Postoperative courses and therapy have been still unclear.

[Objective] We examined the outcomes and clinical courses of 8 cases diagnosed as NEC among the 339 resected extrahepatic bile duct cancer cases from 1968 to 2015.

[Results] In 8 cases, 7 cases were men and 1 was woman. The median age was 66.5-year old. Six cases underwent pancreaticoduodenectomy. Two cases underwent right hepatectomy, resection and reconstruction of the extrahepatic bile duct. Among the 8, we performed portal vein resection and reconstruction in 3 cases. Pathological findings were Mixed adenoendocrine carcinoma (MANEC) in 6, and Small cell NEC in 2 cases (Japanese general rules for clinical and pathological studies on cancer of biliary tract the 6th edition). The following are the results of TMN classification: T2: T3a: T3b=3: 2: 2, N0: N1=5: 2, M0: M1=6:1, stageB: IB: IV=1:5: 1, R0: R1=5: 3. Four cases underwent adjuvant chemotherapy (TS–1: 1, cisplatin and etoposide: 3 cases). The median time to recurrence was 5 months (4–70), and the median survival time was 19 months (6–84). The longest prognosis was 84 months, pathological findings of the case was MANEC, T2N0M0, stageIB, R0. He had the intrabiliary recurrence at postoperative 70 months. Recurrence patterns were bile hold; liver metastases: 5 cases (83%), intrabiliary recurrence:1 case (17%). We experienced the case who had chemotherapeutic efficacy, he has survived 20 months after recurrence.

[Conclusion] NEC of the bile duct was liable to recurrence in postoperative early days and its prognosis was poor. However some patients had good prognosis and chemotherapeutic efficacy.
P-49-6 POST ERCP PERFORATION

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One of the most feared complications of ERCP is perforation. ERCP related perforation occurs in 0.3% to 1% of patients, and the injury carries a mortality rate of 16% to 18%. Four types of perforations complicating ERCP have been recognized: i) Lateral duodenal wall (ii) Peri Vaterian duodenum (iii) Perforation of the bile ducts (iv) Retropitoneal air alone. We present our experience of managing 5 patients in last one year who presented to us with post ERCP perforation.

P-50-1 Delayed presentation of acute cholecystitis: Comparative outcomes of same admission versus delayed laparoscopic cholecystectomy

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Introduction

Studies have shown that same admission laparoscopic cholecystectomy (SALC) is superior to delayed laparoscopic cholecystectomy (DLC) for acute cholecystitis (AC). However, no studies have compared both modalities in patients with delayed presentation. The aim of the study was to compare outcomes between SALC and DLC in AC patients with more than 7 days symptom duration.

Methods

A retrospective analysis of 83 AC patients who underwent LC after presenting with ≥7 days of symptoms from June 2010 – June 2015 was performed. Patients were divided into L–SALC and L–DLC as defined by LC performed within the same admission and between 4 to 24 weeks after discharge respectively. Peri-operative outcomes were evaluated.

Results

In L–SALC, the intra-operative severity was higher (p<0.001) and median operative time was longer [L–SALC, 107 mins (46–220) vs L–DLC, 95 mins (25–186)] (p=0.048). Conversion rates were also higher in L–SALC than L–DLC [L–SALC, 21.4% vs L–DLC, 4.9%] (p=0.048). While post-operative morbidity was similar, L–SALC was associated with a longer post-operative length of stay as compared to L–DLC [L–SALC, 21 days vs L–DLC, 11 days] (p<0.001).

Conclusion

L–DLC provides lower conversion rates and shorter length of stay. Patients with AC presenting beyond 7 days should be offered DLC.

P-50-2 The outcomes of laparoscopic cholecystectomy for acute cholecystitis in the elderly

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Background: The aim of this study was to determine the feasibility and the complications or benefits of laparoscopic cholecystectomy for acute cholecystitis in the patients older than 80 years.

Methods: Laparoscopic cholecystectomy was attempted in 184 patients from August 2012 through October 2016. They were divided into two groups: group A (aged 80 and older (80–89), n=21), and group B (under age 80 (25–79), n=163). A prospective database was for mean +/- analyzed standard deviation and using student’s t-test and chi-square analysis.

Results: The elderly (group A) had a 2.4-fold higher rate of preoperative percutaneous transhepatic cholangiography (42.9% vs 17.8%, P=0.012), longer mean operative times (99.2 +/- 68.9 min vs 71.8 +/- 28.1 min, P=0.001), and longer mean postoperative hospital stay (7.5 +/- 7.5 days vs 4.1 +/- 1.8 days, P=0.001). Mean blood loss in group A was 16.8 +/- 34.2 mL as compared with 11.9 +/- 39.8 mL in group B, a difference that is not significant (P=0.588). There was no case to convert to laparotomy both groups. One patient in group B had experimented postoperative bile leakage, gradually improved with conservative treatment.

Conclusion: These findings suggest that laparoscopic cholecystectomy can be performed safely as a minimally invasive procedure in elderly patients, although it requires both careful selection of patients and appropriate surgical techniques.

P-50-3 The role of Tokyo Guideline on best practice of laparoscopic cholecystectomy for acute cholecystitis

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[Background] Tokyo Guideline 2013 (TG) recommends early cholecystectomy for mild/moderate acute cholecystitis (AC), but we often encounter TG-divergent cases in practice. We herein study clinical outcome of laparoscopic cholecystectomy (LC) for AC aiming the consistency with TG.

[Methods] We retrospectively analyzed 47 cases who underwent LC for AC. Severity was divided into mild (GI), moderate (GII), severe (GIII) according to TG. Clinical course was divided into 3 groups; Early: emergent of early LC, Delayed: antibiotics and elective LC, Drainage: drainage and elective LC.

[Results] Timing for surgery was GI:7/12/4, GII:6/6/6, GIII:0/1/5 in June 2015 was seen in 16 out of 41 GI–II cases (39%). The reason of 12 GI–Delayed cases was 7 cases: conservative treatment at other hospitals, 4 cases: treatment of bile duct stone, 2 cases: others. Conversion to open surgery was needed in 1 case of GI–Early, postoperative complication occurred in 1 case of GI–Early. Serum CRP level was significantly higher in cases with high difficulty of operation (p=0.04), but operative difficulty was not relevant to timing of surgery, days from symptom to surgery, nor TG deviation.

[Conclusions] Deviation from TG was often found in cases of GI–II, but timing of surgery was not associated with morbidity and operative difficulty. It is recommended to decide the timing of surgery depending on the case–sensitive condition as well as TG.
P-50-4 Emergency laparoscopic cholecystectomy for acute cholecystitis: a single center experience in fifteen cases

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[Background] The treatment for acute cholecystitis is cholecystectomy. The risk of bile duct injury rises over time after onset because of the growth of fibrous tissue due to acute inflammation. Emergency laparoscopic cholecystectomy (LapC) within 72 hours after onset is recommended for mild and moderate (Grade I and II) acute cholecystitis (AC) in Tokyo Guidelines 2013 (TG13). However, it is unclear whether emergency LapC is done in safety in this criteria. We analyzed the cases of emergency LapC in our institution.

[Materials and Methods] Fifteen cases of emergency LapC performed from 1st April 2015 to 31st December 2016 were analysed dividing two groups according to TG13, mild AC thirteen cases and moderate AC two cases. Operating time, amount of bleeding, conversion, bile duct injury, hospital stay and complications were evaluated.

[Results] All 15 cases were operated within 72 hours. Two cases were diagnosed as moderate AC with leukocytosis more than 18,000/mm3, one of them was with gallbladder abscess. Operating time was 93 (74–185) min and 124 (92–156) min (median, range), NS, respectively. The amount of bleeding was 100 g in one mild AC case and in the other 14 cases was small. There was no case of conversion and bile duct injury. Hospital stay was 6(4–9) days and 9.5(7–12) days (median, range), NS, respectively. An elevation of liver and bile duct enzyme in mild AC case, a surgical site infection in moderate AC case and an acute bronchitis in moderate AC case were counted among complication. There is no case of Clavien–Dindo III or more.

[Conclusion] It was suggested that emergency LapC was safe for mild and moderate AC within 72 hours after onset.

P-50-5 Evaluation of Early Cholecystectomy in the Treatment of Emphysematous Cholecystitis

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[Background and Objectives] Emphysematous cholecystitis (EC) is a rare, but severe variant of acute cholecystitis related with ischemia and infection of gas–forming organisms. The indication of early laparoscopic cholecystectomy (LC) for EC is controversial. The present study was aimed to investigate the clinical profile of patients underwent cholecystectomy for EC and to assess the efficacy of early surgical treatment.

[Methods] Ten patients underwent cholecystectomy for EC between January 2013 and December 2015, were retrospectively analyzed.

Results: The median age was 74 years (62–93) and 6 patients were male and 3 were female. Of the 10 patients, 5 were known diabetics on treatment and 4 were treated with anticoagulants. CT demonstrated air in the lumen in 4 patients, in the gall bladder wall in 3 and in both of them in 3. According to Tokyo guidelines 2013, 4 patients were severity grade III and 6 were grade II. Early cholecystectomy within 72 hours after onset was performed in 8 patients and LC was performed in 6 including 1 conversion. Delayed cholecystectomy was performed in 2 patients who had severe comorbidities. There was no postoperative death and postoperative complications were observed in 2 patients (respiratory failure and upper gastrointestinal bleeding) after early cholecystectomy. A median postoperative hospital stay was 9 after LC and 15 after open cholecystectomy.

Conclusions: Most of EC patients are aged and with multiple comorbidities, therefore, EC is thought to be a potentially life threatening acute cholecystitis. Prompt treatment is required to prevent progression of EC, and early LC can be safe and effective even in the severe cholecystitis.

P-50-6 Early cholecystectomy for patients with Acute Acalculous Cholecystitis

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Background: Acute Acalculous Cholecystitis (AAC) most often occurs in critically ill patient. Tokyo Guideline 2013 recommended decompression and drainage. However, there are several dreaded complications of AAC—gangrene and perforation. Cholecystectomy was considered the definitive therapy for these cases. The aim of this study was to evaluate the therapeutic outcome in the patients with AAC.

Patients: One hundred and eighty one patients underwent acute cholecystectomy between January 2013 and October 2016 in our hospital , there are twenty one cases of AAC were included. One hundred sixty cases of Acute calculous Cholecystitis(ACC) were used as a control group for comparison.

Results: There was no difference of age, time from onset and severity of acute Cholecystitis. According to ASA physical status classification, AAC group was more severe(p=0.011). Eleven patients of AAC had a complication of gangrene , and 2 patients had perforation. There was no difference of operation time and bleeding. Postoperative Complication occurred 23.8% of the patients with AAC compared to 10.6% of patients with ACC(p=0.008). However, complication related to cholecystitis was not high probability.

Duration of postoperative hospital stay was 9 days(5–86) for AAC patients compared to 6 days (2–60) for ACC patients (p<0.001). Mortality was 9.5% in AAC patients(p=0.003).

Conclusion: Early cholecystectomy for patients with AAC was higher morbidity and mortality rate than those with ACC. Careful perioperative management should be performed for AAC patients.

P-51-1 Advantage of pancreaticoduodenectomy in patients with pancreatic neck cancer from the perspective of metastatic lymph node dissection

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Background: The incidence of lymph node metastasis (LNM) in the splenic hilum and around the pancreatic head, has not been well documented in the pancreatic neck cancer.

Aim: To clarify the oncologically appropriate procedure for patients with pancreatic neck cancer, that is resectable by either pancreaticoduodenectomy (PD) or distal pancreatectomy (DP).

Methods: We retrospectively investigated the medical records of patients who underwent DP for pancreatic neck/body/tail cancer, and patients who underwent PD for pancreatic neck cancer, between 2001 and 2015.

Results: In 226 patients who underwent DP, the incidence of LNM in the splenic hilum was significantly different according to the tumor location (neck: 0%, body: 0.8%, tail: 8.7%, p = 0.016). Univariate analysis revealed that tumor location, tumor size, arterial invasion, combined resection of other organs were significantly associated with splenic hilum LNM. In 62 patients who underwent PD for pancreatic neck cancer, the incidence of LNM at the posterior and anterior surface of pancreas head were 37% and 29%, respectively. In seven patients (11%), splenic hilum LNs were pathologically examined, because the operation was converted from PD to total pancreatectomy in order to remove the cancer positive pancreatic cut margin. All of the 7 patients had no splenic hilum LNM.

Conclusion: In patients with pancreatic neck cancer that is resectable by either PD or DP, PD might be an oncologically better procedure compared with DP, considering the low incidence of LNM at the splenic hilum and the high incidence of LNM around the pancreatic head.
P-51-2  The Efficacy and Safety of pancreatoduodenectomy with portal vein resection for pancreatic cancer

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Backgrounds: By the revision of the General Rules for the Study of Pancreatic Cancer, pancreatic cancer up to BR–PV is categorized into less than Stage II, and its treatment should be planned on the premise of surgical radical resection. Therefore, portal vein resection is now considered as a necessary standard surgical procedure for surgeons performing pancreatic surgery. In this study, we examined the usefulness and safety of pancreatoduodenectomy with portal vein resection.

Methods: From April 2011 to June 2016, pancreatoduodenectomy was performed for 27 cases of pancreatic cancer. 17 males and 10 females, the median age at operation was 64 years (range: 35 to 85 years old). The degree of progression of pancreatic loci at preoperative diagnostic imaging was T3 or less in all cases. Sixteen out of 27 cases (59%) were with portal vein resection. The operative duration, intraoperative bleeding, degree of radicality, postoperative complications were compared between the portal vein resection group and the non– portal vein resection group.

Results: There was no significant difference in intraoperative bleeding between 2 groups, although operative duration was significantly longer in the portal vein resection group. Only 1 patient in portal vein resection group was resulted in R1, but in all other cases in both groups were resulted in R0 surgery. There was no significant difference in the incidence of postoperative complications including pancreatic fistulas between 2 groups.

Conclusions: Pancreatoduodenectomy with portal vein resection seemed to be effective and safe surgical procedure without raising the risk when performing R0 surgery for pancreatic cancer.

P-51-4  Pancreatoduodenectomy with combined resection of the replaced hepatic artery for periampullary malignancies: report of 7 cases

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Background: The aim of this study was to clarify the optimal indication of pancreatoduodenectomy (PD) for periampullary malignancies involving the replaced hepatic artery (rHA).

Methods: Surgical outcome and prognosis of 7 patients who underwent PD with combined resection of the rHA for periampullary malignancies between 2004 and 2016 at our hospital were evaluated retrospectively.

Results: There were 3 males and 4 females, with a median age of 66 years (range 49–81 years). The diseases included 5 patients of pancreatic cancer, 1 patient of bile duct cancer, and 1 patient of duodenal cancer. There were 4 patients with a replaced right hepatic artery (rRHA) arising from the superior mesenteric artery (SMA), 1 patient with a rRHA arising from the gastroduodenal artery (GDA), 1 patient with a replaced common hepatic artery arising from the SMA, and 1 patient with a replaced left hepatic artery arising from the left gastric artery. 6 patients underwent preoperative coil embolization and angiography after embolization clearly revealed intrahepatic collateral arteries in all 6 patients. The other one patient underwent arterial reconstruction without preoperative coil embolization. A curative (R0) resection was achieved in all 7 patients. 1 patient was alive at 1 month after surgery. 6 patients died of the primary cancer and their postoperative survival periods were 6, 10, 14, 15, 15, and 120 months, respectively.

Conclusions: The indication of PD for periampullary malignancies involving the rHA should be considered carefully, because their prognosis were poor in spite of R0 resection.

P-51-3  A pragmatic measure to cope with an evil effect upon harvesting the external iliac vein as a portal vein conduit in aggressive pancreaticectomy

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Background: To achieve a curative resection of advanced hepatobiliary pancreatic cancers, resection of the portal vein is often needed. If the resected portal vein is long, an interposition of autologous vein graft is necessary for reconstructing the portal vein. In this instance, external iliac vein (EIV) is frequently used because EIV seems to be the best size–matched and most easily accessible vein. However, harvesting the EIV is associated with severe venous congestion and swelling of the affected lower extremity. In this study, we evaluated a clinical significance of reconstructing the EIV using a ringed expanded polytetrafluoroethylene (ePTFE) vascular graft to prevent this consequence.

Methods: Of 131 patients treated with pancreaticoduodenectomy or total pancreatectomy, 37 patients underwent segmental resection of portal vein/SMV. Among them, 13 patients had reconstructed the portal vein/SMV using the right EIV, and the retrieved portion of EIV was interposed by an ePTFE graft. We evaluated size and length of the graft, graft patency, girth of thigh, time for reconstruction of EIV, and graft infection. Results: EPTFE grafts of 8 mm in diameter were used in 3 patients and 10 mm in 10 patients. The mean length of ePTFE graft was 4.4 cm. Graft patency of 76.9% (10 of 13 patients) was yielded, although girth of right thigh increased by about 10 cm in 3 obstructed patients. Time for reconstruction of EIV was 29.5 ± 6.8 minutes. Graft infection did not occur in any patients.

Conclusion: Reconstruction of the EIV using a ringed ePTFE graft seems to be a feasible option for preventing the swelling of the affected lower extremity.

P-51-5  The need of performing pancreatoduodenectomy with portal vein resection when portal vein invasion is suspected on preoperative image in pancreatic adenocarcinoma

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Background: Preoperative image studies are important part of planning the operation and characterizes the tumor extension and involvement of the vessels in pancreas cancer. We evaluated the necessity of PV resection (PVR), whether the PV was well separated from the pancreatic tissue during pancreaticoduodenectomy (PD) for pancreatic ductal adenocarcinoma when PV invasion was radiologically suspected.

Methods: A total of 336 patients who underwent PD from January 2008 to December 2014 were retrospectively reviewed. Patients were divided into two groups (Group A; n=206, not suspicious for invasion and Group B; n=130, suspicious for invasion group) based on the radiologic finding. Group A and B were subdivided into group 1–4, based on whether portal vein resection was performed. The patients of Group 1 and group 3 were again divided based on the free portal vein margin of 1mm.

Results: There was a significant difference in operative outcome between Group 3 and 4. Group 3 showed significantly higher survival rate than group 4 (median 27 months vs 17 months, p=0.015). Group 3 had longer survival than patients who had no invasion of Group 4, but it was statistically insignificant (median 27 months vs 19 months, p=0.114). In Group 1 and 3, there was no significant difference between patients who had more than 1mm from the portal vein groove margin compared to patients who had less than 1mm (median 27 months vs median 23.5 months, p=0.226).

Conclusions: Even though PV invasion is suspected on preoperative image, it is possible not to resect the PV in order to achieve R0 resection if the periportal tissue is well separated and PV invasion is surgically not suspected.
P-51-6  Short and middle-term outcomes of pancreatectomy for chronic pancreatitis in 6 patients
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Introduction: Patients with chronic pancreatitis occasionally require surgical treatment. We performed pancreatectomy for such cases. We examined 6 cases in which we performed pancreatectomy. Patients and Methods: 6 patients with chronic pancreatitis who underwent pancreatectomy were included from January 2008 to March 2016. We analyzed factors such as cause, surgical indication, surgical procedure, pain, postoperative complications, diabetic condition, postoperative nutritional status and so on.

Results: All patients were male. 1 patient was idiopathic chronic pancreatitis, 5 patients were alcoholic chronic pancreatitis. Hemorrhage of pancreatic pseudocyst cases were 3, jaundice difficult to treat endoscopically cases were 2, difficult pain control case was 1. All cases repeated pancreatitis, and they were hospitalized many times with pancreatitis. We performed pylorus-preserving pancreatoduodenectomy (PpPD) in 3 cases and distal pancreatectomy with splenectomy (DPS) in 3 cases. Postoperative complications occurred in 2 of 6 cases (33.3%), but there was no in-hospital death. In 3 cases of preoperative diabetes mellitus, 2 patients newly became diabetic condition after surgery. Nutritional status was improved in 5 cases (83.3%).

Conclusion: Short and middle-term outcomes of pancreatectomy (PpPD or DPS) for chronic pancreatitis was relatively good.

P-52-1  A surgical case of chronic pancreatitis with SPINK1p.N34S mutation
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The N34S mutation, in the SPINK1 gene, which encodes a pancreatic secretory trypsin inhibitor, are associated with idiopathic and familial chronic pancreatitis (CP). We have experienced a suspected case of alcoholic CP in which the N34S mutation was revealed by genetic testing several years after surgery.

A 50-year-old Japanese man was referred to our hospital because of acute exacerbation of CP. Computed tomography demonstrated a number of calcifications and stenosis of the main pancreatic duct (MPD) in the head of the pancreas, and dilation of the MPD distal to the stenosis. A plastic pancreatic stent (7Fr, 5 cm) was inserted, and this stent was later removed. Three months after stent removal, acute exacerbation of CP occurred again. The patient underwent pancreatoduodenectomy. His average alcohol intake had been about 50 g/day.

Genetic testing revealed a SPINK1p.N34S heterozygous mutation. Continuous alcohol intake of more than 80 g/day is a commonly employed diagnostic criterion for alcoholic CP. However, it is necessary to be aware of the possible presence of SPINK1 mutation in patients with CP whose daily alcohol consumption is less than this.

P-52-2  A novel approach to immunotherapy in pancreatic cancer using resected tumor lysate vaccine, processed to express α-gal epitopes
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Introduction: Immunotherapy designed to target tumor-associated antigens is a promising approach for pancreatic cancer (PC). In this study, we investigated the safety and efficacy of vaccination with human PC tumor lysate (t-ly) obtained from PC patients, expressing α-gal epitopes. Methods: Tumor specimens were obtained from 10 PC patients at surgical resection. To express α-gal epitopes, we cloned the α1,3galactosyltransferase (α1,3GT) from a New World Monkey and expressed it in a soluble form in the yeast expression system. α1,3GT KO mice were immunized with pig tissue to generate anti–Gal Ab in their sera. These high α-gal–Gal KO mice were vaccinated i.p. by either unsynthesized t-ly (group C) or α-gal t-ly (group A). To demonstrate in vivo tumor destruction, splenocytes from vaccinated KO mice were prepared, and then transferred i.p. into NOD/SCID mice. Followed by transferring, mice were challenged with 1×10^7 of live PANC1 cells.

Results: Vaccination with α-gal t-ly elicited strong immune responses of anti–PC cell IgG, anti–MUC1 and anti–Mesothelin. Productions of anti–PC cell IgG in group A were 8~32-fold higher than group C. Productions of anti–MUC1 and of anti–Mesothelin Ab in group A were 4~8-fold higher than group C. The number of spots of IFN-γ secreting T cells in the presence of MUC1 or Mesothelin peptide stimulation was significantly higher in group A. For in vivo findings, regrowth of tumors in group A mice was significantly prevented and survival was significantly prolonged. Conclusions: We conclude that α-gal tumor lysate vaccination may be a practical and effective new immunotherapeutic approach for treating pancreatic cancer.

P-52-3  Grainyhead–like 2 (GRHL2) regulates epithelial plasticity in pancreatic cancer progression
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The epithelial–mesenchymal transition (EMT) and mesenchymal–epithelial transition (MET) are involved in cancer progression. Grainy–head like 2 (GRHL2) is a suppressor of EMT, however its functional roles in the progression of pancreatic ductal adenocarcinoma (PDAC) have not been reported. We explored the relationship between GRHL2 and PDAC cancer progression and metastasis in in vitro experiments and clinical samples. GRHL2 is highly expressed in liver metastatic cells than in primary invasive cells of both human and mouse PDAC, accompanied by positive correlation with E-cadherin expression. Three-dimensional organotypic culture showed GRHL2 is required to maintain epithelial morphology in liver metastatic PDAC cells (CFPAC–1). GRHL2 knockdown by specific siRNAs in CFPAC–1 cells demonstrated reduced proliferation through EMT in cell proliferation assay, indicating GRHL2 regulates not only epithelial morphology of CFPAC–1 cells but their epithelial functions. We next investigated whether GRHL2 is involved with cancer stemness in CFPAC–1 cells. Knockdown studies followed by flow cytometry analysis for a subpopulation of CD133+ and anoikis assay showed that GRHL2 facilitates CFPAC–1 cells to maintain cancer stem-like characters including self-renewal capacity and anoikis resistance. Notably, GRHL2 was found to have a significantly positive correlation with E-cadherin and CD133 in 155 resected human primary PDAC tissues. These results demonstrate that GRHL2 regulates epithelial plasticity along with stemness in PDAC, both of which are crucial for metastatic colonization, implicating the possibility of GRHL2 as a therapeutic target for the control of PDAC metastatic cascade.
P-52-4  C4b-binding protein alpha chain (C4BPA) is identified as a novel serum biomarker for pancreatic cancer by quantitative proteomic analysis

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Background: Pancreatic ductal adenocarcinoma (PDAC) remains a devastating disease due to the lack of specific early diagnostic markers. To improve the outcomes, proteomic approaches are being developed for the discovery of novel biomarkers of PDAC. Methods: Using tandem mass tag labeling and LC-MS/MS, we performed comparative analyses of pre- and postoperative sera from PDAC patients to identify specific serum biomarkers for PDAC. In validation studies, we evaluated the discriminatory power of candidate proteins. Results: Among the 302 proteins analyzed, 20 were identified as potential biomarkers, with C4b-binding protein alpha chain (C4BPA) and polymeric immunoglobulin receptor (PIGR) being selected for further analysis. The sera levels of C4BPA and PIGR were significantly higher in the preoperative PDAC patients than in the postoperative ones (P<0.008, P<0.036, respectively). Additionally, serum C4BPA levels in patients with PDAC were significantly higher than those in healthy controls as well as in patients with pancreatitis and other malignancies including biliary tract cancers (BTC) (P<0.001). The respective area under the receiver operator characteristics (ROC) curve (AUC) was 0.860 for C4BPA, 0.846 for CA19-9, and 0.930 for the combination of C4BPA and CA19-9 in PDAC vs. non-cancer individuals. The respective AUC was 0.912 for C4BPA, 0.737 for CA19-9 in Stage I and II of PDAC, 0.854 for C4BPA, and 0.264 for CA19-9 in PDAC vs. BTC. Conclusions: We have demonstrated that C4BPA is a novel serum biomarker for detecting early stage PDAC, as well as for distinguishing PDAC from other gastrointestinal cancers.

P-52-5  PD-L1 Expression in PDAC is a poor prognostic factor in patients with high CD8+ Tumor-Infiltrating Lymphocytes: Highly sensitive detection using Phosphor–Integrated Dot Staining

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Background. Pancreatic ductal adenocarcinoma (PDAC) has an extremely poor prognosis. For the development of more effective immunotherapies, it is first necessary to elucidate the immunological escape mechanisms. In this study, we applied our recently developed highly sensitive immunostaining method employing fluorescent phosphor–integrated dot (PdD) nanoparticles to evaluate the prevalence of programmed death ligand 1 (PD-L1) in patients with PDAC. Methods. This study included 42 patients with PDAC who underwent pancreatectomy. We evaluated PD-L1 expression in the patients with PDAC using PdD staining, and correlated the PD-L1 expression level with the patients’ clinicopathological features. Results. PD-L1 expression was detected in 61.9% (26/42) of the patients with PDAC by PdD staining. There was a significant difference in overall survival between PD-L1-positive and PD-L1-negative cases (hazard ratio [HR] = 2.07; 95% confidence interval [CI] = 1.00–4.54; P = 0.049). Among CD8+ tumor-infiltrating lymphocyte–positive cases, the overall survival of PD-L1-positive patients was significantly poorer than that of PD-L1-negative patients (HR = 3.84; 95% CI = 1.59–10.35; P = 0.003). Univariate and multivariate analyses indicated that PD-L1 expression was an independent predictive poor prognostic factor in patients with PDAC. Conclusions. PD-L1 expression in PDAC detected by PdD staining appears to be an important prognostic factor especially in patients with high CD8+ Tumor-Infiltrating Lymphocytes.

P-52-6  SEVERE NECROTIZING BILIARY PANCREATITIS WITH SYMMETRICAL PERIPHERAL GANGRENE OF BOTH UPPER AND LOWER LIMBS–CASE REPORT

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INTRODUCTION—SYMMETRICAL PERIPHERAL GANGRENE IS AN UNCOMMON BUT DEVASTATING COMPLICATION AND HAS HIGH MORTALITY. IT IS SEEN IN WIDE VARIETY OF MEDICAL CONDITIONS AND PRESENT WITH SYMMETRICAL GANGRENE OF TWO OR MORE EXTREMITIES WITHOUT LARGE VESSEL OBSTRUCTION.

CASE PRESENTATION—THE PATIENT IS A 30 YRS OLD LADY, MULTIGRAVIDA WHO HAS BEEN ADMITTED WITH SEVERE UPPER ABDOMINAL PAIN WITH RADIATION TO THE BACK. BIOCHEMICAL EXAMINATIONS SHOWED RAISED AMYLASE AND LIPASE. USG ABDOMEN REVEALED CHOLELITHIASIS WITH ACUT PANCREATITIS. ON THE 3RD DAY OF HER PANCREATITIS, SHE DEVELOPED PERIPHERAL CYANOSIS AND GRADUAL GANGRENE OF FEW TOES AND DIGITS. [ALTHOUGH IT WAS SUPERFICIAL GANGRENE]. SHE WAS NOT ON ANY INOTROPIC AGENTS. HER ALL COAGULATION PARAMETERS WERE ALL WITHIN NORMAL RANGE. SHE WAS STARTED ON ANTIPLATELETS AND PENTOXYPHILLINE AND DIGITAL GANGRENE SHOWED IMPROVEMENT.

CONCLUSIONS—THIS IS THE VERY FEW CASES REPORTED OF DIGITAL GANGRENE FOLLOWING SEVERE ACUTE NECROTIZING PANCREATITIS ACROSS THE GLOBE WITH SUCCESSFUL RESOLUTION. WE HIGHLIGHT THE IMPORTANCE OF AGGRESSIVE FLUID THERAPY TO PREVENT STATE OF HYPOVOLEMIA WHICH OCCURS IN SEVER ACUTE PANCREATITIS.

P-53-1  A case of pancreatocoduodenectomy with celiac artery resection (PD–CAR) for locally advanced ductal adenocarcinoma of the pancreatic neck

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Generally, common hepatic artery (CHA) invasion or celiac artery (CA) invasion are unresectable factors in pancreatic ductal adenocarcinoma (PDAC). We report a case of PDAC who could be radically resected by performing CA resection due to variation of hepatic artery branching. A 67-year old woman was diagnosed with an approximately 30 mm PDAC on the pancreatic neck, which invaded common bile duct, duodenum, CHA, CA, splenic artery (SPA), portal vein (PV), and superior mesenteric vein (SMV). Initially, it was judged as locally advanced unresectable pancreatic cancer, but when examined in detail, the right hepatic artery (RHA) was replaced to the SMA and the left hepatic artery (LHA) arose from the left gastric artery (LGA), and there were no invasion around the root of the CA nor the branch of the LGA. It seemed that radical resection can be done if we divide CA after performing CA resection (PD–CAR) was performed. The SPA was not reconstructed. The PV could be preserved. Pathological diagnosis was invasive ductal carcinoma, (T4N1M0, stage IVA). We achieved R0 resection. The postoperative course was uneventful. She died 14 months after the surgery due to bone, lung, liver metastasis, but there were not local recurrence nor peritoneal dissemination.
P-53-2  The influence with harvest of the autologous vein graft for vascular reconstruction in hepatobiliary–pancreatic surgery

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[Background] Resection of the portal vein is the most frequently used vascular procedure in aggressive surgery for hepatobiliary–pancreatic malignancies. Autologous grafts are often used for reconstruction of the portal vein. However, the influence with harvest of the autologous vein graft is not entirely understood.

[Method] Fourteen consecutive patients who underwent resection of the portal vein (PVR, n=13) or renal vein (LVR, n=1) with autologous vein graft reconstruction were reviewed. Of these 14 patients, 5 underwent resection of the vein with external iliac vein (EIV) graft reconstruction and 9 with left renal vein (LRV) graft reconstruction. Diseases included pancreatic cancer in twelve and intrahepatic cholangiocarcinoma in two.

[Result] The average length of the graft was 4.8 cm in EIV and 3.2 cm in LRV (p=0.01). All patients with EIV graft had developed deep venous thrombosis. In the cases with LRV graft, postoperative CT revealed that drainage vein of the left kidney were via gonadal vein, lumbar vein and left adrenal vein, and the diameter of left kidney distended. The diameter of the drainage vein was inversely correlated with the diameter of left kidney (p=0.01). Of these 9 with LRV graft, two patients showed relatively increased serum creatinine level after surgery, one was with sepsis and the other was with hemorrharia. Graft patency was well maintained after surgery. One patient which underwent pancreaticoduodenectomy was died of sepsis 2 months after surgery.

[Conclusion] In-hospital mortality occurred only in one patient with harvest of the autologous LRV graft but there was no certain relation between grafting and the cause of death.

P-53-4  A case report: An enhanced preoperative treatment strategy in pancreatic ductal carcinoma requiring hemihepatectomy for radical resection

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A 76-year-old male visited a clinic and the images incidentally revealed a tumor in the tail of pancreas. Adenocarcinoma was diagnosed by endoscopic ultrasound-guided fine-needle aspiration biopsy, and computed tomography indicated that the tumor infiltrated to spleen, left adrenal gland and left kidney. He was diagnosed as pancreatic ductal adenocarcinoma (PDAC) with clinical stage IIA (ctT3N0M0, NCCN and Japan Pancreatic Society classification 7th edition), requiring hemihepatectomy for radical resection. Enhanced preoperative treatments were performed while taking into account a possibility of any restrictions for the standard adjuvant chemotherapies after hemihepatectomy. After 8 courses of gemcitabine plus nab-paclitaxel treatment, gemcitabine plus radiotherapy had beenas performed. During the course of the chemoradiotherapy, radiation-induced descending colon stenosis had occurred, therefore the radiotherapy was discontinued at 39.6 Gy. Although the direct tumor infiltration to other organs still remained, we found the significant reductions of tumor size and FDG uptake level with the decrease of serum tumor marker levels, so a radical surgery was performed. The histopathologic findings showed pathological stage was ypT3N1AM0 (ypStageIIB) with the effect of preoperative therapy as Grade Ib on Evans classification. He has been surviving so far without recurrence for 4 months after surgery. In this case, we selected and performed an enhanced preoperative treatment including chemotherapy and chemoradiotherapy. We would like to discuss about the strategies for elderly patients with PDAC requiring hemihepatectomy for radical resection.

P-53-3  Artery combined pancreatic resection of pancreatic cancer

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The introduction of nab-paclitaxel plus gemcitabine therapy or FOLFIRINOX, known for its promising rapid response and safety has attracted many surgeons who in turn adopt this therapy as a neoadjuvant therapy for BRPC patients. Our strategy for BRPC is based on a set of fundamental principles, one is artery combined resection and the other is introducing a chemotherapy with stronger regimen (Cancer Chemother Pharmacol 2016, Anticancer Res 2017 In Press). In the current BR-A category, there is a statement about the presence of variant arterial anatomy. We have defined three types of relationship between tumor and replaced RHA. The adjacent type is tumors situated within 10mm of the root of replaced RHA without any tumor abutment of the SMA. The R1 resection rates were significantly higher in patients with adjacent and BR type tumors. Hot spots of positive margins of the pancreatic body carcinoma contact with celiac axis were situated at the posterior extent of the specimens, and the survival rate of patients with pathologically negative invasion of the portal venous system and artery was greater than that of other patients. Those factors allowed room for the intervention of stronger neoadjuvant therapy. The adoption of neoadjuvant chemo/chemoradiotherapy and modified Appleby operation (n=47) for all cases of BR body PC improved the R0 resection rate by 80%. In conclusion, a stronger regimen of neoadjuvant chemotherapy plus artery combined pancreatic resection would improve the R0 resection rate in BRPC.

P-53-5  New Procedure in Pancreatoduodenectomy for Nonfibrotic Pancreas with a Nondilated Duct

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Purpose: In pancreatoduodenectomy (PD), a nondilated main pancreatic duct (MPD) is a risk factor for development of a pancreatic fistula (PF). We developed a novel procedure by ligating the pancreas in advance to dilate the MPD in such cases. We subsequently divided the pancreatic parenchyma with an ultrasonically activated scalpel and the MPD with a scalpel. In this study, we retrospectively compared the outcomes of PD with and without advance ligation (AL). Methods: We compared complications in 12 patients with AL (group AL) with those in 17 patients without AL (group non-AL) following PD for nonfibrotic pancreas with a nondilated duct, from January 2015 to December 2016. We assessed MPD diameters before ligation and just after PD. Results: PF(International Study Group on Pancreatic Fistula grade A/B) occurred in 4/0 patients (33%/0%) in group AL, and in 2/5 patients (12%/27%) in group non-AL (p=0.172/0.052). Morbidity (Clavien-Dindo grade greater than III) did not occur in group AL, but occurred in 7 patients (41%) in group non-AL (p=0.012). Postoperative stay was 21.5 (13–28) days in group AL and 30.5 (13–88) days in group non-AL (p=0.053). Serum amylase level on postoperative day 1/day 3 was 418 (140–855)/58 (20–97) U/L in group AL, and 354 (119–2853)/65 (27–690) U/L in group non-AL (p=0.744 / 0.419). MPD diameter was 2 (1–3) mm before AL and 3.4 (1.4–4.1) mm before dividing the pancreas. From ligation of the pancreas to opening of the MPD required 42.6 (20.5–133) minutes. Conclusions: Although a prospective, randomized study is needed, this procedure may help reduce morbidity including PF.
P-53-6 Pancreatoduodenectomy for a case of pancreas head cancer with reconstruction of the right hepatic artery using the middle colic artery

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This patient is a 77-year-old woman with pancreas head cancer. She presented with aggravation of diabetes and elevation of CA19-9 at a local hospital. So she was referred to our hospital for further examination. Computed tomography showed a 25 mm diameter low-density tumor in the pancreas head involving the common hepatic artery and portal vein. EUS-FNA yielded a diagnosis of adenocarcinoma. She underwent pylorus-preserving pancreatoduodenectomy with resection and reconstruction of the common hepatic artery (CHA) using the middle colic artery (MCA) and portal vein. Intraoperative finding, despite the presence of tumor involvement at the CHA, R0 resection with arterial resection was considered to be possible. So the CHA and the right hepatic artery (RHA) were ligated and divided. After removed the specimen, the stump of the RHA and the distal side of the MCA were anastomosed using an end-to-end technique with 8–0 prolene interrupted sutures under the microsurgery by plastic surgeon. Histopathological finding revealed invasive ductal adenocarcinoma of the pancreas, mod, pT3, pCH0, pDU0, pS1, pRP0, pPV0, pA0, pPLcha1, pOO0, pPCM0, pBCM0, pDPM0, pN1, pM0, pR0, pStag1IB. The postoperative course was uneventful, and patient was discharged on postoperative day 29. She has been under adenocarcinotherapy using S1 monotherapy without recurrence. At four months, no blood flow disorders were observed in the anastomosis between the RHA and the MCA.

P-54-2 A case report: Mucinous Cyst Neoplasm showed the feature of Solid pseudopapillary neoplasm in preoperative imaging

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A 66–year-old Japanese woman pointed out liver dysfunction, but she had no clinical symptoms. Computed tomography (CT) scan showed multiple cystic lesion in the pancreatic body. The cyst was homogeneous with calcification of the cystic wall. The size was 42x38mm. Magnetic resonance cholangio pancreatography (MRCP) showed that the cyst and the main pancreatic duct did not connect each other. Endoscopic ultrasonography (EUS) demonstrated that it was difficult to evaluate the character of this cyst because of the calcification. Tumor markers (CA19–9, CEA, CA125, DUPAN–2) were normal value. We diagnosed this lesion was Solid pseudopapillary neoplasm (SPN), and performed laparoscopic distal pancreatectomy. The postoperative course was well, and she discharged post–operative day 9. Histopathological features of the hematoxylin and eosin staining revealed that there were some adenepithelial alveolar which were made by polygonal cell with normal nuclear shape and eosinophilic cytoplasm with the hyalinization, calcification and ossification around the cystic lesion. We performed an immunohistochemical analysis to obtain a diagnosis of the type of cystic tumor. The tumor cells in our patient stained positive for PgR, alpha-smooth muscle actin, vimentin, alpha-inhibin and calretinin, and negative for beta-catenin, CD10, ChromograninA, Synaptophysin, CD56, S–100 protein, epithelial membrane antigen, and AE/AE3. The tumor was pathologically diagnosed as a mucinous cyst neoplasm (MCN). We will present this case which preoperatively diagnosed SPN with a multi cystic lesion with the calcification of cystic wall, but postoperatively diagnosed MCN.

P-54-1 A case of pancreatic mucinous carcinoma

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A 57-year-old woman was admitted to our hospital for further investigation of abdominal pain, weight loss and hyperamylasemia. There were no abnormal findings on physical examination. CA19–9 was slightly high in blood biochemical examination. Abdominal ultrasonography and endoscopic ultrasonography revealed a 40mm low echoic cystic mass lesion with a solid portion in the pancreas body. Abdominal enhanced CT and MRI revealed multilocular cystic mass lesion in the pancreas body, accompanied with dilatation of the peripheral pancreatic duct. ERCP showed stenosis of main pancreatic duct in the pancreas body. There was no expansion of the papilla of vater but mucus was present. Pancreatic juice cytology was class5. From the image findings we suspected the tumor was SCN at first. MCN and IPMN came to differential diagnosis. However, it was diagnosed as pancreatic body cancer from the result of pancreatic juice cytology. Therefore, distal pancreatectomy and lymphadenectomy was done. Histopathological study showed that the tumor was occupied with colloid differentiation, in which malignant cells were floating. Therefore we diagnosed the tumor to be pancreatic mucinous carcinoma. Mucinous carcinoma occurs relatively rare in pancreas, of which the incidence is 1.4% in pancreatic adenocarcinomas. We report a case of pancreatic mucinous carcinoma with a difficulty in preoperative diagnosis.

P-54-3 Current status of treatment of cystic disease of pancreas in our institute

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AIM The safety of surgery for pancreatic of cystic disease in our hospital was evaluated from educational point.

Patients and methods From 2005 to 2015, 25 patients received the surgery for cystic disease of pancreas. The short–term results were investigated according to the graduation age of operator by 5 years or less (beginner), 5–9 years (intermediate), 10 years or more (advanced).

Results DP(n=11), SPDP(n=2), PD(n=6), MP(n=2), TP(n=1), cystic dissection(n=1), and others (n=2) were performed. Of these, TP and MP were performed by only advanced, but PD was performed equally with beginner (n = 2), intermediate (n = 2), advanced (n = 2). There was a tendency that DP was performed more mainly in the advanced (n=8) than beginner (n = 1) and intermediate (n = 2).

Short term results of PD and DP were investigated. The operation time in PD was longer in beginner (505 min), but there was no statistical difference compared to intermediate and advanced (334 and 320 min). The operation time in DP showed no difference among beginner, intermediate and advanced (158:142:195 min). The PD amount of bleeding was 1850 ml in the beginner but no difference was observed (Intermediate: 627.5 / Advanced: 290 ml). In DP, that was higher in the advanced (Beginner: Intermediate: Advanced = 120: 320.8 ml).

The postoperative complication occurred in one patient in intermediate of PD. On the other hand, no patient was observed in each group of DP.

Conclusion Surgery for cystic disease of pancreas at our hospital was performed safely even by young surgeons. It is important to continue to keep young doctors to have an opportunity to give hands considering safety in future.
P-54-4  A case of undifferentiated carcinoma with osteoclast-like giant cells of the pancreas accompanied by pancreatic intraepithelial neoplasia
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[Background] Undifferentiated (anaplastic) carcinoma with osteoclast-like giant cells (OGCs) is an extremely rare. Recent investigations have reported that OGC's have a significantly better prognosis than is currently believed in the literature.

[Case] A 64-year-old man presented with epigastralgia. CT revealed that a central necrotic mass with hemorrhage in the body and tail of the pancreas. EUS-FNA was performed and histological findings demonstrated multinucleated OGC's and pleomorphic cells with severe atypia. Immunohistochemically, the tumor was positive for CD68 and vimentin. The patient underwent distal pancreatectomy. Left gastric artery and splenic artery were also involved by tumor and these arteries were resected, but the posterior wall of the stomach was not involved. Microscopically, the tumor was composed of pleomorphic, spindle-shaped cells and scattered non-neoplastic osteoclast-like giant cells. The main pancreatic duct was characterized by irregular ductal clast.

[Conclusion] Although undifferentiated carcinoma of the pancreas is a relatively rare tumor and have poor prognosis, undifferentiated carcinoma with OGCs is better prognosis than the other types of undifferentiated carcinoma without OGCs.

P-54-5  Lung metastasis of SPN of the pancreas ten years after primary pancreatectomy
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Solid pseudopapillary neoplasm (SPN) of the pancreas is a rare low-grade malignant neoplasm that accounts for 0.17~2.7% of all pancreatic neoplasms. SPN metastasizes in only 5~15% of all cases, and common sites include the liver; spleen; omentum; peritoneum; duodenum; or other organs. The lung is very rare metastatic site. We report a case of lung metastasis of SPN of the pancreas ten years after primary pancreatectomy.

The patient was a 61-year-old male who underwent a previous distal pancreatectomy with splenectomy for SPN of the pancreas in 2005. In 2016, lung tumor was detected by computed tomography. Retrospective findings revealed that the nodule could be detected by computed tomography in 2015 and the size was increasing. The tumor was suspected as a metastasis of SPN and was resected. The size of tumor was 1cm. By the histological examination including immunohistochemical stains the tumor was diagnosed as metastasis of SPN. At ten months after surgical resection, the patient is well with no sign of recurrence.

SPN is the potentially a low malignant pancreatic neoplasm indicating the better prognosis after complete tumor resection. However, a recurrence of tumor can be expected over a long term course. Therefore, long-term follow up should be necessary for all SPN patients who underwent surgical resection.

P-54-6  A case of serous cystic neoplasm (SCN) with rapid growth and morphological changes
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Most of SCNs are benign, but sometimes surgical resection is needed when malignancy cannot be denied. We experienced a case of SCN which was a rapid growing lesion of the pancreas.

A 52-year-old man was referred to our hospital because of gastric submucosal tumor, and cystic tumor was found in the pancreatic body and head of the stomach. Endoscopic ultrasonography showed the monolocular macrocyst in a pancreas head, and small cysts accumulated around it. At first, branch duct type intraductal papillary mucinous neoplasms was suspected. Both macrocyst and small cysts increased simultaneously, but there was no dilation of the main pancreatic duct, and no enhanced mural nodule. Finally the macrocyst disappeared and changed into the accumulation of the multiple small cysts which was called arrangement of honeycomb formation. Contrast- enhanced abdominal computed tomography scans and Endoscopic ultrasound showed the arrangement of honeycomb formation. The clinical diagnosis was SCN, but we could not deny malignant transformation because of sudden growth and morphological changes. We performed subtotal stomach preserving pancreatectoduodenectomy.

SCN is a relatively rare tumor occupying 1~2% of the whole pancreas tumor. Malignancy is around 1% of SCN, but some local invasion and distant metastasis cases are reported. There are no typical image views to suggest malignancy, but cases with either symptoms, or large in size, or rapid growth are indicated to undergo an operation. The case causing a sudden morphological change like our case is rare, but rapid growing or morphological changing cases need careful follow-up because of possibility of malignant transformation.

P-55-1  IDIOPATHIC HYPERAMMONEMIA AFTER LIVER TRANSPLANTATION, a case report
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Idiopathic hyperammonemia (IHA) is an extremely rare complication after liver transplantation (LT). Ornithine transcarbamylase deficiency or hepatic glutamine synthetase deficiency is suggested as a possible cause of IHA after LT. We present a case of a 54-year-old female patient with HBV and HCV-related liver cirrhosis who underwent DDLT. The postoperative course was uneventful until the postoperative day 9. She presented sudden mental deterioration and respiratory failure with hyperammonemia (> 700 umol/L). Management to reduce serum ammonemia started. However, hyperammonemia was sustained without graft dysfunction. On the postoperative day 10, generalized seizure developed. EEG revealed brain death and the patient expired on the postoperative day 15 with nearly normalized liver enzymes.
**P-55-2**  Liver transplantation in Viet Duc university hospital: a single center experience

Viet Duc University Hospital
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Background: Viet Duc University Hospital had the highest number of liver transplantation cases in Viet Nam. This presentation reports this single–center experience, highlighting the indications and initial results of the recipients.

Methods: Our study analyzed indications, techniques, early complications and overall survival of 33 recipients who underwent liver transplantation from 2007 to 2016.

Results: There were 31 males, 2 females. Underlying liver diseases: 75, 7% were positive for HBV, 9.1% were alcoholic liver diseases, 6.1% were Wilson disease. HCC were the most common indications for liver transplantation with 25 patients and 8 decompensated cirrhosis patients. 5 of 33 cases were living donor transplantation and 28 were deceased donor transplantation without portocaval shunts. Immunosuppression pivoted on tacrolimus. Early complications were mainly with pleural effusions and acute rejections. 4 cases required relaparotomy and mortality in 3 cases. The overall 5-year survival rate was 76%.

Conclusion: Liver transplantation remains developing in Viet Nam. Viet Duc University hospital had initial experience in liver transplant surgery and postoperative care allowed standardization of the procedure in Vietnam.

**P-55-3**  Safety and efficacy of tolvaptan in the postoperative fluid management after living donor liver transplantation

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Introduction: The vasopressin V2 receptor antagonist (tolvaptan) is a new diuretic that selectively promotes the excretion of water. We recently introduced tolvaptan for the postoperative fluid management after living donor liver transplantation (LDLT).

Methods: We described clinical outcomes of the recipients who were treated with tolvaptan, furosemide, and human atrial natriuretic peptide (hANP) (tolvaptan group, n=16) comparing clinical parameters between recipients treated with and without tolvaptan. Recipients who underwent LDLT right before introduction of tolvaptan were used as control group (n=10). We used furosemide and hANP in both group.

Results: There were no significant differences in preoperative and intraoperative demographic data between tolvaptan and control groups except for the follow–up period after surgery. Urine volumes on postoperative day 1, 3, and 7, had no significant differences between two groups. There were no significant differences in postoperative body weight increase rate, drainage volume from abdominal drain tubes, estimated glomerular filtration rate, and serum levels of creatinine, aspartate aminotransferase, and sodium between the groups. Times to hANP discontinuation, discharge from intensive care unit, central venous catheter removal, and drain removal were significantly reduced in the tolvaptan group. No severe side effects directly related to tolvaptan were observed. Six–months survival was 90.0% and 93.8% in the control and tolvaptan groups, respectively.

Conclusion: It is suggested that addition of tolvaptan to furosemide and hANP is a safe and effective option for the postoperative fluid management after LDLT.

**P-55-4**  Portal thrombectomy of a complete occlusive portal vein thrombus using an eversion technique in living donor liver transplantation

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Preoperatively existing portal vein thrombus (PVT) is a risk factor for postoperative morbidity and mortality and a jumping graft is a safe and established procedure in brain death donor liver transplantation. In living donor liver transplantation, two vein pieces of grafts, such as the internal jugular vein and the external iliac vein, are required to reach from the superior mesenteric vein and the portal vein of a graft. To avoid invasive procedure to obtain vein grafts, portal thrombectomy preserving the native portal trunk is a key in a case of PVT. We present a successful portal thrombectomy in a case of completely occlusive PVT by an eversion technique. [Case] A 56 Japanese woman with end stage liver disease due to hepatitis B. MELD score was 24. Preoperative CT scan showed massive ascites and the PVT occluding 70% of the lumen of the portal trunk and extending to the spleno–portal junction (SPJ). The donor was husband and the graft was the left lobe graft with graft–recipient weight ratio of 0.60. The initial amount of ascites at laparotomy was 13 liters and the portal trunk was completely occluded. After removing the native liver, thrombectomy was performed. The connective tissue including lymphnodes behind the portal trunk was dissected as high as possible until SPJ was visible from behind. Some portal branches to the pancreas and the soft tissues around the portal trunk were dissected. Pushing the cranial plane of the pancreas to caudal and pulling the portal vein out, a Satinsky–type vascular clump was placed beneath the caudal end of thrombus at SPJ. The thrombus was removed successfully and sufficient portal flow was obtained.

**P-55-5**  The case of liver transplant surgery by using the transverse colon artery for hepatic artery reconstruction and portal vein interposition using donor iliac vein graft

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The case is presented of a 23–year-old female patient suffering from chronic rejection after living donor liver transplantation for biliary atresia in 1995. From 2013, the patient was suffered from liver dysfunction and since then, her liver condition became worse eventually. The result of the biopsy in 2014 reviewed accumulation of the inflammatory lymphocytes, hepatocyte ballooning and apoptosis, which indicated acute hepatitis and emergence of donor specific antibody. Biopsy result in 2015 reviewed exacerbation of portal vein fibrosis (F3) and indicated chronic rejection. Based on these, she underwent percutaneous tranhepatic cholangio drainage (PTCD) in 2016. Last September, her MELD score was elevated to 24, Child Pugh score was 13, then she underwent deceased donor liver transplantation last October.

Her liver was adhered with every tissue, especially the portal vein(PV) made aneurysm about 43mm in diameter. Artery dissection from portal vein was one of the most difficult point and we had no choice for pinch recipient artery and the internal layer of the artery suffered from injury because of that. Following hepatectomy, we reconstructed inferior vena cava(IVC) with piggy back technic. Next we reconstructed PV interposition using donor iliac vein graft following resection of the PV aneurysm. Then we reconstruct hepatic artery with transverse colon artery since injury of original hepatic artery internal layer.

Hepatic artery reconstruction with transverse colon artery is exceedingly rare, we couldn’t research any case report.
P-56-2 A multicenter, randomized, placebo-controlled trial of extract of Japanese herbal medicine Daikenchuto to prevent bowel dysfunction after adult liver transplantation (DKB 14 Study)

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Introduction: Daikenchuto is a traditional Japanese herbal medicine that has been used to treat various gastrointestinal disorders. In patients undergoing liver transplantation, bowel dysfunction is a common complication that can significantly affect the patients' quality of life and prolong hospital stay. This study aimed to evaluate the effects of Daikenchuto on bowel function in adult liver transplant recipients.

Objectives: The primary objective of this trial was to determine if the administration of Daikenchuto (15.0g/day) from postoperative day 1 to 14 could reduce the incidence of postoperative bowel dysfunction (POBD) compared to placebo in adult liver transplant recipients.

Methods: A multicenter, randomized, placebo-controlled trial was conducted at 14 leading Japanese centers. Patients undergoing liver transplantation were randomized to receive Daikenchuto (15.0g/day) or matching placebo from postoperative day 1 to 14. The primary outcome measure was the incidence of POBD, defined as the incidence of abdominal distension, pain, distention and pain, portal venous flow and speed to the graft and so on.

Results: A total of 104 patients (56 Daikenchuto, 52 placebo) were enrolled. The incidence of POBD was significantly lower in the Daikenchuto group (n=27) compared to the placebo group (n=43) (p=0.026). Moreover, portal venous flow (POD 10, 14) and speed (POD 14) were significantly higher in the Daikenchuto group compared with the placebo group (p=0.004, respectively). Conclusion: Postoperative administration of Daikenchuto effectively reduces the incidence of POBD and contributes to the pathogenesis of sarcopenia via inflammation.

P-56-3 Prognostic implication of radiological and pathological status of hepatocellular carcinoma in patients undergoing living donor liver transplantation

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Introduction: Hepatocellular carcinoma (HCC) is a major cause of mortality and morbidity in patients with liver disease. The staging and evaluation of HCC are crucial for the management of patients with HCC. The Milan criteria (MC) are the most widely used staging system for HCC.

Objectives: The primary objective of this study was to investigate the prognostic implication of the radiological and pathological status of HCC in patients undergoing living donor liver transplantation (LDLT).

Methods: A retrospective cohort study was conducted at 14 leading Japanese centers. Patients undergoing LDLT between May 1997 and June 2015 were included. The radiological and pathological status of HCC were evaluated before LDLT. The knowledge–tree-based learning core topics were selected: indication/contraindication in the real-world setting, model for end stage liver disease scoring and organ allocation policy, liver transplantation for hepatic malignancy, transplantation surgery, immunosuppression strategy in practical consideration, and management of viral hepatitis. The rationales of each topic were discussed comprehensively for better understanding in a 2-hour class.

Results: The study included 37 patients with HCC who underwent LDLT from 2000 to 2016. The primary goal of artificial immunosuppression is to prevent graft rejection, and the secondary one is to reduce its complication or side effects. Life-long oral nucleos(t)ide analogues against HBV is needed while short course of direct acting agents against HCV is enough to eradicate the virus.

Conclusion: Basic understanding of the underlying rationales will help students prepare for advanced learning and cope with the recipients confidently in the future.
P–56–4  Correlation between middle hepatic vein branch reconstruction in living donor liver transplantation with right liver graft and donor surgical outcome

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**Background:** There have been few studies of the burden placed on donors resulting from the selection of the resection line for the purpose of middle hepatic vein branch reconstruction. In this study, we investigated the relation between middle hepatic vein branch reconstruction and donor surgical outcome. **Methods:** We placed 66 donors who underwent right liver resection at our facility for the purpose of living liver transplantation into 4 groups: group 1 (n=12); in which the recipient did not undergo liver graft middle hepatic vein branch reconstruction, group 2 (n=30); a single branch reconstruction of either V5 or V8 was performed, group 3 (n=24); 2 or 3 branch reconstruction were performed. We compared the donors’ operative duration, blood loss, percent of remnant liver, postoperative T-Bil, AST, and ALT max. values, PT min. value, number of days in hospital from surgery to discharge, and surgical complications. **Results:** In comparison to the group 2 or group 3, the group that were not underwent reconstruction (group 1) tended to have shorter average operational duration times, but the difference was not significant (478 vs. 518 min). Similarly, average blood loss also tended to be lower (741 vs. 862 ml). Comparisons of all other items indicated no significant differences. **Conclusion:** The results of this study suggest that selection of the resection line for the planned reconstruction of the middle hepatic vein when extracting a graft does not place an obvious burden on the donor.

**P–56–5** The long–term outcome of adult ABO–incompatible living donor liver transplantation

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**Background:** We started adult ABO–incompatible living donor liver transplantation (ABOI–LDLT) in 1998. We investigated the long–term outcome of recipients who underwent ABOI–LDLT in our center. **Patients and Methods:** We retrospectively assessed medical records of recipients who underwent ABOI and non ABOI–LDLT since 1997 and survived longer than 1 year after transplantation. We analyzed survival rate, incidence of de novo malignancy occurrence (solid cancer and PTLD), and markers of diabetes militates and renal function (HgbA1C, CRTTN, and eGFR). **Results:** There were 26 cases of ABOI–LDLT (ABOI group) and 88 cases of non ABOI–LDLT (compatible or identical) (non ABOI group). There were no significant differences of patient background between the groups except calcineurin inhibitor usage (tacrolimus and cyclosporin, 81% and 19% in ABOI, 51% and 49% in non ABOI, p<0.05). Five–year survival rates were 90.0% and 92.7% in ABOI group and non ABOI group, respectively. Incidences of solid cancer were 11.5% and 6.8% and those of PTLD were 3.8% and 4.5% in ABOI group and non ABOI group, respectively. There were no significant differences of survival rate and incidences between the groups. There were also no differences of values of HgbA1C and CRTTN at the time of 1, 3, 5, and 10 years after transplantation. As for eGFR, a significant difference was detected at 3 years after transplantation (72±25 in ABOI, 58±20 in non ABOI, p<0.05). **Conclusion:** Our data suggest that the long–term outcome of recipients who underwent ABOI–LDLT is comparable to that of non ABO–LDLT.

**P–56–6** Infiltrating cross–dressed dendritic cells subvert donor–reactive T cell responses in the mouse liver transplant

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**Background:** In the instigation of graft rejection, we sought to investigate the role of cross dressing in the instigation of graft rejection, we sought to investigate the role of cross–dressed DCs in liver transplantation. **Methods:** Liver allografts from C57BL/6 donor to C3H/HeJ recipients were performed. In this combination, > 90% liver grafts are accepted and suppressed donor reactive host T cell proliferation in MLR. **Results:** Infiltration by recipient DCs in liver allografts peaked on POD 7. More than half of the graft–infiltrating recipient DCs at that time displayed donor MHC–L, indicating cross–dressing; these DCs persisted in the graft at least until POD 300. In contrast, only a very minor fraction of cross–dressed DCs (CD–DC) were detected in the spleen at any time point. Importantly, these cross–dressed DC (CD–DC) expressed very high programed death ligand 1 compared to non cross–dressed DC (nCD–DC) and suppressed donor-reactive host T cell proliferation in MLR. **Conclusions:** A large proportion of CD recipient DC with capacity to subvert donor–reactive host T cell responses are evident in liver allografts early post–transplant and persist indefinitely. This suggests that graft–infiltrating host CD–DC may play a key role in regulation of alloimmunity and the promotion of donor–specific liver transplant tolerance.

**P–57–1** Approach of hepatectomy priority for radical resection of Bismuth IV hilar cholangiocarcinoma

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**Background:** Bismuth IV hilar cholangiocarcinoma (HCCA) is difficult to achieve R0 resection and associated with poor prognosis. This study is to investigate advantage of hepatectomy priority for radical resection of HCCA. **Methods:** 11 cases with HCCA underwent hepatectomy priority radical resection. (a case study of left hepatectomy) (1) IQQA and ICG determine liver function, remnant liver volume and bile duct isolation limit points (2) Separate right hepatic artery and portal vein, while ligate left vascualrs (3) Disconnect the liver parenchyma till to the front wall of inferior vena cava along the ischemic line (4) Cut more than two right bile ducts (0.5cm margin), remove the left hepate, caudate lobe and contents of hepatoduodenal ligament (except for RHA and RPV) from top to bottom; bile duct edges frozen pathology (5) Unite bile duct branches and have anastomosis with jejunum. **Results:** All 11 cases had Hepatectomy priority radical resection successfully and no postoperative mortality. One patient had a transient anastomotic leakage, another developed small liver syndrome. Two patients died after 6 months and 19 months of extensive metastasis and intrahepatic metastasis respectively. The remaining are alive by a mean followup of 11.9 months. **Conclusions:** (1) Assessing the resectability by liver function, remnant liver volume and bile duct isolation limit points preoperation (2) Ensuring tumor no–touch principle, reduced implantation metastasis (3) Without excessive separation of tissue surrounding the tumor and overall resection of contents of hepatoduodenal ligament reduce difficulty, shorten the time of operation, improve radical resection rate and survival.
P-57-2 Clinicopathological Study of Patients Undergoing Resection of Hilar Bile Duct Cancer
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[Purpose]
A stress is big after a resection of hilar bile duct cancer operation. Safety of method of preoperative treatment isn’t established. The strong adjuvant treatment limited to a recurrence high risk group can be an effective treatment strategy. The clinical pathological feature of the recurrence case after an operation was considered.

[Methods]
The patients who underwent resection of hilar bile duct cancer from January, 2010 to October, 2016 made 9 cases which recurred in it the subject. A clinicopathological factor was checked in retrospective. Correlation with the recurrence form was considered.

[Results]
Five men, four women. A median was 67 years old (57–80). Extended left hepatectomy was 2 cases and extended right hepatectomy was 7 cases. A median of period until recurrence was 13 months (2–60). A recurrence part, a liver metastasis and local recurrence, 5 cases, peritoneal dissemination, 2 cases of aorta lymph node swell was 1 case. A median of the tumor diameter, 30 mm (15–40). Lymph node positive metastasis (N1) was 4 cases. The rest is negative. Hepatic surgical margin (HM) was positive 3 cases. All DM and EM were negative. That a factor correlated with the recurrence form is analyzed, liver metastasis recurrence is a lymph node metastasis, (p=0.0496) and local recurrence admitted correlation significantly and also admitted correlation HM+(p=0.0297).

[Conclusion]
Recurrence risk is high for lymph node metastasis positivity and HM (+). Adjuvant treatment should be done after an operation.

P-57-3 Impact of branch angle of portal vein on postoperative portal vein thrombosis after hepatectomy for perihilar cholangiocarcinoma
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Background: Portal vein thrombosis (PVT) after hepatectomy is rare but life-threatening complication. No large studies have reported postoperative PVT after hepatectomy for perihilar cholangiocarcinoma (PHC). This study evaluated clinical characteristics and risk factors for postoperative PVT after hepatectomy for PHC and its relationship to branch angle of portal vein (BA–PV). Methods: A total of 99 patients underwent hepatectomy for PHC between 2009 and 2014. Of these 55 patients with postoperative CT examined within 14 days after surgery were reviewed. BA–PV were evaluated using pre- and postoperative 3D angiography models of portal vein. The branch angle is the angle between main portal vein and right or left portal vein feeding into remnant liver. A receiver operating characteristics (ROC) curve constructed to estimate the optimal cutoff value of BA–PV. Univariate and multivariate analyses were performed to identify perioperative PVT risk factors. Results: The incidence of PVT after hepatectomy was 7.1% (n=7). Postoperative BA–PV was significant sharper in PVT group than in no PVT group (median, 80.0° vs. 112.0°, P=0.016). On ROC curve analysis, the cutoff value of postoperative BA–PV was determined to be 90°. Postoperative BA–PV ≤90° was a significant risk factor of postoperative PVT in multivariate analyses (hazard ratio 5.0, 95%CI: 1.14–68.3), P=0.037). Conclusions: Postoperative PVT after hepatectomy for PHC is closely related to postoperative BA–PV. Intraoperatively visual confirmation of BA–PV and anticoagulant therapy in case of postoperative BA–PV ≤90° may be recommended.

P-57-4 Transhepatic hilar approach for perihilar cholangiocarcinoma: significance of early judgement of the resectability and safe vascular resection and reconstruction under clear surgical view
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In the most common surgical procedure for perihilar cholangiocarcinoma (PHC), the margin status of the proximal bile duct (PBD) is determined at the final step. Our procedure, transhepatic hilar approach (THA), confirms a cancer–negative margin of PBD first (J Gastrointest Surg. 2016). Here, we present our procedure using the THA and results.

THA procedure: We first perform partial hepatic parenchymal transection toward the hepatic hilum to expose the hilar plate, followed by exposure of the HA, PV, and PBD in the future remnant liver. Then, transection of PBD is performed to confirm a cancer–negative margin, followed by resection of CBD above the pancreas and skeletonization of the hepatoduodenal ligament. Thereafter, the residual hepatic parenchymal transection including the cvaltate lobe is performed. THA also offers a wide surgical field for safe reconstruction of PV in the middle of hepatectomy.

Patients: Between 2011.1 and 2016.12, we performed THA procedure for 26 patients, of whom 17 (65%) underwent preoperative chemotherapy.

Results: There were left hepatectomy (Hx) in 13, left trisectionectomy (TSN) in 2, right Hx in 8, right TSN in 1, central bisectionectomy in 1, and S1 subsegmentectomy in 1. A combined vascular resection (PV alone in 12, PV+HA in 3, and HA alone in 1) was performed in 16 (62%), and R0 resection rate was 77%. Clavien III or higher complications occurred in 12 (46%) without in–hospital mortality. The disease–specific 5-year survival rate was 34%.

Conclusion: THA is useful and practicable regardless of local tumor extension, enabling us to determine tumor resectability and perform safe resection and reconstruction of the PV early in the operation.

P-57-5 Usefulness of the intraoperative cholangiography with contra–enhanced ultrasound in determining the cutting line of hilar biliary tract cancer
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Background) Complete tumor resection with negative surgical margin is important issue for the surgical treatment of hilar biliary tract cancer. Recently, the intraoperative cholangiography with contra–enhanced ultrasound (IOC–CEUS) has been reported to be used as a tool for biliary navigation in hepatobiliary surgery. In this study, we investigated whether IOC–CEUS is useful to determine the cutting line of intrhepatic bile duct resection for hilar biliary tract cancer.

(Methods) Right hepatectomy with cvaltate resection was performed for 2 patients. They are suffered from gallbladder cancer with extension to perihilar bile duct and cholangiocarcinoma located at the perihilar bile duct. During surgery, B–mode US and IOC–CEUS were performed and then the bile duct resection point was determined. Sonazoid was injected from the cutting end of ENBD tube after transection of distal bile duct. Surgical margins of left hepatic duct was checked by intraoperative frozen section (IFS) analysis.

(Results) By combination of B–mode US and IOC–CEUS, portal vein and intrahepatic bile ducts were clearly identified and then bile duct resection point was easily determined in real time. IFS analysis revealed cut end of transected hepatic duct were negative in both cases.

(Conclusion) CE–IOUS is very useful for appropriate hepatic duct resection for hilar biliary tract cancer.
P-57-6 A Novel Technique of Intraoperative Identification of Biliary Drainage Areas in the Liver after Hepatobiliary Resection for Perihilar Cholangiocarcinoma

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Background: An appropriate provision for expected and unexpected bile ducts are critical for the success of surgical treatment in perihilar cholangiocarcinoma. However, there are no methods to identify the biliary drainage area in the liver.

Purpose: The aim of this study was to demonstrate the usefulness of contrast-enhanced intraoperative ultrasonic cholangiography (CE-IOUSC) as a tool for the identification of biliary drainage areas in the liver for perihilar cholangiocarcinoma.

Methods: From September 2012 to May 2015, 22 patients with perihilar cholangiocarcinoma were enrolled in this study. After hepatobiliary resection, using a balloon catheter, an ultrasonic contrast agent was injected into the bile duct orifices on the cut surface of the liver. The size and location of the biliary drainage areas of each bile duct were detected as pseudo-staining of the liver parenchyma using an ultrasound machine.

Results: The total number of preoperatively expected bile duct orifices in all patients was 41, while 51 were recognized. Nine orifices were categorized into a portion of the segment and 6 of them were closed according to CE-IOUSC.

Conclusions: Contrast-enhanced IOUSC can visualize the biliary drainage area of each bile duct as pseudostaining of the liver parenchyma. This novel technique can be useful for selecting the small duct to be sacrificed in the treatment of perihilar cholangiocarcinoma.

P-58-2 Preventive effects of nutritional supports for complications after liver resection

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Background: Postoperative complications have decreased, but we sometimes experience unexpected bile duct complications after liver resection relatively. The aim of this study is to examine the relationship between various nutritional indexes and frequency of complications after liver resection, and in addition to examine the preventive effect of preoperative nutritional support for complications.

Methods: We retrospectively evaluated 141 cases undergoing liver resection between 2008 and 2016. Statistical analyses were performed to identify nutritional indexes closely associated with complications. And the preventive effect of complications were examined in 42 cases who received preoperative oral immunonutrition for 5 days.

Results: Postoperative complications occurred in 41 cases (25.9%) of 141 cases, infective complications were 18 cases (12.8%) and noninfective complications were 30 cases (21.3%). Infective complications were as follows: SSI 15 cases (10.6%), superficial: 7 cases, organ/ space: 8 cases , remote infection (RI) 4 cases (2.8%). Among infective complications, there were significantly increased SSI in long–operating time cases, CONUT score (≧2) and mGPS (CD), but there was no significant predictor for RI. Noninfective complications were significantly increased in males, liver cirrhosis and CONUT score (≧2). SSI was significantly reduced in preoperative nutritional support group (p<0.05), but there were no significant differences in RI and in noninfective complications.

Conclusions: Various nutritional indexes may be a predictor of complications after liver resection. In addition, preoperative nutritional support may have the potential of preventive effects of SSI.

P-58-3 A Case Report of ALPPS for Huge Hepatic Cancer Complicated with Perioperative Acute Renal Injury

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OBJECTIVE: To explore the safety and efficacy of Two-stage hepatectomy and associated liver partition and portal vein ligation for staged hepatectomy(ALPPS) for the treatment of giant hepatocellular carcinoma.

Methods: The left anterior lobectomy was performed on the left anterior lobe. The right branch of the portal vein was ligated and the right hepatectomy was performed 43 days after the operation.

Results: The diameter of right hepatic lobe tumor was about 16cm, and the standard total hepatic volume was 1256.6ml. The proportion of FLV (left lobe) is 34.15ml and proportion of body weight (PBW) was 0.53 (L/kg), when second step, it increased to 865.7ml,PBW was1.35 (L/kg).

The first and second operative time were 197min and 75min and the intraoperative bleeding was 765 ml and 465 ml respectively. The postoperative recovery of liver function was 6d and 3d, respectively. The first day after the first step happened with oliguria and acute renal injury, creatinine peaked at the 7th day after the first step and there was no new complication in the second step.

CONCLUSION: ALPPS provides a new therapeutic option for hepatocellular carcinoma with insufficient hepatic volume, but it may bring about perioperative burden to related organs, which may lead to related complications and even organ failure. The safety of ALPPS in hepatocellular carcinoma Patients remain to be assessed and explored.
P-58-4 Specific Risk Factors for Incisional Hernia after Hepatectomy for Hepatocellular Carcinoma Patients with Liver Cirrhosis

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Background: Incisional hernia (IH) is one of the most common postoperative complications following abdominal surgery. However, the specific risk factors for IH and the association between liver fibrosis and IH after hepatic resection in hepatocellular carcinoma (HCC) patients with liver cirrhosis (LC) are poorly understood.

Methods: 251 consecutive LC patients who underwent elective hepatic resection for HCC were enrolled in this study. 192 (76.5%) patients met the inclusion criteria and retrospectively analyzed. The primary endpoint was the incidence rate of IH. The secondary endpoints were associations between IH and 22 clinical factors.

Results: IH occurred in 60 (31.3%) patients. The incidence rates of IH were 19.8% at 1 year, 32.5% at 3 years, and 38.8% at 5 years. In multivariable analysis, four independent risk factors for IH were identified, including the presence of postoperative intracatable ascites (odds ratio 24.83, P = 0.0003), abdominal wall closure by a single-layer mass closure with a continuous running suture (odds ratio 4.59, P = 0.0143), preoperative BMI ≥ 25 kg/m² (odds ratio 3.36, P = 0.0025), and preoperative serum N-terminal pro-ßectopeptide of type IV collagen 75 domain (P4NP 75) levels ≥ 5 ng/mL (odds ratio 3.13, P = 0.0234).

Conclusions: This result suggests that abnormality of type IV collagen might be not only a consequence of liver fibrosis, but also the cause of IH. There are several risk factors for IH after hepatic resection in HCC patients with LC. Preoperative serum P4NP 75 ≥ 5 ng/mL are a useful predictive marker, and abdominal wall closure with a continuous running suture by a single-layer mass closure should be avoided.

P-58-5 Preoperative maximal removal rate of 99mTc galactosyl human serum albumin of the remnant liver is associated with postoperative tumor relapse in hepatitis C virus–related hepatocellular carcinoma

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Background: Prognosis in patients with hepatocellular carcinoma (HCC) is not only influenced by tumor–related factors but also by the background liver functions. Objectives: The maximal removal rate of 99mTc galactosyl human serum albumin (GSA–Rmax) of the remnant liver (rGSA–Rmax) is a useful candidate for predicting the liver function. To clarify the relationship between the remnant liver functional reserve and tumor–free survival (TFS) in patients who have undergone hepatectomy.

Methods: 165 HCC patients who underwent curative hepatectomy were divided into three groups of hepatitis B virus (B–HCC; n=42), hepatitis C virus (C–HCC, n=58), and non–B, non–C (NBNC–HCC, n=65). The relationship between rGSA–Rmax and survival was examined by univariate and multivariate analyses.

Results: In the C–HCC group, the albumin, or LHL15, level was significantly lower, and ALT, ICGR15, were significantly higher than other two groups (p<0.05). GSA–Rmax or rGSA–Rmax was not different between three groups. Lower GSA–Rmax and rGSA–Rmax were significantly associated with lower TFS in the C–HCC group by the univariate analysis (p<0.05) but not significantly by the multivariate analysis. Conclusion: GSA–Rmax or rGSA–Rmax might reflect the severity of liver dysfunction and the lower rGSA–Rmax might be a complementary predictive factor for early HCC recurrence in C–HCC patients undergoing hepatectomy.

P-58-6 Evaluation of the BiClamp® vessel–sealing device for open hepatic resection: experience from a single institution

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Background: Intraoperative blood loss during hepatectomy has been proven as an important factor resulting in unfavourable prognosis. Variable instruments used for liver resection are to improve perioperative safety and efficiency. We aimed to retrospectively evaluate the efficiency and safety of the BiClamp® device for open liver resection.

Method: We included 84 patients undergoing liver resection from a single centre, with all patients operated by the same surgical group. All hepatectomies were performed using BiClamp® (Erbe Elektromedizin GmbH, Tubingen, Germany), an electrosurgical device that simultaneously transects liver parenchyma and seals vessels < 7 mm in diameter. We collected data on intraoperative blood loss, resection time, and perioperative complications.

Results: The 84 patients enrolled in this study included 30 major and 54 minor hepatectomies. Fifty–six patients had a cirrhotic liver. All patients underwent hepatectomy using the BiClamp, exclusively, and 54/56 patients required inflow occlusion (Pringle manoeuvre). Overall intraoperative blood loss (mean ± standard deviation) was 523.5 ± 558, 6 ml (range, 55.0–2474.1 ml), with a mean blood loss of 6.2 ± 7.6 ml/cm² (range, 0.6–39.8 ml/cm²). Twelve patients received perioperative blood transfusion. The mean parenchymal transection speed was 3.0 ± 1.9 cm²/min. There were no deaths, and the morbidity rate was 25%. The mean (standard deviation) hospital stay was 9.3 (2.3) days.

Conclusion: The reusable BiClamp vessel sealing device allows for safe and effective major and minor hepatectomy, even in cases with cirrhotic liver.

P-59-1 Two cases of independent and simultaneous combined and differentiated hepatocellular and cholangiocarcinoma

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Background: Independent and simultaneous masses in a liver of combined and differentiated hepatocellular and cholangiocarcinoma are extremely rare.

Case 1: A 58 year old man with hepatitis C infection was diagnosed as liver cancers in segment 8 (S8) and porta hepatitis (S4). Preoperative abdominal computed tomography (CT) revealed that the mass in S8 showed enhancement in early phase and low intensity in late phase, whereas the mass in S4 showed low intensity in both early and late phase. We performed right trisegmentectomy and bile duct reconstruction. The tumors in S8 and S4 were pathologically diagnosed as combined hepatocellular and cholangiocarcinoma, and intrahepatic cholangiocarcinoma, respectively. The patient survived but at 17–month follow–up showed a metastatic lesion in liver.

Case 2: A 72 year old woman with fatty liver was diagnosed with double liver cancer in segment 6 (S6) and S8. Preoperative abdominal CT abdominal and Magnetic resonance imaging revealed that the mass in S6 showed ring enhancement lesion, whereas the mass in S8 showed enhancement in early phase and low intensity in late phase. We performed hepatic partial resection of both segments. The tumors in S6 and S8 were pathologically diagnosed as combined hepatocellular and cholangiocarcinoma, and hepatocellular carcinoma, respectively. The patient survived and did not show evidence of metastasis.

Conclusion: We reported two cases of combined and differentiated hepatocellular and cholangiocarcinoma treated with surgical resection. Combined and differentiated hepatocellular and cholangiocarcinoma are extremely rare but imaging findings may be helpful to achieve a correct preoperative diagnosis.
P-59-2 A case of umbilical metastasis of hepatocellular carcinoma

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Umbilical metastasis of digestive cancer or Sister Mary Joseph's nodule is relatively rare and is even rarer in hepatocellular carcinoma (HCC) patients. A 77-year-old man presented right hypochondrial pain to his previous doctor. Abdominal enhanced Computed Tomography showed hepatic tumors (diameter, 9 and 5 cm) in the left lobe. The tumors showed early enhancement and washout, and invaded the main portal vein and proximal right branch. A nodule under the supraumbilical abdominal wall was detected with similar enhancement. We diagnosed HCC (Vp4) with umbilical metastasis. Laboratory data were as follows: HBsAg, negative; HBeAg, negative; HCV-Ab, negative; AFP, 4.8 ng/ml; and PIVKA-II, 4698 mAU/ml. His liver function was good; the Child-Pugh score was 5 (class A). Intraoperative findings revealed a 3-cm nodule in fat tissues of the round ligament. We performed extended left hepatectomy with evulsion of the portal vein thrombus and combined round ligament resection. The umbilical nodule was histopathologically diagnosed as HCC metastasis. Postoperative course was uneventful; the patient was expected to undergo transhepatic arterial infusion to prevent the recurrence. Among metastatic origin, gastric cancer is the commonest umbilical metastasis of digestive cancer, followed by pancreatic and colon cancer. HCC is extremely rare; to date, only 2 cases have been reported. Several mechanisms exist for metastasis such as bloodstream, lymphatic, or direct peritoneal spread. Here, we suspected that umbilical metastasis occurred via the hematogenous pathway. We present an HCC case with umbilical metastasis via the paraumbilical vein due to a portal vein tumor thrombus.

P-59-3 A case report of concomitant occurrence of hepatocellular carcinoma and angiomyolipoma in non–viral–hepatitic liver

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We herein report the case of a 59-year-old male in whom hepatocellular carcinoma (HCC) and hepatic angiomyolipoma (AML) were simultaneously found in non–viral–hepatic liver. He underwent total thyroidectomy for thyroid cancer 6 years ago. Periodic check-up CT found highly enhanced lesions in liver S1, S7, S4 and S3 subsegment during the arterial phase. At the equilibrium phase, S1 tumor remained the enhancement, while the other tumors diminished the enhancement. Well–differenitated HCC was pathologically found in the needle biopsy of S7 tumor. He had suffered from diabetes, hypertension and obesity, and did not show positivity of every viral–hepatic marker, suggesting the presence of non–alcoholic steatosis (NASH). Under the diagnosis of multiple HCCs arising from NASH, we planned right hepatectomy (including S4 tumor) plus S3 partial hepatectomy. Since the future remnant liver was small, interventional radiologic chemotherapy followed by percutaneous transhepatic portal embolization were performed. After confirming enlargement of the future remnant liver and tumor control, the above–mentioned hepatectomies were performed. S1 tumor was pathologically proved to be AML on the basis of the typical histological characteristics and immunohistochemical staining, while S7 tumor was moderately differentiated HCC. In lesions of S3 and S4, HCC cells were not found. He is alive without any recurrence. Concomitant occurrence of AML and HCC in the liver is rare. We are going to review the similar reports in the literature.

P-59-4 A case of hepatocellular carcinoma with congestive liver cirrhosis developed after Mustard procedure for the transposition of the great arteries

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Hepatocellular carcinoma (HCC) arising from congestive liver cirrhosis after surgery for serious congenital heart disease have increasingly been reported. However, there have been few reports regarding to the hepatectomy due to perioperative high risk. Here, we report a resected case who developed HCC with congestive liver cirrhosis more than 30 years after Mustard procedure.

Case: A 30s man had undergone the Mustard procedure for the transposition of the great arteries, type 2, when he was 11 months old. The patient has been examined at regular intervals and the laboratory data has been normal. In 2015, the mild elevated transaminase levels (ALT, 64 ICLU/ml). Preoperative Child–Pugh score was A (5), and ICG R–15 value was 32%. The hemodynamic studies revealed the rise in central venous pressure (17cm H2O) and portal pressure (20cm H2O). Ultrasonography showed low cardiac function (EF: 31%) and ASA physical status was evaluated as grade 3. The patient underwent the partial S3 hepatectomy. Operation time was 4 hours and blood loss was 800ml. The resected tumor was diagnosed as poorly differentiated hepatocellular carcinoma and fibrous thickening was observed in the noncancerous liver tissue. His postoperative course was uneventful and routine examination showed no evidence of HCC recurrence for more than 10 months.

P-59-5 Hepatic Sarcoidosis Mimicking Cholangiocellular Carcinoma: A Case Report and Literature Review

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Background: Sarcoidosis is a multisystem disease characterized by the presence of non–caseating granulomas in affected organs. Hepatic involvement is common in sarcoidosis, occurring in up to 70% of patients. However, evidence based guidelines for treatment of hepatic sarcoidosis remains lacking. Herein, we present a case of a resected hepatic sarcoidosis patient. Additionally, we review the relevant hepatic sarcoidosis literature and discuss the clinical management of hepatic sarcoidosis.

Case presentation: A Liver tumor was incidentally detected in a 64–year–old female during a medical examination. Abdominal CT displayed a 20 mm liver tumor of segment 8 with slight enhancement in the late phase. Abdominal MRI with contrast revealed a 20 mm liver tumor of segment 8 with slightly high signal intensity on T2–weighted images. These radiological findings were assumed to resemble the enhancement pattern of cholangiocellular carcinoma. Thus, this lesion was assigned a preoperative classification of pT1N0M0 stage I according to the 7th UICC guidelines. The patient underwent a liver partial resection of segment 8. Histologically, the tumor disclosed sarcoidosis lesions with the conglomerate of epithelioid granulomas with giant cells. These histopathological findings were consistent with the diagnosis of a hepatic sarcoidosis.

Conclusions: We reviewed previous literatures concerning hepatic sarcoidosis, including the present case. The clinical symptoms and radiological findings of hepatic sarcoidosis were non–specific. Therefore, surgical resection of liver tumor should be considered in case it was difficult to be distinguished from malignant tumor preoperatively.
### P-59-6 Intrahepatic splenosis mimicking hepatocellular carcinoma in a patient with non–alcoholic fatty liver disease: a case report

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Splenosis is the autotransplantation of splenic tissue, usually after splenic injury. We report a case of asymptomatic intrahepatic splenosis (IHS) mimicking hepatocellular carcinoma (HCC). A 65 year old man with a past medical history of diabetes mellitus, hypertension and post–traumatic splenectomy was evaluated for transaminitis. Physical examination was unremarkable except for an upper midline scar. Magnetic Resonance Imaging (MRI) scan showed a hypervascular nodule that was suspicious for HCC. Blood investigations were normal. A laparoscopic left lateral sectionectomy was performed. Histological examination of the lesion revealed accessory splenic tissue, with non–alcoholic fatty liver disease (NAFLD) in surrounding liver parenchyma. IHS and HCC both appear as hyperintense lesions in the arterial phase, delayed washout in the portal venous phase and low signal intensity in the hepatobiliary phase. IHS has no malignant potential and does not require surgical resection. The absence of risk factors for HCC and history of splenectomy and/or splenic trauma suggests IHS. IHS occurring on a background of NAFLD is rare. Non–invasive investigations such as superparamagnetic iron oxide (SPIO) liver MRI scan, heat–denatured technetium–99m (Tc–99m) red blood cell (RBC) scintigraphy or contrast–enhanced ultrasound may aid diagnosis of IHS. Exploratory laparoscopy with frozen section has been advocated, although in our case it required confirmation by paraffin staining. In conclusion, IHS mimics HCC on imaging and should be considered when there is a history of splenic trauma or splenectomy. Exploratory laparoscopy enables definitive diagnosis with histopathological examination.

### P-60-1 Two cases of pancreatic arterio–venous malformation

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Pancreatic arterio–venous malformation (P–AVM) is a relatively rare disease and we report herein two cases of P–AVM. In case 1, a 54–year–old man had been performed endoscopic treatment or transarterial embolization for hematemesis by duodenal ulcer which was caused by P–AVM in the pancreas head several times. He was transferred to our hospital for the hemorrhagic shock and the emergency pancreatico–duodenectomy was performed. On postoperative course he had the pancreas fistula, but was treated by the interventional radiology and discharged on the 36th postoperative day.

In case 2, a 69–year–old man with tarry stool and anemia (hemoglobin 6.1g/dl) visited our hospital. CT showed P–AVM in the pancreas head. Pancreatico–duodenectomy was performed. On postoperative course he had the pancreas fistula, but was treated by the interventional radiology, too. He discharged on the 59th postoperative day.


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[Introduction] Inflammatory pseudotumor (IPT) is sometimes mimics malignant tumors and a rare benign mass consisting of a fibrous stroma and the infiltration of chronic inflammatory cells with a predominance of plasma cells. We report a rare case of spontaneously regressive multiple inflammatory pseudo–tumor of the liver in a patient with resected pancreatic inflammatory pseudo–tumor.

[Case report] A 64–year–old female was referred to our hospital for further evaluation against 1.7cm–sized mass in the pancreatic head on screening abdominal ultrasoundography. Abdominal contrast–enhanced computed tomography (CT) showed a well–defined homogenously enhanced tumor in the pancreatic head. EUS–FNA was performed, but the diagnosis of IPT was not accurate enough through histopathological findings. The patient was suspected with P–NETs on CT findings and we performed a pancreaticoduodenectomy. Histological findings revealed an infiltration of inflammatory cells and no malignant findings, this case was diagnosis to be IPT in the pancreas. At 18 months follow up, Abdominal CT showed multiple hepatic tumor and the patient was suspected with multiple liver metastasis. The primary tumor was not detected on gastroenterological endoscopy and liver biopsy was performed for accurate diagnosis. The histological diagnosis was IPT of the liver, the patient was followed without a surgical resection and the IPT of the liver disappeared on CT performed 1 month later.

[Conclusions] We herein reported a extremely rare case of spontaneously regressive multiple inflammatory pseudo–tumor of the liver in a patient with resected pancreatic inflammatory pseudo–tumor with some literature and review.

### P-60-3 Synchronous advanced cancer of pancreas head and gallbladder: Report of a case

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A 84 years old woman presented to our department with epigastric pain and hepatic dysfunction. CT scan showed a 2.5cm diameter low density mass of pancreas head with mild dilatation of main pancreatic duct. Furthermore a 2cm diameter stone and slightly enhanced wall of gallbladder were revealed. However we could not identify the tumor of gallbladder before surgery. Serum T.Bil level was normal, CA19–9 level was elevated 203 U/ml. MRCP did not show pancreaticobiliary maljunction.

She underwent pancreaticoduodenectomy under the diagnosis of pancreatic head carcinoma. Histopathological findings revealed moderately differentiated tubular adenocarcinoma of the pancreas head and poorly differentiated tubular adenocarcinoma of the gallbladder. These lesions were histopathologically different, so final diagnosis was synchronous advanced pancreatic carcinoma and gallbladder cancer. Synchronous gallbladder and pancreas cancer is relatively rare and therapeutic strategy is difficult, because potentially hepato–pancreati–coduodenectomy (HPD) can be necessary for cure. However the morbidity and mortality of HPD procedure is still high. In this case we did not perform additional hepatectomy and chemotherapy in view of patient's general condition. Approximately 5 months postoperatively, she has no recurrence. We report this case with some literature review.
P–60–4 Desmoid type fibromatosis of the Distal Pancreas: A case report

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Intraabdominal fibromatosis of the distal pancreas is an uncommon nonmetastatic fibrous neoplasm. A 23–year-old Korean female non-smoker was referred to our surgical department due to a two–month history of epigastric pain. An abdominal computed tomography (CT) scan revealed a 7.7–cm solid mass in the distal pancreas, with signs of splenic artery and vein occlusion, gastric and transverse colon invasion. On MRI scan, a huge lobulated contour mass was found in the body and tail of the pancreas, showing low signal intensity on T1– and slightly high T2–weighted images with diffusion restriction and delayed enhancement pattern. In view of a suspected pancreatic neoplasm, distal pancreatectomy with splenectomy and combined segmental resection of the stomach, transverse colon and 4th portion of the duodenum were performed. On gross pathology the tumor appeared as a grayish, white, dense and firm mass, without necrosis or hemorrhage. Histological sections showed a large number of spindle–shaped cells, with a regular nuclear pattern within a background of massive collagen fibers. No marked cell death but mitosis 8/50 HPF was observed. The analysis revealed that the tumor cells were diffuse immunopositive for vimentin and β–catenin, but immunonegative for smooth muscle actin, S–100, and CD34. These pathological features were consistent with a diagnosis of intra–abdominal DTF (Desmoid Type Fibromatosis). No local recurrence or distant metastasis was found during a 6–month follow–up. Radical resection is recommended as first–line treatment for pancreatic DTF. Long–term follow–up studies are required to establish the prognosis of pancreatic DTF.


Based on 681 Cases in a Single Center

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Objective Postoperative pancreatic fistula (POPF) is one of the most common and intractable complications after pancreaticoduodenectomy (PD). This study aimed to evaluate the efficacy of a modified single/double–layer duct–to–mucosa pancreaticojunostomy (PJ) for prevention of POPF.

Methods PJ was modified to: 1) transpancreatic single–layer duct–to–mucosa anastomosis when pancreatic duct is of ≥ 3mm in diameter and parenchyma is thinner, and 2) pure duct–to–mucosa anastomosis followed by transpancreatic and seromuscular closure when pancreatic duct is of ≤ 3mm in diameter and parenchyma is thicker. 294 consecutive patients who underwent modified PJ (diameter–based single/double–layer duct–to–mucosa anastomosis) between May 2012 and April 2014, versus a histological control of 387 patients who underwent conventional PJ between January 2010 and April 2012 were retrospectively analyzed. The clinicopathological features and surgical outcomes were compared with a particular focus on POPF.

Results: No significant difference was found in the baseline clinicopathological characteristics between the modified and conventional groups, except in the incidence of concurrent diabetes. Despite that a higher proportion of patients underwent pylorus–preserving pancreaticoduodenectomy (PPPD) in the modified group, there was no significant difference with respect to the intraoperative parameters, e.g. blood loss, requirement of transfusion, diameter of pancreatic duct and operation time. Postoperative morbidities, including POPF (11.6% vs. 1.0%, p<0.01), intraabdominal bleeding (3.1% vs. nil, p<0.01), and mortality (1.47% vs. nil, p<0.01) were significantly lower in modified group. And there were no clinical relevant POPF (Grade B/C) in modified group.

Conclusions: The modified PJ can reduce the postoperative morbidity and mortality with zero–incidence of clinical relevant POPF.

P–60–6 A case of dermoid cyst of the pancreas

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Pancreatic dermoid cysts are rare and preoperative diagnosis is difficult. We report a case of a 65–year–old asymptomatic male who presented with an incidentally detected pancreatic cystic mass at the body of the pancreas. Past medical history was diabetes mellitus and brain injury due to traffic accident. The mass was incidentally found one year prior to the referral to us on a CT scan performed during follow–up of diabetes. During follow–up, the tumor enlarged slightly and serum CA19–9 level increased markedly. CT scan revealed a multilocular hypodense mass with a diameter of 6.9 cm at the body of the pancreas. On MRI, the cystic lesion was heterogeneous hyperintense in T2–weighted imaging with low intensity capsule and septum. Consequently, under the diagnosis of neoplastic cyst of the pancreas, such as serous cystic neoplasm, branched–type lesion of IPMN and mucinous cystic neoplasm, we performed distal pancreatectomy and splenectomy. Grossly, the lesion consisted of a multilocular cyst in the body of the pancreas. Histologically, the cystic mass was diagnosed as a dermoid cyst. The patient had a Grade B pancreatic fistula and discharged on the 100th day.

P–61–1 Lymphoepithelial cyst of the pancreas: Report of two cases

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Background

A lymphoepithelial cyst (LEC) is a rare benign cystic lesion of the pancreas. We report two cases of pancreatic LECs.

Case 1

A 53–year–old man without any symptom was found to have a cystic tumor in the head of the pancreas at a health examination. This tumor increased and the property was changed during 6 years of observation. Based on the computed tomographic, MRI, and contrast endoscopic ultrasonographic finding, we diagnosed a multilocular cystic tumor on the superior surface of the pancreatic head. Since a p–NET could not be ruled out, we performed enucleation. Histological examination showed that the tumor was a LEC of the pancreas.

Case 2

A 62–year–old woman with no subjective symptom was found to have a pancreatic tumor at a health examination. Computed tomography, MRI, ultrasonography showed a multilocular cystic tumor on the superior surface of the pancreatic tail. Since a SPN or MCN could not be ruled out, we performed distal pancreatectomy. Histological examination revealed that the tumor was a LEC of the pancreas.

Conclusion

A LEC of the pancreas is associated with a good prognosis and, although unusual, should be considered in the differential diagnosis of pancreatic cystic lesions.
A rare case of pancreatic fistula by tumor--lysis in malignant lymphoma

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Tomoya Shimoto, Yoichi Matsuo, Takafumi Sato, Ken Tsuboi, Mamoru Morimoto, Hiromitsu Takeyama

A woman in her 60's who had been followed for hypertension was admitted to our hospital because of lung tumor. She received lung resection after diagnosis of NK/T cell lymphoma by bronchoscopy. 6 months later, PET showed hot spots in the lymph node of hilar, the body of pancreas, the small intestine and the spleen. She received systemic chemotheraphy after small intestinal resection for prevention of bowel perforation. After chemotheraphy, pancreatic pseudocyst appeared from pancreatic fistula from the tumor in the body of pancreas. Though we had performed endoscopic trans--gastric drainage and ENPD, because of the infection and the hemorrhage in pancreatic pseudocyst, we selected surgical therapy. We performed distal pancreatectomy and drainage of retroperitoneal cavity in hilar. Pathological findings represented no malignant cells in pancreas and few CD56 positive cells in spleen. After the operation, we observed pancreatic fistula but treated it conservatively. Following this, bone marrow transplantation was performed. We observed pancreatic fistula from the tumor during chemotheraphy in malignant lymphoma, and also pathologically there was no residual malignant cell in the pancreas, so we classified this case as tumor--lysis pancreatic fistula. Tumor--lysis pancreatic fistula is supposed to be resistant to conservative treatment. In future similar cases, we may need to select surgical therapy earlier so that adherence will not happen and not to delay the therapy for primary disease. We report this case with some review of the literature.

A case of distal pancreatectomy for pancreatic metastasis from thymic atypical carcinoid

National Hospital Organization Kure Medical Center

Masashi Inoue, Takeshi Sudo, Shingo Seo, Toshimitsu Irie, Takashi Otoe, Hirotaka Tashiro

Carcinoid tumors are classified into typical and atypical subtypes. Atypical subtypes show more malignant histologic and clinical features. A 50-year-old man was treated with thoracoscoic resection for mediastinal tumor in June 2009. Pathological diagnosis was atypical carcinoid of the thymus. Extended thymectomy was performed for recurrence in October 2011. Thoracoscopic resection was performed for recurrence in October 2012. And resection of the chest wall tumor was performed for recurrence in March 2013. In April 2014, lymph node swellings were detected at the ventral side of the brachiocephalic vein, around the left gastric vein and the left side of the celiac artery using enhanced computed tomography. Fluorodeoxyglucose(FDG) uptake was noted in each of the swelling lymph node. Dynamic CT revealed a low enhanced pancreatic tumor of 10 mm in diameter. This pancreatic tumor was diagnosed as atypical carcinoid metastasis by endoscopic ultrasound--guided fine--needle aspiration. The abdominal lymph nodes resection and distal pancreatectomy was performed in June 2014. Pathological analysis of the resected specimen indicated lymph node and pancreatic metastasis that was thymic atypical carcinoid. The ventral side of the brachiocephalic vein was judged unresectable and radiation therapy was given in September 2014. The patient has been alive for two years after surgery. We found no reports of carcinoid metastasis to the pancreas in our literature review. We consider that because the chemotheraphy sensitivity of atypical carcinoid is low, it is important to find a metastatic lesion at an early stage and have this resected for survival benefit.

A case of huge anaplastic carcinoma of the pancreas with no recurrence for two years and 3 months after surgery

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A 78 year old man was referred to our hospital with the complaining of epigastric discomfort. Abdominal computed tomography revealed an enhanced huge tumor with cystic component in pancreas. There was no dilatation of main pancreatic duct. The tumor contacted with stomach widely and invaded splenic and common hepatic artery, but celiac axis and gastroduodenal artery were intact. There were no distant metastasis and no laboratory findings to suggest pancreatic neuroendocrine tumor. From the above, we diagnosed it as a resectable pancreatic malignant tumor. We performed distal pancreatectomy with en bloc celiac axis resection and proximal gastrectomy. The operation time was 329 minutes and estimated blood loss was 1620 ml. Histopathological findings revealed anaplastic carcinoma, pleomorphic type, and no lymph node metastasis. He needed 65 postoperative days because of pancreatic fistula and intrauterine bleeding. S1 had been orally administrated for 1 year and 6 months. He had developed metachronous retroperitoneal liposarcoma, which was resected curatively, 2 years after initial operation. He has had no recurrence or metastasis for 2 years and 3 months since the first operation. It is reported that anaplastic carcinoma of pancreas have poorer prognosis than invasive ductal carcinoma. This case is rare because of relatively good prognosis.
P-61-6  A case of adult pancreatoblastoma with long-term survival

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Pancreatoblastoma is a rare primary pancreatic neoplasm that predominantly occurs in young children. We experienced a case of pancreatoblastoma occurring in a 79-year-old man, who have survived without recurrence for over 4 years. He had no symptom, but a pancreatic tumor was incidentally found in an abdominal CT scan performed for bronchopneumonia. The tumor was revealed a well-circumscribed and heterogeneous mass in the pancreas body by abdominal computed tomography, and preoperatively diagnosed as neuroendocrine neoplasm or acinar cell carcinoma. After distal pancreatectomy, pathological examination showed characteristic findings of pancreatoblastoma. The tumor formed acinar structures and contained many “squamoid nests,” which are defining features of pancreatoblastoma. The postoperative course was uneventful, and he had no recurrence for 58 months. To date, a total of only 42 cases of pancreatoblastoma have been reported in the literatures, and this case represents the eldest patient with pancreatoblastoma. Our case suggests that it is very difficult to diagnose pancreatoblastoma preoperatively, and pancreatoblastoma has to be included in differential diagnoses for a pancreatic tumor presenting atypical imaging features.

P-62-2  Retrospective analysis of outcomes of surgical resection for pancreatic ductal adenocarcinoma: a non–high volume single center experience

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Pancreatic ductal adenocarcinoma (PDAC) is an aggressive and difficult malignancy to treat, but its prognosis has been gradually improved during the past few decades especially in high-volume centers.

Objective The outcomes of surgical resection for PDAC were retrospectively investigated in a non–high volume single center.

Methods All patients undergoing pancreatectomy for PDAC excluding IPMN–derived carcinoma in 2001–2008 (pre-standardization: n=34) and 2009–2015 (implementation of standardization of surgical procedures and perioperative managements: n=70) were identified.

Results Surgery–related profiles and short–term outcomes were summarized in Table. Aggressive surgical strategies were more frequently performed in 2009–2015, leading to an increase in R0 rate with negative margin more than 1mm. Median disease–free survival after surgery did not significantly increase (9.4 vs. 15.5 months), but median overall survival (OS) after surgery became much longer from 18.8 to 30.6 months due to a significant extension of median OS after recurrence (9.4 vs. 15.5 months, p<0.05).

This may be attributable to effective chemotherapies for recurrence such as gemcitabine+S1 and gemcitabine+nab-paclitaxel.

Conclusion The long–term outcome for PDAC can be improved by multidisciplinary strategies incorporating surgical resection with pre- and postoperative treatments.

<table>
<thead>
<tr>
<th>2001–2008 (n=34)</th>
<th>2009–2015 (n=70)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pancreatectomy method</td>
<td>PDx(88%) VS(12%)</td>
</tr>
<tr>
<td>2001–2008 (n=34)</td>
<td>2009–2015 (n=70)</td>
</tr>
<tr>
<td>Preoperative treatments</td>
<td>3 (9%)</td>
</tr>
<tr>
<td>Concurrent/mucosal resection</td>
<td>7 (20.6%)</td>
</tr>
<tr>
<td>ER-CAM</td>
<td>0</td>
</tr>
<tr>
<td>R0 (margin &gt; 1mm)</td>
<td>11 (32.4%)</td>
</tr>
<tr>
<td>Pancreatoblastoma (b) after PD</td>
<td>4 (8.3%)</td>
</tr>
<tr>
<td>Pancreatoblastoma (b) after IP</td>
<td>2 (3.8%)</td>
</tr>
<tr>
<td>Delayed gastric empty</td>
<td>1 (2.9%)</td>
</tr>
<tr>
<td>Hospital stay (median)</td>
<td>30.1 days</td>
</tr>
<tr>
<td>Adjunct chemotherapy</td>
<td>16 (47.1%)</td>
</tr>
</tbody>
</table>

P-62-1  Natural history of intraductal papillary mucinous neoplasm of pancreas (IPMN) during surveillance: focusing on cyst growth and manifestation of worrisome features

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Youngmin Han, Jae Seung Kang, Hongeon Lee, Yoomin Kwon, Jae Ri Kim, Hyeong Seok Kim, Wool Kwon, Sun–Whee Kim, Jin–Young Jang

Introduction: Due to the dormant nature of branch duct type (BD) IPMN, watch and wait strategy is widely accepted. However natural history of IPMN during long term surveillance is not clearly defined yet. This study aims to evaluate the morphologic change including size and malignant features during surveillance.

Methods: Between 2000 and 2016, 1,374 IPMN patients without malignant stigmata have been enrolled in surveillance program. We strictly excluded indeterminate cyst not showing typical IPMN radiologic features. Median follow–up period was 61 months. Regular follow up was done using CT/MRI/EUS.

Results: Mean age of the patients was 62.5±27.1 years and male to female ratio was 1:0.9. Initial mean size of cyst was 11.1mm. During the mean follow up period of 67 months, the average cyst growth was 3.1mm and the annual growth rate was 0.6mm/yr. Some patients showed rapid cyst growth rate of 9.3mm/yr. During the follow up, 48 patients(3.5%) underwent surgical resection due to either rapid size increment, newly appeared mural nodule or combined main duct dilatation. Worrisome features or malignant stigmata were detected in 357 patients (26.0%). They included thickened wall(n=222, 16.2%), over 30mm sized cyst(n=47, 3.4%), mural nodule(n=37, 2.7%), and p–duct dilatation(n=130, 9.5%).

Conclusion: Since most BD IPMN showed slow and stable cyst growth, surveillance program may be considered safe in general. However, in patients with extremely rapid growing cyst, features suspicious of malignancy frequently appeared in the course of surveillance. Therefore surveillance may be done, but more rapidly changing subtype should be carefully monitored for indications of surgical resection.

P-62-3  Two branch–duct type intraductal papillary mucinous neoplasms indicating different clinical features

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The patient was a 60–year–old man without any particular complaints. He underwent abdominal computed tomography (CT) and magnetic resonance cholangiopancreatography (MRCP) due to a fatty liver, which revealed two similar cystic lesions regarded as branch–duct type intraductal papillary mucinous neoplasm (BD–IPMN) in the pancreatic body (BD–IPMN [b], 16 mm in size) and tail (BD–IPMN [t], 13 mm in size) without “high–risk stigmata” or “worrisome features”. He subsequently received follow–up by MRCP every six months. Two years later, MRCP showed prominent dilatation of the main pancreatic duct (MPD) and mural nodule formation within the dilated MPD at the BD–IPMN [b], 16mm in size) and tail (BD–IPMN [t], 13 mm in size) and tail (BD–IPMN [t], 13 mm in size). He was diagnosed as BD–IPMN (t) was lined by flat, monolayer columnar gastric mucinous epithelium without atypia, which suggested the possibility of a “simple mucinous cyst”. Differences in the histological and genetic findings between two similar BD–IPMNs in the present case may suggest some clue that would elucidate the surgical indication in patients with BD–IPMNs without any worrisome features.
P-62-4  SPan-1 is a predictive factor of malignant intraductal papillary mucinous neoplasm of the pancreas

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Background: Preoperative diagnosis of malignancy in intraductal papillary mucinous neoplasm (IPMN) remains unresolved. The aim of this study was to identify the predictive factors of malignant IPMN.

Methods: Forty-three patients with IPMN who underwent surgical resection during January 2004 to December 2016, were analyzed. Adenoma and carcinoma in situ were considered to be benign IPMN (benign IPMN group). IPMN with an associated invasive carcinoma was considered as malignant IPMN (malignant IPMN group).

Results: There were 24 men and 19 women, with a mean age of 68 years. Of the 43 patients with resected IPMN, 25 patients (58%) had benign IPMN, and 18 patients (42%) had malignant IPMN. The patients were classified as main duct IPMN (n=5), branch duct IPMN (n=26), or mixed type IPMN (n=12). The median follow-up for all 43 patients who underwent resection was 25.6 months. Patients with benign IPMN had 5-year overall survival rates of 100%. Patients with malignant IPMN had 5-year overall survival rates of 75%. There were 3 (6.9%) patients with disease recurrences. No significant differences were found between the benign IPMN group and malignant IPMN group regarding patient gender, age, BMI, symptom, diabetes mellitus, serum carcinoembryonic antigen (CEA) value, serum carbohydrate antigen 19–9 (CA19–9) value, tumor type, mural nodules and tumor size. Serum SPan-1 value ≥8.1 U/ml was only a significant predictor of malignant IPMN (p<0.05).

Conclusions: A preoperative serum SPan-1 value ≥8.1 U/ml was useful to distinguish malignant from benign IPMN.

P-62-6  Malignancies associated with intraductal papillary mucinous neoplasm of the pancreas

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AIM: To examine the coexistence of metachronous and synchronous extrapancreatic neoplasms (EPNs) in branch duct intraductal papillary mucinous neoplasms of the pancreas (IPMN).

METHODS: We reviewed the records of 16 patients with branch duct IPMN between January 2004 and April 2015 and assessed the relationship between IPMN and extra-pancreatic carcinoma and the outcome of IPMN.

RESULTS: The mean observation period was 57.3M. Among the 16 patients, the frequency of extra-pancreatic cancer was 37.2%. Total number of EPMNs was 11 in our cases. They were found before (n=8), at (n=2) and after (n=1) the diagnosis of IPMN. Associated malignancies were colonic cancer (n=6), gastric cancer (n=3), prostate cancer (n=1), Liver cancer (n=1), lung cancer (n=1). Only one patient died with EPM in prostate cancer after IPMN.

CONCLUSION: IPMN is associated with a relatively high incidence of other malignancies, particularly gastric and colonic cancers. Common genetic mechanisms between IPMN and other associated malignancies might be present. Clinicians should pay attention to the possibility of associated malignancies in preoperative screening and follow-up of patients with IPMN.

P-62-5  Analyze High-risk stigmata - Interpretation of surgical validity and proposal of problems -

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AIM: The aim of this paper is to evaluate the validity of HRS defined as definite surgical indication in the new guidelines. <Methods> Among 41 IPMN cases who had undergone operation since 2003 to 2016 in our institute, 20 cases matched to the definition of HRS. The relevance between each factor of HRS and its pathology were evaluated retrospectively. <Results> Pathology of 20 HRS cases was 5/9/6 of adenoma/CIS/invasive duetal adenocarcinoma (IDC), respectively; the percentage of malignancy was 75%. In preoperative risk classification, HRS included 3/10/6/1 cases of HRS-MPD (MPD dilatation more than 10mm) + EN (enhanced nodules) / HRS-MPD/HRS-EN/HRS-JD (jaundice), respectively; even HRS-MPD+EN included benign lesions. 10 HRS-MPD cases included 2/3/5 cases of adenoma/CIS(IDC), respectively; the percentage of malignant lesions was relatively high at 80%. On the other hand, 6 HRS-EN cases included 2/3/1 cases of adenoma/CIS/IDC, respectively; the percentage of malignant lesions was as relatively low at 67%. Among 6 HRS cases, the relevance between modality of imaging showing enhanced nodules and pathology was below; 2/1/1/1 cases (EUS/CT/PET/PET+EUS/PET+CT) were 2 of adenoma/IDC/CIS/CIS/CIS, respectively. In EUS, 2 of HRS-EN showed different contrast patterns as in early and delayed phase. <Summary> 75%, relatively high percentage of malignant lesions were observed in the cases diagnosed as HRS before surgery, and 80% in HRS-MPD cases. On the other hand, even HRS-MPD+EN included benign lesions. Although contrast echo using Sonazoid is useful for differential diagnosis of tumor, it may be necessary to consider another modality of imaging or contrast patterns.

P-63-1  Usefulness of positron emission tomography for intraductal papillary mucinous neoplasms

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Background: Treatments for intraductal papillary mucinous neoplasms (IPMNs) based on the 2012 International Consensus Guidelines have been performed. Moreover, many preoperative examinations, such as endoscopic ultrasonography and peroral pancreatoscopy, are useful for determining optimal managements of patients with IPMNs. However, we sometimes encounter the patients with IPMNs whose optimal managements are difficult to determine. We investigated usefulness of preoperative examinations, containing the positron emission tomography with computed tomography (PET/CT), to diagnose benign or malignant lesion.

Patients and Methods: From 2005 to 2016, records of 56 patients with IPMNs who underwent pancreatoduodenectomy were retrospectively reviewed. The relationship between preoperative findings and malignancy of IPMNs were investigated.

Results: PET/CT was performed in 21 of the 56 patients (38%). Postoperative diagnosis was adenoma (IPMA) in 23 patients (41%) and adenocarcinoma (IPMC) in 33 (59%). Univariate analysis showed that tumor in pancreatic body or tail, mix type (main and branch duct type), enhancing mural nodule, dilatation of the bile duct, and positive PET/CT were significantly concerned with IPMC. PET/CT was positive in 2 of 6 patients with IPMA (33%) and in 15 of 15 patients with IPMC (100%). All patients with negative PET/CT were diagnosed as IPMA, and sensitivity of PET/CT for diagnosis of IPMC was 100%. Elevation of tumor markers, dilatation of main pancreatic duct, and cytology positive were not significantly concerned with IPMC.

Conclusions: PET/CT is useful for preoperative identification of IPMC, especially to decide the treatment strategy, surgery or follow-up.
P–63-2 Curative operation for unresectable pancreas head cancer after chemotherapy in a patient

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2) Department of Pathology, Tokyo women’s medical university, Tokyo, Japan

Go Shibuya1), Shun–ichi Arizumi1), Yoshihito Kotera1), Akiko Oomori2), Shuuichiro Uemura3), Yutaka Takahashi3), Ryouta Higuchi1), Shingo Yamashita1), Hiroto Egawa3), Toru Furukawa3), Masakazu Yamamoto3) A 58 year–old man presented at a local hospital with jaundice. And pancreas head tumor was detected. A tumor, 25mm in diameter, was seen in the pancreas head. This tumor invaded to superior mesenteric vein (SMV) and whole round of superior mesenteric artery (SMA). SMV was approximately complete stenosis. He was given a diagnosis of unresectable pancreas head cancer, he underwent PTGBD and after external biliary drainage, he underwent chemotherapy 2 causes of GEM+nab–PTX and 4 causes of FOLFIRINOX. After completion of chemotherapy, the effect was PR. The SMV was improved in diameter, and perivascular of the SMA permeation became inarticulate. The tumor became down staging to borderline resectable pancreas head cancer. So we performed PpPD. Pathology, the tumor was almost fibrosis and degenerative cell was scattered. Perivascular of the SMA was almost fibrosis.

P–63-3 The Clinical Implications of Ribonucleotide Reductase Subunit M1 in Pancreatic Cancer Patients who Undergo Curative Resection Followed by Adjuvant Chemotherapy with Gemcitabine

1) Yokohama City University
2) Kanagawa cancer center

Toru Aoyama1,2), Naoto Yamamoto1,2), Mariko Kamiya1,2), Masaaki Murakawa1,2), Tsutomu Sato1,2), Norio Yukawa1,2), Takashi Oshima1), Takaki Yoshihawa1), Yasushi Rino1), Munetaka Masuda1,2), Soichiro Morinaga2) Background: The clinical implications of ribonucleoside reductase subunit M1 (RRM1) in patients who undergo curative resection and adjuvant chemotherapy have not been established. Methods: We retrospectively analyzed the clinical data from 101 consecutive patients who underwent macroscopically curative resection and who received adjuvant gemcitabine chemotherapy for pancreatic cancer in our institution from 2005 to 2014. We investigated the correlations between the RRM1 status and both the survival and clinicopathological features. Results: Of the 101 patients, 41 patients had high levels of RRM1 expression (40.6%). The median follow–up period of the present study was 67.3 months. There was a statistically significant difference in the recurrence free survival (RFS) rates at 5 years after surgery, which were 12.9% and 0% in the high RRM1 and low RRM1 groups, respectively (p=0.042). There was also a statistically significant difference in the 5–year overall survival (OS) rates after surgery, which were 5.1% and 21.5% in the high RRM1 and low RRM1 groups, respectively (p=0.015). Conclusion: RRM1 was the most important prognostic factor for OS and RFS in patients with pancreatic cancer who underwent curative resection followed by adjuvant chemotherapy with gemcitabine. Adjuvant chemotherapy with gemcitabine alone might be insufficient, especially in patients with relevant risk factors.

P–63-4 Circulating tumor DNA should be considered as a surrogate marker for neoadjuvant chemotherapy in patients with pancreatic cancer

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Naoto Hadano, Yoshiaki Murakami, Kenichiro Uemura, Naru Kondo, Naoya Nakagawa, Taijirou Sueda

Background: According to the NCCN guidelines, patients who have technically resectable tumor but poor prognostic features, such as highly elevated CA19–9, large primary tumors, and large regional lymph nodes, should be considered for neoadjuvant therapy. However, there are no standard criteria for how neoadjuvant chemotherapy should be administered in patients with PDAC prior to surgery. In the present study, we performed ctDNA detection in patients who were diagnosed with PDAC and investigated whether the presence of ctDNA can be considered as a new marker for neoadjuvant chemotherapy in patients with PDAC.

Method: Using droplet digital polymerase chain reaction, which allows highly precise nucleic acid quantification, we detected rare mutant tumor–derived KRAS genes from ctDNA obtained from plasma samples. Survival analyses were conducted for independent clinicopathological variables, including the presence of ctDNA.

Results: CtDNA+ patients had a significantly poorer prognosis with respect to both of DFS and OS than ctDNA– patients (P = 0.017 and P < 0.01, respectively).

Conclusions: Our findings suggested that the presence of ctDNA in plasma samples can be a useful and powerful marker for neoadjuvant chemotherapy in patients with borderline resectable PDAC. Accordingly, ctDNA detection may be a promising approach for deciding PDAC treatment prior to surgery.

P–63-5 Radical surgery for pancreatic ductal adenocarcinoma with peritoneal dissemination after gemcitabine treatment: a case report

Department of Gastroenterological Surgery, Graduate School of Medicine, Osaka University

Kenichi Matsumoto, Kunihiro Gotoh, Hitoshi Eguchi, Yoshifumi Iwagami, Daisaku Yamada, Tadafumi Asaoka, Takehiro Noda, Hiroshi Wada, Koichi Kawamoto, Masaki Mori, Yuichiro Doki

Chemotherapy with gemcitabine (GEM) is the one of most effective and standard treatments for patients with unresectable pancreatic ductal adenocarcinoma (PDAC). However, cases converted from unresectable to resectable PDAC after GEM alone have been very rare. Herein, we report a rare case of radical surgery for PDAC accompanying with peritoneal dissemination after chemotherapy. A 70–year–old man was referred to our hospital for treatment of advanced PDAC, located in the body of the pancreas, with peritoneal dissemination. We administered a systemic chemotherapy regimen of GEM plus nab–paclitaxel (PTX). Since the patient could not continue the regimen owing to an adverse event of liver dysfunction, he was administered GEM alone after the first administration. The GEM monotherapy result in remarkable anti–tumor effects with a distinct decrease in both tumor markers and tumor size. Peritoneal metastases were not detected via imaging after 12 cycles of the GEM regimen, and the vanished tumor metastasis detected via imaging was maintained for 16 cycles. After a laparoscopic examination showed no peritoneal metastasis, radical surgery was performed. Pathological findings showed a moderately differentiated invasive ductal adenocarcinoma, yp T1aNOM0, yp Stage IA. The effect of the chemotherapy was grade III (Evans classification). The patient received S–1 chemotherapy and has remained recurrence–free 5 months post–surgery.
Surgical treatment of non-insulinoma pancreatic neuroendocrine tumors: focus on tumor functionality and heredity

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[Background] Surgical management is the first choice for Pancreatic Neuroendocrine tumor (P-NET) according to the current clinical consensus guideline. However, the surgical procedure for P-NET remains controversial. The aim of this study is to determine the optimal surgical procedure for P-NET. [Methods] Surgically resected P-NETs between 2009 and 2016 were retrospectively reviewed. [Results] Ten patients were applied including two males and eight females. The average age was 61.8 (33–85) years. The mean tumor size was 24 (10–63) mm. There were four cases of functioning P-NET (two cases of insulinoma, a case of Gulucaagonoma, Serotoninoma), six cases of non–functioning P-NET. There were two cases of G1, NEC, and MANEC respectively, and four cases of G2. Three patients had Pancreaticoduodenectomy, five patients had Distal pancreatectomy, whereas Total pancreatectomy and Enucleation was only performed for one patient respectively. All patients had lymph node dissection except for two insulinoma cases and positive metastasis was seen in two patients. MANEC and NEC had poor prognosis, which resulted in death 5.9 month, 26.7 month after surgery because of early recurrence. [Conclusion] Reduction surgery is feasible for Pancreatic insulinoma. Pancreatotomy with lymph node dissection is recommended for surgical treatment of non–functioning P-NET.
A case report: pancreatic neuroendocrine tumor with dysplasia of the pancreatic body and tail

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The patient was a 50-year-old woman with a pancreatic neuroendocrine tumor (PNET). The pancreatic tumor was detected upon the examination. She had type 2 diabetes mellitus. CT showed a hypervascular tumor, 35 mm in diameter, in the pancreatic head. MRI showed a tumor with low intensity in T1 and high intensity in T2, and dysplasia of the pancreatic body and tail. Endoscopic ultrasonography showed a low echoic mass in the pancreatic head with irregular shape and blood flow. Biopsy yielded a diagnosis of neuroendocrine tumor. Based on the diagnosis of PNET with dysplasia of the pancreatic body and tail, we performed pylorus-preserving total pancreatectomy with D2. Pathological findings revealed that the tumor had positive staining for chromogranin, synaptophysin, and MIB-1 (10%). We diagnosed the tumor as a G2 PNET, T3N0M0, stage Ib. Till 12 months after the surgery, there has been no evidence of recurrence, and the patient is on a good course of nutrition and is controlling her blood glucose level. Deficiency of the pancreatic body and tail derive from the deficiency of the pancreatic dorsal primordium for several reasons, such as genetics and viral infection. PNET with dysplasia of the pancreatic body and tail rarely occurs. The recurrence rate of G2 NETs is slightly higher than G1 NETs, and the cumulative survival rate is lower; therefore, total pancreatectomy with systemic resection was decided for this case. We report a surgical case of PNET with dysplasia of the pancreatic body and tail.
P–65-2 The influence of obesity-related factors on intraoperative and postoperative course in distal pancreatectomy

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Background: It is thought that obesity is related to depth of surgical field and clarity of location for blood vessels and organs. The amount of visceral fat is said to be related to secretion of inflammatory cytokines, which may affect to postoperative course. We aimed to clarify the relationship between obesity and intraoperative blood loss, operation time, post-operative parameters in distal pancreatectomy. Methods: We selected 50 patients who underwent distal pancreatectomy (excluded cases of resected other organs except for gallbladder) from 2007 to 2015 in our hospital. The obesity parameters were defined as body mass index (BMI), visceral fat area (VFA), subcutaneous fat area (SFA), abdominal round length, vertical (from umbilicus to vertebra) and transverse diameter (the same level) in the abdominal CT. Postoperative course parameter was defined as infectious complications (ex., pancreatic fistula, surgical site infection, Clavien-Dindo classification II degrees or more), the period to removal of drain, C-reactive protein (CRP) score in 1POD and 3POD, postoperative hospital stay. We estimated the relation between obesity parameters and postoperative parameters using statistical method (student’s t test, χ² test, Fisher’s exact test). Results: The occurrence of infectious complications, the period to removal of drain, postoperative hospital stay was not significantly related to any obesity factors. However, intraoperative bleeding, operation time, and CRP score were significant relation to obesity factors, especially CRP score in 3POD was high in fatty patients. Conclusion: We need to consider obesity factors in postoperative management after distal pancreatectomy.

P–65-3 An analysis of risk factor of mortality in 331 patients who underwent pancreateoduodenectomy

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BACKGROUND: Pancreateoduodenectomy (PD) is highly advanced surgery with the need of the improvement including pancreas gastrointestinal tract anastomosis, and with the risk to lead to hospital death. It is reported with 1.2% of postoperative 30-day mortality, 2.8% of hospital mortality after PD in the recent reports in this country, and the haemoperitoneum due to anastomotic leakage is one factor of the postoperative death. As society ages, the cases with various comorbidities increase, the increase morbidity and mortality is concerned about in future.

PURPOSE: Analyze the details of the hospital death cases after PD in our department, and assessment possibility of the improvement of the postoperative management.

SUBJECTS: 331 patients who underwent PD from January 2005 to November 2016 except for hepato–pancreateoduodenectomy and emergency surgery in our department. (206 men and 125 women, the median age is 68 years old, 120 pancreatic cancer and 211 other cancers)

RESULTS: Hospital death was 3 cases, and hospital mortality was 0.9%. One cause of death was postoperative haemoperitoneum, one case was multiple aneurysm rupture due to segmetal arterial mediolysis, and one case was postoperative liver failure after the haemorrhagic shock.

CONCLUSION: The hospital mortality after PD in our department was low rate, and the causes of death were postoperative complications associated with bleeding, but two of three cases followed special course. We perform a CT scan and angiography immediately when so-called ‘sentinel bleeding’ is found postoperatively, and perform embolization when aneurysms are found. It prevents fatal bleeding and leads to low hospital mortality in our department.

P–65-4 Feasibility of pancreatectomy for the patients receiving hemodialysis

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Background: In recent years, multiple studies have consistently showed increased complications and mortality in dialysis patients undergoing various surgical procedures. However, few studies address outcomes of pancreatectomy in patients with renal dysfunction. The purpose of this study is to investigate the outcomes of pancreatectomy in patients with hemodialysis in our hospital.

Patients and Methods: A total of 9 adult patients with hemodialysis underwent pancreatectomy in our hospital from January 2003 to October 2016. We analyzed preoperative comorbidities, surgical factors and postoperative complications.

Results: Their ages ranged 39–75 years old (mean, 65.2 years old). The duration of hemodialysis were 50–3695 days (mean, 1704 days). Pancreatectomy were performed for following diseases; Epidermoid cyst, Intraductal papillary mucinous neoplasm, Ampullary carcinoma and Pancreatic cancer. The performed surgical types of pancreatectomies were pancreatectodudodenectomy for 6 patients and distal pancreatectomy for 3 patients including one case with laparoscopic approach. Operation time was 130–660 min (mean, 437.3 min), blood loss was 80–3070 ml (mean, 923.3 ml) including 2 cases which required blood transfusion. Postoperative hospital stay was 20–97 days (mean, 43.4 days). Postoperative complications were recorded in 7 cases (pancreatic fistula; 4 cases, postoperative cholangitis; 2 cases and bacteremia; 1 case). Death related to surgery was not admitted.

Conclusions: Pancreatectomy in dialysis patients frequently accompanied with complication, but all of them were controllable. It was suggested that hemodialysis did not impair the feasibility of pancreatectomy.

P–65-5 Preventive administration of octreotide for pancreatic fistula after distal pancreatectectomy; Preliminary study

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Background: Pancreatic fistula (PF) is the common postoperative complication after distal pancreatectomy (DP). Octreotide may inhibit the pancreatic exocrine secretion and have efficacy for the prevention of PF, however, this efficacy has not been identified. Our preliminary study was aimed to assess the efficacy of perioperative octreotide after DP. Methods: Thirteen patients who underwent DP between January 2015 and December 2016 were retrospectively analyzed. Pancreas parenchyma was dissected using stapler. A drain was placed near the pancreas stump. Gabexate mesilate was administered to all patients. From January 2016, octreotide (300 µg/day c.i.v.) was perioperatively administered. We divided into the octreotide group (n=7) and the non-octreotide group (n=6) according to the administration of octreotide. Results: The incidence of clinical PF was 14.3% (1/7) in the octreotide group and 33.3% (2/6) in the non-octreotide group. No significant difference was noted with respect to clinical factors and postoperative outcome except for age and blood loss. For both, the drain pancreas-amy- lase level (P-Amy) of postoperative day 3 (POD3) reduced as compared to that of POD1, however, the decrease was significantly greater in the octreotide group than the non-octreotide group (p<0.03). [Conclusions] Perioperative octreotide provided the early reduction of the drain P-Amy.
P-65-6 An improved short term outcome after bundle to prevent postoperative complications after pancreaticoduodenectomy

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Purpose) The operative mortality rate after pancreaticoduodenectomy (PD) is 5% or less at major surgical centers and is generally related to pancreatic anastomosis complications. We report the technical aspect and short term results with medical cost of our technique.

Methods) A technical bundle of perioperative cares ; Dissection of parenchyma (Linear stapler), pancreatic duct to jejunum horizontal mattress suture, lost stent as internal drainage, PrPD/ SSPPD, abdominal closed drain and early removal, early enteral nutrition within 24 hours after operation. From January 2008 to April 2016, 120 patients who were needed PD are identified in this retrospective analysis.

RESULTS) 50 patients (Bundle) were completely included versus 70 patients (Non–bundle) in uncompleted bundle. Though there was no difference in postoperative complication rate, bundle group had a slightly higher rate (34%) of postoperative pancreatic fistula than non–bundle group (22.9%). SSI occurred in 26% of bundle and 30% of non–bundle group. DGE rate of bundle group had a significantly lower rate (18%) than non–bundle (35.7%). Postoperative in hospital stay and medical cost of bundle group (20days) had a significantly lower than that of non–bundle group (29days). Multivariate analysis showed the postoperative complication (odds ratio: 17.1), serum creatinine at post 3days (3.3), meet the criteria of ISGPS (5.7) and internal lost stent of pancreaticojejunostomy (0.157) as the risk factor of longer duration three weeks after operation

Conclusion) These data suggest that this bundle to reduce the postoperative complications are fairly acceptable regarding as the hospital stay and medical cost.

P-66-1 Surgical management of pancreatic ascites

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Background) Pancreatic ascites is a challenging problem. The management requires a multidisciplinary approach. Timely intervention is the key. Methods) The data was retrieved from a prospectively maintained database for a period of 4 years. A total of 14 patients were included. They were initially optimized with ascitic fluid drainage, nutritional supplementation either enteral or parenteral. Endoscopic Retrograde Cholangio Pancreatography (ERCP) was done in patients with failed conservative treatment after 2 weeks. Endoscopic pancreatic stenting was attempted in proximal ductal disruptions. Nonresponders were taken up for surgery. Results) Initially three patients responded to conservative management. ERCP was done in 9/14 patients. ERCP demonstrated leak of contrast into peritoneal cavity in 3 (3/9), leaking pancreatic pseudocyst in 3 (3/9) and nonvisualisation of distal duct in 2 (2/9). ERCP and stenting of pancreatic duct was attempted in three patients and was successful in resolution in one. Nine out of fourteen needed surgical intervention. Surgery was based on site of leak and presence of pseudocyst. Conclusions) Majority of the patients in our study were ethanolics and a change in life style early in the course can prevent this morbid disease. Nasojejunal tube feeding with blendarized home feeds will improve the nutritional status. CECT abdomen and ERCP will give a road map in deciding the type of intervention. For proximal ductal disruption endoscopic stenting should be tried before going for a major surgical intervention. Surgery provides definitive cure.

P-66-2 Risk factor of postoperative pancreatic fistula after distal pancreatectomy with stapler devices

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Recent meta-analysis literature, the management of resection for pancreas parenchyma with automatic stapler device is low incidence of the postoperative pancreatic fistula (PF) compared with additional suture to the pancreas stump. When we adopted the stapler device for resection of pancreas parenchyma, we had used to 2–line staple device, we added to suture to pancreas stump for reinforcement.

We examined a risk factor of PF about factor of the perioperative period. We retrospectively reviewed the 80 consecutive patients who underwent distal pancreatectomy (DP) using automatic stapler device between 2008 and 2016. We excluded the cases that pancreas parenchyma resection using blade and the ultrasonically activated scalpel and surgical procedure of enucleation, and central pancreactomy.

Overall PF rate was 41%, PF Grade B/C were 25/3 cases. 27 cases added suture for the pancreas stump after staple device, and 9 cases of those were using two lines stapling device. The additional suture after stapler device tended to have many incidence of PF, but there was not the statistical significant difference (48% vs. 36%, p=0.34). The type of automatic staple device (2 lines vs. 3 lines) did not have the significant difference. Risk factors of PF in all cases were pancreas parenchyma > 14mm, operative time> 6 hour, intraoperative bleeding > 600 ml, and preoperative steroid use.

The additional suture after staple device was not risk factor statistically. This study suggested that stapling device for DP was effective for thin pancreas parenchyma, but we have high incidence of the PF yet, and it seemed the further improvement of the surgical method and skill were necessary.

P-66-3 A study of the usefulness of Modified Blumgart method for pancreatoduodenectomy

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Background) Postoperative pancreatic fistula (POPF) is the main complication after pancreatoduodenectomy. There is still no universally accepted technique for pancreaticoenterostomy, especially in patients with soft pancreas.

Methods) Between December 2004 and December 2016, 236 patients who underwent pancreatoduodenectomy were enrolled in this single–institution matched historical control study. To approximate the pancreatic parenchyma to the jejunal seromuscular layer, 185 patients underwent anastomosis using the interrupted suture method and 51 underwent anastomosis using the modified Blumgart anastomosis method.

Results) The rate of clinically relevant POPF formation was significantly lower in the modified Blumgart anastomosis method group than that in the interrupted suture method group (14% vs 28%; p=0.04207). The rate of postoperative complications was significantly lower, and the length of postoperative hospital stay was significantly shorter in the modified Blumgart anastomosis method.

Conclusion) The modified Blumgart method is useful and simple method for suppression of POPF after pancreatoduodenectomy. We suggest that the modified Blumgart method is suitable for use as a standard method of pancreaticojejunoscopy after pancreatoduodenectomy.
P-66-4 The evaluation of complete external stented pancreaticojejunostomy in pancreaticoduodenectomy.

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(Introduction) Pancreatic fistula (PF) after pancreaticoduodenectomy (PD) is one of common, potentially life-threatening complications. In order to reduce the frequency and severity of PF in patients with a soft pancreas, we underwent complete external stented pancreaticojejunostomy (PJs) from 2012. This study was designed to examine the efficacy of PJs compared with duct-to-mucosal PJ (Pjdm) in prevention of PF complications retrospectively.

(Target) Seventy-six patients underwent PD at our hospital, excluding 5 patients of PD with hepatectomy and a patient, between January 1, 2012, and December 31, 2015. There were 22 PJs cases, all of which were soft pancreatic cases. There were 54 Pjdm cases, 34 cases of hard pancreases and 20 cases of soft pancreases. The diagnosis of PF after PD was judged strictly by the International Study Group on Pancreatic Fistula Definition (ISGPF). In this study, both B and C patients in the Grade of pancreatic cases. There were 54 Pjdm cases, 34 cases of hard pancreases and 20 cases of soft pancreases. The diagnosis of PF after PD was judged strictly by the International Study Group on Pancreatic Fistula Definition (ISGPF). In this study, both B and C patients in the Grade of pancreatic fistula (PF) were contained in PF+(+) .

(Result) In 42 patients with a soft pancreas Grade A in 14 cases, Grade B in 19 cases, and Grade C in 4 cases were found. When comparing 22 PJs cases with 20 Pjdm cases, performed on soft pancreas, there was no difference in age, diabetes, amount of intraoperative bleeding, blood transfusion, diameter of anastomosed pancreatic duct, thickness of pancreas. There were a lot of male patients in PJs, the operation time was significantly shorter in PJs, and the period until the removal of the pancreatic ductal tube was significantly increased in PJs. There were no differences between the two methods from the ratio of PF+(+) /Grade B+C, but 3 cases of Grade C cases were found in PJs cases.

P-66-5 Relations of drain removal time and SSI in the pancreaticoduodenectomy


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Makoto Murakami,1) Mituhiro Morikawa,1) Kenji Koneri,1) Yasuo Hirose,1) Takanori Goi,1) Kanji Katayama,2) Akio Yamaguchi,3) Purpose: In this study, we examined retrospectively the influence of the drain placement period in PD on SSI onset and laboratory data. Subjects and Methods: 62 cases which underwent PD for malignant disorder around the pancreas head in a period from January, 2013 to July, 2016 were evaluated. 11 cases had PF, 51 cases were divided into three groups: A; early removal (≤6d, n=24), B; late removal (≥7d, n=15), and C; late removal with drain replacement (n=12). End point was drain removal time, drain replacement, SSI and, and laboratory data (WBC, CRP, Temperature in the 4, 7, 14 day after surgery).

Results: Drain custody period of the case with PF was significantly longer than the case without PF (13.6±9.6 d vs 39±9.6 d). I-SSI and S/O SSI of Group C was significantly high level in comparison Group A (16.7% vs 4.2%, 41.7% vs 4.2%). A similar tendency was found in S/O SSI of Group B (13.3%)

Conclusion: This study revealed that delayed drain removal and replacing of the drain is one of the risk factor caused Space/ Organ–SSI after PD. We should remove all drains in a case without PF by day 4 after surgery.

P-66-6 Perioperative management and outcome after pancreaticoduodenectomy

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Background: This study aimed to assess the operative outcome a single institution series of pancreaticoduodenectomy (PD) retrospectively.

Object and method: From July 2007 to December 2016, 160 consecutive patients who had undergone curative PD. This study population was divided into two groups based on the post-operative pancreatic fistula (POPF), negative group (n=98) and positive group (n=62), and it was examined the risk factor of POPF in the perioperative period. In our institution, the pancreatic jejunostomy (PJ) was performed Kakita’s method, the main pancreatic duct tube was placed. The three abdominal drain was placed behind the cholangio–jejunal anastomosis, ventral or dorsal side of PJ. And we aimed to remove the drain on the 3 or 4 POD. Result: It was significantly difference the body mass index (BMI; negative/positive=21.6/22.8, p=0.023) and serum triglyceride (TG; 112/133 mg/dl, p=0.024), soft pancreas (43/51, p=0.001), diameter of main pancreatic duct (5.0/3.6 mm, p=0.001) in univariate analysis. And in post-operative factor, it was significantly difference CRP–POPD3, WBC–POD1/3, Drain–AMY–POD1/3. In multivariate analysis, it was independent risk factor of POPF the TG (85.0 mg/dl or more) and CRP–POPD3 (14.2 mg/dl or more), DAMY–POD1 and 3 (2993 mg/dl or more).

Summary: In this study, it was suggested the effectively perioperative management with the risk factor of POPF. But there was still highly the rate of POPF, it seemed that it was necessary more improvement of surgical technique and perioperative management.

P-67-1 Clinical study for late onset postoperative pancreatic fistula after distal pancreatectomy

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Background: The postoperative pancreatic fistula (POPF) occurring in distal pancreatectomy (DP) is one of the most serious complications. As for drain removal timing, some studies are showed the benefits of early removal recently, but it is unclear because there are times when it is difficult to treat late onset POPF. We therefore retrospectively examined the occurrence of late onset POPF after DP and its association with the risk factor.

Methods: This retrospective study included 44 patients who underwent distal pancreatectomy for tumor of the pancreas in the Department of Gastroenterological Surgery, Kanazawa University. 12 patients were not included in this analysis because of the diagnosis of POPF on 3 postoperative day, according to the International Study Group of Pancreatic Fistula (ISGPF) criteria. The medical records of 32 patients were retrospectively reviewed.

Result: 12 patients did not diagnose the POPF (control group) and 20 patients diagnosed the late onset POPF (late POPF group). There were no significant differences in age, presence of NAC, history of HT, DM, the operating time and the intraoperative blood loss between the two groups. Male, case of pancreas cancer, body mass index, plaque score ≥ 10, and postoperative hospital stay were significantly more in the late–POPF group than in the control group.

Conclusion: This study described the use of plaque score of carotid ultrasonography as a prognostic factor for late onset POPF. Atherosclerosis might be correlated with tissue ischemia and POPF caused by poor microcirculation.
**P-67-2** A study of risk factors of NAFLD onset after pancreaticoduodenectomy in our department

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Nonalcoholic Fatty Liver Disease develops after pancreaticoduodenectomy (PD). We investigated the onset risk factor and the effect of digestive agent administration. [Target and Method] 91 patients which were observable for more than half a year after operation, in which performed PD without patients diagnosed as fatty liver before surgery in our department from January 2010 to March 2016. Each clinical factor was retrospectively compared between the 2 groups of the fatty liver group and the non–fatty liver group. [RESULTS] Fatty liver was found in 19/91 patients (21%), of which 13/19 patients (68%) had pancreatic cancer cases. The mean period from surgery to fatty liver onset was 4.7 months. Patients with [preoperative BMI—postoperative BMI≧3], over 65 years old, pancreatic cancer, operation time ≥9 hours, were significantly higher. There were no differences between the 2 groups in other factors such as preoperative nutritional status, surgical expression, reconstruction method, pancreatic duct diameter, portal vein excision. Pancrelipase, a high titer pancreatin preparation, was administered in 58/91 patients. There was no significant difference in the incidence of fatty liver occurrence with or without Pancrelipase administration (administered: 3/25 (20%), no administration: 5/25 (20%).) 12/16 patients (63%) who could be more than 1 year after onset of fatty liver showed improvement of fatty liver within 1 year of onset, breakdown was in the pancrelipase group 9/11 (88%), and the other group 3/5 (60%). [CONCLUSION] It seems that older age, body weight loss, surgical invasion, malignancy of original disease correlate with development of fatty liver after PD.

**P-67-3** Risk factors for and management of nonalcoholic fatty liver disease after pancreaticoduodenectomy

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Background/Purpose: Nonalcoholic fatty liver disease (NAFLD) after pancreaticoduodenectomy (PD) has recently been considered clinically important issue. However, this phenomenon has not been fully studied. The aim of this study is to identify risk factors for and management of NAFLD after PD. Methods: A retrospective review of 93 patients followed up for more than 6 months after PD was conducted. To evaluate hepatic steatosis, we applied a liver–to–spleen attenuation ratio (LSR) <0.9 as measured by CT obtained between 6 and 12 months after surgery. Results: There was a significant decrease in LSR between the pre– and post–operative periods, from 1.26±0.24 pre–operatively to 0.99±0.46 post–operatively. Twenty seven patients (29%) developed NAFLD after PD. In univariate analysis, pre–operative BMI, operative time, hard pancreas, delayed gastric emptying (DGE), diarroea requiring medications and percent loss of body weight (%LBW) showed significant differences between the groups with and without NAFLD. Around the time of post–operative CT evaluation, patients with NAFLD had significantly lower serum total protein level and higher serum enzyme levels compared to those without. Multivariate analysis revealed that pre–operative BMI ≥ 21.6, hard pancreas, DGE and %LBW ≥ 14% were the independent risk factors for the development of NAFLD. The efficacy of pancrelipase replacement therapy in the prevention of and recovery from NAFLD was not confirmed. Conclusion: Post–PD NAFLD reflects a state of protein deficiency and malnutrition. Not only intense nutritional support but also pre–operative weight control and prevention of DGE might be needed for protection against NAFLD.

**P-67-4** Pancreateicojunostomy using a technique of invagination anastomosis (end–to–side anastmosis) without stenting for soft pancreas

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Introduction: We present a pancreateicojunostomy technique of end–to–side invagination anastomosis without stenting for soft pancreas.

Methods: This study included 40 patients, 26men and 14women, average age 66.6years, who underwent pancreaticoduodenectomy for soft pancreas at our hospital. We determined the soft pancreas as under 2mm diameter of m.p.d.. Invaginated endo–to–side pancreateicojunostomys was performed for all patients without stenting. In the first place, the outer layer encompasses the posterior wall of the remnant pancreas and the jejunal seromuscularis separately using 3–0 non–absorbable sutures. The inner layer encompasses the capsular parenchyma of the pancreas and the jejunum through all the layers of the bowel continuously using 4–0 absorbable sutures. Postoperative pancreatic fistula(POPF) was evaluated using ISGPF definition.

Results: There was no mortality in any of the 40patients. Thirteen patients (32.5 %) did not develop POPF, and 27patients (67.5%) developed POPF; grade A:21(52.5%), grade B:6(15.0%). But all of the POPF patients healed with conservative. The average post operative stay was 30.1days and 23.5days in the no POPF patients, 32.6days in the grade A patients, 35.7days in the grade B patients. None of the patients developed postoperative intra–abdominal bleeding and abscess. One patients developed delayed gastric emptying.

Conclusion: This technique is safe and easy for young surgeons compare with duct–to–mucosa anastomosis.

**P-67-5** Incidence and risk factors of delayed gastric emptying after distal pancreatectomy: impact of postoperative C–reactive protein levels

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Although delayed gastric emptying (DGE) following pancreaticoduodenectomy has been extensively examined, its occurrence after distal pancreatectomy (DP) is infrequently reported. This study aimed to examine the incidence and risk factors of DGE after DP. Patients and Methods: Among 138 patients who underwent DP from 2006 to 2015 at our department, the subjects were 123 patients by excluding 11 patients who underwent combined total gastrectomy, 3 patients who developed postoperative ileus, and 1 patient who developed postoperative intestinal perforation. DGE was determined according to ISGPS criteria. Risk factors of DGE were analyzed by using pre-, intra- and post–operative factors. Results: In 123 DP patients, DGE developed in 28 patients (22.8%); grade A in 22, B in 2, C in 4. Median time to tolerate solid diet (days after surgery) were significantly longer in DGE group (9 days) compared to non DGE group (4 days, p=0.001). By comparison of DGE (n=28) vs. non–DGE (n=95) group, the rates of open surgery (92 vs 62%), lymph node dissection (71 vs 46%) and other organ resection (50 vs 25%), blood loss (915 vs 360 ml), operation time (342 vs 280 min), C–reactive protein (CRP) levels on POD3 (17.3 vs 13.4 mg/dl), use of therapeutic antibiotics (75 vs 47%), and length of hospital stay (32 vs 18 days) were significantly different. By multivariable analysis, high CRP levels on POD3 was the single independent risk factor of DGE (OR 1.117, 95% CI 1.019–1.226). The optimum cutoff value for CRP was 15.2 mg/l by ROC analysis. Conclusion: Since DGE after DP occurs in unexpectedly high frequency, it is necessary to pay special attention to patients with high CRP levels on POD3.
P-67-6 Significance of serum procalcitonin after pancreaticoduodenectomy as early prediction of postoperative infectious complications

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(Aim) Serum procalcitonin level (PCT) is a precursor of calcitonin and is known to rise earlier than WBC, CRP in bacterial infections. Now, we aimed to clarify whether PCT can predict postoperative infectious complications earlier than WBC and CRP in pancreaticoduodenectomy (PD).

(Methods) Between January 2011 and April 2016, 77 patients for whom PCT, WBC, and CRP were measured on the 1 and 3 postoperative days (POD) were included. Positive of postoperative infection was defined as occurring infectious complications of Clavien-Dindo classification Grade II and above after operation.

(Results) Postoperative infection was confirmed in 34 patients (44%). There was no significant difference in the median PCT value on 1POD as 1.98 ng/ml in the infection positive group and 1.94 ng/ml in the infection negative group. There was also no significant difference in WBC and CRP on 1POD. Then, the PCT value on 3POD was significantly higher in infection positive group than negative group (2.65 vs. 0.65 ng/ml; p=0.001). Similarly, a significant difference was also observed in the CRP on 3POD (17.49 vs. 10.83 mg/dl; p=0.02), but no significant difference in the WBC value. In the subgroup analysis using 37 patients who did not undergo preoperative biliary drainage, the median PCT value on 1POD was 2.09 ng/ml in infection positive group and 1.15 ng/ml in infection negative group. There was significant difference between the groups (P=0.03). However, there was no significant difference in WBC and CRP value on 1POD.

(Conclusion) In patients with PD, PCT could predict postoperative infectious complications earlier than CRP and WBC in whom preoperative biliary drainage was not performed.

P-68-2 Clinical utility of apolipoprotein–AII isoforms for pancreatic exocrine function

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Background: Pancreatic function diagnostic (PFD) test and C–peptide immunoreactivity (CPR) test are applied in clinical settings to evaluate pancreatic secretory function, however, these tests need complicated invasive approach in patients with chronic liver disease (CLD) and CLD group whereas no hospital mortality occurred. Some CLD patients experienced severe complications and required intensive management: prolonged course of antibiotics; use of diuretics and FFP. The 2–year disease free survivals for CLD and non–CLD group were 65% and 61%, and overall survivals were 54% and 71%, respectively. Four of CLD patients had liver–related death. Adjuvant chemotherapy was indicated for 15 patients with CLD and 17 without CLD patients, whereas 7 (47%) and 14 (82%) were received.

Conclusion In CLD patients, the decision for the surgery should be made carefully with consideration of the risk of poor outcomes: difficult early postoperative course associated with hepatic decompensation; and worsening liver dysfunction later after the surgery that makes adjuvant chemotherapy impossible, and may cause liver–related death.

P-68-3 Re–pancreatectogastrostomy for gastro–pancreatic anastomotic dehiscence after pancreateoduodenectomy, report of a case

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A 79–year old man was hospitalized with cholangitis. He was diagnosed as duodenal papilla carcinoma. He became prerenal failure and undernutrition due to pseudomembranous enterocolitis. After he getting over by administration of vancomycin, we performed subtotal stomach–preserving pancreatectogastrostomy and pancreatectogastrostomy. On the 8 day after surgery, he had gastro–pancreatic anastomotic leakage with clouded increasing drainage and fluid collection near the pancreatectogastrostomy by CT. He underwent conservative treatments including drainage and fasting without serious complications such as pseud–aneurysm. After the treatment, we recognized his stomach wall completely closed by endoscopy, and his main pancreatic duct separated from the stomach by contrast image from the drain. He having a pancreatic fistula drain was discharged from our hospital and followed on outpatient. Nine months after surgery with improving his nutritional status, we performed pancreatic reconstruction for gastro–pancreatic anastomosis dehiscence. We planned pancreatecojejunostomy before reoperation due to prospected severe adhesion or inflammation around the stomach. As a matter of fact, we performed re–pancreatectogastrostomy (invagination method) because of not severe adhesion around the stomach and remnant pancreas. After the reoperation, he was discharged on 20 days after surgery without complications.Reports of pancreatic re–anastomosis after pancreatectogastrostomy are few, and many of them are associated with pancreatic duct obstructions after a long period of pancreatectogastrostomy. Herein, we report a rare case of re–pancreatectogastrostomy for dehiscence of pancreatectogastrostomy.

P-68-1 Pancreatectogastrostomy in patients with chronic liver disease

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Introduction Surgery in patients with chronic liver disease (CLD) is at high risk of postoperative morbidity and mortality. There were few reports of pancreatectogastrostomy in CLD patients.

Methods We reviewed consecutive 469 patients who had undergone pancreatectogastrostomy in our institution from 2003 until 2016 and identified 26 patients (5.5%) with CLD, included 21 Child–Turcotte–Pugh (CTP) class A, four B, and one C. Outcomes were assessed also in 26 age–, sex–, disease– and UICC–stage– matched controls.

Results Preoperatively, significantly higher serum creatinine and lower serum albumin were noted in CLD group. There was no significant difference between the two groups in operative factors, although higher use of fresh frozen plasma (FFP) was found in CLD group. Postoperative morbidities were 100% in CLD group and 38% in non–CLD group whereas no in-hospital mortality occurred. Some CLD patients experienced severe complications and required intensive management: prolonged course of antibiotics; use of diuretics and FFP. The 2–year disease free survivals for CLD and non–CLD group were 65% and 61%, and overall survivals were 54% and 71%, respectively. Four of CLD patients had liver–related death. Adjuvant chemotherapy was indicated for 15 patients with CLD and 17 without CLD patients, whereas 7 (47%) and 14 (82%) were received.

Conclusion In CLD patients, the decision for the surgery should be made carefully with consideration of the risk of poor outcomes: difficult early postoperative course associated with hepatic decompensation; and worsening liver dysfunction later after the surgery that makes adjuvant chemotherapy impossible, and may cause liver–related death.
P-68-4 Pancreatic parenchymal anastomosis in patients with soft pancreatic remnant: Comparison of modified Kakita method and modified Blumgart anastomosis

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Background: Soft pancreatic remnant texture in pancreatoduodenectomy (PD) is one of the main risk factors in the development of post operative pancreatic fistula (POPF). Various anastomotic techniques in pancreaticoenterostomy has been investigated, however, the ideal technique is still controversial. In this study, we compared two pancreatic parenchymal anastomotic techniques, modified Kakita method (m-Kakita) and modified Blumgart anastomosis (m-Blumgart) in the development of clinically relevant POPF (CR-POPF).

Methods: A total of 78 patients with soft pancreas underwent PD with pancreaticojejunostomy from 2009 to 2016. The pancreatic parenchyma was anastomosed using m-Kakita (n=58) until mid 2015, thereafter, we adopt m-Blumgart (n=20). Incidence of CR-POPF were evaluated retrospectively.

Results: Preoperative and Perioperative demographics including body mass index, prognostic nutritional index, preoperative biliary drainage, operative time, volume of blood loss, use of stent, and diameter of pancreatic duct were equivalent between two techniques. When compared with m-Kakita, m-Blumgart had smaller rates of CR-POPF (20% vs 36.2%) and shorter postoperative hospital stay (23.5 days vs 29 days). However, there was no statistical significance.

Conclusion: In our single institutional experience, modified Blumgart anastomosis does not statistically decrease the incidence of CR-POPF in patients with soft pancreas. A further technical training using this method may contribute to the decrement of CR-POPF.

P-68-5 The significance of post pancreatectomy body weight loss in pancreatic cancer patients

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Background: Post operative body weight loss is associated with deterioration in quality of life (QOL). For the cancer patient, the weight loss is a risk factor of the chemotherapy.

Methods: Patients (n=100) who had undergone pancreatectomy were included. We evaluated the body weight loss (BWL%) from the pre surgical body weight to the weight at the time of the discharge after surgery.

Cancer cachexia group have more than 10% loss of stable body weight, or body mass index(BMI) less than 20kg/m² and ongoing weight loss of more than 5%, or BMI less than 18.5kg/m² and ongoing weight loss of more than 2%. Normal group is less than 2% loss of stable body weight over the surgery, or BMI more than 20kg/m² and ongoing weight loss of less than 5%. The precachexia group assumed an interval of Normal group and the cachexia group. We analyzed the clinical data including age, sex, BMI, PNI, CONUT score, early enteral nutrition, and the occurrence of post-operative complications.

Results: The average age was 68.4 years (44–86). The patients diagnosis, there were 90, 8, 2 and 1 cases of pancreatic adenocarcinoma, IPMC, pNET and metastatic cancer, respectively. 32, 27, and 41 patients had Normal, precachexia and Cancer cachexia, respectively. Cancer cachexia is associated with infectious complications. In Pancreatoduodenectomy (PD) cases, early EN group was the lower incidence of BWL% than the Control group. Cachexia was also associated with survival in univariate analysis.

Conclusions: In this study, 68% of patients were at risk of malnutrition. It is possible to achieve a more precise nutritional management plan. BWL% and BMI is a simple and useful marker for identifying prognosis.

P-68-6 Factors that predict the occurrence of and the recovery from non-alcoholic fatty liver disease after pancreatoduodenectomy

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Background/Purpose The aim of this study is to identify the factors that predict the occurrence of and the recovery from non-alcoholic fatty liver disease (NAFLD) after pancreatoduodenectomy (PD).

Methods This study included 120 patients who underwent PD. NAFLD was diagnosed using unenhanced CT as a value of <40 HU. Pre–, intra–, and postoperative factors were analyzed using univariate analysis and multivariable logistic regression models. Results NAFLD occurred after PD in 38% (45/120) of the patients. The occurrence rates in patients who received and did not receive prophylactic supplementation were 27% (11/41) and 43% (34/79), respectively (P = .082). Six patients received therapeutic supplementation after diagnosis, and 39 patients did not receive it. The recovery rates in patients who did and did not receive supplementation were 100% and 58%, respectively (P = .069). Multivariable analysis identified a high body mass index, small pancreatic volume, long operative time, and a high aspartate aminotransferase/alanine aminotransferase ratio as independent risk factors. A small diameter of the main pancreatic duct, a low serum amylase level, and a high minimum liver CT value were factors in predicting the recovery from NAFLD.

Conclusion The NAFLD occurrence rate in patients undergoing PD is high, but in about half of these patients, NAFLD can be resolved without any enzyme supplementation. In the postoperative management for patients after PD, the risk factors and recovery factors may be of assistance in the decision making process whether to start the pancreatic enzyme supplementation therapy or not.

P-69-1 Impact of sarcopenia on preoperative pulmonary function in hepato–biliary pancreatic cancer

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BACKGROUND: The impact of sarcopenia on preoperative pulmonary function in hepato–biliary pancreatic (HPB) cancer patients remains unclear.

METHODS: This study comprised 461 patients with hepatocellular carcinoma (HCC), 180 patients with bile duct cancer (BDC) and 297 patients with pancreatic cancer who underwent resection between 2003 and 2015. Using preoperative CT imaging at the L3 level, the quantity and quality of skeletal muscle were evaluated by psos muscle mass index (PMMI) and intramuscular adipose tissue content (IMAC), respectively. 1) The correlation between preoperative pulmonary function and sarcopenic factors. 2) Preoperative pulmonary function according to preoperative sarcopenia status based on the sex–cut–off values for PMI and IMAC.

RESULTS: 1) In males, PMI was significantly correlated with preoperative VC and FEV1.0 in HCC patients, VC and FEV1.0 in BDC patients, and %VC, VC, and FEV1.0 in pancreatic cancer patients. IMAC was significantly correlated with preoperative VC and FEV1.0 in HCC patients, %VC, VC and FEV1.0 in BDC patients, and FEV1.0% and FEV1.0 in pancreatic cancer patients. In females, IMAC was significantly correlated with preoperative VC and FEV1.0 in HCC patients and FEV1.0% and FEV1.0 in pancreatic cancer patients. 2) In males, preoperative %VC, VC, FEV1.0 in HCC patients, VC and FEV1.0 in BDC patients and %VC, VC in pancreatic cancer patients were significantly lower in the preoperative sarcopenia group than in the normal group. In females, preoperative pulmonary function had no significant difference between the two groups.

CONCLUSION: Preoperative sarcopenia has a strong negative impact on pulmonary function in HPB cancer patients.
P-69-2 Pancreatoduodenectomy following upper abdominal surgery: Report of 8 cases

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(Aim) Pancreatoduodenectomy (PD) is a complex and high risk surgical procedure. Performing this procedure following upper abdominal surgery is expected extremely challenging. The aim of this study is to evaluate early operative outcomes of PD with a history of upper abdominal procedures (PDUAP), compared with PD without a history of upper abdominal procedures (PDCON).

(Methods) From January 2010 to October 2016, 147 cases of PD were performed, in which eight cases had a history of upper abdominal surgery (UAS). Type of previous UAS and diagnosis were esophagectomy for esophageal cancer (n=1), total gastrectomy for gastric cancer (GC) (n=4), distal gastrectomy for GC and duodenal ulcer (n=2) and partial gastrectomy for GC (n=1). Diagnoses for undergoing PD were pancreatic cancer (n=4), bile duct cancer (n=3), and duodenal metastasis from colon cancer (n=1). The interval between UAS and PD was a median of 54 months (7–324 months). BMI in PDUAP (median: 19.15 (16.4 – 23.2)) was significantly lower than that in PDCON (median: 21.9 (16.5 – 35.5); p=0.008).

(Results) Median operation time was 498 min (415 – 577 min) in PDUAP and 515 min (326 – 1003 min) in PDCON (p=0.544). Blood loss was 758 ml (382 – 1687 ml) in PDUAP and 862 ml (127 – 9133 ml) in PDCON (p=0.736). Length of hospital stay was 24 days (12 – 33 days) in PDUAP and 24 days (11 – 82 days) in PDCON (p=0.532). In-hospital mortality was none in PDUAP and one in PDCON (p=1). There was no significant difference between 2 groups in morbidities such as PF (p=0.596), bile leak (p=0.33), DGE (p=1) and PH (p=0.472).

(Conclusion) PD following upper abdominal surgery could be performed as safely as done PD with no previous surgery.

P-69-3 The utility of cadaver-based surgical training in hepatobiliary and pancreatic surgery

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Background: In general, surgery in the hepatobiliary–pancreatic field is delicate, complicated, and difficult. Although many trainee surgeons aim to be expert surgeons in the hepatobiliary–pancreatic field, surgical skill training and learning of local anatomy during the actual operations for live patients is not easy. Recently, guidelines for cadaver dissection in education and research of clinical medicine were published by the joint working group between the Japan Surgical Society and Japanese Association of Anatomists in Japan. Human cadaver have been able to be used for surgical training.

Methods: We have held surgical workshops of hepatobiliary and pancreatic surgery once or twice a year from 2014. Thiel’s method, which is a ‘life-like’ and realistic simulation model, was used for embodiment instead of formalin fixation, which is a standard fixation method. Trainee surgeons performed pancreatoduodenectomy and major hepatectomy in open and laparoscopic approach with instructions by certified expert surgeons.

Results: Many young graduate trainees participated and most of them showed excellent satisfaction. Especially, good understanding of surgical anatomy was achieved in many participants.

Conclusion: Cadaver-based surgical training is beneficial because it is close to live surgery with the great disadvantage of lacking hemodynamic factors.

P-69-4 Prevalence of fatty liver and its risk factors in patients with chronic hepatitis C virus infection

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Background/Purpose: Chronic hepatitis C virus (HCV) infection is a worldwide problem with many complications, including fatty liver. So, we conducted this study to evaluate the proportion of these patients with fatty liver and to find the potential risk factors for this complication.

Methods: The present study was a cross-sectional study conducted on patients referred to two medical centers in Ahvaz, southwest of Iran, with a diagnosis of chronic HCV infection, during 2014–2015. Demographic data including age and sex were gathered, liver ultrasonography was done, and body mass index (BMI), liver function tests (LFT), and serum levels of fasting blood sugar (FBS), cholesterol, triglyceride, and vitamin D were measured.

Results: 164 participants (56.1% male) with a mean age of 38.6 ± 3.45 years were studied. Overall, 73.8% of the patients with chronic HCV infection had fatty liver. Of males and females participating in the study, 79% and 57%, respectively, were involved with fatty liver. There was no association between the occurrence of fatty liver and age, sex, BMI, LFT parameters [except for alkaline phosphatase (ALP)], and serum levels of lipids and vitamin D. The mean FBS and ALP levels were significantly higher in patients with fatty liver compared to patients without it (p=0.020 and 0.019, respectively).

Conclusion: Our study showed a high prevalence of fatty liver in patients with chronic HCV infection. Only FBS level was shown to be associated with fatty liver in these patients. So, evaluation of patients with chronic HCV infection for fatty liver and addressing their metabolic derangements, especially their blood glucose level, could be of paramount importance.

P-69-5 The correlation between postoperative complications and prophylactic antibiotics in pancreatoduodenectomy patients with preoperative endoscopic biliary drainage

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Background: The aim of this study is to evaluate clinical outcomes of stented and non–stented patients with pancreatic or biliary tract cancer undergoing pancreatoduodenectomy (PD), and to investigate the correlation between postoperative complications and prophylactic antibiotics. Methods: Study 1; Between January 2010 and May 2016, 58 patients with preoperative endoscopic biliary drainage (PBD group) and 31 patients without biliary drainage (no PBD group) were retrospectively identified. In all cases, first– or second–generation cephalosporin was selected as prophylactic antibiotics. Study 2; From June 2016, fourth–generation cephalosporin was selected in PBD group (n=11). Postoperative complications were assessed, compared with 59 patients treated by first– or second–generation cephalosporin.

Results: Study 1; Although wound infection rate was significantly higher in the PBD group (37.9%) than in the no PBD group (16.1%; p=0.033), there were no significant differences between the two groups concerning the incidence of other complications such as pancreatic fistula, intra–abdominal abscess. The most frequent detection of organisms from wound infection was Enterobacter cloacae with resistance to first– or second–generation cephalosporin. Results: Study 2; In PBD group treated by fourth–generation cephalosporin, wound infection rate was significantly decreased to 0% (p=0.013). However, there were no significant differences in other complications rates.

Conclusion: PBD prior to PD was associated with the incidence of wound infection. In PBD group, prophylactic antibiotics using fourth–generation cephalosporin may be recommended for the prevention of postoperative wound infection.
**P-69-6** TIF1γ Regulates Cell Senescence through Inhibition of TGF-β Signaling in Hepatocellular Carcinoma

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Background: Transcriptional intermediary factor 1γ (TIF1γ) serves as a tumor suppressor in hepatocellular carcinoma, which is reported by our and other previous studies. However, the precise role and related mechanism is still needs to be further explored.

Methods: Senescence analyses of HCC cells were carried out through senescence-associated β-Galactosidase (SABG) staining. Knock down of TIF1γ in HCC cells was performed through infection of lentivirus carrying specific shRNA. TGFβ-Smad signaling activity was measured by luciferase reporter analysis. The expression of phospho–Smads, p21 and p15 was measured by western blotting.

Results: In this study, we found that knocked down of TIF1γ in HCC cells with early stage phenotypes, and in early stage HCC cells, TIF1γ knocked down. Mechanistically, we found that TIF1γ suppressed TGFβ induced senescence in early stage HCC but not in HCC cells with advanced stage phenotypes. In addition, we confirmed that TGFβ signaling reversed senescence induced by TIF1γ knocked down. Mechanistically, we found that TIF1γ suppressed senescence through inhibition of TGFβ-Smad cascade in early stage HCC cells, whereas this signaling was not activated in advanced stage HCC cells.

Conclusion: TIF1γ inhibited cell senescence through inhibition of TGFβ signaling in early stage HCC.

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**P-70-1** What is the standard as duodenal cancer surgery? --Investigation from the clinical outcomes--

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Background: Duodenal cancer is a relatively rare disease. The aim of this study is to seek the standard surgery for duodenal cancer by reviewing our cases. Methods: Between April 2003 to October 2016, 12 patients with duodenal cancer underwent surgery. Their clinicopathological features were reviewed based on UICC 7th. Results: The median age was 69 y.o.(64–79) and male sex was 6. The tumor location was duodenal bulb in 2 patients and descending duodenum in 10. FDG–PET was taken in 9 patients and abnormal FDG accumulation (>SUVmax.3.0) was seen in all of them (median SUVmax.6.03, range, 4.2–12.0). Pancreatoduodenectomy (PD) was performed in 10 patients and partial resection of the duodenal bulb in 2. One patient who underwent the partial resection needed additional surgery (PD) because of lymph node metastasis. The median size of tumor was 32 mm (8–120). Invasion depth was m in 1 patient, mp in 1, ss in 3, and si in 7. Seven patients (58.3%) had lymph node metastasis. The invasion depth of these 7 patients was mp in 1, ss in 2, and si in 4. Pathological stage was 1 in 1 patient, II A in 3, II B in 6 and III A in 2. Two patients who received adjuvant chemotherapy(S1, SOX) were still living without recurrence. Recurrence was seen in 3 patients (27.2%) and the recurrence sites were paraaortic lymph nodes (n=2), peritoneal (n=2), liver (n=1), and adrenal grand (n=1). Two patients who had metastatic lymph nodes more than 3 at surgery had paraaortic lymph node recurrence. Conclusion: The mp or deeper duodenal cancers often had lymph node metastasis. Therefore, pancreatoduodenectomy with D2 lymph node dissection is recommended as a standard surgery regardless of the tumor location.

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**P-70-2** Laparoscopic pancreas preserving duodenectomy for Gastro Intestinal Stromal Tumour (GIST) arising from the proximal part of second part of duodenum

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Background: Adequate surgical resection for GIST arising in the second portion of duodenum remains challenging. Pancreatoduodenectomy which has been used to treat about 40% of the reported duodenal GISTs, may be an excessive means of treating this disease. Patient details: 69 years old female presented with complaints of malena for 3 months, for which multiple transfusions were done & diagnosed to have tumor arising from second part of duodenum. Endoscopic ultrasound done showed 3cm sized tumor arising longitudinally from the second part of medial wall of duodenum 1.5 cms away from ampulla. Technique: Patient was placed in leg split position and surgeon stands between the legs. Gastrocolic omentum was opened and Kocherization of duodenum done. Pancreas was separated from duodenum by meticulous dissection. Endo GIA stapler was applied between D1 & D2 Junction. Second stapler applied between D2 & D3 junction. Duodenum was removed from pancreas with preservation of major papilla. Isolated jejunal limb was anastomosed to ampulla. Duodenojejunostomy & Jejunoojejunostomy were done to complete GI continuity. Conclusion: Laparoscopic pancreas preserving duodenectomy though technically challenging, can be an option in selected cases when the expertise to perform this complicated procedure is available.

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**P-70-3** The simple and multidimensional solution to reduce the pain after laparoscopic cholecystectomy: A randomized prospective controlled trial

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BACKGROUND
Herein, we evaluate the effect of pain relief after laparoscopic cholecystectomy (LC) using the intraoperative performance of various maneuvers concomitantly through the prospective randomized study, and identify the synergistic effects of combined maneuvers compared to single maneuver alone proved in previous report.

METHODS
51 patients who were scheduled for elective LC were randomly allocated to the group A (26 patients, performing the combined maneuver) or group B (25 patients, none of maneuvers). In group A, the patient underwent several maneuvers concomitantly during LC; local anesthesia injection at the incision site, low–pressure pneumoperitoneum, active gas suction (AGS) and the pulmonary recruitment. Pain after LC was assessed using visual analog scale (VAS) and the measurement of analgesic consumptions.

RESULTS
Four cases of postoperative morbidity were related to the analgesic supplements were developed. (one case, 3.8% in group A and the others, 12% in group B, p=0.350) The analgesic consumption of group A was significantly lower than group B (48.1±46.3 mg vs. 106.7±83.3 mg, p=0,000) and VAS was also lower in group A at postoperative 6, 12 and 24 hours (3.7±1.2 vs. 4.8±1.7, 1.5±0.6 vs. 3.3±1.3 and 1.0±0.6 vs. 3.0±1.7, respectively; p=0.016, 0.000 and 0.000). The results of group A revealed the lower VAS than those of our previous report using AGS alone.

CONCLUSION
Our combined maneuvers composed of the various simple methods during LC could be the effective and feasible solution for the convoluted pain occurred after LC, and also reduce the analgesic demands successfully.

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**P-70-4** Short-term Outcomes of Laparoscopic Liver Resection in Patients with a Previous Abdominal Surgery

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**BACKGROUND:**
Laparoscopic liver resection has become an acceptable treatment for liver tumors, but its clinical application in patients with previous abdominal surgery is controversial. The aim of this study was to evaluate the feasibility of laparoscopic liver resection in patients with a previous abdominal surgery.

**METHODS:**
Sixty-one patients who underwent laparoscopic liver resection at our hospital from April 2011 to December 2016 were enrolled in the retrospective study. They were divided into two groups: Those with previous abdominal surgery group (PS group, n = 25) and a control group with no previous abdominal surgery (NS group, n = 36).

**RESULTS:**
The procedures of previous operation in the PS group included 7 cases of hepatectomy, 5 cases of right hemicolectomy, 2 cases of cholecystectomy, 1 case of gastrectomy and others. There were no significant differences in median operating time and intraoperative blood loss between the PS group and the NS group (239 min vs. 231 min, P = 0.232; 115 ml vs. 88 ml, P = 0.612), respectively. The overall complication rate was also not significant between the NS group and the PS group (12.0% vs. 11.1%, P = 0.763). Mortality and other short-term outcomes did not differ significantly between groups.

**CONCLUSIONS:**
Our study showed no significant difference between the PS group and NS group in term of short-term outcomes. Laparoscopic liver resection is a feasible and safe procedure for patients with previous abdominal surgery.

**P-70-5** Multiple Benign Neoplasms of the Pancreas mimicking Solid Pseudopapillary Neoplasm : a Case Report

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A 52-year-old woman visited our hospital because of multiple pancreatic solid tumors. Those were found on abdomino–pelvis computed tomography (A–P CT) for routine medical check–up. There were 5 solid tumors, the largest was 1.5cm. Although we performed endoscopic ultrasound(EUS) guided biopsy, the obtained specimen was inadequate and there was no cystic portion in tumors, also. Preoperative diagnosis was solid pseudopapillary tumor. Furthermore, neuroendocrine tumor and mass forming pancreatitis were considered for differential diagnosis. Laparoscopic distal pancreatectomy was performed. Resected specimen showed a solid light whithis tumors, the largest was 1cm in pancreas tail. The tumors were pathologically diagnosed as PanIN–1. We report a case of multiple solid benign neoplasms of the pancreas mimicking which was difficult to diagnose preoperatively.

**P-70-6** PROPOSED DIAGNOSTIC CRITERIA OF PHILIPPINE GENERAL HOSPITAL FOR ACUTE CHOLANGITIS

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Neil Sarigumba Bacaltos, Àéricson Berberabe, Anthony Yap

**OBJECTIVE:**
The study aimed to evaluate the sensitivity and specificity of the proposed diagnostic criteria for acute cholangitis in patients at PGH using parameters that reflect the two components of cholangitis, which are infection and obstruction, may it be direct or indirect.

**METHODOLOGY:**
The study included all adult in–patients admitted or referred due to a probable diagnosis of acute cholangitis from years 2009–2011. Patients with obstructive jaundice admitted for an elective surgery were also included as soon as they developed two or more indirect signs of infection.

Fisher’s exact test and Chi-square test were used to determine associations between the categorical values.

**RESULTS**
One hundred five patients were included, mean age was 46.2 years and majority were males (59/105, 56.19%) Only hypotension was associated significantly with cholangitis (p-value of <0.05).

Using the 2007 Tokyo guidelines, it was able to detect 73.03% of cholangitis with a positive predictive value of 100%.

Using the Proposed Diagnostic Criteria, it was able to detect 90.91% of cholangitis with a positive predictive value and specificity of 100%.

**CONCLUSION**
The proposed PGH criteria for diagnosing acute cholangitis show promise, with a sensitivity of 90.91% and specificity of 100%. Further researches are needed to validate our study.

**P-71-1** Usefulness of flow mediated dilation value for prediction of surgical site infection after hepatobiliary pancreatic surgery

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**Background:** Surgical site infection (SSI) occurs frequently after hepatobiliary pancreatic surgery. Systemic vascular disease due to arteriosclerosis is a risk factor for perioperative complications of digestive surgery. Endothelial dysfunction observed in the early stage of arteriosclerosis can be assessed by flow mediated dilation (FMD) test.

**Purpose:** We investigated relationship between FMD value and SSI after hepatobiliary pancreatic surgery.

**Methods:** Between April 2014 and December 2016, 50 patients who underwent pancreateoduodenectomy (PD) or extended hemipatectomy and preoperative FMD test were retrospectively analyzed.

**Results:** The median patient age was 69 years old. 72.0% of patients were male. Their pathological diagnoses were pancreatic cancer (n=18), distal cholangiocarcinoma (n=17) and perihilar cholangiocarcinoma (n=15). Operative procedures were PD (n=34) and extended hemipatectomy (n=16). SSI occurred in 37 patients (74%) including 18 incisional SSI and 30 organ/space SSI. The occurrence of SSI showed no significant differences in age, gender, operative procedures, blood loss and operation time. FMD value was significantly lower in SSI group (p=0.006). The cutoff value of FMD value in SSI was 7.0% using ROC analysis. The incidence of SSI was significantly higher in patients with FMD value under 7.0% than in those with over 7.0% (86% vs 57%, p<0.02).

**Conclusions:** FMD value has potential usefulness for prediction of SSI after hepatobiliary pancreatic surgery.
P-71-2 Clinical application of a new method of bloodless liver resection

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**Purpose** We aimed to introduce a new method of bloodless liver resection and evaluate the clinical safety and efficacy. **Methods** From June 2015 to June 2016, 11 patients underwent bloodless anatomical hepatectomy. The radiofrequency hemostatic system was used to transect liver parenchyma, solidify hepatic sinusoids and small blood vessels. The larger vessels and bile duct were cut off after ligation. **Results** In 8 of 11 cases, hepatectomy were performed without blood inflow occlusion. Hemihepatic blood flow occlusion was performed in 2 cases which were underwent hemihepatectomy. Chen's occlusion method (Pringle maneuver combined within fraphptic inferior vena cava clamping) was performed in 1 patient. The median of intraoperative bleeding was 150ml (30ml–300ml), and the median of operative time was 200min (90min–250min). All cases recovered in two weeks without perioperative mortality and serious complication. **Conclusion** The new method of bloodless liver resection using radiofrequency hemostatic system could minimize intraoperative bleeding; avoid the Ischemia–reperfusion injury caused by hepatic blood flow occlusion. Such an approach shall have bright prospects for clinical application in hepatic surgery.

P-71-4 Rupture liver metastasis from small bowel gastrointestinal stromal tumor (GIST)

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**Introduction** Liver is the most common organ for small bowel gastrointestinal stromal tumor (GIST) metastasis. Ruptured liver GIST metastasis is extremely rare.

**Methods**
41 y/o lady presented with 1 week of periumbilical pain. CT scan showed large liver mass & a large second mass lesion is seen arising from small bowel. Exploratory laparotomy was performed: a lobulated small bowel tumor located 120cm proximal to ileocecal junction & small bowel resection & anastomosis was done. A solid tumor is also noted in the right liver lobe. Post-operative recovery was uneventful. HPE showed spindle cells with moderate nuclear pleomorphism with hyperchromasia & positivity towards CD117. Diagnosis of gastrointestinal stromal tumor (GIST) with low risk behavior, was made. Imatinib 40mg OD was started. CT scan post-operative showed no local recurrence but with enlarging metastatic liver deposits.

**Results**
10 months post-operatively, patient presented with RHC pain. Hb dropped to 8 mg/dl. Repeated CT showed large right liver lobe mass with ascites but no evidence of contrast extravasation. Re-laparotomy done in view of non-resolving RHC. There was 200ml of hemoperitoneum. Large liver lobe tumor noted to be adhered to (but not invaded) the IVC. Segment V & VI liver resection done. Patient was discharged home well on post-op day 5. HPE of the tumor confirmed as GIST metastasis to liver with positivity towards CK117. Post-operative CT scan showed localized biloma with no recurrence. Imatinib was continued & patient is well.

**Conclusion** Liver metastasis from small bowel GIST is common. However, small bowel GIST metastasis to liver & presenting as a ruptured tumor is extremely rare.

P-71-5 Epstein-Barr Virus Associated Inflammatory Pseudo Tumor in the Spleen

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**Background/Purpose:** Inflammatory pseudo tumor (IPT) is uncommon neoplasm of unknown etiology and is developed in numerous anatomic sites. The occurrence of IPT in the spleen is extremely rare with only sporadic case reports and small case series reported in the literature. The IPTs that occur in the spleen and liver are typically associated with Epstein–Barr virus (EBV). IPT of the spleen is frequently asymptomatic and is typically picked up as an incidental finding on imaging study. This tumor is composed of proliferation of spindle cells of unknown origin and etiology that mimic other tumors at clinical and histological evaluation. Surgical removal for this lesion is treatment of choice and there is few reported case with recurrence and metastasis.

**Methods:** The present study reports on IPT of the spleen that was incidentally found in a 73-year-old woman and increased gradually in size during a period of 3 years. Abdominal ultrasonography revealed a well-circumscribed splenic mass, and abdominal computed tomography confirmed the presence of a well-circumscribed, delayed enhanced lesion in the splenic hilum with impression of benign tumors such as hematomata or lymphoma, or malignant tumor less likely.

**Results:** The patient underwent an uncomplicated laparoscopic splenectomy for definitive histologic diagnosis. Gross findings of specimen showed 3X 3X 3.5 cm sized whitish mass with small necrotic foci. Under microscopic examination, IPT–like follicular dendritic cell associated with EBV was observed.

**Conclusion:** EBV associated IPT of spleen is rarely developed benign tumor which is indistinguishable from malignant lesions such as lymphoma on imaging study.
P-71-6  Sepsis associated with long–term prognosis after pancreaticoduodenectomy for pancreatic cancer

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Background: There is no data whether sepsis after pancreaticoduodenectomy (PD) influences the long–term outcome of pancreatic cancer patients.

Objective: The aim of this study is to elucidate whether sepsis after PD had the impact on long–term outcome of pancreatic cancer patients.

Methods: The medical records and data base of 109 pancreatic cancer patients who underwent PD at Tohoku University Hospital between 2011 and 2015 were reviewed and prognostic factors were extracted using univariate and multivariate analysis.

Results: Eighty of 109 patients suffered from sepsis and its incidence was 7.3%. The causes of sepsis were gradeC (37.5%) and gradeB (25%) postoperative pancreatic fistula (POPF), perforation of the colon (37.5%) and cholangitis (12.5%) (duplicate included). The incidence of sepsis was significantly higher in the patients with grade B and C POPF (P=0.0078). The neo–adjuvant chemo(radio)–therapy (NAT) did not affect the incidence of sepsis. There was 1 mortality case (0.9%) who suffered from sepsis and insisted required reoperation for the perforation of colon due to the grade C POPF and died 46 days after PD. Multivariant Cox regression analysis showed that sepsis after PD was the risk factor for long–term prognosis [HR=5.25; 95% CI 1.09–22.16; P=0.039]. NAT was also poor prognostic factor [HR=2.48; 95% CI: 1.19–5.17; P=0.0152]. Adjuvant chemotherapy was favorable prognostic factor [HR=0.21; 95% CI: 1.84–11.57; P=0.0016]. 3 of 8 cases who suffered from sepsis after PD could not receive adjuvant chemotherapy.

Conclusion: Sepsis after PD leads to the disadvantage of the pancreatic cancer patients and is associated with the poor long–term outcome.

P-72-1 Surgical treatment for the biliary fistula after hepatectomy

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2) Department of Clinical Oncology, Course of Advanced Therapeutics, Kagoshima University Graduate School of Medicine and Dental Sciences, Kagoshima, Japan
Motoyuki Hashiguchi1), Masahiko Sakoda1), Satoshi Iino1), Kousei Maemura1), Yuki Matka1), Hiroshi Kurahara1), Youta Kawasaki1), Hiroyuki Shinnichi1), Shinichi Ueno3), Shouji Natsugoe1), 261 patients underwent hepatectomy for liver disease between 2011 and 2016, and postoperative biliary leakage were found in 23.3% (6/261). Four cases of those were improved by conservative medical treatment. However, remaining two cases needed reoperation. The first case was a 72–year-old man. Right hemihepatectomy was performed. He had fever and abdominal pain at POD 9. The percutaneous intra–abdominal fluid drainage was undertaken and we diagnosed as the bile leakage at POD 12. We tried conservative medical treatment, but bile leakage was not improved. DIC–CT and ERCP showed interruption type bile leakage from spiegel lobe. We performed spiegel lobe resection at POD 52. The postoperative course was uneventful and he was discharged from our hospital after day 15 from second operation. Second case was a 77–year–old man. Left hemihepatectomy and segmentectomy 1 and hepatoduodenal ligament lymphanactoring were performed. Bile–like ascites outflow was seen from the wound at POD 8. Bile leak from the excision stump of the bile duct in Dicap–CT. Bile drainage with an endoscope was difficult. We performed reoperation at POD 11. A 1cm–diameter perforation was seen at the left hepatic duct stump. We detained T–tube in the hole. Bile leakage was not improved for a month after reoperation either. We used covered metallic stent to cover a perforation department by an endoscope and removed T–tube at POD 52. He went home POD 72. Conclusion: The diagnosis and treatment about interruption type bile leakage are difficult. However, when we are given a diagnosis with an interruption type bile leakage, resection is considered most certain treatment.

P-72-2 Efficacy of sorafenib for TACE–refractory patients with recurrent HCC after hepatectomy

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Background and Objective: The long– term survival of HCC patients after hepatectomy is still unsatisfactory because of the high postoperative recurrence rate of HCC. TACE has become the standard of care for patients with recurrent multiple HCCs after hepatectomy. However, TACE is often repeated and does not completely cure most HCC cases. We compared the benefits of sorafenib with repeated TACE after TACE–refractory patients with multiple HCCs. Materials and Methods: We reviewed recurrent HCC patients after hepatectomy defined as TACE–refractory in 2005–2014. Patients were weve divided into two groups: 1) patients who switched from TACE to sorafenib and 2) those who continued TACE. We compared the liver function and the prognosis between two groups retrospectively. Results: A Total of 87 HCC patients were considered refractory to TACE. Of 15 patients with Child–Pugh class B were excluded. At the time 72 patients were identified as refractory, 42 patients converted to sorafenib (SOR group), whereas 30 patients continued TACE (TACE group). We excluded patients with advanced–stage HCC. There were no significant differences in the baseline characteristics between the two groups. The median time patients in SOR group reached Child–Pugh class C were significantly longer than those in TACE group (50 vs 16 month, p<0.001). The median OS in SOR group were longer than those in TACE group (23 vs 14 month, p=0.002). Conclusion: Conversion to sorafenib therapy might improve outcomes marked by inhibiting the deterioration of liver function and increased OS in TACE–refractory patients with recurrent HCC after hepatectomy.

P-72-3 The risk factor of postoperative biliary infection in liver resection with biliary reconstruction

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Background and Aim: We sometime experience postoperative biliary infection in the liver resection with biliary reconstruction. The onset of postoperative biliary infection reduces the QOL of the patient, deteriorates a liver function and nutritional state and sometimes makes continuation of the postoperative treatment such as adjuvant chemotherapy difficult. Therefore, we investigate of the cases that had been underwent liver resection with biliary reconstruction and examine a risk factor of postoperative biliary infection during follow up period.

Patients and Method: We intended for 41 cases, who were underwent liver resection with biliary reconstruction at St. Marianna University Hospital between April 2010 and March 2015. Postoperative biliary infections developed in 14 cases (Group BI; biliary infection), and did not developed in 27 cases (Group N–BI; non–biliary infection). We compared retrospectively with two groups about patient characteristics (such as preoperative treatment), operative factor and postoperative clinical course.

Result: The patient characteristics factor and operative factor did not differ between the two groups. Positive rates of the preoperative biliary infection and the positive rate of bacteriologic culture did not have difference. The positive rate of the bacteriologic culture accepted significant difference between two groups after surgery (57.1% vs 25.9%, p=0.491).

Conclusion: A positive of postoperative bacteriologic culture is the risk factor of postoperative biliary infection in liver resection with biliary reconstruction.
P-72-4 The treatment of the recurrent hepatocellular carcinoma considered from the analysis of prognosis

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Background: The recurrence in the remnant liver is seen in more than half of patients who underwent liver resection for primary hepatocellular carcinoma (HCC). In this study, we analyzed the prognosis of patients with recurrence after curative liver resection for HCC, and optimum treatment strategy for recurrence was considered.

Patients: A total of 411 patients who underwent liver resection for primary HCC between 1990 and 2013 were investigated.

Results: The recurrences were observed in 64% patients. The main treatment for recurrence were re–hepatectomy (RH), ablation therapy (AB), TACE, systemic chemotherapy (CH), and best supported care (BSC). MST after recurrence were 51, 48, 30, 10, 4 months (Mo) in RH, AB, TACE, CH and BSC group, respectively. Median time from recurrence to re–recurrence were 22 and 26 Mo in the RH and AB group, respectively. In the multivariate analysis, multiple recurrence and deterioration of indocyanine green retention test (ICGR) were significant risk factors for re–recurrence. In subgroup analysis, the re–recurrence free survival was best in patient group underwent AB for solitary recurrence and was worst in patient group underwent RH for multiple recurrence. The re–recurrence free survival time was significantly longer in the improving group than in the deteriorated group of ICGR.

Discussion: The clinical condition at the time of recurrence after liver resection is limited, so further consideration seems necessary to whether the choice of therapy is most suitable. In particular, the therapy which considered low invasiveness and clinical background seems to be recommended to patients with multiple recurrence or poor liver function.

P-72-5 Prognostic value of the systemic inflammation markers in patients with synchronous colorectal cancer liver metastases

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BACKGROUND: Several inflammation markers have been reported to be a prognostic factor in colorectal cancer, such as the Glasgow prognostic score (GPS), the lymphocyte monocyte ratio (LMR), or the systemic inflammation score (SIS). The aim of this study was to evaluate the prognostic impact of several inflammation markers in patients with synchronous colorectal cancer liver metastases (sCRLM).

METHODS: The study comprised 181 sCRLM patients pathologically diagnosed as adenocarcinoma in our hospital from 2006 to 2016. Clinicopathological factors, the inflammation markers such as the Glasgow prognostic score (GPS), the lymphocyte monocyte ratio (LMR), or the systemic inflammation score (SIS), and prognostic nutrition index (PNI) were analyzed in the association with the survival.

RESULTS: The median age of recruited patients was 72 (36–94). Metasectomy for sCRLM was performed 45 patients (24.9%). The overall median survival time was 16.8 months. Patients underwent metasectomy had a median survival of 69 months compared to 11.4 months in patients without metasectomy (p<0.0001). The SIS score 2 was predictive of poor survival in multivariate analysis. Similarly, poor level of performance status (ECOG 2–4), H grade C, elevated CA19–9 level, high mGPS score (1–2), low PNI (<40), and low LMR (<3.5) associated with poor survival.

CONCLUSIONS: The SIS, as well as several already reported clinicopathological factors or inflammation markers, was a prognostic factor in sCRLM patients in this study.

P-72-6 Severe Hepatic Necrosis after Combined Transarterial Chemoembolization and Radiofrequency Ablation for the Treatment of Hepatocellular Carcinoma

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Purpose/Background: In the recent years, the combination of transarterial chemoembolization (TACE) and radiofrequency ablation (RFA) has been widely performed for the treatment of hepatocellular carcinoma (HCC). Reported complication rate of TACE and RFA was 0%–27% and the complication rate of combined TACE and RFA has been reported rarely. Recently, we experienced a patient with severe hepatic necrosis after combined TACE and RFA for the treatment of HCC.

Methods: A 59–year–old women was referred for treatment of HCC. Abdominal CT and MRI showed about 3.5 cm sized single HCC in segment 6 abutting right posterior pedicle and underlying liver cirrhosis. She was chronic hepatitis B patient and the laboratory findings were all within normal range with Child–Pugh class A. Because the patient refused the surgery, combined TACE and RFA were performed.

Results: After the uneventful procedure, post–procedure CT showed complete tumor necrosis and diffuse lipiodol uptake in right hepatic lobe. From the second day after procedure, the patient presented RUQ pain, nausea, and fever. The follow up CT after 10 days showed diffuse hepatic necrosis of segment 5, 6, 7 and abscess pockets in perihepatic space. The pig–tail catheter drainage was performed and bile stained contaminated fluid was drained. After then empyema of right pleural cavity and eventually biliary–pleural fistula developed. After persistent pig–tail catheter drainage and conservative treatment, the patient were improved progressively and discharged on 80 days after the combined procedure.

Conclusion: We report of a case of unusual severe hepatic necrosis developed after combined TACE and RFA for treatment of HCC.

P-73-1 Prognostic factors for disease–free survival after hepatectomy of hepatocellular carcinoma

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[Background] Hepatectomy is one of the remedy for hepatocellular carcinoma (HCC), but the recurrence rate is high.

[Aim] We investigated the outcome of the patients with the resected HCCs and identified the factors related disease–free survival (DFS).

[Methods] A total of 106 patients with HCC underwent curative resection at our hospital from August 2002 to June 2016 were retrospectively analyzed. We assessed overall survival (OS), DFS, clinicopathological factors of DFS, and characteristics of 5–year disease–free survivors. Pathological assessment was base on the Japanese general rules for the clinical and pathological study. The influence of clinicopathological factors on DFS were tested by the Kaplan–Meier method, logrank test, and multivariate analysis using Cox regression. A P value less than 0.05 was considered to be statistically significant.

[Results] The 5–year OS rate was 65.2%. The 5–year RES rate was 39.0%. Twenty–five patients were alive without HCC beyond 5 year after resection. Multivariate analysis showed hepatitis C virus infection, total bilirubin > 0.9 mg/dl, protein induced by vitamin K absence or antagonist–2 (PIVKA–2) > 400 mAU/ml, and absence of anti– viral therapy were significant predictors of worse DFS. Fischer’s extract test showed that total bilirubin > 0.9 mg/dl and PIVKA–2 > 400 mAU/ml were important in 5–year disease–free survivors compared with other patients.

[Conclusion] Pre–operative value of total bilirubin and PIVKA–2 was useful predictors for DFS after hepatectomy of HCCs.
P-73-2 Outcomes after hepatectomy in elderly patients with hepatocellular carcinoma

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Introduction
Hepatectomy is highly invasive operation for hepatocellular carcinoma (HCC). In our institution, hepatectomy for 80 years or older patients with HCC tends to be increased. Although the recent development of surgical techniques have improved the safety of hepatectomy, patients who are candidate for hepatectomy must be carefully selected. Hence, postoperative outcomes after hepatectomy in 80 years or older patients with HCC were examined.

Methods
From January 2004 to December 2014, consecutive patients who underwent initial hepatectomy for HCC in our institution were enrolled in the present study. The patients were divided into two groups according to their age (elderly group: ≥80 years and non-elderly group: ≤80 years) The clinicopathological factors, short- and long-outcomes after hepatectomy were compared between two groups.

Results
Among a total of 450 patients, 32 (7.1%) were aged over 80 years. The elderly group was characterized as female gender, HBs antigen negative and high DCP level. Tumor factors and liver function were comparable between two groups. Short-term outcomes including operating time, blood loss, complication and in-hospital days were similar between two groups. Recurrence-free survival of the elderly group was comparable to that of the non-elderly group (5-year: 26.7% vs. 42.0%, p=0.53), whereas, overall survival of the elderly group was significantly worse than that of the non-elderly group (5-year: 64.9% vs. 78.5%, p=0.024).

Conclusion
Hepatectomy for elderly patients is safe and provides acceptable short- and long-term outcomes.

P-73-3 Evaluate the impact of patient age on surgical therapy for CLM

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Background
The safety and feasibility of hepatectomy for elderly patients has not been clarified yet. The aim of this study was to evaluate the impact of patient age on surgical therapy for CLM.

METHODS: We reviewed 286 patients who underwent initial hepatectomy for CLMs from 2008 to 2012. 286 patients were divided into three age groups; (1) <65 years; (2) 65–74 years; and (3) ≥75 years of age.

RESULTS: A proportion of >74 years of age patients had more hypertension (P=0.031) and cardiovascular disease (P=0.004). Postoperative complications after resection occurred similar rate in each groups. Resection mortality was 0% in each groups. Patients in the older age groups less frequently had repeated hepatectomy for hepatic recurrence after first hepatectomy (42%) compared to the proportion in the age group of <65 years (81%) and 65–74 years (85%) (P=0.006).

CONCLUSIONS: Advanced chronologic age cannot be regarded as a medical contraindication for hepatic resection of colorectal liver metastases in patients who are more than 75 years of age. In patients older than 75 years, fewer chance of post operative chemotherapy and repeat hepatectomy for hepatic recurrence after first hepatectomy were significant prognostic factors for survival.

P-73-4 Factors influencing hypertrophy of the future liver remnant after portal vein embolization

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Backgrounds: Portal vein embolization (PVE) was widely performed to induce hypertrophy of the future liver remnant (FLR) before extended hepatectomy. However, only a few reports focused on the factors affecting hypertrophy of FLR after PVE.

Purpose: To clarify the clinical factors affecting the hypertrophy rate after PVE.

Methods: A total of 77 patients who underwent percutaneous transhepatic portal vein embolization of right portal vein prior to right or extended right hepatectomy between January 2013 and November 2016 were reviewed retrospectively. CT volumetry was performed before and 2–3 weeks after PVE and the hypertrophy rate of non-embolized liver was calculated. Preoperative patient characteristics and clinical parameters were analyzed to identify the factors influencing the liver hypertrophy after PVE.

Results: After PVE, FLR volume significantly increased by 31.9±22.4% from 369.3±111 ml (33.3±7.3%) to 474.0±118.6 ml (41.5±7.4%) (P<0.001). Insufficient liver hypertrophy, which was defined as hypertrophy rate less than 15%, was observed in 17 patients. In multivariate analysis, the volume of FLR <35%, Platelet count <1.7x10^11/µL, PNI <49 before PVE, and recanalization were independent risk factors leading to insufficient liver hypertrophy (P<0.001, 0.014, 0.001, 0.002, respectively).

Conclusions: FLR volume, platelet count, and PNI before PVE were the risk factors associating insufficient liver hypertrophy after PVE.

P-73-5 The results of preoperative portal vein embolization (PVE) for major hepatectomy—Analysis of liver volume after PVE

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<Background/Aim> Portal vein embolization (PVE) leads compensatory hypertrophy of non-embolized lobe and becomes important as one of the therapeutic measures to allow an extensive hepatectomy. The present study demonstrates the analysis of liver volume after PVE.

<Methods> We examined 38 cases of PVE after November 2005 at our department. We calculated Total Liver Volume (TLV) and Estimated Remnant Liver Volume (EVL) with using a Hepatectomy simulation software. The liver volume was calculated for prior to PVE and every week until the 2nd, or 3rd or 4th weeks after PVE. We set the predicted liver resection volume as over 60% (in 29 cases, the other 4 cases; < 60%) of total liver volume in normal liver function case and over 50% (in 5 cases) of total liver volume in limited hepatic functional reserve case (Child–Pugh: B).

<Results & Summary> ① EVL/TLV (%) before PVE was 32.9±6.1%, but it was increased to 39.5±6.3% after PVE. Percent increase of EVL following PVE was 22.4% (median). ② For those 24 cases we evaluated the liver volumes once a week, and three weeks in a row after conducting PVE. It is confirmed that the increase rate of EVL after three weeks (y) is predicted to be y=0.065+0.878x through the regression equation where the increase rate of EVL after two weeks is equal to (x). ③ The shift of increase rates of the liver volumes in comparison with before PVE is evaluated weekly. In 19 cases, liver volumes increased in one week after PVE. The increase rates tend to decrease after they increased, and to increase after they decreased, but we did not find an association between the change rates of the volumes and the background factors.
P-73–6  Anti–HBC Seropositivity VS Chronic Viral Hepatitis In Hepatocellular Carcinoma (HCC): Comparative Analysis of Clinical Characteristics and Outcomes
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Background
HCC with non–viral etiologies are rising in prevalence. Anti–HBC positivity has been described as a risk factor for HCC. Our study aims to compare the clinical features and outcomes between HCC patients with chronic hepatitis B/C infection (V–HCC) and anti–HBC seropositivity (C–HCC).

Methods
A retrospective review of patients diagnosed with HCC from January 2011 to September 2016 was conducted. Patient demographics, disease characteristics and survival outcomes were analyzed.

Results
515 patients were diagnosed with HCC during the study period, of which 74 and 267 patients were C–HCC and V–HCC respectively. While age and gender were comparable, C–HCC patients were older (p<0.001) and had higher rates of comorbidities (p=0.014) and metabolic syndrome (p<0.001). C–HCC patients were often diagnosed incidentally (C–HCC, 50.0% vs V–HCC, 11.3%) (p<0.001), while V–HCC mainly comprised cirrhosis (C–HCC, 35.1% vs V–HCC, 70.8%) (p<0.001) diagnosed during surveillance. Although C–HCC patients had larger median tumor size (C–HCC, 74mm vs V–HCC, 34mm) (p=0.015), histopathological features were similar. 73.3% of C–HCC patients underwent curative surgery compared to 55.4% in V–HCC group (p=0.05). Recurrence rates were similar (C–HCC, 44.4% vs V–HCC, 44.2%) (p=0.48). and median overall survival was comparable at 16 and 26 months for C–HCC and V–HCC respectively (p=0.205).

Conclusion
C–HCC patients tend to be older and are associated with metabolic syndrome. While C–HCC patients present with larger tumors, many remain amenable to curative surgery. As a risk factor, anti–HBC positivity confers similar survival outcomes as chronic viral hepatitis.

P-73–7  Strategy for post–operative recurrence prevention in intrahepatic cholangiocarcinoma after curative surgery
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BACKGROUND: The most effective treatment for intrahepatic cholangiocarcinoma is a surgical resection. However, high rate of recurrence after surgery is a common problem. Therefore adjuvant chemotherapy was performed for postoperative recurrence prevention in protocol for advanced HCC with portal vein thrombosis.

Methods: 43 cases performed chemotherapy were analyzed. cases without chemotherapy were 13 cases (no group), treatment with FU were 13 cases (FU group), treatment with Gemcitabine were 17 cases (GEM group). Gemcitabine was carried out in the protocol for administering one year after surgery to 600mg ~ 1000mg / body. There was no significant difference in recurrence–free survival compared with each group. GEM group was significantly better prognosis 65.7% than the other two groups in the 5–year cumulative survival rate (p=0.03). GEM could be continued in the absence of recurrence in six cases of patients. The recurrent cases within one year were 11 cases, patients obtained SD was present four cases. In stratified analysis in GEM group prognosis prolongation effect was observed. CONCLUSIONS: Gemcitabine is useful as adjuvant chemotherapy of intrahepatic cholangiocarcinoma, can be expected to some patients in prognosis extension effect.

P-74–1  Pathological Complete Remission with long term survival after Hepatic Arterial Chemotherapy in Advanced Hepatocellular Carcinoma with Main Portal Vein Thrombosis
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Background: The prognosis of advanced hepatocellular carcinoma (HCC) patients with portal vein thrombosis is very poor even after surgery. Aim: We report a case of pathologically confirmed complete remission of HCC induced by hepatic arterial infusion chemotherapy (HAIC).

Methods: A 45–year–old male patient had a massive HCC in the right and main portal veins. He achieved a partial response after two cycles of HAIC with 5-fluourouracil (750 mg/m2) and cisplatin (25 mg/m2). Results: After completion of six cycles he received a curative partial hepatectomy, and histopathology revealed complete necrosis without any viable tumor cell. He has been in good health without recurrence at 40–month follow–up. Conclusion: This result suggests that this regimen is a promising therapeutic modality for the treatment of advanced HCC with portal vein tumor thrombosis.

P-74–2  Liver resection and postoperative outcome for elderly patients with hepatocellular carcinoma
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Purpose: Elderly patients aged 75 years and more who underwent resection of hepatocellular carcinoma (HCC) are increasing in recent years. The postoperative course and long survival for these patients were evaluated.

Methods: 711 patients (mean age: 68 years) who underwent resection of HCC were enrolled in this study. The patients background factors, operative factors, tumor factors and prognosis were evaluated in 188 elderly patients aged 75 years and more (23%) and 523 younger patients aged less than 75 years (77%).

Results: In elderly group, 129 patients were under 80 years old (65%) and 69 patients were 80 years and more (35%). The ratio of patients who had hepatitis C virus was significantly higher (p=0.000) than that of younger patients. As regards hypertension, diabetes, no differences were found between the two groups. Examinations revealed lower values of hemoglobin (p=0.000), serum albumin (p=0.000) and total bilirubin (p=0.000), higher values of prothrombin (p=0.000) in elderly patients group. There were no differences in intraoperative blood loss, duration of operation, tumor number, tumor size and liver cirrhosis. Although no differences in fatal postoperative complications (Grade V), all postoperative complications were higher in elderly patients (41%) than younger patients (27%). Five year survival was 50.3% in elderly patients and 60.5% in younger patients with no statistical differences (p=0.08). In regards to cause of death, in 81% of the younger group, in 69% of the elderly group died with HCC, respectively.

Conclusion: Liver resection for the elderly with HCC might extend the patient’s life expectancy.
P-74-4 Clinical impact of chronic renal dysfunction on the long–term outcome of patients who underwent hepatectomy for hepatocellular carcinoma

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Background: There is little information available about long–term outcome of the patients with chronic kidney disease (CKD) who underwent hepatectomy for hepatocellular carcinoma (HCC). This study was designed to clarify the clinical impact of CKD on the prognosis of patients with HCC who underwent liver resection.

Methods: Retrospective chart reviews for 466 consecutive patients who underwent an initial hepatectomy for HCC from 2001 to 2015 in our institute were performed. We divided these patients based on estimated glomerular filtration rate (eGFR), and evaluated the clinicopathological factors and survival in the two groups. CKD group had moderate or severe loss of kidney function (eGFR<45 mL/min per 1.73 m²) and non–CKD group had normal kidney function (eGFR ≥45 mL/min per 1.73 m²).

Results: Twenty-six patients were in CKD group and 440 patients were in non–CKD group. The patients in the CKD group were older and lower incidence of microscopic intrahepatic metastasis than those in the non–CKD group. The disease–free survival rate between the two groups is not significantly different. The 1-, 3-, and 5-year overall survival rates of the CKD group were 87.3%, 55.5%, and 44.5%, respectively. The 1-, 3-, and 5-year overall survival rates of the non–CKD group were 88.1%, 79.5%, and 72.1%, respectively. The overall survival rate in the CKD group was significantly lower than that in the non–CKD group (P = 0.0012).

Conclusions. CKD is an independent prognostic factor of patients with HCC. More careful follow–up and treatment selection is necessary for the HCC patients with CKD.

P-74-5 Effects of implementing an “enhanced recovery after surgery” program on patients undergoing liver resection

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Background: Enhanced Recovery After Surgery (ERAS) is a multimodal pathway developed to overcome the deleterious effect of perioperative stress after major surgery. (Purpose) To evaluate the effects of implementing an ERAS program on the feasibility, safety, and effectiveness of extensive and potentially curative liver resection. (Method) Our ERAS protocol are "minimally invasive approach (laparoscopic surgery)", "early mobilization (walking, breathing exercise)", "Perioperative nutrition (Immunonutrition, early oral intake)", "Preoperative counseling (explain progress after an operation with pamphlet )" and "Japanesees Kanpo medicine (Daikenchuto) administration (increasing portal blood flow)". We compared clinicopathologic factors, surgical factors, and outcomes of patients who underwent extended hepatectomy before and after the introduction of an ERAS program. (Result) Patient characteristics and operating time, blood loss did not differ significantly between the control and ERAS groups. Postoperative hospital stay (22.2 days vs 17.5 days) and postoperative complications (16.5% vs 10.0%) was significantly lower in the ERAS group than in the control group. (Conclusion) The ERAS program was feasible and effective for patients undergoing liver resection.

P-74-6 RAS mutation status predicts survival and recurrence in the patients undergoing hepatic resection for colorectal liver metastasis but not for lung metastasis surgically treated – by all–RAS analysis

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Purpose
The purpose was to investigate the impact of all–RAS mutation status on the clinical course of the patients with colorectal liver metastases (CLM) and lung metastasis (LM) undergoing surgical resection.

Patients and Methods
The samples of the 411 CLM and 200 LM patients undergoing surgical resection were used for all–RAS analysis. OS, RFS and the pattern of recurrence were determined, and prognostic factors were identified in multivariate analysis.

Results
In CLM patients, RAS mutation was detected in 135 patients (44%). After excluding the patients received anti–EGFR antibody therapy, 131 patients were classified as all–RAS wild and 159 as RAS mutant. Multivariate analysis for OS and RFS identified RAS status (OS; HR=1.827, p=0.0011, RFS; HR=1.352, p=0.0428) as independent prognostic factors, as well as maximum diameter, surgical margin, CEA level, regional lymph node meta., and chemotherapy. Recurrence with lung metastasis was significantly more frequent in patients with RAS mutant than RAS wild (p=0.0007).

Conclusion
CLM patients with RAS mutations had significantly worse survival ratio compared with RAS wild. Approximately half of CLM patients may have any RAS mutation and result in poor prognosis even after hepatic resection. There were significantly more patients with RAS mutant in LM surgically treated than RAS wild.

P-75-1 Outcomes for patients with surgically resected extra–hepatic colorectal liver metastases and recurrent colorectal cancer: a single tertiary referral center’s experience

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Background:
Surgical resection for patients with extra–hepatic colorectal metastases (EHCRM) might offer survival benefit. This study aimed to review the outcomes of patients who underwent resection for EHCRM or recurrent colorectal cancer (RCC).

Methods:
Patients who underwent resection of EHCRM and RCC from November 1999 to June 2015 were recruited from a prospectively collected database.

Results:
13 patients underwent 17 resections for EHCRM or RCC. Mean age at initial hepatectomy for colorectal metastases was 57±12 (range 29–73). Mean age at extra–hepatic metastectomy was 58±12 (29–79). Of the 17 EHCRM, there were 3 lung resections, 2 small bowel resections, 4 resections of peritoneal metastases, 4 RCC resections, 2 right adrenalectomies, 1 excision of a recurrence at a radiofrequency ablation needle tract and 1 diaphragmatic wedge excision.

Mean time from initial hepatectomy to EHCRM/RCC was 424±27 months (9–79), and 5 patients underwent synchronous liver metastectomy and EHCRM resection. Survival rate for EHCRM/RCC resection was 54±52 months (4–199). 6 patients died during the follow–up period (time to death from extra–hepatic resection was 33±30 months (4–90). R0 resection rates were 15/17 (88%).

Conclusion:
In selected patients, radical surgical resection of EHCRM or RCC can offer survival benefits.
P-75-2 LAPAROSCOPIC DEROOFING FOR LIVER CYSTS: OUR SUCCESSFUL EXPERIENCE

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Background: With advances in laparoscopic surgery, laparoscopic deroofing has gained wide acceptance in the surgical community to treat symptomatic non-parasitic hepatic cysts. Published non-surgical data still favour aspiration and sclerotherapy as treatment in these cases, though morbidity is higher and recurrence rates are not acceptable. We reviewed all patients that had been treated by laparoscopic deroofing in our department over a period of 6 years in order to find out if the surgical approach should be considered the standard treatment.

Methods: From November 2012 to April 2016, 12 laparoscopic deroofings were performed in 6 patients with symptomatic cysts. All patients were followed up, and morphologic evaluation was performed with repeated abdominal US and CT.

Results: All operations could be finished laparoscopically without converting to open laparotomy. Intra- and postoperative complications were not detected. Mean operation time was 89 min (range: 37–160 min), blood loss was 5 ml (range: 0–18 ml), post-operative hospital stay was 3.2 days (range: 2–4 days), size of treated cysts was 16.7 cm (range: 14–20 cm). Follow up showed no symptomatic recurrence after surgery.

Conclusion: Laparoscopic deroofing of hepatic cysts is a safe and effective treatment option. Our data suggest that the risk of operation is justified and that the method is superior to sclerotherapy.

P-75-3 Primary mucoepidermoid carcinoma of the intrahepatic bile duct: a rare case report

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A 81-year-old man was referred to our hospital for the treatment of the liver tumor with one-week standing epigastric pain. The computed tomography (CT) of the abdomen revealed a 55mm size of mass in the S4a+5 of liver. We performed S4a+5 hepatectomy. The Gross examination of the resected liver tumor measuring 7.0 x 6.0 x 5.5 cm showed grayish white solid with central necrosis. The border between the tumor and normal liver parenchyma was relatively sharply marginalized. Microscopically, the sections of the tumor of liver show proliferation of atypical epithelial cells forming nests with focal intracytoplasmic mucin production or squamous pattern as well as mild dyskeratosis and intercellular bridges. The pathologic diagnosis was mucocoeidermoid carcinoma of the intrahepatic bile duct (MCIBD). After operation the patient remained uneventful for 3 months. Although this carcinoma is known the most common malignant salivary gland neoplasm, this primary MCIBD is a very rare. A review of the medical literature in English language reported only sixteen cases. Fourteen cases of them were disclosed from Asia. Fourteen cases of them including our case were received any treatment. Nine cases of them had undergone only surgical operation, with two cases being treated operation and chemotherapy, and one with only chemotherapy. In remaining two cases, one was treated with combined chemo-radiation therapy, another one only exploratory laparotomy. The prognosis of MCIBD has been reported extremely poor. Indeed, only one case was reported to survive for more than one year. Further accumulation of the cases seemed to be needed for the optimal treatment to this entity.

P-75-4 Single center experience of surgical treatment for polycystic liver disease

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Background: Thomas recommend fenestration for Gigot class I type of polycystic liver disease (PCLD), hepatocectomy plus fenestration for II type, liver transplantation for III type. The guideline published in 2013, but treatment has not established yet. So, from 2004 to 2015, we retrospectively reviewed medical records of our 9 cases, and examined the adaptation criteria and the attention points for PCLD.

Case: There were 5 male and 4 female, aged between 42 and 77 years. In the main complaint, abdominal bloating was observed in all cases, and three cases of severe cyst infection were found. The disease type was Gigot class I type 1 case, II type 6 case, III type 2 case. Results: The treatment in our hospital was 2 fenestrations, 4 hepatectomy plus fenestration, 3 transplantations. After surgery, abdominal bloating was improved in all cases, but in one case symptoms recurred 10 months after hepatectomy. For postoperative complications, in one case after transplantation, dislocation of a biliary stent and dissection of the bile duct anastomosis were observed. Discussion: We performed transplantation for 2 cases of type II. The reason why type II cases underwent transplantation was that it was difficult to identify infectious cysts that were uncontrollable from among multiple liver cysts. Also, after the transplantation of giant multiple liver cysts, giant gaps will occur in the abdominal cavity, so care should be taken for dislocation of a biliary stent. Conclusion: Although it is necessary to select a treatment according to disease type, in cases of cyst infection, transplantation should be prepared before progression of intractable infection of cysts.

P-75-5 A Case of Benign Schwannoma Arising from Nerve Plexus around the Common Hepatic Artery

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Introduction: Schwannoma in the hepatic hilus is a rare tumor. We report a case of benign schwannoma arising from nerve plexus around the common hepatic artery, together with some bibliographical comments.

Case: A 65-year-old man, who was noted an inguinal hernia and would undergo the operations for repair of the hernia. He underwent a CT before the operation, and a tumor 60 mm in diameter in the hepatic hilus was detected. The tumor contained a homogeneous low area with peripheral enhancement on CT. The tumor produced a hyperintense signal on both T1 and T2–weighted MRI images, and FDG uptake on positron emission tomography (PET). The surface of the tumor was smooth, but the tumor pressed the common bile duct and involved the right hepatic artery and the right portal vein. It was difficult to diagnose the tumor was malignant or not, so the surgical resection was done. The tumor was firmly adherent to the common bile duct and the right portal vein, so we performed right hepatectomy and reconstruction of biliary tract. The pathological diagnosis was benign schwannoma arising from nerve plexus around the common hepatic artery.
P-76-1 Primary hepatic neuroendocrine tumor: report of a case

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Introduction:
Neuroendocrine tumors (NET) arise from the cells in the neuroendocrine system throughout the body. However, primary hepatic neuroendocrine tumor (PHNET) is an extremely rare disease.

Case report:
A 52-year-old Japanese man in good health with no symptoms was referred to our hospital for investigation and treatment of a tumor in the liver that had incidentally been found at a medical check-up. Physical examination revealed no abnormal findings. The relevant laboratory test results and the tumor markers including CEA, CA19–9, AFP, and PIVKA–II were all within normal limits except for the elevation of biliary enzymes. No serologic evidence of hepatitis B or C virus infection was found. Abdominal computed tomography (CT) showed multi–cystic lesions with a total diameter of 60 mm in the Couinaud's segment 4 and 8 of the liver. We diagnosed the tumor as biliary cystadenocarcinoma and performed extended left hemihepatectomy with lymph node dissection in the hepatoduodenal ligament. Immunohistochemistry showed positive staining for synaptophysin, chromogranin A, and SSTs with score 3. The tumor was diagnosed as primary hepatic NET, G1, on the basis of its proliferative activity, mitotic index, and Ki–67 labeling index. The exclusion of occult extrahaepatic primary tumors was confirmed preoperatively with esophagogastroduodenoscopy, colonoscopy, and chest and abdominal contrast–enhanced CT.

Conclusion:
Primary hepatic neuroendocrine tumor is a rare disease, requiring careful differentiation from other tumors and exclusion of occult primary NET. A long–term follow–up is also needed to exclude another primary origin to confirm the diagnosis of PHNET.

P-76-2 A comparison of preoperative Platelet–to–Lymphocyte ratio, Prognostic Nutritional Index and Neutrophil–to–Lymphocyte ratio in predicting survival after curative resection for Hepatocellular Carcinoma

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AIM:
In recent years, inflammation–based prognostic scores have been studied in various malignancies, including Hepatocellular Carcinoma (HCC), and have been shown to predict outcomes. However, there is no consensus yet as to which is the best scoring system. The aim of our study was to compare preoperative Platelet–to–Lymphocyte ratio (PLR), Prognostic Nutritional Index (PNI) and Neutrophil–to–Lymphocyte ratio (NLR) as predictors of Overall Survival (OS) and Recurrence Free Survival (RFS) in patients who underwent curative resection for HCC.

METHODS:
We conducted a retrospective review of 132 patients with HCC who underwent liver resection with curative intent from 2010 to 2013.

RESULTS:
At a median follow up of 24 months (range 1–88), 25% of patients had died and 40.9% had recurrence of disease. High PLR was associated with adverse OS (23 months vs 24 months, Hazard ratio (HR) 2.10, p=0.033) and poorer RFS (11 months vs 19 months, HR 1.91, p=0.009) compared to the low PLR group. Low PNI was also associated with recurrence (24 months vs 26 months, HR 2.20, p=0.028). The NLR and PNI groups did not carry any prognostic significance on RFS.

CONCLUSIONS:
In our comparative study evaluating PLR, NLR and PNI, PLR is superior to the other two scoring systems in predicting RFS and OS after hepatectomy for HCC.
A case of hepatobiliary serous cystadenocarcinoma

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A 79-year-old man visited our hospital for further examination of prostate cancer in 2012. Abdominal computed tomography (CT) showed a cystic lesion 10 cm in diameter in the right lobe of the liver. He was given a diagnosis of simple cyst of the liver.

During the examination of leg vein thrombosis in 2016, the same lesion was pointed out on CT. Abdominal CT revealed enhancing solid components in the cystic lesion of the liver. The levels of CEA, CA 19–9 and AFP were within normal. DUPAN ~2 rose to 750 U/ml.

Based on the diagnosis of hepatobiliary cystadenocarcinoma, we performed extended right hepatectomy. Histopathologically, the tumor were diagnosed as hepatobiliary serous cystadenocarcinoma. There is no evidence of tumor recurrence after surgery.

We reported a rare case of hepatobiliary serous cystadenocarcinoma.

A case of spontaneous rupture of liver hemangioma in a teenage boy

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Hemangiomia is the most common benign tumor of the liver and it is often asymptomatic. Spontaneous or traumatic rupture, intratumoral bleeding, consumption coagulopathy, and rapid growth are mandatory surgical indications. We report a case of giant hemangiomia of hepatic segments VI and VII. An 18-year-old boy was admitted as an emergency patient to our institution for severe pain in the upper abdomen, which had occurred suddenly without a history of recent traumas. At admission a physical examination revealed severe aching pain in the upper abdomen and abdominal bloating. Hematocchemical tests showed mild anemia (hemoglobin 12.2 g/dl), leukocytosis (17500μl), and slightly high transferrase level (aspartate aminotransferase 59; alanine aminotransferase 67). A computed tomography (CT) scan demonstrated perihaptic effusion, and a large ovoidal mass of 10cm in the longest diameter, involving the right hepatic lobe. A diagnosis of hepatic angiomatosis with a rupture of the large hemangiomia localized in the right hepatic lobe was made. Selective hepatic angiography was considered, but the patient underwent an emergency surgery because residual liver function would be normal.

There was a lot of clotting blood although the tumor wasn't actively bleeding into the peritoneum during surgery. A right hepatic lobectomy was successfully performed. The histological findings revealed a liver hemangiomia. The postoperative course was uneventful and the patient was discharged in the 11th postoperative day. Although a spontaneous rupture of liver hemangiomia is very rare especially in a teenage patient, it has a high mortality rate. We present a case and a review of the literature.

A Resected Case of Hemorrhagic Hepatic Cyst that was Difficult to Distinguish from Mucinous Cystic Neoplasm

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[Background] Differentiation of hemorrhagic hepatic cyst from mucinous cystic neoplasm (MCN) is often difficult. It is particularly difficult when the mural nodule in cyst is enhanced. Here, we report a resected case of hepatic hemorrhagic cyst mimicking MCN with review of the literature.

[Case] 77 year.o., female. [P.I.] In June 201X, she had found 6 cm hepatic cyst in medical examination. As this lesion was diagnosed the suspect of MCN on the basis of CT, she had introduced to our hospital in July. [P.H.] Hypertension, Anemia, Varix. [Clinical Examination] Laboratory data indicated lower hemoglobin and normal level tumor markers (Hb: 10.3 mg/dL, CEA: 4.0 ng/mL, CA19-9: 5.7 U/mL, AFP: 3.5 ng/mL, PIVKAII: 20 mAU/mL). CE–CT showed a large hepatic cystic lesion (70 mm in diameter) with a thickened wall. The lesion contained low density fluid with several high density components. EOB–Primovist–MRI showed that intra–cystic lesion indicated high/low intensity in T1WI/T2WI. The several mural nodules were irregular lesions and slightly enhanced. One lesion of them was 6 mm diameter and stronger enhanced. [Operation] We performed anterior segmentectomy because we could not have differentiated from adenocarcinoma. Intra–cystic fluid was slightly bloody and CEA/CA19–9 of fluid was 163, 26,6266. [Histology] The specimen exhibited a thickened wall and contained no neoplastic lesion. The cystic wall was fibrotic connective tissue with hyaline degeneration and not lined with epithelium. The cyst was filled with hemotoma and fibrin. The pathological diagnosis was hemorrhagic hepatic cyst. [Postoperative course] The course was uncomplicated and she discharged in POD 13.

Risk factors of early recurrence of hepatocellular carcinoma: a Thai tertiary care center experience

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Background: Early recurrence (≤ 1 year) after curative hepatic resection is one of the factors for early death and poorer prognosis in patients with hepatocellular carcinoma (HCC).

Purpose: The purpose of this study was to identify the potential risk factors of early recurrence of HCC after hepatic resection

Materials and Methods: From January 2006 to December 2015, patients who underwent curative hepatic resection for HCC at our institute were enrolled. Risk factors for early recurrence were analyzed.

Results: Two hundred and ninety–one were enrolled in this study. One hundred and forty–six patients (50.1%) developed tumor recurrence. Seventy–five patients (51.3%) developed recurrence within 1 year of surgery (early recurrence group) and seventy–one (48.6%) patients developed recurrence after 1 year of surgery (late recurrence group). Cox's proportion hazard model multivariate analysis showed tumor size > 5 cm (p=0.003) and presence of microscopic vascular invasion (p=0.017) were independent factors for early recurrence of HCC. Overall survival and recurrence free survival rate were significant lower in early recurrence group.

Conclusion: Early recurrence following hepatic resection was associated with tumor size >5 cm and presence of microscopic vascular invasion. For those patients carefully follow up should be considered

Early recurrence following hepatic resection was associated with tumor size >5 cm and presence of microscopic vascular invasion. For those patients carefully follow up should be considered.
P-77-2 Predictors of micrometastases in patients with Barcelona Clinic Liver Cancer classification B hepatocellular carcinoma

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Background
Transarterial chemoembolization (TACE) is indicated for Barcelona Clinic Liver Cancer (BCLC) B hepatocellular carcinoma (HCC); whether TACE provides any long-term survival benefit remains unclear, therefore we investigated micrometastases predictors to identify patients who would benefit from surgical resection (SR).

Methods
First, we analyzed risk factors of micrometastases, microvascular invasion or poor histologic grade, in 38 BCLC B HCC patients who underwent SR between January 2001 and December 2013. At second, we validated identified risk factors in 54 BCLC B HCC patients who underwent TACE during the same period to determine their influence on overall survival.

Results
Risk factors of micrometastases in SR patients was the levels of AFP ≥ 110 or PIVKA-II ≥ 800 (P = 0.004). The cumulative probability of tumor recurrence (P = 0.009) and overall survival (P = 0.001) after SR differed by the levels of AFP and PIVKA-II. After validation of risk factors to TACE group, patients with SR and AFP < 110 and PIVKA-II < 800 had superior survival outcomes than in other patients (HR 0.116; 95% CI, 0.027–0.497; P = 0.004).

Conclusions
AFP and PIVKA-II levels predict the micrometastases and overall survival; they could be considered when selecting SR for BCLC B HCC.

P-77-3 Effects of locoregional treatments before living donor liver transplantation on overall survival and disease–free survival

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Background. To date, the study of effect of locoregional treatment on living donor liver transplantation (LDLT) are rare. Methods. From December 2003 to December 2012, 130 patients who were newly diagnosed with HCC underwent LDLT. Pre–transplant locoregional treatments for HCC were performed in 86 (66.2%) patients. We evaluated the effects of pre–transplant locoregional treatment on survival in LDLT and the most accurate method for predicting survival after LDLT. Results. Of the 33 patients with HCC initially beyond the Milan criteria, 12 (36.4%) experienced successful down–staging after locoregional treatments, and the 5–year DFS and OS of the 12 patients in whom down–staging was successful were 81.8 and 75.0%, respectively, which was comparable to those in patients with HCC initially within the Milan criteria. The mRECIST criteria (p = 0.042), and increased alpha–fetoprotein (AFP) levels (p = 0.004) during pre–transplant locoregional treatments were independent risk factors for HCC recurrence after LT in multivariate analysis. Conclusion. LT may be considered after successful down–staging in patients with HCC initially beyond the Milan criteria, and mRECIST criteria and serum AFP level changes are better selection criteria for LDLT in patients who have received locoregional treatments compared with the initial assessment of tumor size or number.

P-77-4 A report on a case of mucinous cystic neoplasm of the liver

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A 47–year-old woman came to our hospital complaining of sudden abdominal pain. Computed tomography (CT) with contrast enhancement revealed a multi–locular cystic tumor, 26cm in diameter, with a wall enhanced solid component located in the left lobe of the liver. Tumor has progressed to the anterior sector and it was close to the right anterior Glissonian pedicle. Because we suspected an impending rupture of the tumor, percutaneous transhepatic drainage was performed. The cytology of the drained fluid strongly suggested adenocarcinoma. Positron emission tomography (PET) – CT showed intense fluorine–18–fluorodeoxyglucose (18FDG) uptake in the corresponding cystic tumor in the liver. The preoperative diagnosis was malignant mucinous cystic neoaplasm of the liver. Since it was suspected that it will be difficult to dissect the tumor from the anterior bile duct and her liver function test was within normal limits, we performed left trisectionectomy. Macroscopically, the cystic lesion was multilocular and had a solid lesion. The final pathological diagnosis was a mucinous cystic neoplasm of the liver with an associated invasive carcinoma. Ovarian–like stroma (OLS) was observed extensively in cyst wall of the stroma. The OLS was positive for estrogen receptors. The World Health Organization has reclassified mucin–producing bile duct tumor of liver into two distinct entities; mucinous cystic neoplasm of the liver (MCN) and intraductal papillary neoplasm of the bile duct (IPNB), depending on the presence of OLS. Here, we report a case of mucinous cystic neoplasm of the liver and review of literature.

P-77-5 Hepatocellular adenoma diagnosed by immunohistochemical study: a case report

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[Purpose] Hepatocellular adenoma (HCA) is relatively rare, especially in middle–aged males. HCA is a benign tumor mimicking hepatocellular carcinoma (HCC), therefore it is sometimes difficult to distinguish HCA from HCC by preoperative imaging. We experienced HCA that could be diagnosed finally by immunohistochemical study.

[Patient] A 36–year–old male admitted to our hospital. A liver tumor was incidentally pointed out by an annual medical examination. Contrast–enhanced CT showed 32mm tumor with early staining and subsequent washed–out at segment II. However, contrast–enhanced ultrasonography showed tumor staining from artery phase to even Kupiffer phase. Serum levels of alpha–fetoprotein and des–gamma carboxy prothrombin were within normal range. Superparamagnetic iron oxide – MR showed iron intake of this tumor. Our preoperative diagnosis was HCC or focal nodular hyperplasia (FNH) and laparoscopic S2 partial hepatectomy was performed. Operation time was 195 minutes and blood loss volume was 15ml. He discharged on the 12th day after operation with no complications. Pathologically this tumor was observed like FNH. However, central scar lesion was not evident. Therefore immunohistochemical study using serum amyloid A protein (SAA) and C–reactive protein (CRP) was performed and both positive staining demonstrated that this tumor was HCA.

[Discussion and conclusion] It is difficult to distinguish HCA from HCC similar lesions in pathological diagnosis as well as preoperative imaging. New WHO classification advocated utility of immunohistochemical study using SAA and CRP to diagnose HCA. Based on this classification, we could make a pathological diagnosis of HCA.
A case of hepatic epithelioid hemangiendothelioma
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Case: A 31-year-old woman was admitted to our hospital for treatment of a multiple hepatic tumor, which was found plain computed tomography (CT) at the local hospital to treat the gastroenteritis. The physical examination did not detect any abnormal findings and her laboratory data, including CEA, CA19–9, and AFP, were unremarkable. CT shows delayed enhanced and slightly ring enhanced multiple tumor at the liver, in 5–50mm in diameter, and don’t detect any other tumor. MRI shows same finding of CT. Endoscopy shows no tumors. We considered multiple liver tumors to metastatic liver tumors derived from occult cancer, and then we were performed FDG–PET CT. Because of the result of this examination, we were regard to primary hepatic epithelioid hemangiendothelioma (HEHE). We were performed needle biopsy, but did not take sufficient material, and then, we planned to perform a partial hepatectomy at the Segment 8 for diagnostic diagnosis. The resected specimen revealed a white–colored solid mass, CD34 and CD31 positive, hyaline and fibrotic degeneration. These histological findings were consistent with a HEHE. The patient’s post operative course was uneventful and no evidence of progression of disease, has been found until 8 months after the surgery. Discussion: HEHE is a very rare tumor that tends to be confused with metastatic liver tumor pre-operatively. In most cases of HEHE, there were multiple tumors and they were not resectable. The present case is reported along with a review of the relevant literature.

A successful case of ruptured multiple hepatocellular carcinoma achieved tumor free status by multimodal therapy
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【Background】 Long term prognosis of ruptured hepatocellular carcinoma (HCC) is poor although only life rescue has become practical by progress of interventional radiology (IVR). We report a successful case of ruptured multiple hepatocellular carcinoma achieved tumor free status by multimodal therapy.
【Case】 68 y.o./male. He received SVR status after PEG–IFN+RIB therapy against hepatitis C. In 2013, he was introduced to our institute due to abdominal pain and was diagnosed as ruptured multiple HCC by CE–CT and tumor marker (AFP; 3764 ng/mL, PIVKA–II; 26599 mAU/mL). First of all, TACE was performed to stop hemorrhage in an emergency. After the initial treatment, TACE was repeated 3 times and TAI with CDDP was performed 4 times to control progression. In 2015, sigmoid colon cancer was found by PET–CT and sigmoidectomy was performed. At the same operation, microwave coagulation therapy was added to the suspected residual HCC in caudate lobe. In April 2016, tumor marker increased again and HCC recurred in S5 lesion with portal vein thrombus (PVTT). At this time, HCC indicated lower vascularity and was considered to be difficult to treat with IVR. For this reason, we performed anterior segmentectomy in June 2016. Histopathological findings showed moderately to poorly differentiated HCC with PVTT (UICC; T3bN0M0, Stage IIIB). He discharged 10 days after surgery without complication and tumor markers immediately normalized. Close follow up is now ongoing at 7 months after surgery with no evidence of recurrence.
【Conclusion】 Multimodal treatment, especially IVR on carefully through–out plan and eligible surgery might prolong survival of ruptured HCC.

Conversion to resection of multiple liver metastasis with calcification from sigmoid colon cancer after chemotherary
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A 57-year-old woman with a sigmoid colon cancer and multiple liver metastasis with calcification was referred to our hospital. The metastatic lesions were diagnosed as initially unresectable because of number and distribution of liver metastasis. After she had undergone laparoscopic sigoidectomy for the original tumor, and had partial resection of liver metastasis for definitive diagnosis. She consequently had 14 courses of modified 5–fluorouracil, leucovorin, and oxaliplatin plus bevacizumab (mFOLFOX4+Bev). Computed tomography (CT) revealed a partial response, but remained calcification in the liver metastasis. Because of peripheral nerve disorder, chemotherapy changed into 5–fluorouracil, leucovorin, and oxaliplatin plus bevacizumab (mFOLFOX6+Bev). After 5 additional courses of 5FU–ILV plus bevacizumab, tumor maker showed upward tendency. She therefore had mFOLFOX6 + Bev again. After 4 additional courses of mFOLFOX+Bev, she had anaphractic reaction. Chemotherapy changed into 5–fluorouracil, leucovorin, irinotecan plus bevacizumab (FOLFIRI+Bev). After she had 24 courses of FOLFIRI+Bev. CT demonstrated recurrence in the liver S4 and S5/8. Chemotherapy changed into irinotecan plus panitumumab. Computed tomography (CT) showed a partial response for S4 and S5/8 liver metastasis, and other calcification lesion didn’t changed. Finally, a left extended hepatectomy and partial resection was performed 3 years after first operation. The postoperative course was uneventful. In pathological findings, calcificated lesion in the liver had no viable cell.
Liver metastases from gastric hepatoid adenocarcinoma mimicking hepatocellular carcinoma: two case experiences

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[Introduction] Hepatoid adenocarcinoma (HAC) of the stomach is relatively rare and its prognosis is unfavorable because of its high incidence of liver or lymph node metastasis. Herein, we reported two patients of liver metastasis from gastric HAC which were diagnosed as hepatocellular carcinoma (HCC) preoperatively. [Case1] A 67-year-old male admitted to our hospital with HCC diagnosis. He received distal gastrectomy for double gastric cancer two years ago. At that time, pathological finding was diagnosed as poorly differentiated adenocarcinoma and UICC–TNM stage was T3a/T4bN0M0. A 13cm solitary liver tumor was found at anterior section. Since serum levels of alphafetoprotein (AFP), des–gamma carboxy prothrombin (DCP) and CA19–9 were elevated, this tumor was diagnosed as HCC preoperatively. Central bisectionectomy was performed. Pathological diagnosis was metastatic HAC, consistent with gastric origin. [Case2] A 62-year-old male was admitted to our hospital with liver metastasis of gastric cancer. He received laparoscopic distal gastrectomy for gastric cancer one year ago. Pathological finding was moderately differentiated adenocarcinoma and UICC–TNM stage was T3N2M0. A solitary tumor at Segment VIII was detected and AFP level was elevated, therefore HCC was also suspected as preoperative diagnosis. Laparoscopic Segmentectomy VIII was performed. Pathological diagnosis was metastatic adenocarcinoma with AFP producing. [Discussion and conclusion] Liver metastasis from gastric HAC is often misdiagnosed as primary HCC. Even if a patient has elevated AFP level, a possibility of HCC should be considered when he had a past history of gastric cancer.

Hepatic Resection for Isolated Breast Cancer
Liver Metastasis; Single Center Experience

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Background
Hepatic metastases without extrahepatic metasases are 4–5% of metastatic breast cancer, and the available treatments are limited and ineffective. The aim of this study is to review the outcome of selected patients with BCLM after hepatic resection in single center.

Methods
Between November 2011 and January 2014, 6 patients underwent hepatic resection for BCLM. All patients received hepatic resection to achieve an R0 resection.

Results
1 of 6 patients was synchronous metastases and 5 of 6 patients were metachronous metastases. The initial lymph node metastases of breast cancer was found in 4 patients and 2 patients were ER and PR negative. All patients received adjuvant therapy after breast cancer surgery depending on their hormone receptor status and tumor stage except synchronous metastases. Major liver resection was performed in 4 patients. The 1–year and 3–year overall and disease free survival rates after hepatic resection were 100%/ 80% and 83.3% / 83.3%.

Conclusion
Curative resection of breast cancer liver metastasis may be considered as one of a multimodal treatment of the metastatic disease. It has benefit for a few patients, and should be needed absolute selection criteria.

A case of a liver metastasis 18 years after resection for gastrointestinal stromal tumor of the small intestine

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A 84–year-old woman was referred to our hospital for further examination and treatment of a liver mass, which was detected incidentally by abdominal US in June, 2016. In 1998, She underwent a partial resection of the small intestine with a 12–cm mass, which was found to arise from the wall of the small intestine and the pathology was consistent with gastrointestinal stromal tumor (GIST). Abdominal contrast–enhanced CT scan showed a 98×80–mm mass with a clear boundary in the right robe of the liver. A core needle biopsy could not prove the existence of the characteristic spindle cells of GIST, however, her surgical history and the CT scan suggested the liver mass was the metastatic tumor from the GIST of the small intestine. We performed the right hepatectomy, and immunohistochemical staining on histopathological examination revealed positive staining with c–kit, confirming a diagnosis of metastatic GIST. This case was a liver metastasis after a disease–free interval of 18 years, and to our knowledge, the longest interval reported in the literature in Japan. Long term follow–up, therefore, seems to be necessary for the patients with a history of GIST tumor resection.
P–79–2 Emergency laparoscopic cholecystectomy in jaundiced patients: outcomes in a prospective cohort

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INTRODUCTION Traditional teaching dictates that it may not be prudent to take the jaundiced patient to theatre for emergent laparoscopic cholecystectomy. It has been postulated that acutely jaundiced patients may not perform as well as their non–jaundiced counterparts following laparoscopic cholecystectomy.

METHODS A prospective cohort of 104 patients with cholecoldithiasis demonstrated at the time of emergency laparoscopic cholecystectomy was stratified into two groups using a serum total bilirubin cutoff of above 50 μmol/L (2.9 mg/dL) to define the jaundiced group. Primary outcomes were morbidity and mortality rate. The Clavien–Dindo classification was applied to the grading of surgical complications, as well as the novel Comprehensive Complication Index (CCI).

RESULTS The jaundiced group (n = 43) appeared to experience less morbidity when compared to the non–jaundiced (control) group (n = 61), although this was not statistically significant. Overall morbidity rate in the jaundiced group was 28% versus 36% (control), p = 0.405. Mean CCI in the jaundiced group was 5.28 versus 8.00 in the control group, p = 0.229. Mean length of stay was longer in the control group, 4.65 versus 6.51 days (p = 0.036). There were no peri–operative mortalities or conversions to open surgery in either group.

CONCLUSION Emergency laparoscopic cholecystectomy in jaundiced patients is unlikely to be associated with adverse outcomes, the caveats being that this cohort did not include patients with severe cholangitis or pancreatitis and that alternative causes e.g. malignancy for obstructive jaundice should always be reasonably excluded prior to cholecystectomy.

P–79–4 Management of intrahepatic stones following flow diversion surgery for congenital choledochal cyst

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Aims. To discuss the management of intrahepatic stones (IHS) developed after flow–diversion surgery (excision of the extrahepatic bile duct and reconstruction) for congenital choledochal cyst (CCC) and elucidate the nature and countermeasure of this disease.

SUBJECTS AND METHODS. 23 patients with IHS developed after flow diversion surgery for CCC were treated in our department. We examined postsurgical treatment scores, regarding IHS.

RESULTS. Patients were morphologically classified as Todani type I in 6 and type IV–A in 17 cases. The median time from flow–diversion surgery to IHS detection in type I and type IV–A were 15.5 and 11.0 years, respectively. Most cases presented with cholangitis. On cholangiography, anastomotic stricture at the hepatoenterostomy and persistence of intrahepatic bile duct dilatation and stricture were characteristic findings in type I and type IV–A, respectively. Concerning treatment, hepatectomy, reconstruction with choledocho–jejunostomy or stone removal were performed. Prognosis was good in most patients, however, 1 case of type I had to undergo liver transplantation and 3 cases of type IV–A passed away with liver failure due to cholestatic liver cirrhosis.

Conclusion. IHS formation was considered to be ascribable to cholestasis caused by anastomotic stricture in type I, and persistence of intrahepatic bile duct dilatation and stricture in type IV–A. It is necessary to create the wide anastomosis and avoid persistence of dilatation and stricture of the intrahepatic bile duct respectively when performing flow diversion surgery. Early stone removal and resolution of cholestasis is important in case IHS occurs after flow diversion surgery.

P–79–3 Incidence of postoperative hepatolithiasis after pancreaticoduodenectomy

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(Introduction) Postoperative complications of Pancreaticoduodenectomy (PD) include anastomotic stricture of the choledochojejunostomy followed by hepatolithiasis. It is considered to be one of the most important complications because it is difficult to remove stone in many cases and repeat recurrence after the treatments. (Methods) We investigated the incidence and background factors of postoperative hepatolithiasis for 409 PD cases performed in our department from 2008 to 2015. (Results) The postoperative hepatolithiasis after PD occurred in 10 cases (2.4%). The primary disease of these 10 cases consisted of pancreatic cancer (4 cases), pancreatic IPMN (2 cases), chronic pancreatitis (2 cases), cancer of Vater ampulla (1 case), and lower bile duct cancer (1 case). The average period until the development of intrahepatic stones was 40.7 months. From the preoperative and postoperative factors, we investigated the cause of the postoperative hepatolithiasis after PD. Postoperative anastomotic leakage of choledochojejunostomy (Odds ratio 8.04, p–value 0.04) and pancreatic IPMN (Odds ratio 4.97, p–value 0.03) are confirmed as significant risk factors. (Discussion) Although the incidence of anastomotic stricture of the choledochojejunostomy or intrahepatic stones after PD is not high, they often develop after a long period of operation. Although anastomotic leakage of choledochojejunostomy is suggested as a risk factor, the development of intrahepatic stones is also observed in cases without anastomotic leakage. In consideration of the occurrence of postoperative hepatolithiasis, long–term follow up is important after PD.

P–79–5 Early surgery for acute cholecystitis with common bile duct stones

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Background: In Tokyo Guidelines (TG13) early laparoscopic cholecystectomy (LC) is the first–line treatment in patients with mild acute cholecystitis. Early LC is the first choice of treatment for mild and moderate cholecystitis in our hospital. They are occasionally accompanied by common bile duct stones, and laparoscopic common bile duct exploration (LCBDE) is useful procedure for common bile duct stones because of papillary function preservation, and applicable to patients with acute cholecystitis. Patients and methods: In the period from 2012 to 2016, a total of 47 patients who underwent early LCBDE for common bile duct stones. Sixteen of these patients had acute cholecystitis. The other 31 patients did not. These two groups (except for one patient and five patients because of convert to laparotomy, respectively) were compare the clinical features and surgical outcomes. Results: The severity grading of acute cholecystitis was mild in 8 patients and moderate in 7 patients. There was no significant difference in the operative time (mean 182 minutes versus 160 minutes) and blood loss (mean 32g versus 34g), postoperative day (mean 9 days versus 11 days) for the two groups. Almost all of these patients were uneventful after surgery. Conclusion: LCBDE is more useful procedure for acute cholecystitis with common bile duct stones.
**P-79-6**  Our experience of cholecystectomy for the cholecystitis by stone with the aberrant bile duct

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Background: Developing the technique of laparoscopic cholecystectomy bring the patients for cholecystitis less—invasive surgery. However even now, cases of severe inflammation, adhesion or intraoperative biliary injury make us convert laparoscopic to open surgery. Case presentation: A 45—year—old man underwent a medical examination for right hypochondralgia at our hospital. He was diagnosed as cholecystitis by the stone. The presence of an aberrant bile duct for B5+6, a break of the cystic and the aberrant duct, and replaced RHA from SMA were detected by the DIC—CT and enhanced CT. Although cholecystectomy was performed by the laparoscopic at the start of the operation, severe adhesion and an injury of the aberrant bile duct made us convert to open surgery; when we tried to separate the adhesion between the neck of gall bladder and the periphery of the Calot’s triangle and to secure the cystic artery branched from RHA, the aberrant bile duct running at the back of the neck and the cystic artery was injured. Therefore, we selected to perform the intraoperative ENBD for B5+6 and repair the bile duct. He was changed the drainage method from ENBD to ERBD on POD33, and discharged our hospital on POD40. Conclusion: Although we had paid attention to the aberrant bile duct running at the back of the neck and the cystic artery and divided the RHA from the SMA, we encountered the bile duct injury as a result of difficult dissection. Therefore, we would like to discuss the better or best practices with the audiences.

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**P-80-1**  Effect of age on the outcomes after pancreatoduodenectomy for distal cholangiocarcinoma

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Background: With the lengthening of the average life span, the number of elderly individuals undergoing pancreatoduodenectomy (PD) for distal cholangiocarcinoma (DCC) has increased. However, the effect of age on the outcomes after PD for DCC is unclear. The aim of this study was to clarify the effect of age on the outcomes after PD in patients with DCC.

Methods: Sixty—five patients undergoing PD for DCC were studied. We divided the patients into two groups (<75 years (n=41) and ≥ 75 years (n=26)) according to age at the time of surgery and then compared the perioperative findings and postoperative outcomes.

Results: Regarding the preoperative laboratory data, the serum albumin value was lower and the prothrombin time—international normalized ratio was longer in the ≥ 75 years group (p=0.01 and p=0.03, respectively). There were no marked differences between the two groups regarding the operative time and intraoperative bleeding. Pancreatic fistula (ISGPF grade ≥ B) was observed in 46.3% and 62.5% of the <75 years and ≥ 75 years groups, respectively, which was not significantly different (P=0.21). Postoperative complications (Clavien—dindo classification grade ≥ 3) were observed in 51.2% and 66.7% of the <75 years and ≥ 75 years groups, respectively, which were not significantly different (P=0.23). Regarding the long—term outcomes, no significant differences were seen between the two groups regarding the recurrence—free survival and disease—specific survival (p=0.31 and p=0.91, respectively).

Conclusions: The outcomes after PD for DCC were therefore not found to differ according to age.

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**P-80-2**  Feasibility of Extra Hepatic Bile Duct Resection for Biliary Cancer

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Background and Aim

Radical resection for most cases of biliary cancer needs major hepatectomy or pancreatoduodenectomy, generally. Although these procedures give certain radical cure, but it is difficult to apply to the patients of old age or poor performance status from the point of its surgical stress or postoperative complications. Therefore, we will assess the feasibility of extra hepatic bile duct resection applied to the past cases.

Objects and Method

Seven cases applied the extra hepatic bile duct resection under the diagnosis of biliary cancer (T1 or 2, N0, M0) were enrolled. They were thought to be given certain radical with the procedure, or it is difficult to apply the major operation because of their general conditions. We investigate the pathological findings and clinical course of the patients, by dividing into two groups as non—recurrent group (N group) and recurrent group (R group).

Results

All of the patients is male, and the median age is 78 (65.5, 82). The radical cures (R0/R1/R2) of N group and R group are 3/1/0 and 1/1/1, respectively. All of the patients of N group is still alive despite of included a R1 (pDM1) case. On the other hand, all of the patients of R group have died because of exacerbation of the original diseases, and their average survival duration is 39 months.

Discussion

Extra hepatic bile duct resection has a possibility of establishment as a radical surgery if considered of the eligibility criteria strictly. And for the patients of old ages or poor general conditions, that procedure will be acceptable nevertheless the down of the radical cure level.

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**P-80-3**  Adjuvant chemotherapy with Gemcitabine and/or S—1 after surgical resection for extrahepatic cholangiocarcinoma with nodal metastasis

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Background/Purpose: The presence of lymph node (LN) metastasis was one of the strongest prognostic factor for patients with resected extrahepatic cholangiocarcinoma (ECC). The aim of this study was to evaluate the efficacy of adjuvant chemotherapy (AC) for node positive ECC.

Methods: Among 42 patients (22 with distal, 14 with diffuse, and 6 with proximal) who underwent surgical resection for ECC with nodal metastasis from 2000 to 2015, the following three groups were defined according to the use of AC; Gemcitabine (GEM)/S—1 (GEM/S—1 group), UFT (UFT) group, and no AC group (n=10). Clinicopathological variables and clinical outcomes were compared retrospectively.

Results: Of all patients, R0 resection and 5—year overall survival (OS) rate were 69%, 34%, respectively. The 5—year OS and recurrence—free survival (RFS) rate were 47%, 30% (GEM/S—1 group), 25%, 20% (UFT group), and 25%, 20% (no AC group), respectively. AC with GEM and/or S—1 was associated with improved OS (p=0.014) and RFS (p=0.044) compared with surgery alone. The use of AC (p=0.032), the use of GEM and/or S—1 (p=0.017), R0 operation (p=0.013), surgical procedure without hepatectomy (p=0.034), number of metastatic nodes ≥ 2 (p=0.022) and LN ratio <0.1 (p=0.0078) were associated with long—term survival by univariate analysis. Multivariate analysis identified R0 operation as an independent predictor of OS (risk ratio 3.15; p=0.0091).

Conclusion: AC with GEM and/or S—1 may be a promising strategy for patients with resected ECC with nodal involvement. However, R0 resection may contribute to longer survival than the above AC for those patients.
P-80-4 Pancreaticoduodenectomy with combined resection of PV and replaced RHA followed by reconstruction using the 1st jejunal graft for locally advanced distal bile duct cancer: a case report

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We report a case of a 57-year-old female who underwent neoadjuvant chemoradiotherapy and subtotal stomach preserving pancreaticoduodenectomy (SSPPD) with combined resection and reconstruction of portal vein (PV) and replaced right hepatic artery (RHA) for a locally advanced distal cholangiocarcinoma. Patient complaining of back pain and jaundice was suspected to have pancreatic head tumor on initial CT scan in another hospital. She was referred to our department for further treatment. On further review, bile duct showed enhancement leading to a diagnosis of middle to lower bile duct adenocarcinoma. The tumor was suspected to invade the pancreatic head, PV, and replaced RHA. Confirmation biopsy obtained on ERCP showed positive for malignancy up to the bifurcation of bile duct. In the diagnosis of locally advanced distal bile duct cancer, neoadjuvant chemotherapy with two courses of Gemcitabine + S1 was provided to the patient. Response to chemotherapy was determined with decrease in DUPAN-2 and CA19–9. A repeat hilar bile duct biopsy after neoadjuvant chemoradiotherapy was also documented to be negative. Because she had a chance of curative resection, she underwent SSPPD combined with resection of PV and RHA. During the operation, first jejunal arterycarefully dissected from mesojejunum for arterial anastomosis. Then RHA was reconstructed with first jejunal artery via end-to-end anastomosis. Surgery achieved an R0 resection with no major postoperative complication.

P-80-6 Surgical outcomes of patients with bile duct cancer with microscopic paraaortic lymph node metastasis

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Background: To date, bile duct cancer (BDC) with bulky or macroscopic #16 LN metastasis are generally recognized inoperable, however, indication of resection for BDC with microscopic #16 LN metastasis is controversial. The aim of this study was to examine clinicopathological characteristics and surgical outcome of our experienced patients with BDC with microscopic #16 LN metastasis.

Methods: A retrospective review of our database of 176 patients (2005–16, 87 perihilar extrahepatic, 89 distal) who underwent resection was performed. In these, microscopic #16 LN + was detected in 11 patients (M/F=4/7, mean age 60yr, 7 perihilar, 4 distal). The survival outcome and clinicopathological factors was evaluated in these patients.

Results: Major hepatectomy was performed in 6, PD in 3 and bile duct resection in 2 patients. Ten patients received postoperative chemotherapy. Seven patients had several factors of microscopic residual cancer other than #16 LN metastasis (5 bile duct cut end, 3 dissected periductal structure, 1 ovarian metastasis). For 11 patients, the overall 1-, 3-, and 5-year survival rates were 90, 34, 11%, respectively, and this was significantly better compared to those of non–resection BDC. Survival of patients with only #16 Ln + was significantly better than that of patients with both #16 LN + and other factors (p=0.027). Only 1 patient with solitary #16 LN + who underwent preoperative proton beam therapy and postoperative chemotherapy achieved 10-year survival.

Conclusion: Surgical resection for patients with microscopic #16 LN metastasis had survival benefits with additional postoperative chemotherapy, especially in patients with only #16 LN metastasis.

P-80-5 Comparison of Bile Duct Segmental Resection and Pancreaticoduodenectomy for Middle Bile Duct Cancer

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Background: To compare the surgical outcomes of bile duct segmental resection (BDSR) and pancreaticoduodenectomy (PD) for localized middle bile duct (MBD) cancer.

Methods: From January 2001 to December 2011, total 151 patients underwent surgical resection for MBD cancer. Among them, excluding 51 patients with other malignancy or R2 resection, 100 patients (41 BDSR and 59 PD groups) were enrolled in this study.

Results: Rate of margin–negative R0 resection was 39% in BDSR group and 84.7% in PD group (P<0.001). There were no significant differences in the ratio of metastatic lymph nodes to retrieved lymph nodes (0.11±0.25 vs. 0.05±0.09, P=0.144), stage distribution (P=0.197) and recurrence rate (53.7% vs. 52.5%, P=0.912) between 2 groups. 5–year overall survival rates for BDSR and PD groups were 41.6% and 53.9%, respectively (P=0.283). Additionally, in cases of patients with margin–negative R0 resection (16 in BDSR group and 50 in PD group), there was no significant difference in 5–year overall survival rate between 2 groups (78.6% vs. 58.4%, P=0.692).

Conclusions: Regardless of old age, poor performance status, and R1 resection, BDSR and PD for localized MBD cancer showed comparable surgical outcomes. BDSR can be selected for patients with localized MBD cancer as an alternative operation of PD.

P-81-1 KRAS mutation as a potential prognostic biomarker of biliary tract cancers

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Background: KRAS mutation as a potential prognostic biomarker for the survival in BTC patients. By multivariate analysis incorporating molecular and clinicopathological features, KRAS mutations and lymph node metastasis were identified to be independently associated with shorter OS (KRAS, P = 0.004; lymph node metastasis, P = 0.015).

Conclusions: Our data suggest that KRAS mutation is a poor prognosis predictive biomarker for the survival in BTC patients.
P-81-2 Large cell neuroendocrine carcinoma of the common bile duct: a case report and a review of literature

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**Background:** Large cell neuroendocrine carcinoma (LCNEC) of the bile duct is extremely rare and is a high-grade type of neuroendocrine tumor with an aggressive clinical course. Here we report a case of LCNEC of the extrahepatic bile duct. **Case presentation:** An 80-year-old man presented with severe jaundice. Endoscopic retrograde cholangiography and enhanced computed tomography revealed complete obstruction of the common bile duct (CBD) by a dense tumor measuring 1.5 cm in diameter. Although there were no malignant cells in the biliary brush cytology, we suspected a cholangiocarcinoma and performed extrahepatic bile duct resection. Histologically, the LCNEC occupied most of the places deeper than the stratum submucosum and an adenocarcinoma component, approximately 15%, was present in the mucosa. There were no transitional areas between the two components. Immunohistochemically, the LCNEC cells were reactive for CD56 and synaptophysin and had a high MIB-1 index (72%). The patient died of multiple liver, lung, and peritoneal metastases 3 months after surgery. **Conclusions:** LCNEC of the CBD is particularly rare and has a very poor prognosis. Only five cases have been reported in the literature; therefore, there is no established effective therapy, including surgery, for LCNEC of the CBD at present. An accumulation of additional cases and further studies of multimodal treatment are required in the future to improve the prognosis.

P-81-3 Mixed adenoneuroendocrine carcinoma of the distal bile duct: a case report

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**Backgrounds:** Mixed adenoneuroendocrine carcinoma (MANEC) of the common bile duct (CBD) is extremely rare and only a few cases have been reported. We present a case of MANEC of the distal bile duct (DBD) that was initially diagnosed and surgically treated as adenocarcinoma.

**Case Report:** A 60-year-old man presented with epigastralgia. Physical examination was unremarkable. Laboratory tests showed abnormal liver function with T. bil 2.0 mg/dL, D. bil 0.4 mg/dL, AST 307 U/L, and ALT 409 U/L, g-GT 932 U/L, and ALP 534 U/L. CEA and CA19-9 were normal. CT revealed dilated CHD with a high-density lesion in the DBD. Endoscopic retrograde cholangiopancreatography demonstrated a CHD stricture and a 5 mm elevated lesion of the DBD. Brush cytology showed atypical ductal cells indicating adenocarcinoma. A subtotal stomach preserved pancreaticoduodenectomy was performed under diagnosis of adenocarcinoma of the DBD. Neither peritoneal dissemination nor lymph node metastases were recognized. Microscopically, the lesion was composed of predominantly well differentiated tubular adenocarcinoma in the surface admixed with neuroendocrine carcinoma (NEC) in the deeper portion. Vascular and perineural invasion were seen. Although the cystic duct, gallbladder and papilla of Vater showed no malignancy, the rest of the bile duct showed dysplastic epithelium. The NEC component was positive for synaptophysin and CD56. The MIB-1 index was 30% in the NEC component.

**Discussion:** It is important to identify the NEC component using a surgically resected specimen with immunohistochemical staining, because MANEC may show more aggressive behavior and poor prognosis.

P-81-4 Survival analysis by preoperative CT-based staging of neoadjuvant full-dose gemcitabine and radiotherapy in patients with biliary tract cancer

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**Background/Aim:** The outcomes of surgery for biliary tract cancer (BTC) are limited because of a low R0 resection rate and a high rate of local recurrence. Adjuvant therapy would be expected, however, as our previous reports, about 30% could not undergo postoperative adjuvant therapy and the dose reduction was necessary in the rest of the patients, thus we performed neoadjuvant chemo-radiotherapy (CRT) and previously showed the feasibility and pathological effect. Meanwhile, we investigated CT-based staging for preoperative detection of poor prognostic group, and suspected arterial invasion and/or organ invasion indicated poor surgical outcome. In this study, we evaluated survival of neoadjuvant therapy in BTC, by pre-treatment CT-based staging.

**Methods:** The CRT regimen consisted of 3 cycles of full-dose gemcitabine with 50–60 Gy radiation. We compared 27 patients who received neoadjuvant CRT and 79 patients who did not received. Hemi-hepatectomy or PD was planned for all of the patients in the study population.

**Results:** After confirming the reproducibility of CT-based staging, we analyzed the survival of the patients. The multivariate analysis showed that arterial invasion on CT, lymph node swelling, and neoadjuvant therapy were independent prognostic factors. The 3-year RFS rates in patients treated with and without neoadjuvant therapy were 78% and 58%, respectively (P=0.0263). The adjusted OS (determined by the inverse probability of treatment weighting method using the inverse propensity score) was improved by neoadjuvant therapy (P=0.00187).

**Conclusion:** Neoadjuvant CRT might have the potential to improve RFS and OS.

P-81-5 Withdrawn
P-81-6  Isolated IgG4–related sclerosing cholangitis mis-diagnosed as malignancy in an area with endemic cholangiocarcinoma: A case report

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Background: The most common cause of perihilar obstruction is cholangiocarcinoma, especially in Thailand. Benign perihilar stricture represents less than 20% of cases. IgG4–related disease and IgG4–related sclerosing cholangitis, however, have been receiving increased recognition. Isolated IgG4–related sclerosing cholangitis is less common. The preoperative diagnosis of IgG4–related sclerosing cholangitis without pancreatic involvement is very difficult because the clinical presentation and preoperative evaluation are extremely difficult to distinguish from perihilar cholangiocarcinoma.

Case presentation: We report the case of a 56–year–old man who presented with obstructive jaundice with preoperative imaging showing proximal common bile duct obstruction. He underwent right lobe liver hepatectomy with extrahepatic bile duct resection and regional lymph node dissection due to high suspicion of malignancy. The pathological report showed severe acute and chronic inflammation of the bile duct with morphology and immunohistochemistry suggestive of IgG4–related sclerosing cholangitis.

Conclusions: IgG4–related sclerosing cholangitis with perihilar obstruction should be considered even in areas where cholangiocarci-
noma is endemic.

P-82-1  Two cases of adenosquamous carcinoma of the distal bile duct

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We reported two rare cases of adenosquamous carcinoma(ASC) of the distal bile duct. Case 1. A 69 year–old man with jaundice was referred to our hospital with further examination. A contrast enhanced abdominal CT revealed central hypodense tumor with enhancing peripheral portion in the pancreas head. CBD and MPD were dilated. Ultrasonography after stenting the drainage tube was revealed low echoic mass 2cm in diameter on the head of the pancreas. ERCP showed an unilateral compressed stricture of the distal bile duct and MPD. EUS showed the low echogenic tumor expansive outward growth. We performed subtotal stomach preserving pancreatoduodenoctectomy (SSPPD) diagnosed as pancreatic head cancer. Histopathologically the tumor consisted of adenoscarcina and squamous carcinoma of the distal bile duct. Because of tumor invasion of the pancreas parenchyma, and duodenum with lymph node metastasis, he received adjuvant chemotherapy of gemcitabine. No recurrence has occured 84 months after the surgery. Case 2. A 79–year–old woman was admitted to our hospital with jaundice and general fatigue. CT revealed central hypodense 3cm tumor with enhancing peripheral portion at the groove area. ERCP showed the same findings as above. She underwent SSPPD and histopathologically diagnosed as ASC with no evidence of lymph node metastasis, but tumor invasion of the pancreas parenchyma, and duodenum. She is in good clinical course and no recurrence until 3 months after the surgery. ASC of the distal bile duct is very rare and, in general, its prognosis is poor, but, even including lymph node metastasis, radical operation and adequate adjuvant chemotherapy may provide a long survival.

P-82-2  Tumor–infiltrating inflammatory and immune cells as prognostic indicator for survival in patients with extrahepatic cholangiocarcinoma

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Background: In the tumor microenvironment, inflammation and immune system are considered to be the critical components of tumor initiation and progression. The aim of this study was to assess the inflammatory and immune profiles in the microenvironment of extrahepatic cholangiocarcinoma (ECC) and to evaluate the impact of their clinicopathological features and patients’ prognosis. Methods: A total of 114 consecutive patients with ECC who underwent resections between 2000 and 2014 were enrolled. Using immunohistochemistry, we examined tumor infiltrating CD68+ neutrophils (TAN), CD163+ M2 macrophages (TAM), CDS+ T cells, and Foxp3+ regulatory T cells (Treg) and evaluated their relations with patients’ clinicopathological features and prognosis. Results: TAN had a significantly negative correlation with CD8+ T cells (P=0.0001) and a positive correlation with Treg (P=0.001), however TAM did not have. In the survival analysis, high TAN (HR=2.20, P=0.01), low CD8+ T cells (2.03, P=0.02), and high Treg (HR=1.78, P=0.04) were associated with worse OS, however high TAM was not significant (HR=1.42, P=0.21). Making inflammatory and immune risk signature from TAN, TAM, CD8+ T cells, and Treg profiles, high–risk signature was significantly associated with worse RFS (HR=1.81, P=0.008) and OS (HR=2.30, P=0.0008), and high–risk signature was an independent poor prognostic factor for patients who underwent resections (HR=2.09, P=0.004). Conclusion: Tumor infiltrating inflammatory and immune cells played a pivotal role in the ECC microenvironment and our risk signature could be an independent poor prognostic indicator for survival in patients with ECC who underwent resections.

P-82-3  Two cases of bronchobiliary fistula: case report

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Introduction Bronchobiliary fistula (BBF) which results from an abnormal connection between the biliary and bronchial tree is characterized by pathognomonic bilious sputum with suspicious pneumonia. We report 2 cases of BBF treated by interventional radiology.

Case 1 A 66–year–old male had undergone pylorus–preserving pancreatoduodenectomy (PPPD) due to distal common bile duct cancer in 2012. Local recurrence was found at right hepatic duct and right hemihepatectomy was performed in May 2016. He visited the ER three days after discharge complaining of greenish sputum with mild dyspnea.

Case 2 A 38–year–old female with a cirrhotic liver underwent right hemihepatec-
tomy due to hepatocellular carcinoma in 2008. Partial resection with primary repair of the diaphragm was performed because there was cancer invasion. She visited ER due to bilious sputum in June 2015. After insertion of PTBD, her symptom improved.

Discussion BBF is an abnormal connection between the biliary and bronchial tree. Its etiology remains unclear. There might be three conditions that are needed to make a BBF: fluid collection, any small injury to the dia-
aphragm during liver mobilization, and adhesion between pleura and lung. In conclusion, BBF can occur in patients with fluid collection near the diaphragm after liver resection. ERCP or PTBD can be used as the primary management of choice.
P-82-4 Bile Duct Segmental Resection versus Pancreateoduodenectomy for Middle and Distal Common Bile Duct Cancer

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**Purpose**
To compare survival outcomes between bile duct segmental resection (BDR) and pancreateoduodenectomy (PD) for the treatment of middle and distal bile duct cancer.

**Methods**
From 1997 to 2013, total 96 patients who underwent curative intent surgery for middle and distal bile duct cancer were identified. The patients were divided into two groups according to the types of operation: 20 patients of BDR group and 76 patients of PD group.

**Results**
The number of lymph nodes were significantly greater in patients of PD group than BDR group. Total number of lymph nodes were 5.8 ± 8.0 vs. 11.2 ± 8.2 (p = 0.002) and number of metastatic lymph nodes were 0.4 ± 0.9 vs. 1.0 ± 1.5 (p = 0.080), respectively. After a median follow-up period 24 months (range, 4 to 169), the recurrence free survival of the PD group was superior than that of BDR group (p = 0.035). In the patients with lymph node metastases, the patients underwent PD had significantly better survival than BDR group (p < 0.001).

**Conclusion**
A surgeon should be careful to perform BDR for middle to distal common bile duct cancer. The PD is recommended if lymph node metastases are suspected.

P-82-5 Preoperative platelet lymphocyte ratio predicts survival in patients with distal bile duct cancer

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**Background and Aim**
Predicting prognosis using preoperative factors, not operative or pathological variables, will contribute to stratification of patients and provision an optimal treatment strategy. Recently, several inflammation–based markers, such as the platelet lymphocyte ratio (PLR), the neutrophil to lymphocyte ratio (NLR) and modified Glasgow Prognostic Score (mGPS), and immune–nutritional status such as Prognostic nutritional index (PNI) have been reported as prognostic factors in various malignancies. The aim of this study was to evaluate the prognostic value of these parameters in predicting survival of patients with distal bile duct cancer.

**Patients and Methods**
From 2000 to 2015, 51 patients after pancreateoduodenectomy for distal bile duct cancer were enrolled. Survival was analyzed according to clinicopathological variables including mGPS, NLR, PLR and PNI. Cut-off value for NLR, PLR and PNI were defined by ROC analysis.

**Results**
The median survival time of all patients was 38.5 months, and the 1, 3, 5 year survival rates were 88.0%, 50.3% and 36.9%, respectively. In univariate analysis, NLR, PLR, mGPS, PNI, lymphovascular involvement, portal vein involvement, curability, lymph node involvement and advanced stage were significantly associated with worse survival. Multivariate analysis revealed PLR, lymph node involvement and advanced stage were independent poor prognostic factor.

**Conclusion**
Preoperative PLR may be useful as a prognostic predictor in patients with distal bile duct cancer.

P-82-6 Carcinosarcoma of cystic duct: a case report

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**Introduction:** Carcinosarcoma is a rare tumor that is characterized by malignant epithelial and mesenchymal components. Carcinosarcoma of cystic duct is extremely rare. We report an interesting case of a cystic ductal carcinosarcoma and a brief literature review.

**Case report:** A 68-year-old man was admitted to the Sapporo Medical University Hospital (Sapporo, Japan) with jaundice. Biochemical tests revealed that the serum concentrations of aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP) and total bilirubin levels were increased. The tumor marker, serum carbohydrate antigen 19-9 level was elevated to 429 U/ml. Computed tomography (CT), magnetic resonance imaging (MRI) and endoscopic retrograde cholangiography (ERCP) were consistent as advanced cancer are extremely rare. We diagnosed acute cholangitis due to bile duct pressing by gallbladder cancer. In biochemical examination, inflammatory response and hepatobiliary enzymes were elevated. Tumor markers were abnormally high value; CEA value was 16.2 ng/ml, CA19-9 value was 2369 U/ml. The results of contrast CT, MRI and ERCP were consistent as advanced gallbladder cancer with right hepatic ductal invasion, we performed radical resection surgery. In the laparotomy, the gallbladder was highly swelling, the serosa was partially whitened and the serosal invasion was suspected. In addition, the neck of gallbladder was suspected of direct invasion into the right hepatic duct. Therefore, we performed right hepatic lobectomy of the liver, resection of the extrahepatic bile duct with D2 lymph node dissection, and reconstruction of the biliary tract. In the macroscopic findings of resected specimens, multiple papillary tumor in the gallbladder was observed, the gallbladder wall was highly adherent to the right hepatic duct. In histopathological diagnosis, highly dysplasia was partially observed in the tumor, but malignant findings were not observed. The tumor was diagnosed as multiple intracystic papillary neoplasm (ICPN). ICPN is a relatively new category and corresponds to gallbladder papillomatosis in the old classification. Furthermore, cases diagnosed as advanced cancer are extremely rare.

We reported a case of ICPN in which the tumor was difficult to differentiate from advanced gallbladder cancer.

P-83-1 A case of multiple intracystic papillary neoplasm

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**Case:** The patient was a 70-year-old female and the chief complaint was epigastralgia. CT showed marked swelling of the gallbladder and papillary tumor occupying the lumen. We diagnosed advanced cholangitis due to bile duct pressing by gallbladder cancer. In biochemical examination, inflammatory response and hepatobiliary enzymes were elevated. Tumor markers were abnormally high value; CEA value was 16.2 ng/ml, CA19-9 value was 2369 U/ml. The results of contrast CT, MRI and ERCP were consistent as advanced gallbladder cancer with right hepatic ductal invasion, we performed radical resection surgery. In the laparotomy, the gallbladder was highly swelling, the serosa was partially whitened and the serosal invasion was suspected. In addition, the neck of gallbladder was suspected of direct invasion into the right hepatic duct. Therefore, we performed right hepatic lobectomy of the liver, resection of the extrahepatic bile duct with D2 lymph node dissection, and reconstruction of the biliary tract. In the macroscopic findings of resected specimens, multiple papillary tumor in the gallbladder was observed, the gallbladder wall was highly adherent to the right hepatic duct. In histopathological diagnosis, highly dysplasia was partially observed in the tumor, but malignant findings were not observed. The tumor was diagnosed as multiple intracystic papillary neoplasm (ICPN). ICPN is a relatively new category and corresponds to gallbladder papillomatosis in the old classification. Furthermore, cases diagnosed as advanced cancer are extremely rare.

We reported a case of ICPN in which the tumor was difficult to differentiate from advanced gallbladder cancer.

P-83-2 Preoperative platelet lymphocyte ratio predicts survival in patients with distal bile duct cancer

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P–83–2 IgG4–related Sclerosing Cholangitis Mimicking Extrahepatic Cholangiocarcinoma

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Background: IgG4–related sclerosing cholangitis is a rare benign disease that can masquerade as cholangiocarcinoma of the extrahepatic cholangiocarcinoma. We herein report a case of extrahepatic bile duct resection for IgG4–related sclerosing cholangitis with obstructing bile duct mass under the impression of proximal CBD cancer.

Methods: A 79–year–old male was admitted for jaundice that had developed a month ago. Laboratory values at admission included total bilirubin 17.9 mg/dL, AST/ALT 97/52 IU/L, alkaline phosphatase 339 IU/L, CA 19–9 1061 U/mL. CT scans and MRCP revealed a short segmental concentric wall thickening of proximal CBD with diffuse dilatation of bile duct to the periphery and GB distension. Subsequently performed ERCP demonstrated no malignant cells were proven in biopsy specimen. With the impression of proximal CBD cancer, we performed segmental resection of the extrahepatic bile duct and lymph node dissection. Depth of invasion seemed to be T2 and several enlarged lymph nodes were encountered.

Results: Histopathological examination of the surgical specimen demonstrated marked sclerosis with diffuse lymphoplasmacytic infiltration and some eosinophils. All lymph nodes were reactive hyperplasia. Immunohistochemical staining for IgG4 showed increased positivity in some area (up to 30/HPF) and the ratio of IgG4+/IgG+ cells was 30–50%. Pathologists’ impression was IgG4–related sclerosing disease.

Conclusions: IgG4–related sclerosing cholangitis masquerading as cholangiocarcinoma is an extremely rare disease. Because preoperative cytology is not diagnostic of this lesion, surgical resection remains the mainstay of diagnosis and treatment.

P–83–4 A case of intraductal papillary neoplasm of the bile duct (IPNB) and intraductal papillary mucinous neoplasm of the pancreas (IPMN) treated by laparoscopic surgeries

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It is suggested that intraductal papillary neoplasm of the bile duct (IPNB) can be a biliary disorder as a counterpart of intraductal papillary mucinous neoplasm of the pancreas (IPMN). We experienced a case of both IPNB and IPMN which were treated by laparoscopic surgeries.

A 72–year–old man, who had undergone a surgery for a gingival carcinoma, was found enlargement of a branched type IPMN of the pancreatic body and dilation of the main pancreatic duct to 5mm by follow–up CT. And mural nodules were found in the IPMN. This lesion was removed by laparoscopic distal pancreatectomy, and was histopathologically diagnosed as IPMN with high grade dysplasia. Two years later, a follow–up CT revealed that a small cyst in the segment 3 of the liver had enlarged, and the findings of slight dilatation containing mucinous substance were pointed out in the bile ducts of the left lateral sector by MRI and ERCP. Although the cytological examination was negative, intrahepatic cholangiocarcinoma was suspected. The patient underwent laparoscopic left hemi–hepatectomy. The lesion was histopathologically diagnosed as IPNB with mild to moderate atypia. The primary focus was in the cystic lesion and the tumor extended along the bile ducts. Although the surgical margin of the left hepatic duct was positive, additional excision was not performed. The patient is doing well without any signs or symptoms of tumor recurrence 12 months after second surgery.

P–83–3 Intraductal papillary neoplasms of the bile duct with highly malignant potential: 4 cases report

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Intraductal papillary neoplasms of the bile duct (IPNB) is a rare disease of the bile duct which has been proposed as one of the pre–invasive lesions of cholangiocarcinoma. Herein, we report four cases of IPNB associated with invasive carcinoma.

First case was a 74–year–old male patient was admitted because of jaundice. Magnetic resonance cholangiography (MRCP) findings showed papillomatosis of the bile duct. We underwent a palliative hepatico–jejunostomy because whole intra–hepatic duct was covered with papilloma. Second case was a 61–year–old male patient. He had liver cyst four years ago. In the computed tomography imaging (CT), there was a cystic mass with mixed component in left liver. We performed laparoscopic left hemihepatectomy. The pathology revealed IPNB with invasive carcinoma. Third case was a 59–year–old female patient admitted because of progression of liver mass. She had performed right posterior sectionectomy and left lateral sectionectomy due to intrahepatic stones two years ago. IPNB was found one year ago in follow–up CT. There was protruding mass in the hepatic flexure of the right colon. The colon biopsy was similar pattern with liver specimen. She underwent palliative chemotherapy. Fourth case was a 61–year–old male patient. Endoscopic biopsy revealed villous adenoma in the bile duct. We performed left hepatectomy with hepatocojejunostomy. The pathology revealed IPNB, with multifocal associated invasive carcinoma. Conclusions: Although IPNB is a rare disease, it requires increased attention due to its high malignant potential. We should find more accurate clinicopathologic features for definitive diagnosis and proper treatment.

P–84–1 A case of right posterior sectoral bile duct unusual joining common hepatic duct via "retroportal" course with portal vein variation in a gallbladder cancer patient

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Joining variation of right posterior sectoral bile duct (RPSD) is classified as "supraportal" or "infraportal", according to course around right portal vein. Some reports described RPSD confluence patterns were more variable when right posterior portal vein independently diverged from portal vein with 6.0–11.4% prevalence (=portal vein variation), and they reported unusual "retroportal" course of RPSD joining to common hepatic duct. We report a case of right posterior sectoral duct joining common hepatic duct via "retroportal" course with portal vein variation in a gallbladder cancer patient.

The patient was a 74–year–old male, and had 2cm tumor at the fundus of gallbladder without liver invasion and lymph node swelling. He had portal vein variation, and his RPSD joined to left sided common hepatic duct. He underwent extended cholecystectomy plus lymph node dissection. Intraoperative histological diagnosis of cystic duct was cancer–positive, and we added bile duct resection. After the resection, we recognized 2 hole of bile duct separated by portal vein. Especially, one small hole located at left sided portal vein was mimicking a bile duct of Spiegel lobe. We performed intraoperative cholangiography and confirmed the small bile duct as his RPSD. His RPSD took retroportal course to join the common hepatic duct. We performed two hepatocojejunostomy using 3 biliary stent troublesomeley.

For hilar bile duct reconstruction in gallbladder cancer patients, preoperative radiological confirmation about portal vein variation and hilar confluence pattern of bile duct is necessary.
P-84-2 A case of metachronous quadruple cancers: cancers of the gallbladder, prostate, bladder and stomach

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(Introduction) The reports of primary multiple cancers have increased because of the aging society, the advance of diagnostic technique and increase of cancer–survivors. However, metachronous quadruple cancers were relatively rare. Herein, we report a case of metachronous quadruple cancers involving adenosquamous carcinoma of the gallbladder (GB), with some literature review.

(Case) A 79-year-old male was admitted to our hospital in diagnosis as GB tumor. He underwent total gastrectomy for gastric cancer 21 years ago, and had been treated medically for the prostate and bladder cancer for 2 years. He has no specific family history. The intraluminal-growing GB tumor was 9 cm in size and invaded to liver bed and the adjacent colon in computed tomography (CT). Since metastasis of distant organ and perihilar lymphnode was not apparent, anatomic hepatectomy (segment 4a, 5) with hilar dissection and partial colectomy were performed. Histopathological examination revealed that the gallbladder cancer was adenosquamous carcinoma with liver and colon invasion (pT3) and that surgical margin was negative. He is alive without recurrence.

(Conclusion) The patient had metachronous quadruple cancers and these pathologic features were quite diverse, suggesting that he may have genetic abnormality in DNA–replication–controlling genes.

P-84-3 A case of so-called carcinosarcoma of the gallbladder confused with XanthoGranumatosum Cholecystitis in the diagnosis

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Here we report a so-called carcinosarcoma of the gallbladder in a 66-year-old woman confused with xanthogranumatosum cholecystitis in the preoperative diagnosis. The patient presented with complaint of upper abdominal pain. The laboratory data showed the serum level of tumor marker carbohydrate antigen (CA19–9) was slightly abnormal, while carcinoembryonic antigen (CEA) was normal. The finding of ultrasonography, computed tomography and magnetic resonance imaging indicated regular wall thickness relatively with no demonstrable lymph nodes. Endoscopic ultrasonography and endoscopie retrograde cholangiography declared benign concerning with pancreaticobiliary maljunction and bile cytology remained suspicious, so preliminary diagnosis was xanthogranumatosum cholecystitis. During the surgery, we apparently observed liver metastasis nearby (S4 segment), which was not pointed in any preoperative examination, so we performed a radical cholecystectomy with a wedge resection of the liver including metastatic lesion combined with a hepatoduodenal ligament lymphadenectomy. A pathological examination uncovered two distinct component in the tumor: poorly differentiated adenocarcinoma and undifferentiated sarcomatoid tissue. However, an immuno-histochemical study showed sarcomatous component was stained by various markers proved to be a so-called carcinosarcoma. The prognosis of carcinosarcoma of the gallbladder is extremely poor despite of curative resection, but the patient had no sign of recurrence 5 months after surgery.

P-84-4 A case of rapidly growing carcinosarcoma of the gallbladder

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Carcinosarcoma of the gallbladder is a rare malignant tumor. We experienced a case of rapidly growing carcinosarcoma of the gallbladder. A 69-year-old man complaining of abdominal distension was admitted to our hospital. Abdominal contrast enhanced CT image revealed a huge polycystic mass of unknown organ. After admission, the maximum diameter of the tumor rapidly increased from 31 cm to 34 cm in a week. We assessed that the risk of tumor rapture became higher, so we performed diagnostic laparotomy. We found that the tumor was originated from the gallbladder. Under the diagnosis of the malignant tumor of the gallbladder, cholecystectomy, wedge resection of underlying liver tissue, and skeletonization of the hepatoduodenal ligament was performed. On gross findings, the gallbladder was filled with solid mass and connected to the huge polycystic mass. Histologically, the tumor comprised an adenocarcinoma and pleomorphic atypical mesenchymal cell component. The pathological diagnosis was so-called carcinosarcoma of the gallbladder. Postoperative course was uneventful, and he was transferred to another hospital for rehabilitation on 46 days after surgery. He refused to have adjuvant chemotherapy. Few literature have reported the growth of carcinosarcoma of the gallbladder, so this may be the first case of a rapid growth.

P-84-5 Evaluation of the treatment outcome of incidental gallbladder cancer in our hospital

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<Background>
The qualitative diagnosis of gallbladder cancer by the progress of the recent imaging technique, but it is said that gallbladder cancer is found in around 1% of the cholecystectomy by postoperative pathological diagnosis for the first time. We evaluated the treatment strategy and outcome of incidental gallbladder cancer (IGBC) we experienced in our hospital.

<Material and Method>
Between January 2003 and December 2016, we intended for 24 cases (1.14%) that showed IGBC. Additional resection should be performed in the gallbladder cancer cases with suspected place deeper than T2 or cancer persistence. We summarized the treatment outcome of the whole IGBC and examined it.

<Results>
14 males and 10 females were included. Median age was 73 years old. 2 Stage 0 cases, 9 Stage I cases, 8 Stage II cases, 4 Stage III B cases, 1 Stage IV B case were reviewed. Of these, we performed additional operations in 9 cases except of 1 Stage II case and 3 Stage III B cases. The period to surgery of the second was 33 days. Gallbladder bed or liver 54a-5 resection in 6 cases, extrahepatic bile duct resection in 4 cases and lymph node dissection was performed in all cases. All Stage 0 and 1 cases survive without recurrence. In cases we performed additional resection, 1year survival rate was 88%, 3year survival rate 75% and 5year survival rate 75%. Lymph node recurrence was showed in Stage III B and IV B case, but only 1 case had a liver recurrence in the case of Stage II.

<Conclusion>
In IGBC cases, the additional resection was unnecessary for the early cancer, and good results were obtained by conducting additional resection in the place deeper than T2 case.
P-85-1  The outcome of percutaneous transhepatic gall-bladder aspiration (PTGBA) for the patients with acute cholecystitis

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• Background
  Early laparoscopic cholecystectomy (LC) is recommended for acute cholecystitis. However, it is the present conditions that there are many institutions having difficulty in performing early operation from the problem of the staff and the institution. In this hospital, conservative treatment was provided for acute cholecystitis before it and performed elective LC after performed by percutaneous transhepatic cholangiography gallbladder fine needle aspiration (PTGBA), if necessary. We examine a treatment outcome of the elective laparoscopic cholecystectomy after PTGBA for acute cholecystitis.

• Methods
  The medical records of 116 consecutive patients who had undergone an LC within 90 days from the onset between February 2008 and September 2016 were retrospectively reviewed and compared with the medical records of acute cholecystitis patients who had undergone an LC within primary operation (group 1, n=87) or after PTGBA (group 2, n=29). The clinical outcomes of the two groups were analyzed.

• Results
  In the comparison with the two groups, the group 2 had a significantly shorter postoperative hospital stay, but blood loss, operating time, the rate of conversion to open surgery, the interval from PTGBA to elective LC did not significantly differ.

• Conclusion
  The outcome of the LC cases was thought to be almost permitted results. However, as for the surgery wait median duration, there was enforcement after PTGBA in LC a relatively long-term waiting period later in 20.0 (5–83) days. It was thought that the case to be found by regression of inflammation could plan shortening of the elective surgery time.

P-85-3 Treatment outcome in the elective laparoscopic cholecystectomy after the conservative treatment for the acute cholecystitis

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• Background
  In this hospital, conservative treatment was provided for acute cholecystitis before it and performed elective LC after performed by percutaneous transhepatic cholangiography gallbladder fine needle aspiration (PTGBA), if necessary. We examine a treatment outcome of the laparoscopic cholecystectomy (following LC) for acute cholecystitis.

• Methods
  We intended for 116 cases that underwent LC for acute cholecystitis among 830 patients who underwent LC in this hospital and, for background, a preoperative test result, image laboratory findings, perioperative findings, an operative time, examined complications, a laparotomy transition case for postoperative hospitalization. Furthermore, we weighed it against ten preoperative test result, image laboratory findings, perioperative findings, 830 patients who underwent LC in this hospital and, for background, a preoperative test result, image laboratory findings, perioperative findings, 830 patients who underwent LC in this hospital and, for background, a preoperative test result, image laboratory findings, perioperative findings, 830 patients who underwent LC in this hospital and, for background, a preoperative test result, image laboratory findings, perioperative findings, 830 patients who underwent LC in this hospital and, for background, a preoperative test result, image laboratory findings, perioperative findings, 830 patients who underwent LC in this hospital and, for background, a preoperative test result, image laboratory findings, perioperative findings.

• Results
  Preoperative WBC, preoperative CRP, hospitalization after surgery showed a significant difference by the comparison of both groups in an early group, but there were not the findings with the difference that was significant in other examination items.

• Conclusion
  There was not the significant difference that was apparent to the examination item because long-term, but significantly had a short there being little number of cases of the early group as for the comparison in the surgery time from this onset and waiting period of the late group for the still postoperative hospitalization. It is thought to be useful in shortening and safety of the operative time and shortening of the illness brain period to perform early operation and thinks that it will be necessary to pile up an early operation case in future.

P-85-2 Difficult observance of a guideline for acute cholecystitis and cholangitis

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<Material and methods> We studied clinical course, and management of 108 cases with AC and ACC during recent 5 years, and assessed observance of a Tokyo guideline for acute cholangitis and cholecystitis (TG13).<Result> The 108 cases consisted 44 cases of ACC, and 64 of acute cholangitis/cholecystitis (AC/CC). Of the all cases, 7 cases also complicated with acute pancreatitis. One case with diabetes and chronic renal failure was dead due to acute myocardial infarction. Although all cases were examined blood test, serological examination, ultrasonography, and computed tomography, 23 cases (21%) were not examined imaging of bile duct urgently. No case was severe cholecystitis or cholangitis. Fifteen cases of ACC were misdiagnosed (34%) due to serological examination and treated superficial bile duct drainage, while 8 cases of AC/CC were misdiagnosed (12.5%) due to no performance of urgent bile duct imaging and treated late bile duct drainage. Average days of total hospitalization were 21.4 days. Between four groups (accurate diagnosis of ACC, accurate diagnosis of AC/CC, and misdiagnosis of AC/CC), there was no significant difference in average days of total hospitalization.<Conclusion> Assessment for AC and ACC would be insufficient without urgent imaging examination of bile duct in our institute. In conclusion, we should change the order of diagnosis and treatment was changed on real clinical scene of AC and ACC, we believe that we could not obey TG13 for urgent management of AC and ACC.

P-85-4 A preoperative predictive scoring system to predict the ability to achieve the critical view of safety during laparoscopic cholecystectomy for acute cholecystitis

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Purpose: The aim of this study was to develop a preoperative scoring system to predict the ability to achieve the critical view of safety (CVS) in patients undergoing emergency laparoscopic cholecystectomy (LC) for acute cholecystitis (AC). Methods: A retrospective review of patients who underwent LC for AC between 2012 and 2015 was performed. The achievement or failure of creating the CVS was judged by operative records, video recordings, and interviews of the surgeons. Independent preoperative variables associated with failure were determined by multivariate logistic regression analysis and a prediction scoring system created. Results: A C–reactive protein (CRP) >5.5 mg/dl, gallstone impaction, and symptom onset to operation >72 hours were identified as independently correlated risk factors for the failure to achieve the CVS. A preoperative risk scoring system for the failure to create the CVS (0–5 points) was constructed using these 3 factors: CRP >5.5 mg/dl (2 points), gallstone impaction (1 points), and time from symptom onset to operation >72 hours (2 points). When monitoring the frequency of patients who had a failure to create the CVS at each score, the incidence of failure increased as the score increased (P<0.001). Conclusions: Using only three preoperative factors, the proposed scoring system provides an objective evaluation of the likelihood that CVS can be achieved in patients undergoing emergency LC for AC.
P–85-5 Preoperative risk factors for conversion of laparoscopic cholecystectomy to open cholecystectomy
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Background
Laparoscopic cholecystectomy (LC) has become the gold standard for treating symptomatic cholelithiasis. Technical difficulties can make the conversion to open cholecystectomy inevitable. The aim of this study was to determine predictive factors of conversion in patients undergoing LC for benign gallbladder disease.

Material and Methods
We retrospectively analyzed the date of all consecutive 294 patients who underwent LC between January 2012 and November 2016 in the department of surgery at Iwakuni Clinical Center. We evaluated the preoperative risk factors for conversion to open cholecystectomy.

Results
Conversion to open cholecystectomy occurred in 20 patients (6.8%). Significant predictors of conversion based on the univariate analyses were male gender (p = 0.038), use of antiplatelet or anticoagulant drug by cardiovascular disease (p = 0.023), previous upper abdominal surgery (p < 0.001), pericholecystic fluid (p < 0.001), gallbladder wall thickness > 5mm (p = 0.006), emergency surgery (p = 0.002), history of gallstone pancreatitis, and acute cholecystitis (p = 0.002). Multivariate analysis showed that the significantly independent predictive factors for conversion were previous upper abdominal surgery (OR, 14.6; P = 0.004), pericholecystic fluid (OR, 10.0; P = 0.054), acute cholecystitis (OR, 7.81; P = 0.028), and emergency surgery (OR, 15.8; P = 0.0071).

Conclusions
The factors that were found to be significant were previous upper abdominal surgery, diagnosis of acute cholecystitis, pericholecystic fluid, and emergency surgery. In patients who have all of these risk factors, we recommend starting with open cholecystectomy.

P–86-1 Isolated Polycystic Pancreas: A Rare Cause of Chronic Pancreatitis with Severe Malnourishment
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Background: Polycystic disease of the pancreas is a rare entity with few reported cases in literature. It can occur with other cysts, especially those of the kidneys, and liver. We report a rare case of isolated polycystic pancreas presenting with obstructive jaundice, severe malnourishment and features of chronic pancreatitis.

Case report: A 34-year old man presented with painless epigastric mass and features of obstructive jaundice for three weeks. He also complained of steatorrhea and claimed to be diabetic for past three years. Examination revealed a palpable vague mass at epigastrium. Blood investigation showed a raised serum bilirubin 143 umol/L, alkaline phosphatase 1689 IU/L and gamma glutamyl–transferase 2413 IU/L. Tumour markers were normal. Abdominal contrast enhanced computed tomography and magnetic resonance cholangiopancreatography revealed a polycystic pancreas with multiple calcifications and dilated common bile duct and intrahepatic duct. Endoscopic ultrasound was performed. Patient had an endoscopic retrograde cholangiography with biliary stent placed and his jaundice resolved. He was started on oral pancreatic enzyme and insulin. On follow-up, his condition improved and sustained weight gain.

Conclusion: Isolated diffuse polycystic pancreas in adults is rare and may present with features of chronic pancreatitis due to loss of pancreatic parenchyma. It can also present with jaundice as illustrated by this case, which resulted in seeking treatment. Failure to do so may lead to prolongation of symptoms of chronic pancreatitis with worsening nutritional status.

P–85-6 Risk factors of difficult laparoscopic cholecystectomy for acute cholecystitis
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Purpose: To investigate whether dynamic computed tomography (CT) findings can predict the difficulty of laparoscopic cholecystectomy for acute cholecystitis.

Methods: Between March 2011 and November 2016, the medical records of 53 patients who underwent emergency laparoscopic cholecystectomy for acute cholecystitis and performed 3–phasic dynamic CT scans preoperatively were reviewed retrospectively. A case of difficult laparoscopic cholecystectomy (DLC) was defined as any case with operation time ≥ 3 hours, bleeding volume ≥ 200 mL, and/or conversion to open surgery. The 53 patients were assigned to a DLC (+) group or a DLC (−) group. We determined the CT attenuation value ratio of the arterial phase (ARAP) to show the degree of the transient focal enhancement of the liver adjacent to the gallbladder. The patient characteristics and CT findings including ARAP were compared between the groups.

Results: 17 patients categorized a DLC (+) group. The ARAP was significantly higher in the DLC (+) group than in the DLC (−) group (p < 0.001). ARAP cutoff value for a predictor of cases of DLC was determined using receiver operating characteristic (ROC) curve analysis; the ARAP cutoff value was 1.49, and the area under the ROC curve was 0.799. In the CT findings, ARAP ≥ 1.49 (p = 0.001) and pericholecystic abscess (p = 0.029) were significantly correlated with a predictor of cases of DLC.

Conclusions: In the preoperative dynamic CT findings, increased of ARAP and pericholecystic abscess are risk factors for difficult laparoscopic cholecystectomy for acute cholecystitis.

P–86-2 Pancreaticoduodenectomy with Hepatic Arterial Revascularization for Pancreatic Head Cancer with a Stenosis of Celiac Axis due to Compression by the Median Arcuate Ligament
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We report a case of pancreatic head cancer with celiac axis (CA) stenosis due to compression by the median arcuate ligament (MAL) and aneurysm of inferior pancreaticoduodenal artery (IPDA). A 71 years–old woman was admitted to our hospital because a hypo echoic mass with dilatation of the main pancreatic was detected by abdominal ultrasonography during a screening examination. As for the blood biochemical examination were within the normal range. Abdominal enhanced computed tomography showed the pancreatic head mass, 30 mm in diameter, on the right side of the portal vein (PV). Furthermore, an aneurysm, 20mm in diameter, at the IPDA and CA stenosis compressed by MAL were revealed. We diagnosed pancreatic head cancer with CA stenosis due to MAL compression and aneurysm of IPDA. Pancreaticoduodenectomy (PD), combined resection of PV, and arterial reconstruction were performed. The surrounding tissue of the CA was dissected and MAL was opened up, but the hepatic arterial flow did not improve. After following PD with combined resection of the PV, we performed vascular reconstruction by end–to–end anastomosis of the gastroduodenal artery and middle colic artery. After reconstruction, arterial blood flow was dramatically improved. Intrahepatic arterial flow measurement using Doppler ultrasound was useful regarding convenience and stability. Postoperative course was uneventful, and she was discharged from hospital post–operative day 16.

It is important to certainly save hepatic arterial flow during PD in the patients with pancreatic head cancer with a stenosis of CA due to compression by the MAL. If necessary, surgeon should consider revascularization of hepatic artery.
P-86-3 A Case of Intrahepatic Pseudocyst : A Rare Complication of Acute Pancreatitis

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Background/Purpose: Pancreatic pseudocyst is a common complication of acute pancreatitis. Pseudocysts are located usually in lesser sac and peripancreatic space. The intrahepatic location of pseudocyst following acute pancreatitis is extremely rare.

Methods: A 70-year-old woman was referred because of upper abdominal pain of 3 days' duration. An abdominal CT scan revealed 11x10 cm sized cystic mass in the left lateral section of liver. On EUS findings, a huge hypoechoic lesion with internal echogenicity was noted in the lesser sac. When the cystic lesion was punctured, dark green colored turbid fluid was aspirated. EUS-guided gastrocystotomy was performed and analysis of cystic fluid showed a high level of amylase (21, 200 U/L). After the endoscopic procedure, severe abdominal pain developed and physical examination showed severe irritational sign. An emergency operation was performed.

Results: On operation findings, a huge cystic tumor was located in the left lateral section of liver. There was no communication with pancreas or peripancreatic space. However, mass-like necrotic tissue was filled in the hepatoduodenal ligament, hepatogastric ligament, and Glisson sheath of the left hepatic lobe. Left lateral sectionectomy was performed. Pathologic examination confirmed the pseudocyst with findings of non–epithelialized granulation tissue of the cystic wall.

Conclusion: The presence of intrahepatic cystic lesions in patients with acute pancreatitis should raise the possibility of intrahepatic pseudocysts, even when they are not associated directly with pancreas or peripancreatic tissue.

P-86-4 A case of acute pancreatitis complicated with drug induced pneumonitis and bleeding pancreatic pseudoaneurysm

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Background: Compartmental mesialate and ulinastatin are generally used to treat pancreatitis. However, there drug rarely caused drug induce pneumonitis.

Case presentation: A 65 year old man was admitted to previous hospital to treat acute pancreatitis and pancreatic pseudoneuqerysm, then initial treatment was given by camostat mesilate and ulinastatin. Four days later, chest radiograph revealed bilateral fine nodular opacities, and The bronchialveolar lavage fluid (BALF) results and elevated KL–6 and IgE diagnosed drug induce pneumonitis. Although steroid was used to treat drug induce pneumonitis, respirately condition was worsen and pneumothorax was accompanied, then 17days later he transfer to our hospital. Continuous use of steroid and chest drainage improved the respirately condition. However, 27 days later, he suffered bleeding pancreatic pseudoaneurysm. We firstly tried transarterial embolization, but the responsible artery was impossible to approach. Then, we performed dital pancreactectomy to treat bleeding pancreatic pseudaneurysm. Forty seven days after the surgery, he discharged from our hospital in a good condition.

Conclusion: We presented a case of acute pancreatitis complicated with drug induce pneumonitis and bleeding pancreatic pseudoaneurysm successfully treated.

P-86-5 A case report: Radical resection of Borderline resectable pancreatic ductal adenocarcinoma after preoperative chemotherapy

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Borderline resectable (BR) pancreatic ductal adenocarcinoma (PDAC) is characterized as a higher risk of positive–margin resection compared with resectable one, however, some reports recently indicate that preoperative therapies such as chemotherapy or chemoradiotherapy may increase the fraction of curative resection of BR–PDAC. We herein report a BR–PDAC patient who underwent radical surgery after preoperative chemotherapy. A 58–year-old female was admitted to a hospital for obstructive jaundice. The images revealed a tumor in the head of pancreas, and adenocarcinoma was diagnosed by cytology. Computed tomography (CT) indicated that the tumor infiltrated from common hepatic artery (CHA) to the bifurcation of proper hepatic artery. She was diagnosed as BR–PDAC with clinical stage IIA (cT3 (Ach)N0M0, NCCN and Japan Pancreatic Society classification 7th edition). Chemotherapy (gemcitabine plus nab–paclitaxel; GA) was performed for 6 months, and we found the significant reductions of tumor infiltration to CHA and FDG uptake level in PET/CT studies with the decrease of serum tumor marker levels. Nine months later from the initiation of preoperative therapy, radical surgery was performed while taking into account a resection and reconstruction of CHA. The histopathologic findings showed no tumor infiltration to the tissue surrounding CHA, and pathological stage was ypT3(Du)N0M0 (ypStageIIIA) with the effect of preoperative therapy as Grade II a on Evans classification. She has survived so far without recurrence for 3 months after surgery. We would like to discuss about the strategy for BR–PDAC, although further studies are required to establish a standard treatment.

P-86-6 Two case trials of neoadjuvant chemoradiotherapy with TS–1+gemcitabine+50Gy Radiotherapy in unresectable (borderline resectable) pancreas body cancer

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Background: Pancreatic cancer has a dismal prognosis. Especially in advanced stage, there is no standard therapy. But, several studies showed us higher rates of negative margin and better survival with neoadjuvant therapy for unresectable(borderline resectable) pancreatic cancer.

Aim: We report two cases of complete resection with negative resection margin in unresectable(borderline resectable) pancreas body cancer after neoadjuvant chemoradiotherapy.

Method: Enrolled two patients had pancreas body cancer with celiac trunk encasement. They were diagnosed with unresectable(borderline resectable) pancreatic body cancer. They received neoadjuvant chemoradiation regimen with TS–1(80mg/BSA, alternative day, for 5 weeks) and Gemcitabine(1000mg/BSA, at 1, 8 day, for 3 weeks) plus concurrent radiotherapy(50 Gy).

Result: After neoadjuvant chemoradiation therapy, follow up study shows regression of tumor. They received surgery for remained cancer, and negative resection margin were achieved. All of them had experienced 1 episode of NCI grade 3 myelosuppression after gemcitabine IV infusion. One patient had experienced postoperative intestinal obstruction and enterocutaneous fistula, and another had experienced postoperative acute renal failure. We don’t think both complications were related to neoadjuvant chemoradiotherapy. They all recovered from complication, and survived until now (Survival months were 8, 11 months, respectively).

Conclusion: Our trial for unresectable(borderline resectable) pancreas body cancer can be a promising option. But controlled randomized trials are needed.
P-87-1 Nationwide survey of the treatment of local complications of severe acute pancreatitis in Japan

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[Background] Successful treatment of local complications of severe acute pancreatitis has a major impact on prognosis. Parallel to the revised Atlanta classification, there was a consensus for the diagnosis and treatment of local complications of pancreatitis in 2014. [Aim] To assess the treatment of local complications using a nationwide survey in Japan. [Methods] The Research Committee of Intractable Pancreatic Disease conducted a survey of local complications in patients with severe acute pancreatitis treated from 2010 to 2014 in Japan. A case number survey was performed first, then a case profile survey. [Results] The first survey was sent to 273 institutions, and 126 participated. The second survey included 72 institutions with appropriate cases. There were 1982 patients with severe acute pancreatitis enrolled and 411 treated for local complications, of which 306 were enrolled in this study. The average age was 59y (13–89), with 223 males and 83 females. The four main causes of acute pancreatitis in 87% of patients included: alcohol 98, gallstones 62, idiopathic 62 and endoscopic retrograde cholangiopancreatography 45. Walled-off necrosis and acute necrotic collections were present in 249 (81%). 84% were infected. In 94%, drainage was performed first: 74% endoscopically, 19% percutaneously and 7% surgically. After the second treatment, many institutions stepped–up to necrosectomy and the average treatment time was 3.3 (1–20). Surgical intervention was used in only 8%. Mortality was 26% and mortality was 17. [Conclusion] A step–up treatment approach is becoming more widespread and surgical intervention is the last procedure, with fewer indications.

P-87-2 Indications and timing of converting to OPN for MSAP/SAP treated with PCD

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Objective To explore the indications and timing of converting to open pancreatic necrosectomy(OPN) for MSAP/SAP treated with percutaneous catheter drainage(PCD). Methods Analyze clinical data of patients with MSAP/SAP treated with PCD and converted to OPN between Jan 2008 to June 2016 in the 1st and 2nd Affiliated Hospital of Anhui Medical University. Results 16.1%(27/168) of a total of 168 patients treated with PCD converted to OPN. 21 cases (77.8%) achieved cured, 6 cases (22.2%) died. Death group was older than cured group (64.3±8.9y vs 48.8±13.8y, p=0.016). The prop of MOF on admission in death group was higher than cure group (83.3% vs 23.8%, p=0.035), prop of the head of pancreas necrosis and extrapancreatic necrosis in death group was higher than the cured group (4.8% vs 50%, p=0.011 ; 9.5% vs 50%, p=0.042). During cases of PCD converted OPN, the number of PCD catheters and the duration of total drainage in cure group was less than death group (2.5±1.0cats vs 3.5±1.2cats, p=0.043 ; 21.7±12.0d vs 33.2±10.2d, p=0.048). The prop of irreversible organ failure and sepsis after PCD in each group was higher than cure group (100% vs 23.8%, p=0.009 ; 100% vs 33.3%, p=0.038). There were 3 cases new onset of organ failure in the death group, while 0 in the cure group (p=0.001). The time to enteral nutrition in death group was later than cure group (64.3±8.9d vs 48.8±13.8d, p=0.899). Conclusions Patients who with elder age, MOF on admission, the head of the pancreas necrosis and extrapancreatic necrosis, PCD catheter for more times and long time, organ failure and sepsis after PCD should be converted to OPN aggressively.

P-87-3 Complications after Pancreatic Necrosectomy

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Background: Necrotising Pancreatitis is a challenging problem and pancreatic necrosectomy is associated with significant morbidity even in high volume centres. The aim of this study is to present our experience in general and to highlight the biliary complications in particular.

Methods: The clinical outcome of patients who underwent pancreatic necrosectomy in the last 6 years in our institute was studied. All our patients underwent open pancreatic necrosectomy

Results: Four Patients had bile leak and three of them were detected on table and in one patient on Post op day2, three out of four were salvaged.

Conclusion: Management of Necrotising Pancreatitis requires Multidisciplinary team approach. Early detection of complications and timely intervention by experienced team is the key.

Keywords: Necrotising Pancreatitis, Bile leak, Pancreatic Necrosectomy.

P-87-4 Role of tuftsin and its inhibitor during the progression of acute pancreatitis

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Background: To investigate the role of tuftsin and its inhibitor in onset and progress of acute pancreatitis (AP). Methods: Rats were randomly divided into six groups, central class, AP group, AP+Tuftsin group, splenectomy+AP group, splenectomy+AP+Tuftsin group, AP+Tuftsin inhibitor group. The AP model was developed by retrograde injection of 4% sodium taurocholate into the pancreatic duct. Then tuftsin or its inhibitor was injected at 75 mg/kg. After 3, 6, or 12 hours, the rats were sacrificed, and the pancreas was analyzed for microthrombus by pathobiology and for Mac-1 by immunohistochemical methods; the serum was analyzed for TNF and IL-1 levels by ELISA. Results: With the progress of AP, the levels of Mac-1, microthrombus, TNF, and IL-1 were increased in experimental groups, and they positively correlated with the increased histological score and worsening pancreatitis symptoms. The histological score and levels of Mac-1, microthrombus, TNF, and IL-1 was high at 12hours in AP+tuftsin group; and they were decreased in splenectomy+AP group and AP+inhibitor group (figure1/2/3/4).

Conclusions: Spleenectomy can relieve acute pancreatitis; Tuftsin makes acute pancreatitis more serious by inducing Mac-1, microthrombus, TNF and IL-1, the inhibitor of tuftsin can alleviate acute pancreatitis.
P-87-5 Conversion surgery for initially unresectable pancreatic cancer with a favorable response to gemcitabine plus nab–paclitaxel chemotherapy – report of two cases

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**Background.** Recently, an improved prognostic efficacy has been revealed in unresectable pancreatic cancer by the advent of powerful cancer chemotherapy.

**Case 1.** A 63–year–old woman was diagnosed as unresectable locally advanced pancreatic head cancer with tumor contact with the hepatic artery (HA) bifurcation that involved the portal vein (PV). She was treated with seven cycles of gemcitabine plus nab–paclitaxel chemotherapy that resulted in a disappearance of tumor contact with the HA bifurcation and PV stenosis. A pancreatoduodenectomy with resection and reconstruction of HA and PV was performed. Pathology showed stage IIB adenocarcinoma with R0 resection and Evans grade IIb. She underwent adjuvant chemotherapy and had no recurrence for 17 months after primary diagnosis.

**Case 2.** A 66–year–old woman was diagnosed as unresectable pancreatic body cancer with paraaortic and left supraclavicular lymph node metastases that involved the celiac and splenic artery. She was treated with eight cycles of gemcitabine plus nab–paclitaxel chemotherapy that resulted in a disappearance of the lymph node metastases. However, she developed a splenic arterial aneurysm and then underwent transarterial coil embolization. A distal pancreatectomy with celiac axis resection was performed. Pathology showed stage IIA adenocarcinoma with R0 resection and Evans grade III.

**Conclusion.** Chemotherapy with gemcitabine plus nab–paclitaxel may enable conversion surgery for patients with initially unresectable pancreatic cancer. This is a new multidisciplinary approach that expands the surgical indication.

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P-88-1 Laparoscopic total pancreatoduodenectomy

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**Background.** To evaluate the feasibility and safety of laparoscopic total pancreatoduodenectomy for treatment of pancreatic lesions.

**Methods:** During November 2016 to December 2016, we performed laparoscopic total pancreatoduodenectomy combined with splenectomy on two patients with pancreas placeholder.

**Results:** The operations went smoothly, time of operation were 720 and 710 minutes, amount of bleeding were 2000 and 450 ml. There was no pancreatic fistula and biliary fistula occurred after surgeries. Pathology findings were pancreatic carcinoma and IPMN, hospitalization times after operation were 22 and 12 days. Conclusion: Laparoscopic total pancreatoduodenectomy can be done safely and feasibly.

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P-87-6 Comparison of Blumgart anastomosis and Kakita method for pancreaticojejunostomy

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**Purpose:** Blumgart anastomosis (BA) has become a popular procedure for pancreaticojejunostomy because postoperative pancreatic fistula (POPF) appears to be infrequent with this method compared to Kakita method (KM). However, BA has been introduced not long ago so that its value is not firmly established. We critically compared BA and KM.

**Methods:** Between March 2011 and October 2016, 59 patients underwent pancreatoduodenectomy (PD). KM was employed (n = 29) before May 2014, and BA performed since then (n = 30). PD was performed by the same protocol in both groups except each procedure of pancreaticojejunostomy. A clinical pathway for PD was renewed in our hospital in April 2016, and planned length of postoperative hospital stay was shortened by 9 days.

**Results:** BA and KM groups were not significantly different regarding male/female ratio, operative time, blood loss, pancreatic texture and diameter of the main pancreatic duct. Incidence of clinical POPF was 20% for BA and 34% for KM groups, with the difference not statistically significant. Severe POPF, i.e., Grade C by International Study Group on Pancreatic Fistula Definition (ISGPF), occurred in 2 out of 29 cases (6.9%) in KM group but none in BA group. The mean length of hospital stay was significantly shorter in BA than KM groups (25.4 vs 35.2 days, p < 0.05).

**Conclusion:** Clinical POPF occurred less frequently, albeit insignificantly, in BA than KM groups. With accumulation of the cases, superiority of BA to KM in terms of incidence of clinical POPF may become apparent. Primary reason for the short hospital stay seen in BA group would be the introduction of the new clinical pathway of PD.

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P-88-2 Learning Curve in Pancreatoduodenectomy; A Single Institution Experience and Outcomes

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**Background** We hypothesized that the learning curve for pancreaticoduodenectomy exists and continues even for surgeons who had completed their specialty training.

**Methods** The outcomes of patients who underwent PD from 2001 to 2014 by 2 surgeons who completed their fellowship training in biliary–pancreatic surgery were retrospectively analyzed. Total 300 patients (each first 150 cases per surgeon) were finally enrolled. The cases of two surgeons were divided into 3 groups (100 cases each group), 50 cases each surgeon per group) by the order of operation date.

**Results** From the first 50 cases to the second and the third 50 cases per surgeon, the median operative time shortened (450 vs 385 vs 360 minutes, p < .001) and mean postoperative red blood cell (RBC) transfusion decreased (2.00 vs 1.31 vs 0.72 packs, p = .032). However, many other surgery related factors including PD specific complications (pancreatic juice leakage, bile leakage, surgical site infection, postoperative bleeding and delayed gastric emptying), mortality, and reoperation rate did not show difference between groups. Linear regression showed the negative linear relationship between operation time and the number of cases (r = - .280, p < .001). Postoperative RBC transfusion was also weakly related with the number of cases (r = - .162, p < .005). In the simple scatterplot with 3rd order regression fitted line, operation time dropped between 80th and 100th surgery per surgeon. Postoperative RBC transfusion decreased continuously and slightly.

**Conclusions** PD has an inherent learning curve significantly in the aspect of operative time and the amount of postoperative RBC transfusion with negative linear relationship.
P-88-3  Techniques and short term outcomes of laparoscopic spleen-preserving distal pancreatectomy

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The laparoscopic surgery is less invasive and provides better cosmetic outcomes than conventional surgery. Laparoscopic distal pancreatectomy with/without preservation of the spleen (Lap–DP / Lap–SPDP) has been covered by insurance since April 2010 and increasingly performed in many hospitals.

*Surgical Procedure* Laparoscopic distal pancreatectomy was undergone in the semi-right lateral position, and rotation was from the supine position to right lateral position. In the case of Lap–SPDP, the pancreatic parenchyma was peeled from the caudal side to the head side, and separated from the vessels. The pancreatic parenchyma was divided with the endoscopic stapler.

Patients and Methods: Between May 2010 and December 2016, 42 patients underwent Lap–DP / Lap–SPDP at Kansai Rosai Hospital.

Results: Lap–SPDP were 19 cases, and Lap–SPDP were 23 cases. The operation time was 305 minutes / 364 minutes (p=0.325). The blood loss was 66.5 g / 202.9 g (p=0.096). The post-operative hospital stay was 21.1 day / 33.5 day (p=0.171). The pancreatic fistula (>ISGPF Grade B) was 4 cases / 7 cases (p=0.787). The number of DP was 4 cases / 7 cases (p=0.878). The number of platelet of Lap–SPDP / Lap–DP at pre-operation was 202,000/μl / 239,000/μl (p=0.233). That at one week post-operation was 215,000/μl / 338,000/μl (p=0.003). That at two week post-operation was 256,000/μl / 470,000/μl (p=0.001). That at four week post-operation was 211,000/μl / 321,000/μl (p=0.002). The thrombocytopenia was not found.

Conclusions: Lap–SPDP was feasible and effective procedure for patients with pancreatic benign or low malignant tumors.

P-88-4  Robotic Distal Pancreatectomy: Comparison of Spleen-preservation by Warshaw Technique and Splenectomy

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Background/Purpose: Warshaw technique has gained the favor of some surgeons due to its simplicity. Outcomes and surgical risks after robotic distal pancreatectomy with spleen preservation (RDP–SP) by Warshaw technique and with splenectomy (RDP–S) were compared.

Methods: All the data for patients undergoing robotic distal pancreatectomy (RDP) were prospectively collected. The incidence and clinical significance of spleen infarction and gastric varices after spleen preservation by robotic Warshaw technique were also evaluated.

Results: A total of 66 patients were included, with 33 in each group. It was significantly shorter in RDP–SP group than that in RDP–S group (165 ± 220 min.). The wound length was also shorter in RDP–SP group (2.3 ± 4.0 cm). The median blood loss was 50 c.c. in RDP–SP group and 100 c.c. in RDP–S group. The surgical morbidity was significantly lower in RDP–SP group (18% vs. 58%). Grade B pancreatic leakage (no grade C) rate was 20% for overall patients, and significantly lower in RDP–SP group (12% vs. 27%). No intraabdominal abscess occurred in RDP–SP group, vs. 15% in RDP–S group, P =0.020. Spleen infarction (15%), gastric (6%) varices and perigastic (45%) varices after RDP–SP were not associated with any subsequent complication. Postoperative platelet count and white blood cell (WBC) count were significantly higher in RDP–S group.

Conclusions: RDP–SP is not only feasible but also time–saving. Although gastric/perigastic varices and spleen infarction are not uncommon after RPD–SP, they appear to be clinically irrelevant.

P-88-5  The Relationship between Pancreatic Fistula after Distal Pancreatectomy and Leukocytosis caused by Splenectomy

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Backgrounds: In the case of the spleen with distal pancreatectomy (DP) for the pancreatic tumor–related disease, leukocytosis is observed as natural course of postoperative state. However, it is difficult to discriminate between leukocytosis due to splenectomy with DP and the protraction of the inflammatory state of postoperative complications.

Methods: From 2004 to 2016, we performed 60 cases of DP for 31 of pancreatic carcinoma, 12 of IPMN, 5 of P–NET and others. We estimated the degree of leukocytosis at postoperative day (POD), 1, 3, 4 and 6–10.

Results: The ratio of men to women was 36 : 24. The average of age was 68 ± 11 (8–86). Spleen preserving DP was 7 cases. Laparoscopic DP was 4 cases. The median of operating time and blood loss were 244min. (143–555) and 550ml (35–2300). Pancreatic fistula (ISGPF Grade B or more) after DP was mainly 13 cases (21.6%). White blood cell (WBC / μl) after conventional DP and spleen preserving DP of POD1, 3–4 and 6–10 were 1271 ± 4308. 1 vs. 11304 ± 1764. 9, 11421 ± 3760.4 (N.S.) vs. 8111 ± 2782. 7 (p=0.0237) and 8772 ± 3261. 0 vs. 7229 ± 2420.2 (N.S.). In DP with splenectomy, WBC POD3–4 of Clavien–Dindo classification grade (CD) 3 or more vs. CD2 or minor were 10690 ± 5939.3 vs. 13223 ± 932.8 (p=0.0478).

WBC after conventional DP between ISGPF Grade A or minor (n=32) and Grade B or C (n=10) in POD1, 3–4 and 6–10 were 11721 ± 3007. 2 vs.12839 ± 3394.8, 10382 ± 3141.8 ± 1716 ± 2692.0 and 8018 ± 2631. 0 vs. 9703 ± 2857.7. There was no significance.

Conclusions: WBC significantly rises to POD3–4 due to splenectomy with DP. However, the leukocytosis is not necessarily related to the presence and the severeness of PF.
P-89-1  Spontaneous Rupture of Mucinous Cystic Neoplasm with an Associated Minimally Invasive Carcinoma of Pancreatic Tail: Report of a Case

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**Background:** Mucinous cystic neoplasm (MCN) of the pancreas is characterized by mucin–producing columnar epithelium and an ovarian–type stroma. The symptoms included abdominal pain, palpable mass, weight loss, loss of appetite, jaundice, asymptomatic and etc. However, spontaneous rupture of pancreatic mucinous cystadenocarcinoma (MCAC) is an extremely rare complication. Here we report a case of spontaneous rupture of pancreatic MCAC in a 36-year-old female.

**Case Report:** A 36-year-old female visited outpatient clinic with a complaint of epigastric and back pain for 4 days. She had no any specific medical history including pancreatitis as well as abdominal trauma. Ultrasonography showed cystic lesion in pancreatic tail. There was mild elevation of C-reactive protein. Computed tomography scan and magnetic resonance imaging showed about 8 cm sized cystic mass in the pancreatic tail. In the lower part of main cystic mass, irregular shaped cystic lesion was observed. Ascites in the pelvic cavity and peritoneal thickening were also observed. She was diagnosed with ruptured cystic mass of the pancreatic tail. Considered differential diagnoses of cystic mass were pseudocyst, abscess, solid pseudopapillary neoplasm, epitheloid, and MCN. She underwent spleen preserving distal pancreatectomy on 12th day of first visit. Final pathologic examination revealed a mucinous cystadenocarcinoma in adenoma, minimally invasive, of the tail of pancreas. She received adjuvant chemotherapy with 5-fluorouracil and cisplatin hepatic arterial infusion chemotherapy. She is disease-free 3 months after surgery. We report a very rare case of ruptured mucinous cystic carcinoma of pancreas.

**Conclusion:** We experienced a case of SPN with dense ossification in a middle-aged male patient. Calcification in SPN is commonly noted, however ossification is rarely seen in this tumor. We report a case of SPN with dense ossification in a middle-aged male patient.

P-89-2  Long–term survival following distal pancreatectomy and hepatectomy for pancreatic acinar cell carcinoma with two liver metastases

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Acinar cell carcinoma of the pancreas is extremely rare, occurring in approximately 1% of all pancreatic neoplasms. Here, we reported a rare case of long–term survivor of acinar cell carcinoma with multiple liver metastases and multiple lung metastases who was successfully treated with surgery and chemotherapy including TACE. A 62-year-old male patient was referred to our institution. Abdominal computed tomography showed a firmly enhanced mass, 4cm in diameter, in the pancreas tail and two heterogeneously enhanced masses, 11cm and 2cm in diameter, in the right hepatic lobe. The biopsy by using EUS guided FNA suggested the pancreatic tumor was neuroendocrine tumor or acinar cell carcinoma. Distal pancreatectomy, hepatic anterior sectionectomy of and partial hepatectomy in the posterior section were performed, and histopathological examination including immunohistochemical staining revealed an acinar cell carcinoma with liver metastases. Multiple liver metastases and multiple lung metastases were found 4month postoperatively. A month later TACE performed, and combination chemotherapy with oral IFI and cisplatin hepatic arterial infusion were administered. A year after surgery multiple lung metastases disappeared, and intra–tumoral arterial enhancement in multiple liver metastases had disappeared. A year from then solitary lung metastases, 1cm in diameter, in the right inferior lobe was appeared, was resected. Oral 5-flourouracil chemotherapy was administered postoperatively during a year. The patients showed no sign of recurrence approximately 5 years later from distal pancreatectomy.

P-89-3  A resected case with ruptured mucinous cystic adenocarcinoma

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A 48–years–old female experienced acute abdominal pain and referred our hospital from local physician. Multidetector CT revealed two large mass with 78mm– and 80mm–sized, connected like dumbbell each mass, mainly cystic component, and intratumoral hemorrhage, originated from pancreatic tail. She was not anemic and her vital signs were stable. MRI showed the well–margined two cystic mass with mural nodule and cyst–in–cyst appearance in the right side mass. On PET/CT FDG uptake value is 11.76 with maximum SUV by the mural nodule. Serum CEA level had slightly increased to 5.9 ng/ml and CA19–9 level was in normal limits (24.6 U/ml). Elective laparotomy was undertaken based upon diagnosis of pseudocyst formation caused by ruptured mucinous cystic neoplasm (MCN). Intraoperatively, tumor was located on pancreatic tail and adhered to stomach without ascites or peritoneal dissemination, therefore distal pancreatectomy combined partial gastrectomy was undertaken. Histopathologically, the right side mass was lined by columnar atypical epithelium and focally high grade atypical cells invaded to stroma (800µm), with surrounding spindle–shaped ovarian–like hypercellular stroma. The stromal cells were immunohistochemically positive for estrogen and progesterone receptors. The left side cyst was not lined epithelial cells. Then the tumor was diagnosed as mucinous cystic carcinoma of pancreas with minimally invasive and pseudocyst formation caused by ruptured MCN. She is disease–free 3 months after surgery. We report a very rare case of ruptured mucinous cystic carcinoma of pancreas.

P-89-4  A case of solid–pseudopapillary neoplasm in a middle–aged male with dense ossification

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**Introduction** The incidence of pancreatic solid–pseudopapillary neoplasm (SPN) is reported 0.17–2.7% of all pancreatic neoplasms. Calcification in SPN is commonly noted, however ossification is rarely seen in this tumor. We report a case of SPN with dense ossification in a middle-aged male patient.

**Case presentation** Man in his early fifties was detected the elevation of CEA (16.0 ng/ml) and pancreatic tumor during a routine physical checkup. He was referred to our hospital for surgical purposes. US, Enhanced CT and MRI revealed a round 4cm tumor in the body of pancreas with marked calcification. EUS–FNA was performed and the tumor could be diagnosed as SPN preoperatively. Immunohistochemical staining revealed positive for CD10 and β-catenin. No distant metastasis was seen, we performed segmental pancreatectomy plus pancreateojunostomy. Resected tumor was ever so hard and the cut surface was brown–yellowish with thin capsule, macroscopically. H&E stain revealed solid or pseudopapillary structure with poorly cohesive monomorphic cells, and there were numerous hyaline globules and marked ossification.

**Discussion** Calcification in SPN is commonly noted, however ossification is reported in only 3.3% of SPNs, only 1 cases have been reported previously. Some articles hypothesized that long–term repeated inflammation might cause these ossification, but the reason is not known exactly. Some papers suggested the ossification could be a risk factor of metastasis or recurrence, therefore attentive observation is needed for this case.

**Conclusion** We experienced a case of SPN with dense ossification in a middle–aged male patient.
P-89-5  A single center experience of pancreatic neuroendocrine tumors in 438 consecutive patients
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**Background/Purpose**
There are few large sample and single-center series that focus on the clinical and oncologic outcome after surgery of patients with pancreatic neuroendocrine tumors (pNETs).

**Methods**
438 patients with pNETs treated at Asan Medical Center during January 1990 to December 2015 were analyzed retrospectively.

**Results**
The median age of our pNETs study series of 438 cases was 52.1 years and 55.6% were female. There were 343 patients (77.8%) with non-functional tumors. 196 patients (44.7%) underwent distal pancreatectomy, 161 patients (36.8%) underwent pancreaticoduodenectomy, 44 patients (10.0%) underwent enucleation and 29 patients (6.6%) underwent central pancreatectomy. The 3-, 5-, 10-year recurrence free survival rate was 93.8%, 91.0%, and 84.2% respectively. The overall recurrence rate was 10.7% and the most common organ sites of recurrence was the liver. Five-year recurrence free survival differed according to tumor grade (G): 98.2% per cent among 310 patients with pancreatic neuroendocrine tumours (pNET) G1, 83.6 per cent in 92 patients with pNET G2, and 27.5 per cent in 36 patients with pancreatic neuroendocrine carcinomas (pNEC) G3 (P < 0.001). The mean time to recurrence was 73.5 months and the mean post-recurrence survival rate was 36.8 months.

**Conclusions**

pNETs after surgery have generally good prognosis. However, pNET graded G3 is independent predictors of worse recurrence free survival in patients with pNETs.

P-89-6  Significance of lymph node dissection in pancreatic neuroendocrine tumor
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**Background/Purpose**
Pancreatic neuroendocrine tumor (pNET) is relatively rare and has a generally better prognosis than does pancreatic cancer. However, as its prognosis in patients with lymph node metastasis (LNM) is unclear, lymph node dissection for pNET is controversial. Our study aimed to clarify the significance of LNM in pNET.

**Methods**
We retrospectively examined 83 pNET patients who underwent pancreatic resections with lymph node dissection at Kumamoto University Hospital, Saiseikai Kumamoto Hospital and Kumamoto Regional Medical Center from April 2001 to December 2014. Their clinicopathological parameters were analyzed by the absence or presence of LNM, and with regard to disease-free survival (DFS) and overall survival (OS).

**Results**
Predictive score of LNM was also made using age, tumor size, primary tumor location and tumor function. **Results:** Although 5-year DFS was LNM+ group: 60.5%, and LNM− group: 83.8% ($P = 0.052$); and 5-year OS was LNM+: 74.8% and LNM−: 94.6% ($P = 0.002$), LNM was not an independent risk factor for DFS or OS in multivariate analysis. However, tumors larger than 1.8 cm were found to be an independent prognostic factor. And cutoff value of predictive score was 1.69. **Conclusion:** Although LNM was not an independent prognostic factor, lymph node dissection is recommended for patients whose predictive score is larger than 1.69.

P-90-1  Usefullness of FDG–PET imaging in preoperative diagnosis of intraductal papillary mucinous neoplasm (IPMN)
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**Background:** Recently, usefulness of FDG–PET in preoperative diagnosis of IPMN has been reported. We also examined the usefulness of FDG–PET for IPMN cases experienced at our hospital.

**Methods:** We analyzed retrospectively the preoperative FDG–PET data of 21 cases underwent to pancreatectomy with IPMN at our hospital from June 2008 to September 2016. Results: Patients: Average age was 69.9. Male were 9 and female were 12. Local: 12 cases were head, 4 cases were body, and 5 cases were tail. We performed 10 Pylorus−preserving Pancreaticoduodenectomy, 2 Pancreaticoduodenectomy, 7 Distal pancreatectomy, and 2 Laparoscopic Pancreaticoduodenectomy. 11 cases were IPMA, 4 cases were IPMC noninvasive, and 6 cases were IPMC invasive. FDG had not accumulated at 7 cases (33.3%). Average SUVmax was 3.4. FDG had not accumulated at 6 cases (54.5%) in IPMA, 0 cases in IPMC noninvasive, and 1 case in IPMC invasive. Average SUVmax was 1.2 in IPMA, 3.9 in IPMC noninvasive, and 7.2 in IPMC invasive. SUVmax tends to be higher in patients with solid components, large tumor diameter, major pancreatic ductal dilatation, recurrence, cancer death. Conclusion: From this result that SUVmax tends to be higher in patients with high histological malignancy also in our hospital, FDG–PET could be one of the modalities that helps in deciding the indication for resection in IPMN.

P-90-2  Surgical Management of Intraductal Papillary Mucinous Neoplasms (IPMN)
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**Introduction:** Intraductal Papillary Mucinous Neoplasms (IPMN) is often discovered routinely. However, invasive carcinoma derived from IPMN is included in part.

**Purpose:** To investigate the treatment outcome of resected cases of IPMN, and to clarify the problems in the surgical management of IPMN.

**Methods:** Twelve cases of IPMN that primary lesion was resected in our department for the past 16 years were examined clinicopathologically.

**Results:** (1) Numbers of each type in classification : 3 cases of BD-IPMN, 2 MD-IPMN, and 7 Mixed-IPMN. (2) Relations of type, presence of mural nodules and degree of malignancy: BD-IPMN without mural nodules showed low or moderate dysplasia. MD or Mixed-IPMN without mural nodules showed moderate degree of dysplasia to invasive carcinoma. On the other hand, BD-IPMN with mural nodules showed invasive carcinoma. Two of 5 cases of MD-IPMN with mural nodules showed noninvasive carcinoma and another 3 cases showed invasive carcinoma. (3) Profile of 5 cases of invasive carcinoma: Lymph node metastasis was positive for all five IPMN cases with invasive carcinoma with two cases involving more than four nodes and one with 16 positive lymph nodes. One of these cases died of lung metastasis in 5 years 4 months and another 1 case died of peritoneal dissemination in 2 years 2 months.

**Conclusions:** (1) Appearance of mural nodules in IPMN was suspected the presence of lesion more severer than noninvasive carcinoma. In these cases, early operation has to be considered. (2) Invasive carcinoma of IPMN is often accompanied by LN metastasis. Such cases should be surgically managed with the same treatment employed for conventional invasive pancreas carcinoma.
Two cases of intraductal tubulopapillary neoplasm of the pancreas

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Herein, we report 2 cases of intraductal tubulopapillary neoplasm (ITPN) of the pancreas. (Case 1) A 61-year-old man visited our hospital because of upper abdominal discomfort. Computed tomography (CT) and magnetic resonance (MR) imaging revealed a pancreatic tumor showing a unique intraductal growth pattern. Endoscopic retrograde pancreatography showed dilatation of the main pancreatic duct filled with tumor thrombi or intraductal tumor growth. Total pancreatectomy was performed. (Case 2) In a 76-year-old man without specific symptom, a mass lesion in the head of the pancreas was incidentally found under ultrasonography. CT and MR imaging revealed a low-attenuation mass, 20 mm in diameter, located in the uncinct process of pancreas. The tumor abutted the superior mesenteric vein. We performed pancreatecoduodenectomy under a suspected diagnosis of invasive ductal carcinoma. In both cases, the tumor was immunohistochemically proven to be ITPN because of positive staining of mucin core protein 1 and cytokeratin 7 and negative staining for mucin core protein 2, −5AC, −6. Mutation analysis of KRAS was negative. Both patients showed uneventful recovery.

LAPAROSCOPIC PANCREATIC RESECTION: APPROACH FOR MEN 1 SYNDROME ASSOCIATED PANCREATIC NEUROENDOCRINE TUMOR

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AIMS: To assess the technical feasibility of laparoscopic pancreatic resection in diagnosed cases of MEN 1 syndromes with pancreatic neuroendocrine tumors Methods: We describe our center experience of various laparoscopic pancreatic resection in diagnosed cases of MEN 1 associated PNET. Results: Between 2010 and 2015, there were 5 diagnosed cases of MEN 1 associated PNET laparoscopic pancreatic resection. Out five cases, 3 were Non–functioning NET and other 2 insulinoma. Initial two cases underwent partial pancreatic resection with enucleation tumor from pancreatic remnant. Third case was of recurrent insulinoma with one lesion in head and another lesion in distal body underwent enucleation of head lesion with redo distal pancreatic resection. Last two cases underwent total pancreatic resection. Lap pancreatecoduodenectomy and redo distal pancreatectomy with enucleation patient had grade A POPF and laparoscopic distal pancreatectomy with enucleation had grade B POPF and PPH grade II had been managed with angioembolization. One of total pancreatectomy patient had low output contained chylous. Both laparoscopic total pancreatectomy had wide fluctuation of blood sugar levels in immediate postoperative period with ketoacidosis but later on recovery was normal without any major complication.

Clinical significance of enhancing nodules in preoperative imaging studies of IPMN

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Background: According to International consensus guidelines 2012 for the management of IPMN and MCN, high–risk stigmata had a huge effect on surgical indication for IPMN. In our study, we attempted to evaluate enhancing nodule, which is one of the high–risk stigmata, by preoperative imaging study and examined the clinical importance of enhancing nodule by pathological examination. Methods: Results of 81 patients who underwent operations for IPMN between 2006/1 and 2015/12 in our institute have been analyzed. Results: Focusing on high–risk stigmata, enhancing nodule was identified in 25 cases (30.9%). Whereas, dilated MPD over 10mm was observed in 15 cases (18.6%) and obstructive jaundice in 7 cases (8.6%). Among 25 cases diagnosed as accompanying enhancing nodule preoperatively, pathological examination revealed the nodule lesion in extended pancreatic duct or cyst certainly in 12 cases (48%). Mostly, tumor cells with malignant phenotype such as high–grade dysplasia and carcinoma located inside of the nodule compared with surrounding tissues. However, only in 1 case (8.3%), malignant cells located outside the nodule lesion. We categorized the clinical significance of the nodule lesion between MD and BD–IPMN. MD–IPMN with nodule lesion indicated malignant phenotype of tumor cells (68 cases, 75%). On the other hand in BD–IPMN, nodule lesion was not indicative for malignant phenotype (1/4 cases, 25%). Conclusion: Our analysis has suggested that the existence of nodule lesion in BD–IPMN might be less relevant to malignant transformation of IPMN. The clinical importance of high–risk stigmata should be further investigated for the surgical indication of IPMN.
P–91–1 Single surgeon vs Two surgeons for laparoscopic pancreaticoduodenectomy: Can it influence the outcome?

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Introduction: Laparoscopic major organ resections have become common in today's era. Ultra-major oncological resections via minimally invasive approach has significant impact on operative time which tends to be longer than its open counterpart. It is already established that surgeon's fatigue can influence final outcome after surgery. We aimed to evaluate this effect by a comparative study.

Material & methods: This is a prospective, case matched analysis of 17 patients of periampullary and carcinoma head of pancreas, who underwent laparoscopic pancreaticoduodenectomy by two surgeons (separate surgeons for resection and reconstruction part) considered here as group A, which are compared with 17 patients who were stage matched controls (group B), who underwent the similar procedure by either of the two surgeons. Results: Most of demographic and pre-operative variables didn’t show any significant difference. Operative time was significantly lower in group A (p=0.03). Other operative parameters were comparable. The incidence of rate of pancreatic fistula was lower in group A (9% vs 13%), but couldn’t achieve significance level (p=0.07). Pancreas specific and other complications were similar. There was no difference in hospital stay, pathological outcome or mortality. Conclusion: This small pilot study aimed to highlights importance of impact of prolong surgical procedures, longer operating times, surgeon’s fatigue, and its influence on final surgical outcomes. Two surgeon approach definitely reduce the operating time. The effect on pancreatic fistula exists, but without statistical significance.

P–91–2 Clinical significance of revised microscopic positive resection margin in patients with pancreatic ductal adenocarcinoma after resection

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Purpose: Recent studies suggested that microscopic positive ductal margin would be revised according to presence of tumor cell within 1mm to margin surface after surgical resection in patients with pancreatic ductal adenocarcinoma (PDAC). Methods: From July 2012 and December 2014, the medical records of 188 patients who underwent pancreaticoduodenectomy for PDCA were reviewed retrospectively. They were divided into three groups on margin status; Revised microscopic negative resection margin (rR0) means tumor exists more than 1mm from cut surface. Revised microscopic positive resection (rR1) margin means tumor is within less than 1mm from margin surface. Classic microscopic positive resection (cR1) margin means tumor is at surface of margin. Results: There was no significant difference in overall survival rate and disease free survival between R0 and rR1 resection margin (23 months, 24 months, p=0.254; 22 months, 24 months p=0.502). There was no significant difference in overall survival rate between cR1 and rR1 resection margin (15 months, 24 months, p=0.088). However, there was significant difference in disease free survival between cR1 and rR1 resection margin (5 months, 24 months, p=0.013). The margin status correlated with the rate of local recurrence; 17.1% in R0, 26.0% in rR1, 44.4% in cR1 resections (P=0.048). Conclusions: Revised microscopic positive resection margin affects local recurrence rate, but cannot affect survival. This serve to emphasize the importance of revised microscopic margin classification.

P–91–3 Analysis of long term survival of pancreatic cancer at our hospital

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Background: Almost all patients of pancreatic cancer are expected to die from the disease. Surgical resection offers the only chance of cure for pancreatic cancer. Unfortunately, prognosis is poor, even for those undergoing complete (R0) resection. We retrospectively analyzed patients with over five-year survival. Methods: We conducted a comprehensive of patients, who was diagnosed as having a invasive ductal carcinoma of the pancreas, with surgical resection between January 2001 and December 2011 at our hospital. Results: There were 18 patients with over 5-year survival following surgical resection, and the median survival was six years. In the analysis, 10 patients pathologically diagnosed as well differentiated type, 7 as moderately differentiated type, and 1 patient as mucinous carcinoma. And, 2 patients pathologically diagnosed as stage Ia, 5 as stage IIa, 4 as stage IIb, 7 as stage III (Japanese Pancreatic Society (JPS) classification, 7th edition). After surgery, 16 patients were administered of adjuvant chemotherapy (7 patients with gemcitabine, 2 with S–1, 6 with gemcitabine plus S–1, and 1 with 5–FU in hepatic artery), and 2 patients were not. The patients with stage III pancreatic cancer having over 5-year survival were 7, and all of them administered chemotherapy (2 patients with gemcitabine, 4 with gemcitabine plus S–1, and one with 5–FU in hepatic artery) Conclusion: Postoperative adjuvant chemotherapy of gemcitabine plus S–1 might be associated with long term survival.

P–91–4 Actual long-term outcome of T1 and T2 pancreatic ductal adenocarcinoma after surgical resection

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Background The prognosis for patients with pancreatic cancer is extremely poor. The diagnosis of pancreatic ductal adenocarcinoma at an early stage is uncommon. The purpose of this study was to analyze the clinicopathological characteristics of patients with pathologically proven pancreatic ductal adenocarcinoma following surgical resection and their actual 5 year survival rates, especially for those with T1 and T2 early stage cancer.

Methods Retrospective analysis was performed for 433 patients with pancreatic ductal adenocarcinoma who underwent resection at Samsung medical center between May 1995 and December 2010. The actual 5 year survival rates and prognostic factors were analyzed. Results Multivariate analysis showed that positive resection margin, poor differentiation, large tumor size, large amount of blood loss, and T3/T4 were independent prognostic factors on overall survival. The median survival for T1/T2 stage was 11.7 months compared to 16.1 months for those with T3/T4 stage. The actual 5 year survival rates for T1/T2 and T3/T4 stages were 66.7% and 18.4%, respectively.

Conclusions T stage is one of the strongest independent prognostic factor for overall survival of patients with pancreatic cancer. T1/T2 pancreatic ductal adenocarcinoma showed good survival outcome. Therefore, additional efforts are needed to improve the screening for early detection.
P-91-5 Treatment outcome for recurrent pancreatic cancer

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Background The prognosis of postoperative recurrence of pancreas cancer (PC) is poor, and standard treatment that contributes to long-term survival has not been established. In this study, we examined the characteristics of R0 resected cases in recurrent pancreatic cancer. [Patients] 33 recurrent PC patients were divided into two groups according to resection; resection group (n=7) who underwent repeat resection, and chemotherapy group (n=26) who was administrated these chemotherapies. (2008–2015) We compared clinicopathological factors and the characteristics of the patients with repeat resection. [Results] As characteristics of the repeat resection group, the initial surgical operation was R0, the stage was low, there was no lymph node metastasis (p<0.05), the time to recurrence was longer than chemotherapy group (chemotherapy vs resection; 1.0±0.2 vs 1.7±0.3, p=0.04) and the location of recurrence was confined to the remnant pancreas (p<0.01). In the resection group, the survival period after the first resection was average of 3.5 years (2.5–4.6 years). Currently, all patients of the resection group are alive and 3 cases are alive without recurrence. [Conclusion] Re-section of recurrent PC might be a feasible option in selected patients.

P-91-6 A study on the number of metastatic lymph nodes and prognosis in the case of pancreatic cancer resection

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Background/Purpose According to “General Rules for the Study of Pancreatic Cancer (the 7th edition)”, N classification has been changed from the classification of lymph node group to the number of regional metastatic lymph nodes. We report our resection cases of pancreatic cancer in terms of both the number of metastatic lymph nodes and prognosis.

Method The study targeted 341 cases of pancreatic adenocarcinoma resected from 2003 to 2015. It also compared the cases with survival rate by the number of metastatic lymph nodes and then examined prognosis factors in multivariate analysis with use of Cox proportional–hazards model.

Result Median age and male/female ratio were 67 years old (range: 41–87) and 62/179 respectively. There were 206 cases of lymph node metastasis positive (60.4%). The number of metastatic lymph nodes was classified into 3 groups; 135 cases for the group of 0 (zero), 125 cases for the group of 1–3, and 81 cases for the group of more than 4 on the basis of “General Rules for the Study of Pancreatic Cancer (the 7th edition)”. Survival rate by the number of metastatic lymph nodes indicated a significant difference in the group of 0 (zero) vs. the group of 1–3 (p=0.001) and the group of 1–3 vs. the group of more than 4 (p<0.001) while 5–year survival rate indicated 38.9% for the group of 0 (zero), 17.0% for the group of 1–3, and 7.1% for the group of more than 4. The study found independent poor prognostic factors for the group of more than 4 in multivariate analysis (HR 2.066, p<0.001).

Conclusion It was considered that the number of metastatic lymph nodes could be an important prognosis factor in the case of pancreatic cancer resection.

P-92-1 Preoperative Tumor Markers of HCC for Use as Selection Criteria in LDLT

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Adult living donor liver transplantation (LDLT) is one of the best treatments for hepatocellular carcinoma (HCC). However, when recurrence of HCC after LDLT occurs, the prognosis is poor because of rapid progression. Preoperative level of α–fetoprotein (AFP) and protein induced by vitamin K antagonist–II (PIVKA–II) reportedly correlate with recurrence of hepatocellular carcinoma (HCC) after LDLT. We examined serum AFP and PIVKA–II preoperatively as predictors of HCC recurrence in 461 patients who underwent LDLT using right liver graft for HCC from May 2007 to December 2013. Among these, 77 patients (16.7%) who experienced recurrence were retrospectively reviewed. Multivariate analysis revealed tumor size ≥5 cm, AFP>150μg/ml and PIVKA–II>100 μmol/ml as significant independent risk factors for recurrence. The median time to recurrence was 10 months. The median survival time after recurrence was 26 months, and the 1–, 3– and 5–year survival rates after recurrence were 80.5%, 58%, and 28.3% respectively. Preoperatively, not only morphology of the tumor but also AFP and PIVKA–II levels can offers important information for the recurrence after LDLT for HCC. Thus, combination of tumor markers might be used for expansion of pre–existing strict selection criteria of liver transplantation for HCC.

P-92-2 Different prognostic factors for early and late recurrence after adult living donor liver transplantation for hepatocellular carcinoma

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Recurrence after liver transplantation (LT) for hepatocellular carcinoma (HCC) remains unsatisfactory. However, some patients with HCC recurrence after LT show good long–term survival results. The aim of this study is to investigate prognostic factors affecting survival after recurrence mainly focusing on the period of recurrence. Between January 2000 and December 2013, 532 patients underwent adult living donor liver transplantation (LDLT) for HCC. Among these, 92 patients (17.3%) who experienced recurrence were retrospectively reviewed. 1–3–, and 5–year survival rates after recurrence were 59.5%, 23.0%, and 11.9%, respectively. By multivariate analysis, PET positivity [hazard ratio (HR)=0.45] and multi–organ involvement at the time of primary recurrence [hazard ratio (HR)=5.98] were related to poorer survival after recurrence. Time to recurrence >6 months [hazard ratio (HR)=0.45] was related to longer survival after recurrence. We classified the patients into early (≤6 months) and late (>6 months) recurrence group. In early recurrence group, only multi–organ involvement at the time of primary recurrence was related to poorer survival on multivariate analysis. In late recurrence group, multi–organ involvement [hazard ratio (HR)=2.76] and mTORi use after recurrence [hazard ratio (HR)=0.42] were significantly associated with prognosis on multivariate analysis. In conclusion, different therapeutic approach is needed according to the period of recurrence after LT. Primary tumor factors should be more considered in early recurrence patients and using mTORi even after recurrence should be considered in late recurrence patients.
**P-92-3** The effect of living donor liver transplantation to the skeletal muscle mass

Department of Surgery, Artificial organ and transplantation division

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**Conclusion**

In adult pancreatic transplantation, the patient survival rates were 100% and 95.2% at 1 and 3 years after transplantation, respectively. Pancreatic graft survival rates were 91.3% and 81.7%, respectively, which were also slightly better than the Japanese average.

**Method**

Amount of skeletal muscle was assessed by a body composition analyzer named InBody 720 using bioelectrical impedance analysis (BIA) in 37 adult recipients underwent LDLT in our institute from January 2012 to June 2016. Whole patients were classified into two groups according to the background characteristics of the donors and the outcome of 36 pancreas transplantation recipients were analyzed.

**Background**

Although skeletal muscle depletion, sarcopenia, has been known to predict morbidity and mortality in various surgical procedures nowadays, however, the discussion about the effect of perioperative surgical stresses to the amount of skeletal muscle is scare for patients undergoing living donor liver transplantation (LDLT). This study aimed to assess the effect of LDLT to the perioperative skeletal muscle mass of the recipient.

**Result**

The median ratio of skeletal muscle to the standard mass preoperative and three months after LDLT were 93% (range, 55–124%) and 88% (68–122%), respectively. The ratio of preoperative skeletal muscle mass to postoperative three months were 86% (66–92%) in the group of skeletal muscle mass over the standard mass (n=11), and 99% (81%–145%) in the group of less than standard mass (n=26), respectively (p<0.001). While the skeletal muscle gain was not confirmed in the former group postoperatively, the 12 (46%) among 26 latter patients had the increased skeletal muscle mass gain contrarily.

**Conclusion**

Surgical stresses after LDLT impair the skeletal muscle volume in short-term. However, LDLT may improve the skeletal muscle even more to the patient under the preoperative skeletal muscle depletion.

**P-92-4** A case of magnetic compression anastomosis for a complete dehiscence of hepaticojunostomy after living donor liver transplantation

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**Magnetic compression anastomosis (MCA) is a minimal invasive method for bilioiliary or bilioenteric anastomosis without surgical procedure for patients with stricture, obstruction or dehiscence of the anastomosis after surgery. Here we experienced a successful treatment by MCA for the complete dehiscence of hepaticojunostomy. A 55-year-old woman was received ABO incompatible living donor liver transplantation with hepaticojunostomy for right anterior duct (RAD) and right posterior duct (RPD). Nineteen days after the operation, bilious and bloody discharge was detected from her abdominal drain. We performed emergency operation and found that the anastomosis was completely dehiscent. We put bile drainage catheters into stumps of RAD and RPD. She repeated cholangitis after the surgery, thus we added a percutaneous transhepatic biliary drainage (PTCD) tube. We decided to treat the complete dehiscence of anastomosis by MCA. One year after the liver transplantation, the parent magnet was introduced into the bowel near RAD by double balloon endoscopy. At the same time, the daughter magnet with guide wire was inserted through PTCD route on the stump of RAD. The bilioenteric fistula was completed twenty-one days after MCA and the magnet was retrieved by double balloon endoscopy. Two months later, MCA for RPD was also performed by the same procedure. The bilioenteric fistula was not completely established, thus we performed double balloon endoscopy and pull down the parent magnet forty-seven days after RAD's MCA. Then, the internal/external bile drainage tubes were left to maintain the bilioenteric fistula. Now, we plan to remove the internal/external drainage catheters.**

**P-92-5** Single Institution Outcomes in the First Four Years of Pancreas Transplantation from Brain Dead Donors

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**Background**

A total of 36 pancreas transplants from brain dead donors, including 29 simultaneous pancreas and kidney (SPK) transplantations, have been performed since the initiation of a new pancreas transplantation program in August 2012. The objective of this study is to investigate the outcomes of pancreatic transplantation in our facility in first four years of the program.

**Methods**

The background characteristics of the donors and the outcomes of 36 pancreas transplant recipients were analyzed.

**Results**

The mean age of the recipients was 42.2, and all recipients had a long-term history of diabetes (mean: 29.6 years). In the SPK cases, the patients also had a long history of hemodialysis (mean: 7.0 years). Although the averaged donor age was 42.6 and more than half of the donors were marginal donors (defined according to Kapur criteria and Troppmann's criteria), the patient survival were 100% and 95.2% at 1 and 3 years after transplantation, respectively. Pancreatic graft survival rates were 91.3% and 81.7%, respectively, which were also slightly better than Japanese average.

**Conclusion**

The new pancreas transplantation program at Fujita Health University has provided excellent outcomes for patients with type 1 diabetes.

**P-92-6** Clinical outcome of adult living donor liver transplantation using small for size grafts

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**Introduction**

Here we report our clinical outcome of live donor liver transplantation (LDLT) using small for size grafts.

**Patients and Method**

Eighty-two adult LDLT patients (from August 2003 to July 2016) were classified into two groups: small for size graft group (Group S: n=23, GRWR<0.8%) and non-small for size graft group (Group NS: n=59, GRWR≥0.8%).

We defined small for size syndrome (SFSS) as T-Bil > 10mg/dl, PT-IR > 1.3, and the amount of ascites > 500ml/day at the postoperative day (POD) 14.

**Result**

1) Backgrounds and recipients characteristics

   - Age: operation time, intraoperative bleeding, Child–Pugh score, MELD score, warm ischemic time, cold ischemic time, NS
   - Amount of ascites and serum T-Bil level

**Group S**: 1156±910 ml/day vs Group NS: 1015±1802ml/day, S: 6.9±7.6 mg/dl vs NS: 6.9±8.6 mg/dl, NS

**3) The occurrence of SFSS**

   Group S: 21.7% Group NS: 22%, NS

   **4) Patient survival rate**

   Group S: 1–y: 82.6%, 3–y: 82.6%, 5–y: 75.7%, Group NS: 1–y: 91.4%, 3–y: 83.8%, 5–y: 79.5%, p=0.72

**Comparison of characteristics between survived cases and fetal cases in Group S**

   GRWR of fetal cases was significantly lower than that of survived cases (0.67% vs 0.74%, p=0.03). The preoperative serum creatinine levels of fetal cases was significantly higher than that of survived cases (0.72mg/dl vs 1.51mg/dl, p=0.029). Two fetal cases had the preoperative infection within 1 month before LDLT.

**Conclusion**

The clinical outcome of LDLT using small size grafts (GRWR<0.8%) was equivalent to that of LDLT using non-small for size grafts however, LDLT using smaller size graft (GRWR<0.7%) for deteriorated recipients with renal dysfunction and the history of preoperative infection had poor prognosis.
P-93-1 Prognostic significance of bile acid receptor TGR 5 overexpression in gallbladder cancer

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Background: TGR 5 is a plasma membrane bound, G-protein coupled receptor for bile acids. It has been detected in a various tissues, especially in biliary tree. There have been some reports that TGR 5 expression is related with the development of cancer, however, almost all of it was for knockout mice. In this study, we determined the relationship between the strength of TGR 5 expression and gallbladder cancer.

Methods: We retrospectively reviewed the medical records and immunohistochemistry assessment for cancer tissue of 52 patients who underwent radical cholecystectomy for gallbladder cancer at our hospital between July 2004 and April 2013. We analyzed the staining pattern and strength for TGR 5 as intensity and extent. We also evaluated the relationship between the strength of TGR5 staining and cancer stage with patient survival.

Results: The overall strength of TGR 5 staining was significantly higher in the gallbladder cancer group than the benign gallbladder disease group (p < 0.001). In gallbladder cancer group, the high TGR 5 staining was present in 32 patients (61.5%). And, there was statistically significant relationship between strength of TGR5 expression and overall survival (p = 0.002).

Conclusion: We concluded that TGR 5 is much more expressed in the gallbladder cancer than normal gallbladder mucosa. Furthermore, we could find significant association between TGR 5 expression and patient survival in this study. Investigation of the TGR5 expression in gallbladder cancer could be helpful for predicting the prognosis.

P-93-2 A Novel Attempt Using Intraoperative Bile Samples to Prevent Surgical Site Infection after Major Hepatectomy with Biliary Reconstruction

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Background/ Purpose: Despite surgical site infection (SSI) is frequent and problematic after major hepatectomy with biliary reconstruction (MH+BR), there is no consensus on the optimal protocol of postoperative prophylactic antibiotics. Currently, we select antibiotics according to the findings of intraoperative Gram staining of the bile (IGSB), in addition to the culture, for the patients who need MH+BR.

Methods: We reviewed the records of the patients who underwent MH+BR without preoperative treatment at our institute from 2006 through 2016. We started IGSB from 2014. The patients were divided into Group A (before IGSB) and Group B (after IGSB). Patients’ background, operative factors, and postoperative outcomes were compared between two groups.

Results: Among the 45 patients who underwent MH+BR, 18 cases had preoperative treatment, and remaining 27 cases (GroupA: GroupB=9: 18) were analyzed. Proportion of male patients was greater, and duration of operation was longer in Group B. Although not statistically significant, the period of the antibiotics treatment tended to be longer, and the spectrum tended to be broader in group B. The frequency of SSI was significantly lower in Group B. In the patients whose bile cultures and Gram staining were positive, the rate of SSI was 25% (2 of 8) and 66.7% (2 of 3), respectively.

Conclusion: Current management for perioperative prophylactic antibiotics based on intraoperative Gram staining and bile cultures might be effective to prevent SSI after MH+BR. However, how to treat the cases of positive Gram staining needs to be addressed in the future.

P-93-3 Bile culture in acute care hospital for adult patients in Japan

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Background: Bile is normally sterile. But in case of biliary infections, many pathogens are found from the bile. The management of acute cholecystitis, cholecystitis or obstructive jaundice requires a sound data of the biliary bacteria and its antibiotics sensitivity. ...

Material and Method: From January, 2014 to December, 2016, 104 bile cultures were ordered after bile sample collection in many setting in National Center for Geriatrics and Gerontology Hospital. These data of the bile culture and clinical information were retrospectively collected and analyzed.

Results: The average age was 75.6 and 78 male and 26 female were found in the study population. 31 cultures were 'no growth in 7 days'. 193 pathogens were cultured. Candida spp. (24 cases) was the most popular microflora in this series. Klebsiella pneumoniae (20), Enterococcus faecalis (18), Escherichia coli (17), Enterococcus faecium (12) and Enterobacter cloacae (10), Streptococcus anginosus (7) and Enteroccocus raffinosus (7) were dominant pathogen. As for drug resistance bacteria, Staphylococcus haemolyticus MRS (methicillin resistance Staphylococcus) (2), ESBL (extended-spectrum β-lactamase) producing Escherichia coli (1), Staphylococcus capitis-capitis MRS (1) and Staphylococcus epidermidis MRS (1) were detected.

Conclusions: In our institute, Candida spp. (24 cases) was the most popular pathogen in bile culture. Some of the detected micro floras were drug resistance pathogens.

P-93-4 Basic study of odor of bile in biliopancreatic cancer patients

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Purpose: Preoperative bile replacement is beneficial to biliopancreatic cancer patients with external biliary drainage. However, drinking their own bile is a burden for patients due to unique odor of bile. We performed basic analyses of odor of bile aiming at its future improvement.

Methods: Bile was obtained from 10 preoperative patients with biliopancreatic cancer, in whom external biliary drainage was performed. Volatile organ compounds (VOCs) in bile collected using MonoTrap (GL Science) were analyzed with gas chromatograph mass spectrometry (GC/MS) (SHIMADZU Corporation). Strength of odor was evaluated using a Fragrance & Flavor Analyzer (SHIMADZU Corporation) and expressed as an odor concentration. Two independent researchers performed sensory evaluation of bile by smelling.

Results: 1) Two hundred fifty–seven VOCs were detected by Mono-Trap–GCMS from 10 bile samples. Among them, trimethylamine (urine like or dirty toilet like odor), indole (urine like), phenol (medical note), and dimethyl disulfide (sulfur like) were considered possible causal VOCs for strong malodor of bile. 2) Odor concentration inversely correlated with drained bile volume (correlation coefficient = -0.63). 3) Sensory evaluations revealed urine or feces like stench in five samples followed by animal like odor in three and fishy smell in three (some smells are overlapped in the same sample). Conclusions: Many types of VOCs are included in drained bile with several types of malodor such as urine or feces like and animal like, etc. Strength of odor is inversely proportional to drained bile volume. We are now planning a next interventional study to relieve malodored of drained bile.
P-93-5 The Significance of the Serum Concentration of Duke Pancreatic Monoclonal Antigen Type 2 (DUPAN-2) in the Diagnosis of Biliary Tract Cancer

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Background: DUPAN-2 is one of the most important markers in diagnosis of pancreatic cancer, however, significance of serum DUPAN-2 concentration in diagnosis of biliary tract cancer (BTC) has not yet been elucidated.

Methods: The serum concentration of DUPAN-2 as well as CEA and CA19–9 was measured in 83 patients with BTC and 24 patients with benign biliary diseases (control) at the initial diagnosis. The accuracy of the serum concentrations of DUPAN-2 in the diagnosis of BTC was investigated, compared and/or combined with the serum concentrations of CEA and CA19–9.

Results: The receiving operating characteristic (ROC) curve for the serum concentration of DUPAN-2 predicting BTC demonstrated a greater area under the curve (AUC) [0.819, 95% confidence intervals (CI) 0.735–0.903] than that for the serum concentrations of CA19–9 (0.770, 95% CI 0.668–0.872) and CEA (0.665, 95% CI 0.550–0.781). When the cutoff value of DUPAN-2 was set at 30 U/mL, the sensitivity and specificity in the diagnosis of BTC were 74.6% and 83.3%, respectively. When measuring both CA19–9 (>37 U/mL) and DUPAN-2 then the sensitivity for diagnosing BTC increased to 81.9% (specificity 75%), leading to an AUC under the ROC curve of 0.785 (95% CI 0.673–0.896). On the other hand, the sensitivity and specificity for diagnosing BTC by measuring both CA19–9 and CEA (>5 ng/mL) were 59.0% and 83.3%, respectively (AUC 0.712, 95% CI 0.601–0.823).

Conclusion: Measuring the serum concentration of DUPAN-2 (≥ 30 U/mL) is considered to be a useful marker in the diagnosis of BTC. Measuring both the serum concentration of DUPAN-2 and CA19–9 increased the sensitivity for diagnosing BTC.

P-93-6 Detection of programmed death ligand–1 expression in biliary tract cancer by using a highly sensitive phosphor–integrated dot staining technique—digital immunostaining—

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Background/Purpose: We recently developed a new technology, 'digital immunostaining', as a highly sensitive and objective method which uses fluorescent nanoparticles of phosphor–integrated dots (PID). The programmed death ligand-1 (PD–L1) signaling pathway plays an important role in antitumor immunity by maintaining an immunosuppressive tumor microenvironment. The aim of the present study is to evaluate the expression of PD–L1 with immunostaining in biliary tract cancer (BTC) using PID technology, compared to 3,3′-diaminobenzidine (DAB) staining.

Methods: We examined 127 patients with BTC who underwent curative resection between January 2006 and March 2015. The linearity of PD–L1 staining in five cell lines with varying levels of PD–L1 expression was determined using both PID and DAB staining. We also evaluated the relationship between PD–L1 expression and the clinicopathological features of the BTC patients.

Results: The PID data correlated better with the western blot data ($R^2 = 0.9085$) than with the DAB data ($R^2 = 0.8058$). PD–L1 expression was detected in 11.8% (15/127), 17.3% (22/127), and 48.8% (62/127) of BTC patients by naked eye, the Aperio system, and PID, respectively. Overall survival in the PD–L1–positive group was significantly less than the PD–L1 negative group ($P = 0.0466$). Univariate and multivariate analyses revealed that PD–L1 expression indicated a poor prognosis in patients with BTC.

Conclusion: The tight correlation between clinicopathological data and PD–L1 expression using PID indicates that digital immunostaining is superior to the DAB–based method.

P-94-1 A Rare Case with Cholecystitis Complicated with Infectious Subdural Abscess Resulting in Impaired Consciousness

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Case: The case was a 75-year-old male with a history of alcohol abuse. He was diagnosed as cholecystitis based on his chief complaint of the upper abdominal discomfort as well as abdominal CT examinations (severity grade II based on Tokyo Guidance 2013). Thereafter, he was urgently hospitalized and received antimicrobial therapy. Impaired consciousness and right hemiplegia developed two days after the hospitalization, and subsequent CT revealed chronic subdural hematoma accompanied with midline shift, followed by urgent subdural hematoma removal. Infectious subdural hematoma (ISH) was diagnosed by milky white pus contained in the removed hematoma. Escherichia coli (E. coli) was identified with bacterial culture test. After the removal of subdural hematoma, his consciousness level showed a trend toward improvement although right hemiplegia remained. Because antimicrobial therapy had no effect for cholecystitis, percutaneous transhepatic gallbladder drainage was performed on the sixth day of the hospitalization, and E. coli was identified from the drainage as it was detected from the subdural abscess. After neurologic improvement, elective cholecystectomy was performed 22 days after the hospitalization. Postoperative course was good with continuous antibiotics treatment of ISH, and he was transferred to another clinic for rehabilitation therapy 41 days after the hospitalization.

We experienced a rare cholecystitis case complicated with ISH due to the overgrowth of E. coli. Cholecystitis has been reported often to result in sepsis; therefore it is important to consider the timing of drainage and surgical treatment as well as adequate antibiotic treatment.

P-94-2 A case of invisible duodenal gastrinoma diagnosed by selective arterial calcium injection test

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Case presentation: A 64-year-old woman was referred to our hospital because of abdominal pain. She had previously undergone operation for the perforation of the duodenal ulcer. Gastrointestinal endoscopy revealed erosions and ulcers of duodenum. Ulcers were refractory and laboratory findings showed hypergastrinemia. Ulcers were seemed to be caused due to a suspected gastrinoma, however, no tumors were detected in the duodenum, pancreas and other organs. Selective arterial calcium injection (SACI) test, which confirmed a significant rise in gastrin levels after the injection to the gastroduodenal artery, was performed for localization of the tumor and the patient was diagnosed with gastrinoma of the duodenum or head of pancreas. Therefore a pancreaticoduodenectomy was performed. Histopathological findings showed a duodenal gastrinoma. The postoperative serum gastrin level decreased to normal level. Twelve months after surgery, there were no sign of recurrence on abdominal CT.

Conclusion: We report a case of invisible duodenal gastrinoma diagnosed by the SACI test. The SACI test is useful for localization of invisible gastrinoma.
P-94-3  A case of Xanthogranulomatosis of the spleen
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Xanthogranulomatous inflammation is characterized by clumping of foam macrophages and infiltration of inflammatory cell. It is recognized as a subtype of cholecystitis, but it can also occur in other organs. We report a case of laparoscopic splenectomy of splenomegaly which was difficult to diagnose preoperatively.

The patient is a 63-year-old man. Abdominal echo, CT suggested multiple splenic masses in the spleen, and following image examination was performed for 1 year. It was a gradual course. It had atypical findings, malignant lymphoma, splenic sarcoidasis, metastatic tumor, etc. were suspected and had to undergo surgery. Laparoscopic splenectomy was performed with 5 port system. Extracted specimens were 940 g and 20 × 14 cm, and a lot of yellowish white tones, elastic soft mass lesions of about 1 – 2 cm were observed in the spleen. Postoperative portal vein thrombosis was observed but it improved with anticoagulant therapy and it was discharged on the 17th postoperative day. Pathological examination resulted in diagnosis of splenic xanthogranulomatosis. Abscesses, necrosis, bleeding have been pointed out as the cause of xanthogranulomatous inflammation, but in particular obstructive environment and infection may cause xanthogranulomatous changes. In this case, liver cirrhosis was not observed, but thrombocytopenia was recognized, and increased splenomegulary was suspected. But the cause of xanthogranulomatosis was unknown in respect of the obstructive environment an infection.

We experienced one resected case of splenomegaly cause of xanthogranulomatosis. We reported that we could have xanthogranulomatosis as a differential diagnosis also in splenomegaly cases.

P-94-4  A rare case of advanced pancreatic carcinoma with gastric metastasis and distant metastasis to right ankle
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Introduction
Median collective survival time for all pancreatic carcinoma is 4–6 months & 12–18 months for patients who underwent successful surgical resection. Methods
We report a 72–year-old lady, first presented with abdominal pain for 2 years with loss of appetite & weight. CA 19.9 was normal. CT abdomen shows a heterogeneously enhancing mass at the tail of pancreas. Radial antegrade modular pancreaticosplenectomy (RMAPS) with wedge resection of stomach were performed. Intaoperatively noted tumor at tail of pancreas with puckering at posterior wall of stomach. HPE shows moderately differentiated ductal adenocarcinoma of pancreas with gastric metastasis; no lymphatic metastasis. Immunohistochemistry shows focal positive CK7 & negative CK20 staining in both the tumor. Patient recovered well post-operatively. During post-op 1 month follow up, patient complained of increasing right ankle pain & swelling.

Results
CT scan of right ankle shows 4 soft tissue lesion with associated surrounding bony destruction. Incisional biopsy was done & HPE shows poorly differentiated adenocarcinoma, with CK19 positivity & negativity towards CK7 & CK20. Right below–knee amputation was subsequently performed. Patient refused for adjuvant chemotherapy. Patient had been followed up for 2 years & is currently well & on wheelchair ambulation. Latest CT Scan 18 months post–operative shows no local recurrence & no distant metastasis.

Conclusion
Prognosis is usually guarded for patients with advanced pancreatic carcinoma. This case of pancreatic carcinoma with gastric metastasis & distant metastasis to right ankle, with subsequent disease–free for 2 years post–operatively is extremely rare.

P-94-5  Emergency pancreaticoduodenectomy (PD) for massive hematemesis with hypovolemic shock in a patient with primary adenocarcinoma of the duodenum
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Tomohiro Mizutani, Shou Mineta, Kazunori Nakamura, Go Wakabayashi
[Case report] An 80-year-old man was taken to our hospital by ambulance for massive hematemesis with hypovolemic shock. One week prior to this admittance, he was admitted to a community hospital with epigastralgia and diagnosed as duodenal ulcer by upper esophagogastroduodenoscopy (EGD). He presented at the emergency room with shock state and had rapid blood transfusion. After resuscitation, he received emergency EGD and the source of arterial bleeding was found from the duodenal ulcer by gastroenterologists. Endoscopic clipping hemostasis was tried but the bleeding was uncontrollable. Whereas the patient has suddenly become hemodynamically unstable while clipping, an emergency laparotomy had to be performed. The laparotomy confirmed the large ulcerating duodenal tumor arising from the second part of the duodenum with arterial bleeding and invading to the pancreas and common bile duct, which required an emergency subtotal stomach preserving pancreaticoduodenectomy. Postoperative outcome was uneventful. The pathological examination confirmed the diagnosis of poorly differentiated adenocarcinoma. [Conclusion] Most surgeons agree that selective transcatheter arterial embolization (TAE) is the standard tool for the duodenal bleeding after the failure of endoscopic hemostasis and that the first step is to stabilize the patient’s condition with further surgery after achieving hemostasis. However, in our case of the shock state patient with continuous bleeding, TAE was not the choice of treatment at our hospital and we decided to perform an emergency surgery that allowed both rapid control over the bleeding with hemostasis and complete removal of the tumor.

P-94-6  A Case of Laparoscopic Splenectomy for the Rupture of CA19–9 Produced Splenic Cyst
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The case is 43 year-old female, who had been admitted to another hospital for sudden stomachache and was diagnosed as rupture of the splenic cyst. After the symptoms had eased, she was admitted to our institution for operative treatment. There was no complaint of stomachache during admission. The laboratory data of CA19–9 indicated a high value of 1157.0U/ml. Abdominal enhanced CT showed a heterogeneously enhancing mass at the tail of pancreas with poor enhancement inside of the cyst. There also was a low density area beside the cyst, and there was a partial rupture with leakage beneath the diaphragm. It had been diagnosed as a partial rupture of splenic cyst. Inside of the cyst showed high density in the MRI, which indicated hemorrhage. It was diagnosed as rupture of the splenic cyst, and laparoscopic splenectomy was performed. There was a little amount of brown ascites in the abdominal cavity. There was brown fluid and a mass in the cyst. The value of CA19–9 of the cystic fluid was considerably high with 910000U/ml. The histopathological diagnosis indicated epithelial cyst with hemorrhage, and a portion of epithelium of cystic wall was CA19–9 positive. The postoperative course was well, and the patient was discharged 7 days after the operation. In recent years, the number of reported cases of splenic cyst have increased. A case of an asymptomatic small splenic cyst usually undergoes observation, but ruptured case produces peritonitis and needs an operation. CA19–9 produced splenic cyst is a relatively rare case and its operative procedures are splenectomy and dome resection. We are to report a case of laparoscopic splenectomy for CA19–9 produced splenic cyst rupture.
P-95-1 Undifferentiated embryonal sarcoma of the liver in an adult patient: a case report

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Undifferentiated embryonal sarcoma of the liver (UESL) is a rare malignant hepatic tumor with a poor prognosis that is usually observed in children and rarely seen in adults. We present a case of UESL in a 40s male, complaining upper abdominal discomfort and epigastralgia. Laboratory studies showed mildly elevated levels of alkaline phosphatase(ALP), γ-GPT, α-fetoprotein and PIVKA-II. Computed tomography (CT) scan and ultrasonography showed a large mass, 15cm in diameter, in left lobe of the liver. Left hepatic vein and left portal vein were not detected because of compression of the tumor. Enhanced CT revealed vessels, septa, variable degrees of cystic change, and solid compartment in the tumor and enhanced–effect around the tumor. The maximum standardized uptake value obtained by 18F–fluorodeoxyglucose positron emission tomography was 4.9. We planned expanded left hepatectomy. Unfortunately, he had to admit emergency because of abdominal pain 2 days before the day of our scheduled surgery. At the time of his admission, aspartate aminotransferase (AST) was 200 U/L; alanine aminotransferase (ALT) 250 U/L; total bilirubin 4.4 mg/dL; ALP 1425 U/L; γ-GPT 427U/L. CT scan revealed the tumor expanded to 19cm in diameter. There were no images suggesting rupture of tumor, and we performed left hepatectomy as planned. Microscopically, the tumor was composed of pleomorphic spindle cells and nuclear divisions were found. In immunohistochemistry, vimentin was positive, and hepatocyte and AFP were negative. Histological diagnosis was UESL.

P-95-2 Primary hepatic carcinosarcoma with angiosarcomatous component: a case report

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Background: Primary hepatic carcinosarcoma, which consists of both carcinomatous and sarcomatous components, is a rare tumor entity. This neoplasm is known to progress rapidly and its prognosis is poor. We herein report a resected case of primary hepatic carcinosarcoma which contained angiosarcomatous component as an extremely rare sarcomatous component.
Case: A 76-year man was referred to our hospital because of severe right upper abdominal pain. Computed tomography (CT) revealed a low–enhanced mass measuring 14 cm in the greatest diameter in the right liver, which was suspected of angiosarcoma. Transcatheter arterial embolization to the right anterior hepatic artery and the right inferior phrenic artery was first performed to control the pain and to shrink the tumor. Then, extended right hemihepatectomy was performed safely. Postoperative course was uneventful. Histopathologically, the tumor was carcinosarcoma, of which sarcomatous component was predominated by a unique angiosarcoma–like histology. And, it contained also components of hepatocellular carcinoma, uncommitted round tumor cells, and focal cartilaginous formation. Soon after surgery, distant metastases to bone and lung were detected. The patient died of this disease 6 months after surgery.
Conclusion: Angiosarcomatous component is occasionally observed in some carcinosarcomas of other organs, however, it has not been reported in primary hepatic carcinosarcoma so far. Because angiosarcoma is highly aggressive sarcoma, presence of this component can imply worse prognosis among hepatic carcinosarcomas.

P-95-3 Primary hepatic pleomorphic leiomyosarcoma which showed aggressive progression– report of a case

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Hepatic leiomyosarcoma is an extremely rare malignant tumor account for less than 1% of primary hepatic neoplasms. Presentation is usually nonspecific and diagnosis is often delayed until tumors become huge, resulting in a dismal prognosis. A 42–year-old man presented complaining of nausea, hyperthermia and a palpable abdominal mass. Computed tomography revealed a 25 cm, irregularly–circumscribed, heterogeneously dense mass in the left lobe of the liver. Vena cava, SMV, portal vein, middle hepatic vein, stomach and duodenum were markedly compressed by the tumor, and the extrusion of the diaphragm concurrent with pulmonary atelectasis was seen. Intra–tumoral arteries were tortuous and partially disrupted like pseudoaneurysm, leading cause of tumor bleeding. Extended left hepatectomy was considered, however, the patient was rapidly debilitated with tumor cachexia, concomitant with gradual expansion and growth of abdominal tumor which unfortunately brought into cancer death at one month after admission. After obtaining permission from the patient’s family, autopsy was done. Macroscopically, tumor was 30 cm in size and was constituted by heterogeneous components including necrosis and hemorrhage. Although direct infiltration to the duodenum was seen, definite metastases to other organs were not observed. Microscopic sections revealed areas of fascicular growth of spindle cells in a highly pleomorphic neoplasm. Immunohistologically, the tumor cells were positive for desmin, smooth muscle actin (SMA), muscle–specific actin (HHF35), and h–caldesmon, thus the tumor was finally diagnosed with primary hepatic pleomorphic leiomyosarcoma.

P-95-4 Carcinosarcoma of the liver

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The 80 year old man who is a hepatitis C patient obtained sustained virologic response. Periodic abdominal US showed 2cm sized tumor in the S7 of the liver. Dynamic CT showed rim enhancement in early phase and central enhancement in late phase. MRI showed high intensity on diffusion and high intensity on T2WI and low intensity on T1WI. Dynamic MRI showed rim enhancement in arterial phase and low intensity in equilibrium phase. Tumor shape is lobular. Cholangiolocellular carcinoma was suspected. Patient underwent posterior segmentectomy. Pathological diagnosis was carcinosarcoma. We report our experience of a rare carcinosarcoma case, together with some discussion on the literature.
P-95-5 A case of follicular dendritic cell sarcoma of the liver

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A 82-year-old woman initially complained of anemia and fever. Alpha-fetoprotein, carcinoembryonic antigen, and CA19-9 levels were within normal limits. Laboratory values showed a white blood cell count of 7300/µl, a hemoglobin obtained during the initial work-up were: total protein 5.3 g/dL, albumin 2.4 g/dL, total bilirubin 0.32 mg/dL, AST 13 U/L, ALT 12 U/L, alkaline phosphatase 855 IU/L, CRP 18.8 mg/dL, WBC 7300/µl, hemoglobin 10.1 g/dL, hematocrit 30.1%, platelets 32×10^5/µL, and tumor markers, including serum carcinoembryonic antigen (CEA), CA19-9, and α-fetoprotein level (AFP) were within normal value. Abdominal ultrasonography showed a huge hepatic mass at right lobe of liver. So, she received examination of abdominal computed tomography (CT) thereafter. Abdominal CT revealed a huge right hepatic mass with a size of 8 cm. After studies, she received operation for excision of the tumor. The patient underwent posterior segmentectomy of the liver. The patient tolerated the procedure well, the post-operative course was unremarkable, and she was discharged on postoperative day 10. Histopathologic analysis of the mass revealed a tumor composed of spindle and epithelioid cells. Immunohistochemical staining was positive for CD35, CD21, and Epstein–Barr virus (EBV). But the final pathology was follicular dendritic cell sarcoma of the liver. The management strategy of primary liver FDACS continues to evolve. Although surgery is the primary treatment whenever feasible, multimodality treatment tailored to the individual patient should be considered.

P-96-1 A case report of multistep surgical treatments with curative intent against multiple intrahepatic cholangiocarcinoma

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We report with an analysis that the initially unresectable multiple intrahepatic cholangiocarcinoma (ICC) due to poor residual liver function had finally been resectable after multi-step surgical treatment. A 72-year-old man, who had been under medical treatment for C chronic hepatitis, was consulted our hospital because of a sudden increase of serum transaminase levels. CT scan led to a diagnosis of double ICC, one was 8.6 cm in anterior segment and the other was 4.1 cm in the central of lateral segment (S3) with lymph nodal swelling, and the huge tumor in anterior segment was in urgent condition with infiltration of middle hepatic vein. As a first step of the treatment for this huge tumor consisted of open lymphaenectomy of peri-hepatic lymphnodes to reveal whether it was histopathological positive and right portal venous embolization (PVE) in the hope of producing hypertrophy of the liver remnant. CT-volumetry 2 weeks after PVE showed the predicted liver remnant was about 52%, so the extended right hepatectomy was performed. The patient recovered steadily and was discharged 3 weeks after hemihepatectomy. Then a transcatheter chemo-embolization (TACE) was done in 2 weeks against the ICC in S3 to gain an interval period to the next surgery. However, that TACE had induced a serious trouble with massive liver abscess. Long time treatment of antibiotics agents was inevitable to improve his general condition. Eventually, S3 subsegmentectomy was completed with curative intent 14 weeks after the first hepatectomy. Though the tumor unfortunately recurred in 6 months after the last R0 surgery, he is living with receiving chemotherapy without any troubles 12 months after the last surgery.

P-95-6 Surgical resection of liver metastasis of leiomyosarcoma

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Background: Intra-abdominal leiomyosarcoma is an uncommon malignant tumor, and its standard treatment is surgical resection. There is no generally preferred treatment for its metastatic mass in the liver.

Methods: From 2003 to 2015, surgical resections of liver metastases were performed in 10 patients with leiomyosarcoma at Asan Medical Center. The characteristics and short-term results were documented.

Results: Of the 10 patients, 6 had a single metastatic mass, and 4 had multiple nodules. Eight patients had a partial hepatectomy, and the others were treated using segmentectomy or lobectomy. The median survival was 34.2 months, and two patients (20%) died during follow-up. Four patients showed metastasis to other organs after surgical resection of the liver.

Conclusions: Intra-abdominal leiomyosarcoma with liver metastasis is a very rare disease. Long-term survival can be achieved after surgical resection and should be considered for all patients.

P-96-2 A case report of sarcomatous intrahepatic cholangiocarcinoma with severe inflammatory response and high level of serum interleukin-6

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A 66-year-old woman with epigastralgia and body weight loss was admitted to our hospital for examination. The patient had remittent fever for one month. Laboratory tests showed high levels of WBC, C-reactive protein. Serum level of the tumor markers carcinoembryonic antigen (CEA), carbohydrate antigen 19–9 (CA19–9), and alpha-fetoprotein (AFP), were within normal range. Serum interleukin–6 was significantly elevated, 79.4 pg/mL (normal range, ≤ 4.0 g/mL). On the other hand, the level of other cytokines, interleukin–6 and TNF–alpha, were not elevated. Abdominal contrast–enhanced computed tomography revealed a liver tumor, 7cm in diameter, in segment 4/5. The center of the tumor was not enhanced due to tumor tissue necrosis. Gd–EOb–DTPA–enhanced MRI showed as a low–density tumor on hepatocyte phase. By needle biopsy, we diagnosed this tumor as malignant tumor, such as intrahepatic cholangiocarcinoma, and thought that there was relation between this tumor and severe inflammatory response. We performed partial resection of the liver. The postoperative pathological findings revealed sarcomatous intrahepatic cholangiocarcinoma; in immunohistochemically, tumor cells were positive for CK7, CK19 but negative for CK20, hepatocyte. After surgery, the level of inflammatory response of the patient was normalized, and serum interleukin–6 decreased. We report a rare case of sarcomatous intrahepatic cholangiocarcinoma, with a review of the literature.
**P-96-3** Intrahepatic sarcomatoid cholangiolarcarcinoma occurred in a patient after resection of combined hepatocellular and cholangiolarcarcinoma

Hakodate municipal hospital

The incidence of cholangiolarcarcinoma (CoCC) with sarcomatous change is rare. Here we report a case of sarcomatoid CoCC occurred as recurrence after resection of combined hepatocellular and cholangiolarcarcinoma (combined HCC/CoCC).

A 32 mm mass in liver segment 8 of a 61-year-old man was discovered by computed tomography (CT). The patient was positive for hepatitis C virus antibody and has received interferon therapy before. Serum AFP and PIVKA II levels were normal. In CT, the mass had no clear early enhancement, but defect in delayed phase was seen. Partial hepatectomy was performed following a diagnosis of primary liver cancer, most likely to be non–typical HCC. Pathological findings showed that the tumor was combined HCC/CoCC with variable feature of (CoCC, intermediate and undifferentiated. Only slight fusiform cells, that were analogous to sarcoma cells, were also seen in the lesion.

2 years later, multiple recurrent lesions in S5 were detected by CT. Early enhance and delayed wash out was seen in those lesions. Transcatheter arterial chemoembolization (TACE) was firstly performed but the reduction of tumor size was not seen in the largest lesion. Subsequently, S5 subsegmentectomy was performed. Histologically, the largest lesion was revealed to be CoCC with sarcomatoid change, and the other lesions were necrotic HCC. The tumor margin was free. However, the disease recurred in the whole liver and abdominal lymph nodes 6 month after resection. Those recurrent lesions were resistant to chemotherapy, and the patient died on 20 month after the detection of recurrence.

Autopsy revealed that histology of metastatic lesions was also CoCC with sarcomatous change.

**P-96-5** Ductal plate malformation and its association with cholangiolarcarcinoma, should we be more vigilant?

A case report and review of the literature

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Background
Cholangiolarcarcinomas are malignancies derived from biliary epithelium and is the second most common hepatobiliary cancer following hepatocellular carcinoma. One of the known risk factors for cholangiolarcarcinoma is fibropolycystic disease of the liver for which a ductal plate malformation (DPM) is a known precursor lesion. We describe here a case report of an incidential intrahepatic cholangiolarcarcinoma arising from a DPM.

Methods
We present a case report of a 38 year old Chinese female who was referred for an incidential liver lesion noted during an elective laparoscopic total hysterecomy and bilateral salpingo–oophorectomy (THBSO) for uterine fibroids. MRI performed revealed a large well–defined exophytic multiloculated cystic mass with septation and nodular foci of calcifications over the inferior margin of segment VI measuring 5.9 x 5.7 x 4.8cm.

Results
The patient underwent a laparoscopic wedge resection of the segment VI liver lesion. Histology of the specimen revealed a moderately differentiated intrahepatic cholangiolarcarcinoma arising from a biliary ductal plate malformation.

Conclusion
Ductal plate malformations are a rare occurrence in adults with only few case reports in the literature. Understanding and awareness of this entity and their imaging characteristics should therefore form an important differential diagnosis when evaluating the incidental multicytic liver lesion. If a DPM is suspected, we recommend that surgery be performed given its known association with hepatobiliary fibropolycystic disease, which is an established risk factor for development of cholangiolarcarcinoma.
P-97-1  Analysis of resected Stage 0–IA pancreatic ductal adenocarcinoma and recurrence in the remnant pancreas

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Pancreatic ductal adenocarcinoma (PDAC) has poor prognosis, then, there are recurrent cases after curative resection of early PDAC. We performed curative resections for 64 cases of PDAC in 2008–2016. In 64 cases, 5 cases were categorized as pStage 0–IA (pStage 0: 1 case, pStage IA: 4 cases), Age 71–82, M/F 3:2, Location Ph: 4, Pb: 1. We analyzed these 5 cases clinicopathologically. In all cases, PDAC had been detected in detailed examination of deteriorated diabetes mellitus or other diseases, because all patients had no complaint derived from PDAC. Pancreatodudenoectomy or distal pancreatectomy with lymph nodes dissection were performed for all cases, then, these operations had been certified as R0 resection histologically. T factor were followed, Tis: 1, Ta: 2, T1a: 1, T1c: 1, and micro vessel invasion were seen in 3 cases. A patient died by renal dysfunction without recurrence 62 months after PDAC resection, and 4 cases are alive. However, in 2 cases, carcinomas were detected in the remnant pancreas. Time to recurrence were 66 months (pStage 0) and 51 months (pStage IA). Resection of the remnant pancreas was performed in a case, while another patient selected chemotherapy based on her performance status. Scattered PanIN lesions were seen in the pancreatic tissue separated from PDAC by histological examination of initial resected specimen of two patients. This findings might be considered to have relation to recurrence in the remnant pancreas. There is no evidence that R0 resected early PDAC is hard to recur in the remnant pancreas. Carefully follow up for long periods must be important for finding the recurrence in early stage.

P-97-2  Two resected cases of remnant pancreatic cancer after pancreatectomy

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[Introduction] Remnant pancreatic cancer sometimes develops in the long survivors after pancreaticoduodenectomy (PD) for bile duct cancer or after pancreatectomy for pancreatic ductal adenocarcinoma (PDAC). We report two resected cases of remnant pancreatic cancer after PD.

[Case 1] A 70’s male underwent endoscopic papillotomy for cancer of papilla of Vater (tub1). The tumor was highly suspected of infiltration beyond sphincter of Oddi. Because of residual carcinoma confirmed by endoscopic biopsy, subsequent radical pylorus-preserving PD was performed. Approximately 4.5 years after operation, the patient was clinically diagnosed as remnant PDAC based on a gradual elevation of CA19–9 level, stenotic lesion of the remnant pancreatic duct, and an abnormal accumulation on FDG-PET, and subsequently underwent remnant total pancreatectomy. The final staging was pStage II (tub2, multiple (3), pT2, pN0), and the patient survives 2.5 years after the second operation without recurrence.

[Case 2] A 70’s male underwent subtotal stomach preserving PD for PDAC (tub2, ne2, pT1b, pN0, pStage IA). Three years after operation, the patient showed a gradual elevation of CA19–9 level and dilatation of the remnant pancreatic duct. A tumor lesion in the remnant pancreas detected by CT scan was histologically diagnosed as PDAC by EUS-FNA. The patient underwent remnant total pancreatectomy, and the final staging was pStage IIB (tub2, v3, ne1, pT3 (pS, pR0+), pN1). Conclusion The long-term imaging evaluation of the remnant pancreas, especially pancreatic duct, is essential after pancreatectomy for earlier diagnosis of remnant pancreatic cancer.

P-97-3  Initial total pancreatectomy and residual total pancreatectomy for pancreatic cancer: experience of our institution

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Background: There were several reports of total pancreatectomy, but few data was available related to residual total pancreatectomy (RTP).

Purpose: To analyze the outcomes of patients undergoing initial total pancreatectomy (ITP) for pancreatic ductal adenocarcinoma and RTP for residual pancreatic cancer after pancreatectomy. Between 2001 and 2016, patients who underwent ITP (n=15) or RTP (n=5) for adenocarcinoma were identified and analyzed. Results: The surgical procedure of RTP included four cases of distal pancreatectomy and one case of pancreaticoduodenectomy. The median time of between initial pancreatectomy and RTP was 32 months (range: 9–61 months). There were three cases of major complications in ITP group, but no complication was observed in RTP group. R0 resection were achieved 80% in both groups. The induction rate of postoperative adjuvant chemotherapy was 40% in ITP group and 80% in RTP group. The recurrence rate was 47% in the ITP group and 80% in the RTP group. The primary site of recurrence after RTP were mainly observed in distant metastasis (Liver: 2, Lung: 1). One-year/three-years survival was 40%/80% in the ITP Group, and 80%/80% in the RTP group, respectively. Conclusions: RTP is feasible and one of the effective treatment option for residual pancreatic cancer, if curative resection can be performed.

P-97-4  A Case of total remnant pancreatectomy for metachronous pancreatic ductal carcinoma 2 years after pancreaticoduodenectomy for primary pancreatic cancer

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Treatment strategy has not been established for metachronous pancreatic cancer after pancreatectomy. We report a case with metachronous pancreatic ductal adenocarcinoma (PDAC) which developed two years after pancreaticoduodenectomy for the first PDAC and underwent total remnant pancreatectomy. A 79-year-old man was admitted to the hospital in chief complaint for jaundice. He diagnosed locally advanced PDAC in the pancreas head by abdominal computed tomography and endoscopic ultrasonography guided fine needle aspiration (EUS-FNA). He underwent gemcitabine based chemoradiation therapy with 50.4 Gy of radiation and referred to further treatment to our hospital. We performed pancreaticoduodenectomy combined with portal vein resection and reconstruction. Pathological diagnosis was moderately differentiated invasive ductal adenocarcinoma without microscopic residual tumor (UICC classification 8th edition; pT3, pN0, pM0, stage II A, R0). S-1 was administered as adjuvant chemotherapy for 6 months. Two years after the surgery, abdominal CT revealed two hypovascular mass lesions in the body (18mm in diameter) and tail (12mm in diameter) of remnant pancreas. EUS-FNA were performed to low echoic mass in the body of remnant pancreas and diagnosed as adenocarcinoma. He received gemcitabine plus S-1 chemotherapy for 6 months and was confirmed no appearance of new metastatic lesion. Then, he underwent total remnant pancreatectomy and received adjuvant S-1 chemotherapy for 6 months. He is alive without recurrence for seven months after second resection.
P-97-5  Multiple primary cancers in patients with pancreatic cancer

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Background: Pancreatic cancer (PC) is a lethal disease, with a mortality similar to its incidence. However, advancements in diagnostic techniques and treatments have extended survival in patients with PC, thus increasing the incidence of patients with PC plus other primary cancers (multiple primary cancers, MC). This study aimed to clarify the prognostic significance and establish a treatment strategy for patients with MC.

Methods: A total of 163 patients who underwent pancreatic resection for PC from 2004 to 2015 were enrolled. Patient demographics, clinicopathological parameters, and survival rates were compared between patients with PC alone (solitary pancreatic cancer, SC) and those with MC.

Results: Sixteen patients (10.1%) had MC, including 15 double cancers and one triple cancer. Seven patients developed PC after resection of extrapancreatic cancers. The median interval between the occurrence of extrapancreatic cancer and PC was 30 months. Six patients had synchronous MC, and three developed extrapancreatic cancers after resection of PC. Extrapancreatic cancers occurred in the lung in five cases, breast in three, prostate and stomach in two, and colon, liver, bile duct, kidney, and skin in one patient each. Seven patients died of PC, but no patients died of extrapancreatic cancer. There was no significant difference in overall survival between patients with SC and MC (log rank, P = 0.68).

Conclusion: The prognosis of patients with MC may be determined by the PC itself, regardless of the order of tumor appearance. Patients with MC should be treated proactively, similar to those with SC.

P-97-6  Five cases of repeat pancreatectomy for remnant pancreatic cancer

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The clinical implications of repeat pancreatectomy for remnant pancreatic cancer have not been clarified. It might be very difficult issue to discriminate local recurrence from new primary lesion in the remnant pancreas. We performed five cases of repeat pancreatectomy for isolated recurrence in the remnant pancreas and evaluated clinicopathological findings with review of the associated literature. Five cases of repeat pancreatectomy for remnant pancreatic cancer were performed from April 2008 to December 2016 at Osaka City General Hospital. There were three males and two females with a median age of 66.4 years (range 58–81 years) at initial operation. Operative procedure of initial operation was pancreateoduodenectomy in all cases. The evaluation of pancreatic cut margin was free of atypical or cancerous cells in all cases at initial operation. Repeat pancreatectomy could be performed without any severe morbidity and with no mortality. The interval periods between initial operation and diagnosis of remnant pancreatic cancer were 6, 16, 24, 53, 3.5 months respectively. Three patients died of recurrence 20, 32, and 23 months after repeat pancreatectomy. Of 5 patients, one patient is alive in good health without any signs of recurrence at follow-up 62 months after repeat pancreatectomy. Repeat pancreatectomy for remnant pancreatic cancer is feasible and may prolong survival in selected patients.

P-98-1  Palliative drainage of afferent loop obstruction due to recurrence of pancreatic cancer: a case report

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Recurrence of pancreatic cancer causes a variety of symptoms and laboratory abnormalities. Especially, in case of afferent loop obstruction due to recurrence, patients suffer from abdominal pain, cholangitis and jaundice.

We report a case of palliative drainage for afferent loop obstruction. A 68-year-old male patient was diagnosed with pancreatic head cancer and underwent subtotal stomach–preserving pancreatectoduodenectomy. Although adjuvant chemotherapy was administered with S–1 for 12 months, peritoneal recurrence developed 24 months after surgery, for which systemic chemotherapy with S–1 was given. At two months after starting S–1, he was admitted to our hospital due to worsening fatigue, jaundice and abdominal pain. Enhanced computed tomography scan revealed obstruction of the afferent loop and dilation of the intrahepatic bile duct. His laboratory data showed elevated serum bilirubin and C–reactive protein levels. We diagnosed cholangitis due to reflux of the intestinal fluid. In order to prevent rupture of the afferent loop and reduce the loop pressure, percutaneous transhepatic drainage of afferent loop was performed. His condition and bilirubin level were stabilized after the drainage. He was discharged 10 days after the drainage without any complications, and is alive without any symptoms as of one month after drainage.

Percutaneous transhepatic drainage of the afferent loop seems to be a useful procedure for palliative treatment of afferent loop obstruction.

P-98-2  Repeated pancreatic resections for metastases from renal cell carcinoma

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Pancreatic metastases from renal cell carcinoma (RCC) are uncommon. If a metastasis is resectable, the resection for metastasis may improve the prognosis. Aggressive surgery for pancreatic metastasis from RCC is recommended. Though single resection of metastases from RCC is reported in various journals, a few reports that they performed operations twice for metastasis to pancreas from RCC. A 63–year–old female had undergone right renalectomy for right RCC. After that, she underwent operations for metastases from RCC 4 times: twice of them were metastases to pancreas. She underwent pylorus–preserving pancreatectoduodenectomy (PPPD) for metastasis to uncinate process of pancreas from RCC and middle pancreatectomy for metastasis to remnant pancreas from RCC in 8 and 13 years later from first operation, respectively. The postoperative course was uneventful. She has no sign of recurrence and metastasis. We think aggressive surgery for pancreatic metastasis from RCC is contributed to good prognosis. However, we have to observe carefully clinical course because of the features of RCC. We report about resection of pancreatic metastasis from RCC with some literature review.
P–98-3 A radical excision case of anaplastic carcinoma of the pancreas diagnosed with endoscopic ultrasound–guided fine needle aspiration cytology

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Anaplastic carcinoma of the pancreas is a rare and very aggressive tumor. Diagnosis is made with postoperative histopathological examination in most cases. Even if it is made with Endoscopic ultrasound–guided fine needle aspiration cytology (EUS–FNA) preoperatively, the tumor is usually too advanced to be resected. We report a radical excision case of anaplastic carcinoma of the pancreas diagnosed with EUS–FNA. A 72-year-old woman was admitted with chief complaints of epigastric pain. Laboratory data on initial visit showed high levels of serum amylase and CA19–9. Dynamic contrast computed tomography showed pancreatic duct expansion, but did not reveal the clear mass. Endoscopic ultrasound showed a mass lesion which consisted of hypoechoic, heterogeneous solid lesion and cystic lesion in the pancreas head. The tumor was diagnosed as an anaplastic carcinoma by EUS–FNA. Thus, subtotal preserving pancreaticoduodenectomy was performed. Macroscopically, the tumor was solid and showed a cyst–shaped change in the center. The histopathological findings revealed the tumor cells had osteoclast–like giant cells and spindle cells with components of ductal adenocarcinoma and anaplastic carcinoma was diagnosed. The patient has remained well with no evidence of recurrence for 7 months since her operation.

P–98-4 An uncommon case of solid–pseudopapillary neoplasm of the pancreas in a young adult man

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A solid pseudopapillary neoplasm (SPN) of the pancreas is generally regarded as a neoplasm with low malignant potential and occurs most frequently in young women. A 22–year–old male visited our hospital for further examination of pancreatic solid tumor. 11.8–mm in diameter that was accidentally detected by abdominal ultrasonography. He had been treated for acute lymphoblastic leukemia (ALL), and complete remission had been achieved after chemotherapy. Contrast–enhanced computed tomography (CT) scans revealed a 9x10–mm low–density mass in the neck of pancreas. Endoscopic ultrasonography (EUS) showed a hypoechoic mass adjacent to the portal vein. EUS–FNA was not performed because this tumor could be an invasive ductal carcinoma of the pancreas. Under a tentative preoperative diagnosis of second primary pancreatic cancer, possibly induced by the previous chemotherapy for ALL, he underwent a subtotal stomach–preserving pancreaticoduodenectomy. Immunohistochemical analysis revealed that the resected specimen was positive for beta–catenin, vimentin, neuron–specific enolase, CD10, and progesterone receptor. Based on these findings, he was finally diagnosed with SPN. It should be aware that a small solid pancreas tumor in a young adult man could be SPN.

P–98-5 The diagnostic difficulties of pancreatic intraepithelial neoplasia (PanIN): a case report

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A case] A male aged seventy–two years had been observed for gastric ulcer and diabetes mellitus at our hospital. Blood examination showed elevation in HbA1c, so we took pancreatic disease into consideration and performed endoscopic retrograde pancreatography (ERP). It determined the dilation of main pancreatic duct (MPD) at the body and tail, and the cytology of pancreatic juice results class V. The presence of pancreatic cancer was suggested but the tumor could not be detected by contrast–enhanced CT and endoscopic ultrasonography. Six months later, ERP showed the MPD at the body and tail was more dilated and the proximal part of the dilated MPD was stenosed. CT determined the poor contrast enhancement area at the stenosed lesion. We diagnosed it was the tumor and performed distal pancreatectomy. The postoperative course was uneventful and he discharged on 20th days post–operation. The pathological result was that there was high–grade PanIN at the more proximal part from the stenosis than we expected. [discussion] It has been reported that the stenosis of MPD might be caused by inflammation around the duct due to PanIN but the location of PanIN is not always near the stenosis. This case shows that we have to recognize the diagnostic difficulties on PanIN. In this case, it is important to follow up the remnant pancreas cautiously.

P–98-6 A case report: A non–invasive treatment for severe fluid collection in a SAP patient

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A case report: A non–invasive treatment for severe fluid collection in a SAP patient

Severe acute pancreatitis (SAP) is the poorest form of pancreatitis and in many cases extensive amount of fluid collection surrounding pancreatic tissue which needs to be treated surgically. Here we present a case about a 44–year–old female SAP patient whose extensive fluid collection (CTSI Grade: E) was treated non–surgically. The patient presented to a local hospital with sudden onset of upper abdominal pain and vomiting and was hospitalized for 10 days there. The patient was diagnosed with SAP collection (CTSI Grade: D) initially and treated with supportive care including fluid resuscitation until the disease progressed to day10. We reassessed the condition and found the disease progressed to SAP with extensive para–pancreatic fluid collection (CTSI Grade: E) quickly and we treated this patient without any surgical intervention for 32 days until she can returned back to normal oral diet and life (including latest following up). We are sharing our experiences here (The 2nd patient's data is being collected).
P-99-1  Histological and immunohistochemical analyses of preoperative chemotherapy and chemoradiotherapy on pancreatic cancer

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[Backgrounds] Preoperative chemotherapy (pre-CT) and chemoradiotherapy (pre-CRT) have been performed for pancreatic cancer (PC) to achieve curative R0 surgery and improve the prognosis. However, the effects of these treatments in tumor microenvironment are unclear.

[Purpose] Evaluation of tumor microenvironments in PC tissues pretreated with CT and CRT.

[Methods] 15 PC patients underwent their operations were enrolled, and categorized into three groups (5 each) according to pretreatments: no-Tx, pre-CT (Gem+nab-PTX), and pre-CRT (S1+Radiation). The stromal components of collagen and fibroblasts were detected by the staining with azan-mallory and anti-SMA Ab, respectively. The infiltration of immune cells was assessed by the immunohistochemical staining with anti-CD3, CD4, CD8, CD68, and CD204 Ab.

[Results] Pre-CT group had a tendency that the ratio of azan–positive area was decreased (70±4.7%), compared with that in other groups (pre-CRT: 80±5.2%, no-Tx: 78±9.7%, 8%). a-SMA–positive ratios were comparable in three groups. The infiltration of CD3+ cells was enhanced in pre-CT group (137±47.3 cells) than that in no-Tx group (101±38.8 cells). In contrast, the infiltration of CD3+ cells was limited in pre-CRT groups (32±20.1 cells). The number of CD68+ cells was similar in all of treatment.

[Conclusion] Our results suggested that pre-CT and pre-CRT had the different effects on tumor microenvironments in PC. The combination with Gemcitabine and nab-PTX might decrease the accumulation of collagen in tumor stroma, and enhance the infiltration of T cells. Since there was limitation that the sample size was small, we should continue the study to confirm our findings.

P-99-2  The local control impact of neoadjuvant chemoradiotherapy gemcitabine and S–1 and concurrent radiotherapy for locally advanced pancreatic cancer with major arterial invasion

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[Purpose] We have performed pancreatectomy with major arterial resection and arterial reconstruction after chemoradiotherapy (CRT) composed of gemcitabine, S–1 and irradiation in the hope of no residual (R0) resection for locally advanced pancreatic cancer (LAPC) involving the celiac artery (CA) and/or common hepatic artery (CHA). In this study, we investigated the pathological effect.

[Method] 42 patients with LAPC involving CA and/or CHA who received CRT over 4 years were investigated. 30 patients (BRPC: 8 patients, URPC: 22 patients, according to the NCCN(2016) guideline definition) underwent pancreatectomy: 14 cases CHA resection and 10 cases hepatic arterial reconstruction.

[Results] Pathologically, lymph node metastasis was found in 10 (33.3%) of 30 tumor, and arterial invasions remained in 8 tumors (26.7%). Extrapancreatic plexus invasions remained in 13 tumors (43.3%) after CRT. R0 resection was achieved in 28(93.3%) of 30 cases.

[Conclusion] Neoadjuvant CRT containing gemcitabine and S–1 and subsequent pancreatectomy with major arterial resection for patients with LAPC with arterial invasion may contribute to a high rate of R0 resection with the strong locally control effects.

P-99-3  Prognostic factors for patients with borderline resectable pancreatic cancer treated with neoadjuvant chemoradiotherapy

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[Aim] The aim of this study was to determine the prognostic significance of preoperative modified Glasgow Prognostic Score (mGPS), Neutrophil–to–lymphocyte ratio (NLR) and Platelet-to-lymphocyte ratio (PLR) in patients with borderline resectable pancreatic cancer treated with neoadjuvant chemoradiotherapy.

[Patients and Methods] The study comprised 92 borderline resectable pancreatic cancer patients with neoadjuvant chemoradiotherapy undergoing resection from 2009 to 2015 in our hospital. For each patient, the following clinical and pathologic information was gathered: age at surgery, gender, UICC TNM classification. The laboratory data, levels of CRP, albumin, lymphocyte, neutrophil, platelet were obtained. The mGPS was constructed as follows: Patients had both an elevated CRP serum levels (>1.0 mg/dl) and low albumin (<3.5 mg/dl) were allocated a score of 2; patients in whom only CRP was elevated (>1.0 mg/dl) were allocated a score of 1 and those with a normal CRP were allocated a score of 0.

[Results] Univariate analysis revealed that an elevated platelet count, N0, R0, lower mGPS (≤1) were significant predictors of longer OS. Multivariate analysis demonstrated that N0 (HR=1.949, 95%CI=1.039–3.654, p=0.037) and lower mGPS (≤1: HR=3.417, 95%CI=1.015–11.504, p=0.047) were predictors of good OS.

[Conclusion] This study demonstrated N0 and lower mGPS to be independent predictors of longer OS in patients with borderline resectable pancreatic cancer with neoadjuvant chemotherapy.

P-99-4  Significance of neoadjuvant chemotherapy in podoplanin–positive cancer associated fibroblast in pancreatic cancer stroma

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[Background] The expression of Podoplanin (D2–40), a type I transmembrane sialoglycoprotein, in cancer–associated fibroblasts (CAFs) was reported to be associated with a poor prognosis in several cancers. This elicits powerful platelet aggregation and is the endogenous ligand for the platelet C–type lectin receptor, CLEC–2, which itself regulates podoplanin signalling. Our previous study demonstrated that extravasated platelet aggregation is detected at the invasive front of the tumor in pancreatic stroma which was the epithelial–mesenchymal transition portion. We investigated the immunohistochemical effects of neoadjuvant chemotherapy in CAFs with pancreatic cancer stroma.

[Materials and Methods] A total of 55 patients were enrolled in this study. The effect on the tumor stroma was examined by D2–40 expression using immunohistochemistry. This was compared to a group of untreated specimens, a group treated with conventional gemcitabine (GEM) alone, and a group of GEM plus S–1 and a group of GEM plus Nab–paclitaxel (n–PTX).

[Results] In immunohistochemistry, podoplanin expression was mainly located near cancer cells in CAF. The podoplanin expression was observed in 20% cases in the n–PTX plus GEM treated group with markedly low expression. However, the expression of podoplanin were observed in the untreated (86%), conventionally treated GEM alone (63%) and GEM plus S–1 control group (61%).

[Conclusion] This data suggests that the n–PTX plus GEM regimen may decrease podoplanin –positive CAFs contents through pancreatic stromal depletion.
**P-99-5**

An introduction of preoperative GEM–based CRT for pancreatic cancer into a regional academic hospital with the multidisciplinary treatment team: An interim report of a prospective pilot study

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**Background:** The prognosis of pancreatic cancer is very poor, even after curative resection, because of difficulty of early detection and high recurrence rate. Recently, neoadjuvant chemotherapies or chemoradiotherapies (CRT) for resectable (PC–R) and borderline resectable pancreatic cancer (PC–BR) have been reported to improve resection rates and prognoses. However, the regimens of neoadjuvant therapies have not been established, and institutional variance of the quality of treatment would disturb their clinical application. We have conducted a prospective pilot study evaluating the feasibility and efficacy of preoperative gemcitabine–based CRT for PC–R and PC–BR in our hospital.

**Methods:** PC–R and PC–BR were enrolled with informed consent. The radiation was administered at a total 34 Gy in 30 fractions. Gemcitabine was infused intravenously at a dose of 1000mg/m² on days 1, 8, and 15 every 4 weeks. The cycle was repeated three times. The curative resection was performed 4–7 weeks after the final cycle.

**Results:** Five patients have received gemcitabine–based CRT. Leucopenia (Grade 3–4) was observed in two cases which needed dose reductions. Four cases complained epigastic discomfort (Grade 1–2). In three cases, more than 20% tumor reductions were observed. Among five patients, four patients have undergone surgical resection and no complications were presented in perioperative period. Pathological findings revealed that the effects of preoperative CRT were Grade 2–3 in two cases.

**Conclusion:** Gemcitabine–based CRT has been successfully introduced into our hospital and was safe and effective as a neoadjuvant therapy for PC–R and PC–BR.

**P-100-1**

Consideration of a prediction factor about Pancreatic Fistula development after Pancreaticoduodenectomy

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**[Background/purpose] Pancreaticoduodenectomy is a high difficulty level operation with a complication after operations, and the complication rate is also high after an operation more than 30–65% and other digestive operations. Pancreatic Fistula can cause a fatal complication in particular.So we considered a prediction factor about Pancreatic Fistula development early after Pancreaticoduodenectomy.**

**[Methods] I made 74 patients of Pancreaticoduodenectomy case this hospital carried out from February 2010 to August 2015 the subject. Pancreatic Fistula was admitted after an operation in 17 patients in all 74 patients. The Group A and the crowd who didn’t develop were made a Group B, and the crowd who developed Pancreatic Fistula was diagnosed as the way system, the gender, the age, operation time and the bleeding amount during an operation between the two groups, and development of Pancreatic Fistula by CRP value of the 3rd day and the amylase value in the drain waste fluid was considered after the pancreatic substantial strong and weak, a presence of pancreatic duct expansion and an operation.**

**[Results] The significant difference wasn’t admitted by CRP value and consideration of Pancreatic Fistula on the 3rd after a presence and an operation of the way ceremony. Group A tended to have significantly about the bleeding amount during an operation.**

**[Conclusions] The bleeding amount during an operation was useful as a prediction factor of Pancreatic Fistula development after Pancreaticoduodenectomy.**

**P-99-6**

Optimal treatment for borderline resectable pancreatic cancer: experience of neoadjuvant chemoradiation at a single center

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**Background:** In our institute, neoadjuvant chemoradiation (NACRT) has been utilized for patients with T3/4 pancreatic cancer. We aimed to determine the efficacy and feasibility of NACRT for the patients with borderline resectable pancreatic cancer (PC–BR). Method: During the period between January 2004 and June 2016, Thirty five patients with borderline resectable pancreatic ductal adenocarcinoma were retrospectively reviewed. NACRT protocol is below; 5-FU (300 mg/body/day, day 1–5/w for 4 w) or TS–1 60mg/m²/d d1–5/w, x4 cisplatin (10mg/body/day 2, 9, 16, 23), mitomycin C (4mg/body/day, day 1, 8, 15, and 22), heparin (6000 IU/body/day for 4 weeks), and radiation (2 Gy/day, day 1–5/w for 4 weeks, total 40 Gy). Results: The mean age was 66.1±9.0 and twenty-seven patients were male. Initial staging and re-staging in the NACRT group was as follow; II/A/II/B/IIV 15/28/0 and IIA/II/B/IIV 20/1/50. Twenty–one patients (60.0%) finally underwent surgery. R0 resection was performed in twenty patients (91.0%). Median survival time was 33.0 month. In a Kaplan–Meier curve, patients who underwent operation survived significantly longer than patients who could not be operated (76.7 month vs 10.7 month, p=0.002). Conclusion: The resection of a borderline resectable tumor was successfully accomplished in two–thirds of cases. In patients resected after chemoradiation for a borderline resectable pancreatic cancer, some had a favorable outcome. The NACRT is capable of being the alternative choice of borderline resectable pancreatic cancer.

**P-100-2**

Histopathological examination of surgical margin surrounding the uncinate process of the pancreas from a circumferential SMA nerve plexus preserving pancreaticoduodenectomy with tissue marking dyes

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**Background** The purposes of this study were to subclassify the margin surrounding the uncinate process of the pancreas(MUP) with tissue marking dyes (TMD) of different colors and to identify the characteristics of positive margin in patients with pancreatic head carcinoma who received pancreaticoduodenectomy (PD).

**Method** We divided MUP into four sections, and stained each section with TMD respectively. These sections were the first portion of pancreatic head nerve plexus margin(Area A), PV groove margin(Area B), SMA margin(Area C) and left of Area C(Area D). Fifty–five patients with pancreatic head carcinoma, who were diagnosed of free from the nerve plexus invasion preoperatively and were treated by circumferential SMA nerve plexus–preserving PD, were evaluated.

**Results** Of the 55 patients, Nine cases(16.4%) of incomplete resection had the positive site in the MUP. Among the 4 MUP sections, the most cases of positive results were found in Area B, with Area A(+), 0 case; Area B(+), 6 cases; Area C(+), 2 cases; and Area D(+), 3 cases (total, 11 sites in 9 patients). Seven of the 9 MUP(+) patients experienced relapse. Local recurrence was observed as initial relapse in all 3 Area D(+) patients. In contrast, the most common site of recurrence other than Area D(+) patients was the liver.

**Conclusion** By subclassifying the MUP using different colored TMD, we could recognize the characteristics of MUP (+). Thus, in only selected patients circumferential SMA nerve plexus–preserving PD could be performed R0 operations maintaining postoperative quality of life. But Area D(+) represents an extension beyond the limit of the local disease, and may lead the need for systemic therapy.
P-100-3 Gastric Necrosis due to Thrombosis of Left Gastroepiploic Artery as the Manifestation of Adenocarcinoma of the Pancreas. A Case Report

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**Introduction:** Deep vein thrombosis and pulmonary embolism are the usual manifestation of venous thrombosis in malignancy. However, arterial thrombosis rarely occur in the setting of hypercoagulable state in cancer patients.

**Objective:** To present a case of left gastroepiploic artery thrombosis which caused partial gastric necrosis in a patient who was later diagnosed with advance pancreas malignancy.

**Method:** Review of the case characteristic.

**Result:** We present a case of 52 year old male with history of severe erosive gastritis and was admitted due to general peritonitis with suspicious of gastric perforation. Patient had a worsening epigastric pain and became septic. Laboratory examination revealed anemia, thrombocytopenia, hyperfibrinogenemia and prolonged coagulation time. Direct bilirubin level was elevated but no symptom of jaundice prior of his illness. Intra operative we found necrosis of the proximal stomach in the greater curvature area with multiple nodules in the liver. Proximal gastrectomy with esofagogastric anastomosis was done. The diagnosis of malignancy was confirmed from the liver biopsy. Afterwards, patient had abdominal CT and revealed mass in head of pancreas with encasement of superior mesenteric vein and artery.

**Conclusion:** Gastric necrosis is a rare event mainly because rich blood supply of the stomach. However, in malignancy the coagulation system is easily activated by the cancer cells which could cause thrombosis in the veins or artery.

**Keywords:** Arterial thrombosis; gastric necrosis; pancreatic cancer.

P-100-4 Analysis of prognostic factors in patients with hyperlipidemic severe acute pancreatitis

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**Abstract:** Objective To investigate the prognostic factors of patients with hyperlipidemic severe acute pancreatitis (HLSAP). Methods Clinical data of 58 patients with HLSAP admitted to the First Affiliated Hospital of Anhui Medical University and the Second Affiliated Hospital of Anhui Medical University within 72h after onset from January 2010 to December 2015 were retrospectively analyzed, they were grouped into survival group (48 cases) and death group (10 cases). The difference between the two groups of clinical data and the worst results of laboratory examination within 24 hours after admission were statistically analyzed. Results There were significant differences in Age, hematocrit, serum triglyceride (TG), pH, oxygenation index, blood lactic acid, serum creatinine, the number of local complications within 24 hours after admission, CTIS scores, SOFA scores and APACHE scores after admission for 48 hours between survival group and death group (P<0.05). Multivariate Logistic regression analysis showed that renal failure and circulatory failure were independent prognostic factors for HLSAP. Conclusion Improved tissue perfusion and microcirculation, reduced the incidence of renal failure by actively early fluid resuscitation can improve the prognosis of patients with HLSAP.

P-100-5 Clinical outcomes after total pancreatectomy

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**Background/Purpose** Total pancreatectomy (TP) is still considered challenging even though its technique has been being standardized. However, the instability of pancreatic cancer, recurrent cancer was diagnosed within 1 year after TP for PDAC, tumor (PNET) and the others, respectively. Undernutrition degree at 5 years after TP, including 3 cases alive 10 years after TP. In 5–year survival cases, 7, 5, 2, 2 and 2 cases underwent TP for pancreatic diseases at our institute were retrospectively examined. Nutritional impairment of the patients was assessed according to the controlling nutritional status (CONUT) score. Undernutrition degree by CONUT score was defined as normal (total score; 0–1), light (2–4), moderate (5–8) and severe (9–12). CONUT score was investigated at 5 or 10 years after TP. [Results] 4 cases were lost to follow-up. No cases died of nutritional disorder. 18 cases survived 5 years after TP, including 3 cases alive 10 years after TP. In 5–year survival cases, 7, 5, 2, 2 and 2 cases underwent TP for intraductal papillary mucinous neoplasm (IPMN), chronic pancreatitis, pancreatic ductal adenocarcinoma (PDAC), pancreatic neuroendocrine tumor (PNET) and the others, respectively. Undernutrition degree at 5 years after TP showed 7, 8 and 2 cases of normal, light and moderate, respectively. One case was unevaluable due to missing data. In 10–year survivors after TP, 2 cases showed normal nutritional status and one case had moderate undernutrition. No severe nutritional disorder was seen at 5 or 10 years after TP. [Conclusion] Long–term nutritional status after TP is suggested to be acceptable.

P-100-6 Long–term nutritional status after total pancreatectomy for pancreatic diseases

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**Objectives** Long–term nutritional status after total pancreatectomy (TP) for pancreatic diseases remains unclear. The aim of this study was to evaluate the long–term nutritional status after TP for pancreatic diseases. [Methods] Between 2003 and 2011, 48 consecutive cases undergoing TP for pancreatic diseases at our institute were retrospectively examined. Nutritional impairment of the patients was assessed according to the controlling nutritional status (CONUT) score. Undernutrition degree by CONUT score was defined as normal (total score; 0–1), light (2–4), moderate (5–8) and severe (9–12). CONUT score was investigated at 5 or 10 years after TP. [Results] 4 cases were lost to follow-up. No cases died of nutritional disorder. 18 cases survived 5 years after TP, including 3 cases alive 10 years after TP. In 5–year survival cases, 7, 5, 2, 2 and 2 cases underwent TP for intraductal papillary mucinous neoplasm (IPMN), chronic pancreatitis, pancreatic ductal adenocarcinoma (PDAC), pancreatic neuroendocrine tumor (PNET) and the others, respectively. Undernutrition degree at 5 years after TP showed 7, 8 and 2 cases of normal, light and moderate, respectively. One case was unevaluable due to missing data. In 10–year survivors after TP, 2 cases showed normal nutritional status and one case had moderate undernutrition. No severe nutritional disorder was seen at 5 or 10 years after TP. [Conclusion] Long–term nutritional status after TP is suggested to be acceptable.
**P-101-1** Use of computed tomography for prediction of postoperative pancreatic fistula after pancreaticoduodenectomy

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**Purpose:** To investigate the relationship of postoperative pancreatic fistula (POPF) after pancreaticoduodenectomy (PD) and postoperative computed tomography (CT).

**Methods:** Between January 2011 and March 2016, the medical records of consecutive 80 patients who underwent PD were reviewed retrospectively. POPF was diagnosed by ISGPF criteria, and POPF (+) group defined as any cases with clinical relevant POPF (Grade B and Grade C). The swelling of the pancreas and the presence of the fluid collection were determined by CT on 4 postoperative days, and these factors were compared between the groups. The swelling of the pancreas was determined by the subtraction of the thickness of the part of pancreato–jejunostomy in the postoperative CT axial imaging and that of above the portal vein in the preoperative CT axial imaging.

**Results:** The swelling of the pancreas, the fluid collection around the pancreas, and the fluid collection extended to liver surface were observed more significantly in the POPF (+) group than in the POPF (−) group. Furthermore, the fluid collection around the pancreas and the fluid collection extended to liver surface were observed more significantly in the POPF (+) group than in the POPF (−) group (p < .001). Therefore, perioperative consideration to be associated with atrophy. Therefore, postoperative consideration for reducing pancreatic inflammation should include strategies to minimize atrophic change of the pancreatic tissue.

**Conclusions:** In the postoperative CT findings, the swelling of the pancreas and the fluid collection are predictive factors of POPF after PD.

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**P-101-2** Preoperative systemic inflammation–based prognostic scores, prognostic nutritional index, and plasma fibrinogen level do not predict clinical outcome of patients with resectable pancreatic cancer


**Background:** The objective of this study is to evaluate the prognostic impact of previously reported inflammation–based prognostic scores, prognostic nutritional index, and plasma fibrinogen levels on patients with resectable pancreatic cancer (PC).

**Methods:** This study included a retrospective cohort of 220 patients who underwent macroscopically curative resection for PC at our institution between February 1995 and September 2016. Patients with cirrhosis or hematological disorder and patients who had received chemotherapy at presentation were excluded from this study. The Glasgow prognostic score (GPS), modified GPS (mGPS), the neutrophil lymphocyte ratio (NLR), and the prognostic nutritional index (PNI) were calculated from data of preoperative blood tests. Correlation between these scores including plasma fibrinogen levels and clinical outcome was assessed. The cut–off value of each parameter was set based on previous reports.

**Results:** The patients with high PLR tended to have shorter overall survival (OS), but not significant (P = 0.138). The GPS, mGPS, NLR, PNI, and the plasma fibrinogen levels were not associated with OS (P = 0.925, 0.925, 0.221, 0.321, and 0.249, respectively). Additionally, significant correlation was not observed between these parameters and disease–free survival.

**Conclusion:** In this study, various systemic inflammation–based prognostic scores, prognostic nutritional index, and plasma fibrinogen levels were not associated with clinical outcome of patients with resectable PC. Further studies are needed to determine the optimal cut–off values and re–evaluate the clinical utility of these scores in patients with PC.

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**P-101-3** Outcomes of exocrine and endocrine pancreatic function in patients performed total pancreatectomy

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**Background/Aim**
Total pancreatectomy (TP) has the risk of Exocrine and endocrine pancreatic insufficiency after the surgery. Recently, however, the nutritional status and the diabetic control after TP has been improved by the development of new medicine. This study was to reveal the outcomes of exocrine and endocrine pancreatic function after TP.

**Materials/Methods**
Between January 2005 and December 2016, 15 patients underwent the TP in our institution. We compared subtotal stomach preserving pancreatoduodenectomy (SSPPD) with TP about the nutritional status and the diabetic control for six months after surgery.

**Results**
The serum albumin after TP was significantly lower than after SSPPD. The body weight, the total cholesterol and the total lymphocyte after TP were also lower in comparison to after SSPPD, but it was not significant difference. The HbA1C after TP was controlled higher than after SSPPD to prevent hypoglycemia.

**Conclusions**
The nutritional status and the diabetic control after TP were relatively kept good condition by medicine. Therefore, it was considered TP can be an option of the surgical procedure for the resectable lesion of the pancreas.

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**P-101-4** Morphological and Functional Changes of Remnant Pancreas after Pancreatoduodenectomy

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**Background:** The aim of this study was to evaluate about morphological and functional changes of the remained pancreas and to determine risk factors for these changes after pancreatoduodenectomy (PD).

**Methods:** From January 2013 to August 2014, 48 patients were enrolled into this study. Data was collected retrospectively at 1 week after operation, then at 3, 6, 9, and 12 months. **Results:** The pancreatic volume decreased by average 49.3 ± 18.5% compared to immediate postoperative volume after PD. Of 16 patients with a dilated pancreatic duct preoperatively, 12 (75%) patients demonstrated a decline in ductal size. Of 32 patients with a normal–ranged pancreatic duct preoperatively, 11 patients (34.4%) developed ductal dilatation after surgery. Diabetes mellitus was newly present in 13 (27.1%) patients. Postoperative volume change of the remnant pancreas was not associated pancreatic endocrine insufficiency (p = 0.137). The volume reduction of the remnant pancreas in malignant disease was larger than that of benign disease although there was no statistical difference (p = 0.058). Atrophy was associated with origin of disease (p = 0.003). Atrophy was prominent in ampullary and bile duct tumor. A significant atrophy was frequently observed in patients who were occurred pancreatitis (P = 0.042).

**Conclusion:** The loss of pancreatic parenchyma did not correlate with postoperative diabetes. Early operative complications such as pancreatitis and pancreatic fistula seem to be associated with atrophy. Therefore, perioperative consideration for reducing pancreatic inflammation should include strategies to minimize atrophic change of the pancreatic tissue.
P-102-1 Analysis of risk factors divided postoperative pancreatic fistula grade B/C from grade A after pancreaticoduodenectomy

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BACKGROUND: Postoperative pancreatic fistula (POPF) is a common and potentially fatal complication of pancreaticoduodenectomy (PD). Foresight of this complication is important to avoid perioperative mortality. We evaluated whether drain amylase level predicts clinically significant POPF.

METHODS: One hundred thirty consecutive patients underwent substomach preserved PD (SSPPD) from 2005 to 2016 in our institution. We compared the clinicopathological features between patients with ISGPF grade B/C POPF and those with POPF-free grade A POPF. We also examined the relationship between POPF formation and the drain amylase value (DAV) on postoperative day (POD)1,3,5, between soft pancreas group (S group; N=51) and hard pancreas group (H group; N=79).

RESULTS: The total incidence of POPF was 57.5% (grade A: 34.5%, grade B: 20.7% and grade C: 2.3%). The median DAV value on the POD 1,3,5 were 2617/1448/667 U/L in S group, 4227/764/199 U/L in H group. At POD3, 86% of S group and 40.5% of H group were fallen under grade A. Patients with BMI≧25 (p=0.005) internal (lost) pancreatic stent (p=0.013) CRP value not improved during POD 3 to 5 (p=0.029) were significantly higher rate of developing grade A (day3) into grade B/C.

CONCLUSION: With BMI≧25, internal pancreatic stent and CRP value not enough improved during POD 3 to 5 are risk factors for developing POPF grade B and C. External pancreatic stent maybe avoid developing POPF grade A into grade B/C.

P-102-2 Efficacy of interventional radiology in treating intraperitoneal bleeding from pseudoaneurysm after pancreaticoduodenectomy

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Background: The mortality rate after pancreaticoduodenectomy (PD) has significantly decreased due to recent advances in perioperative management. However, the morbidity rate is significantly high (40%–60%) after PD. Based on the Japanese patients in National Clinical Database, the mortality rate after PD was reported to be 2.8% and the morbidity rate reached 40%. In perioperative management of pancreatic surgery, postoperative pancreatic fistula (POPF) often causes abdominal hemorrhage from the pseudoaneurysm, which can be fatal. This can be detected by interventional radiology (IVR) and treated by coiling. Here we report outcomes of POPF after PD in our institute.

Methods: PD was performed on 88 patients from January 2012 to July 2016; complications were assessed using the Clavien–Dindo grading system. Eight patients presented with acute pseudoaneurysm rupture and were treated by IVR.

Results: Of the 88 patients, there were 8 cases of rupture [M/F, 7/1; age, 59–82 years (median, 69)]. Diseases included pancreatic cancer, cholangiocarcinoma, pancreatic neuroendocrine tumor, and carcinoma of the Ampulla of Vater in 1, 3, 1, and 3 cases, respectively. Seven rupture cases were diagnosed with POPF by high drain amylase levels on POD3. Pseudoaneurysm was detected on the gastroduodenal artery, common hepatic artery, and pancreatic dorsal artery in 5, 2, and 1 cases, respectively, by IVR and treated by coiling. Six patients presented with severe complications and mortality in 2 cases (2.3%). Conclusions: POPF after PD often causes severe complications. Rapid response to intraperitoneal bleeding with IVR may reduce mortality.

P-102-3 Coating of the artery stump with bioabsorbable material for pseudo aneurysm formation prevention

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Background: The pseudo aneurysm formation with the pancreatic juice stoma after the pancreaticectomy is the most serious complications that can become fatal. As a laborer of the procedures for the purpose of the false aneurysm formation prevention, there is winding reckoning of the omental coating to a vascular bed and the round ligament to a main artery stump. There is much caul coating until now and uses it, and good results obtain our department, but as for the opinion that is negative which had been already referred in the product documentation. The difference between the GIA® which had been already frequently used for the department by a clinic as a bioabsorbable material and examined a utility as the aneurysm formation prevention. Methods: We trimmed Neovail® and coated an artery stump part (GDA,SPA) and fixed it. We used this procedure for pancreatectomy case that normal pancreas and caul cannot use in our department during this one year (PD;2cases, DP;2cases).

Results: The postoperative first day drain AMY level median 722 (1182–556). In cystography CT of 24 after surgery, none of five cases showed the postoperative pseudoaneurysm formation. Also, there was not the infection of the part, and stenosis of the residual lumen of artery was absent, too. Conclusion: As a result of having coated a Neovail® to an artery stump at the time of pancreaticectomy, the problems such as the infection did not show it and were able to conduct it safely. It may be useful as protection of the artery stump in the cases that are not available to caul and round ligament.

P-102-4 Accordance of stapler size with pancreatic thickness would reduce POPF in distal pancreaticectomy

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Background: Postoperative pancreatic fistula (POPF) has been common and clinically relevant complication after distal pancreatectomy (DP). Although staple closure is the most popular technique for stump closure, there has been few study on appropriate stapler size to reduce pancreatic fistula. The aim of this study was to identify optimal stapler size depending on the thickness of pancreas in DP.

Methods: Clinical data were retrospectively collected from 91 patients who underwent DP with 3 rows staple in our institute from January 2007 to November 2016. Two products of stapler, Echelon® and Endo GIA® were used. The values of closed height (CH) of staple were referred in the product documentation. The difference between the thickness of pancreas and the CH of stapler (DTC) were measured. POPF was defined according to ISGPF® definitions. Grade B and C were defined as clinically relevant pancreatic fistula (CPF).

Results: POPF developed in 63 (69%) patients (Grade A; n=11[12%], Grade B; n=52[57%]). By multivariate analysis, thick pancreas (≧15mm) was identified as the most influential factor for postoperative CPF. DTC were grouped into <5mm (n=12), 5 to 10mm (n=40), 10 to 15mm (n=19), and ≥15mm (n=19). The incidence of CPF were 33% (≦5mm group, P=0.22), 45% (5 to 10, P=0.50), 53% (10 to 15, P=0.75), and 98% (≧15, P=0.01), respectively. Notably, the incidence of CPF was 100% in patients with DTC <4mm group (n=3).

Conclusion: Thick pancreas was closely associated with CPF after DP. When DTC was too large or too small, CPF occurred frequently. It seemed that the optimal DTC to reduce the incidence of CPF was 5 to 10mm.
P-102-5 Risk factors of pancreatic fistula after pancreateoduodenectomy

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Background: Pancreatic fistula (PF) after pancreateoduodenectomy (PD) occurs with a certain probability and is lethal. We studied the risk factors of PF in our institution.

Methods: We evaluated 127 cases underwent PD (including PPPD and SSPPD) from 2008 to 2016. We measured the diameter of parenchyma and duct of pancreas at the designed dissection line from preoperative images, and calculated parenchyma/duct ratio (PD ratio). Additionally, we measured visceral fat area (VFA) at the umbilical level from preoperative images. Variables with p<0.05 on univariate analysis that was potentially predictive of PF were then entered into the multivariate logistic regression model. A value of p<0.05 was considered statistically significant.

Results: The diseases were 57 cases of pancreatic cancer, 40 cases of biliary tract cancer, 13 cases of IPMN, and 17 cases others, respectively. Median value of PD ratio and VFA were 3.6 (range: 1.2–8.5) and 88.6 (7.0–303), respectively. PF developed in 38 cases (29.9%). Multivariate analysis demonstrated that PD ratio, VFA, amylase value in drain on postoperative day (POD) 1, and serum CRP on POD3 were independent risk factors of PF.

Conclusion: The risk factors of PF were PD ratio, VFA, amylase value in drain (POD1) and serum CRP (POD3), respectively. Especially PD ratio and VFA are useful as it can be measured before surgery.

P-103-1 Pre-sarcopenia as a risk factor of NAFLD after total pancreatectomy

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SEIJI HAJI

[Background and Aim] Recent several reports demonstrated that patients undergoing pancreatectomy have a risk of NAFLD due to insufficiency of pancreatic exocrine and endocrine function. But, it has been little known whether pre-sarcopenia have relationship with NAFLD after pancreatectomy, especially total pancreatectomy (TP), which involves with complete remission of pancreatic exocrine and endocrine function. This study was designed in order to investigate the occurrence of NAFLD and pre-sarcopenia in the patients after TP.

[Patients and Methods] Ten cases with TP and more than 3 months postoperative follow-up periods were included in this retrospective study. NAFLD and pre-sarcopenia were examined with using liver CT value (cut-off levels: 40 HU) and abdominal psoas muscle area (APM) at L3 level in preoperative and postoperative CT images on 0 to 270 postoperative days. Blood biochemical test was measured in the same fashion. [Results] Patients average age was 70 years old and all patients had pancreatic cancer and diabetes mellitus. Liver CT values of patients were maintained after TP, but 3 cases had NAFLD within 6 postoperative months. On the other hand, APM after TP significantly decreased by 6 postoperative months in the same fashion as changes of blood albumin levels. Postoperative NAFLD patients had remarkable APM decrease compared with no-NAFLD patients and 15% decrease of APM to preoperative value was a risk factor of NAFLD after TP. [Conclusions] Pre-sarcopenia demonstrated with APM loss was a risk factor of the occurrence of NAFLD after TP.

P-102-6 Management of late-onset pancreatic pseudocyst after distal pancreatectomy

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Background and aim: Pancreatic fistula and pseudocyst are common complications after distal pancreatectomy. Abdominal pain, infection, and hemorrhage are caused by pancreatic fistula and pseudocyst. Conservative treatment or drainage is needed for pseudo cyst immediately after surgery. Late-onset pancreatic pseudocyst sometimes occur after discharge from the hospital. Late-onset pseudocysts are usually subclinical, but a few cases have symptoms such as fever and abdominal pain. Management for late-onset pseudocyst after distal pancreatectomy has not been clearly mentioned in the literature. We evaluated the management of late-onset pancreatic pseudocyst.

Patients and method: Patients who underwent distal and central pancreatectomy between January 2008 to October 2016 were retrospectively reviewed. In this study, the definition of late-onset pseudocyst was the first detection after discharge.

Results: 86 patients underwent distal pancreatectomy. (open : n=60, laparoscopic : n=24) or central pancreatectomy (n=2). Late-onset pancreatic pseudocysts were detected 18–293 days (median, 77 days) after surgery in 14 patients. Pancreatic fistula had been diagnosed in 10 of the 14 patients before discharge (grade A, n=10). Three patients had symptoms (abdominal pain and fever). Of these three patients, two required endoscopic cystgastrostomy, and one was improved with conservative treatment. A patient who had no symptom but have a 12cm–diameter pseudocyst underwent endoscopic cystgastrostomy.

Conclusion: Most cases of late-onset pancreatic pseudocyst after distal pancreatectomy are subclinical, but symptomatic pseudocysts need treatment such as endoscopic drainage.

P-103-2 Prognostic significant of loss of muscle mass in perioperative period

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[Background] It is known that decrease of muscle mass is poor prognostic factor in various cancers. However, it is not known whether decrease of muscle mass in perioperative period is a prognostic factor.

[Aim] We studied the prognostic significance of perioperative muscle mass loss in pancreatic cancer. [Object] This study included 145 patients who undergone surgical resection for pancreatic cancer between January 2010 and January 2016. Patients with recurrence within 3 month postoperatively were excluded. [Method] The muscle mass was measured from cross-sectional psoas muscle area on preoperative and 3 month postoperative CT imaging at the 3rd lumbar vertebra level. [Result] Pancreateoduodenectomy (PD) was undergone in 103 patients, distal pancreatectomy (DP) in 35, total pancreatectomy (TP) in 7 patients. Muscle mass decreased average of 11% from before operation to 3 month after operation. Muscle mass decreased more than 15% in 42 patients (29%). We defined patients with more than 15% muscle loss as muscle loss group. Surgical procedure (PD/TP) and residual tumor (R1) were more prevalent in muscle loss group. Patients without and with muscle loss group had median disease-free survival periods of 14.0 months (10.3–18.1 months) and 12.1 months (8.7–15.3 months), respectively (P=0.03). Multivariate analysis indicated that tumor size (30mm<), adjuvant chemotherapy (yes), and loss of muscle mass (15%<) (HR:1.57 (95%CI:1.02–2.40), P=0.03) were significant poor prognostic factor for disease free survival. [Conclusion] Muscle loss are an independent poor prognostic factor for disease free survival. Nutritional support and rehabilitation is important to maintain muscle mass.
P-103-3 Impact of visceral obesity and sarcopenia on pancreaticoduodenectomy
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Purpose: We investigated an influence of visceral obesity and sarcopenia on pancreaticoduodenectomy (PD).

Methods: We enrolled 122 patients undergoing PD in this study. Visceral Fat Area (VFA) and Skeletal Muscle Index (SMI) were used as an indicator of visceral obesity and sarcopenia. VFA and SMI were measured by body composition analyzer InBody 720(BIOSPACE Co. Ltd.).

VFA more than 100 cm² was defined as visceral obesity, and also SMI less than 6.87 Kg/m² in male and 5.46 Kg/m² in female were defined as sarcopenia as previously described. We inquired correlation between visceral obesity, sarcopenia and postoperative complications.

Results: According to our definitions, 61 (50%) and 52 (42.6%) patients met the criteria of visceral obesity and sarcopenia, respectively. The overall morbidity rate was 60.7% (74 patients). On univariate analysis, visceral obesity and sarcopenia were not significantly predictive of all of the complications (p=0.14 and p=0.86). Major complications (grade III or over in Clavien–Dindo's classification) were observed in 40 patients (visceral obesity: 26 patients, sarcopenia: 17 patients). The incidence rate of major complications was significantly higher in patients with visceral obesity (p=0.02). On the contrary, correlation between major complications and sarcopenia was not observed (p=0.86). Multiple logistic regression analysis suggests that visceral obesity should be an independent risk factor to predict major complications after PD (p=0.04, HR:2.43, 95%CI:1.03–5.71).

Conclusion: Visceral obesity could be a significant predictor of major complications after PD. On the contrary, sarcopenia was not associated with postoperative complications.

P-103-5 Predictive role of serum tumor marker in the recurrence of pancreatic cancer
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Backgrounds: Pancreatic cancer is one of poor prognosis cancers. When it recurs, the prognosis is very poor. It is important to estimate the tendency of recurrence when treating pancreatic cancer. This study aim to investigate the relationship between serum tumor marker and the recurrence in patients with pancreatic cancer.

Methods: A total of 45 patients with pancreatic cancer who underwent surgery between August 2012 and May 2016 were included. We analyzed the relationship between pre/postoperative serum tumor markers, CA19-9, CEA, DUPAN-2 and Span-1, and tumor recurrence.

Results: There was no significant difference in presence or absence of recurrence according to preoperative CEA and DUPAN-2 levels. However, preoperative CA19-9 and Span-1 levels had significant change in tumor recurrence (P=0.002 and P=0.014). In postoperative tumor markers, all of four tumor markers had significant change in presence or absence of recurrence (CA19-9: P=0.001, CEA: P=0.004, DUPAN-2: P=0.042 and Span-1: P=0.001). In patients with high preoperative CA19-9 or Span-1 levels, postoperative CA19-9 and Span-1 levels had significant difference in tumor recurrence (P<0.001 and P=0.021).

Conclusions: Pre/postoperative CA19-9 and Span-1 levels in pancreatic cancer are useful marker predicting whether recurrence will occur. And, if the tumor marker is sufficiently decreased after surgery, the possibility of recurrence will be low even if preoperative tumor marker elevated.

P-103-4 Attempting to devise new diagnostic criteria for diagnosing postoperative cholangitis after pancreaticoduodenectomy
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[Introduction] Postoperative cholangitis (PC) after pancreaticoduodenectomy (PD) is occasionally seen. Its diagnosis is often inconsistent using the Tokyo Guideline 2013 (TG13) criteria. Here we devised new diagnostic criteria for PC after PD. [Subjects and method] PD was performed in 118 patients at our institute between January 2009 and December 2016. Fifteen patients (12.7%) were diagnosed with PC after they were discharged from the hospital. These patients were compared and contrasted as per the TG13 and new diagnostic criteria. The items in our new diagnostic criteria were as follows: (1) fever >38°C, (2) WBC count >10000 or <4000 or CRP level >1, (3) other fever origins can be excluded, (4) icterus, (5) intrahepatic bile duct dilatation, (6) positive blood culture, (7) multiple onset. Patients having all items of (1)–(3) were defined as having a suspected diagnosis, and those having any item listed in (4)–(7) were defined as having a definite diagnosis. [Results] Among all patients, three had a definite diagnosis (20%), six had a suspected diagnosis (40%), and six had non-cholangitis according to the TG13 criteria. It was found that 40% of the patients with non–cholangitis were considered to be false negatives. On the other hand, twelve patients had a definite diagnosis (80%), and three had a suspected diagnosis (20%) according to the new diagnostic criteria, no patients with non–cholangitis were found. The new diagnostic criteria improved the diagnostic ability. [Conclusion] For PC, new diagnostic criteria that are different from the TG13 criteria are required. Our new diagnostic criteria can be considered useful in the diagnose PC.

P-104-1 Evaluation of efficacy of Metallic Biliary Stenting in Malignant Biliary Obstruction
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Background: Malignant biliary obstruction is commonly caused by periampullary tumor or porta hepatitis LN metastasis. Metallic stenting by ERCP is well-known for palliative biliary drainage. ERCP repeatedly performed for stent exchange due to stent blockage. This is a single–center retrospective study to evaluate the efficacy of metallic stenting in malignant biliary obstruction.

Methods: From Nov 2010 to April 2015, patients with malignant obstructive jaundice on palliative care with metallic stent inserted were examined. Factors such as length and size of stent, cover or uncover stent, type of malignancy and level of obstruction, were analysed.

Results: This study analysed 97 patients and 35 required repeat of ERCP mainly due to blockage of stent by tumor ingrowth, only 1(29%) due to stent migration. 10 in 44 patients with pancreatic cancer (23%, P=0.013) and 6 in 8 patients with porta hepatitis LN metastasis require repeat in ERCP (75%, P=0.017). But, cover or non–cover stent showed no significant difference (P=0.221) on the re–intervention rate. Stent patency of ≤1month had cases (41%), 1–4months had 45cases (46, 4%) and >4months had 48 cases (49.5%). Stent length of 120mm was related with shortest patency <1 month (P=0.028). No severe complication was noticed and only one patient had post–ERCP cholangitis (1.3%) and was treated by antibiotics. Procedure related mortality was 0 and patients mainly died of disease progression.

Conclusion: Metallic stent is a safe procedure with zero mortality and low morbidity rate. The site of tumor and 120mm length stent were related with a higher re–intervention rate. However, other factors did not affect the rate of repeating ERCP.
P-104-2 Delayed Arterial Haemorrhage after Pancreateico-duodenectomy: A rare yet challenging complication

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Background: Pancreateico-duodenectomy is a procedure commonly performed for tumours of the head of pancreas. During the procedure, head of the pancreas, duodenum, proximal jejunum, distal end of stomach and distal common bile duct are resected; followed by pancreatic, biliary and gastric Anastomoses to jejunum. Gastro-duodenal artery is cut and ligated at its origin from hepatic artery. Delayed arterial haemorrhage is one of the complications. It can be due to vascular erosion from pancreatic leak, fistula, pseudo aneurysm and anastomotic dehiscence.

Objectives: We aimed to study the incidence of delayed arterial haemorrhage post pancreaticoduodenectomy in our institution, to present our experience in its management and to discuss the role of angiography, endoscopy and surgery in this matter. Method: A retrospective review of operative records has been performed at Hospital Selayang, which is Malaysian national referral centre for Hepatobiliary diseases. Results: From 2006 till 2016, a total of 424 pancreaticoduodenectomies were performed; there were 6 cases of delayed arterial haemorrhage (frequency 1.42%). Conclusion: This study presents our local experience in the management of delayed arterial haemorrhage post pancreaticoduodenectomy, involving modalities i.e. angiography, endoscopy and surgery. Vigilant follow up and prompt attention are of high importance in managing delayed arterial haemorrhage after pancreaticoduodenectomy.

P-104-3 Successful multidisciplinary treatment with chemotherapy and hepatopancreatectoduodenectomy with arterial reconstruction for locally advanced hilar cholangiocarcinoma

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We report a case of successful multidisciplinary treatment with chemotherapy and hepatopancreatectoduodenectomy with arterial reconstruction for locally advanced perihepatic cholangiocarcinoma. (Case) A 61-year-old woman was admitted with obstructive jaundice. ERCP showed a mass in the perihilar hepatic duct and bilaterial biliary drainage was performed. CT showed a mass in the perihilar bile duct with irregularity of the middle common and bilateral hepatic ducts indicating superficial ductal spread and tumor invasion of the right hepatic artery including a short segment of proper hepatic artery. She was diagnosed as locally advanced perihepatic biliary cancer. She was treated with systemic gemcitabine plus cisplatin combination therapy for 6 months. CT showed a reduction of the tumor and no change of arterial invasion. The result of the responses was SD. Then, we performed extended right hepatic artery reconstruction plus pancreatectoduodenectomy including hepatic arterial reconstruction while the gastroduodenal artery was anastomosed to the right posterior hepatic artery. The operating time was 14hr 2min and blood loss was 2240 g. The specimen demonstrated infiltration of moderately differentiated adenocarcinoma involving the right hepatic artery and left portal vein. Although the abdominal abscess around pancreaticojunostomy and ascites both occurred, postoperative hospital stay was 37 days. Postoperative adjuvant chemotherapy with gemcitabine alone was performed. She is now alive 27months after diagnosis and 18 months after surgery with no sign of recurrence. We consider that multidisciplinary treatment including chemotherapy and radical surgery would contribute to an improved patient outcome.

P-104-4 A study of short-term results of pancreaticoduodenectomy in aged patients

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Background: The percentage of aged patients who need to undergo PD is getting high. The aim of this study is to evaluate the short-term results of PD in elderly patients from a community-based low-volume hospital.

Methods: Between January 2006 and November 2016, a total of 42 PD were performed. We analyzed the characteristics and short-term outcomes after PD in patients aged ≥75 years (Group E: n=19) compared with those in patients <75 years (Group Y: n=23).

Results: There were no statistical differences between both groups in terms of preoperative morbidity such as liver disease, respiratory disease, renal disease, and diabetes mellitus. Only cardiovascular disease was significantly higher in Group E (p=0.005). Preoperative mean prognostic nutritional index (PNI) in Group E was 37.8±8.5 and significantly lower than Group Y (p<0.001). There were no significant differences in operation time and blood loss between both groups. However, blood transfusion was more needed in Group E (p=0.043). In terms of postoperative complications, Clavien–Dindo IIIa was 26.3% in Group E and 8.7% in Group Y. The rate of postoperative pancreatic fistula, delirium, delayed gastric emptying, and severe infection also tended to be higher in Group E, but no statistical differences. The median length of hospital stay were 32 (13–60) days in Group E and 17 (11–35) days in Group Y, which was significantly different (p=0.010).

Conclusions: Postoperative complications in elderly patients tend to be higher, but there is no significant difference in our data. Even though it takes more time to recover after PD in the elderly patient, PD can be performed safely. Age should not be a contraindication to PD.

P-104-5 The extra-anatomical jump graft reconstruction of right hepatic artery after resection of the biliary tract malignancy with proper hepatic artery aneurysm: a case report

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The biliary tract malignancy with hepatic artery aneurysm is one of the most difficult cases to perform resection. We experienced the case, in which we performed resection of the biliary tract malignancy with proper hepatic artery aneurysm and reconstruction of right hepatic artery using extra-anatomical jump graft. A 66-year-old man with chronic hepatitis C was diagnosed hepatocellular carcinoma (HCC) with portal vein tumor thrombus (PVTT) in the medial segment. He underwent hepatic artery infusion therapy (HAIC) at first. After that, CT revealed decreasing size of tumor and PVTT, but detected dissection of proper hepatic artery. We performed extended left hepatectomy carefully. Fifty months later, he showed sudden obstructive jaundice. Endoscopic retrograde cholangiography showed a space-occupying lesion in common bile duct, which was pathologically suspected as cholangiocarcinoma. Hence, we performed resection of extrahepatic bile duct and cholecodochojejunostomy with lymph node dissection. In the operation, we recognized hepatic artery aneurysm and thrombosis. Then we performed extra-anatomical reconstruction of hepatic artery using a left radial artery auto graft as a jump graft from aorta to the right hepatic artery. Pathologically, he was diagnosed as the intra bile duct recurrence of HCC. Seven months later, he had intrahepatic multiple HCC recurrences and could perform trans-arterial chemoembolization (TACE) through the jump graft. We experienced a rare and accidental case of dissecting aneurysm in the proper hepatic artery, which caused by HAIC. We could perform successful reconstruction of hepatic artery with a jump graft, and could treat recurrent HCC by TACE.
**P-104-6** A Large Sporadic Duodenal Adenoma Treated by Pancreas–preserving Partial Duodenectomy with Roux-en-Y Duodenojejunostomy: A Case Report

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Background: Only few case reports or small case series of sporadic duodenal adenoma (SDA) have been reported. Endoscopic or laparoscopic resections have been reported in these studies, but the treatment method is not yet established, especially for large–size tumors. Herein, we describe a case of a large SDA, which was resected surgically.

Results: A 67–year–old man with epigastralgia visited our hospital. Gastroendoscopy revealed a flat elevated slightly granular surfaced mass. A barium meal duodenography showed the 43-mm tumor located in D3. The biopsy was an adenoma, but we were anxious about the concurrence of cancer. We chose surgical resection from the viewpoint of the tumor size. Considering the location of the pancreas and the tumor, we performed pancreas–preserving partial duodenectomy. A retrocolic Roux–en–Y loop was then created and the edges of the defect in the duodenum were joined to the jejunal limb of the Roux–loop by a hand–sewn side–to–side anastomosis using a 4–0 polydioxanone suture. The operative time was 240 min and the bleeding volume was 120 mL. The postoperative course was uneventful except delayed gastric emptied.

Conclusion: We consider that the surgical resection method, which we performed, was appropriate.

**P-105-1** Pancreas Preserving Total Duodenectomy for the Treatment of Multiple Duodenal Diverticula with Perforation and Bleeding

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Purpose/Background: Pancreas preserving total duodenectomy (PPTD) is an alternative to pancreatoduodenectomy for selected disease of the duodenum. Herein, we reported a case of multiple duodenal diverticula complicated with perforation and bleeding which was treated successfully by PPTD.

Methods: A 78–year–old woman referred to our hospital with clinical findings of diffuse peritonitis. An abdominal CT demonstrated pneumoperitoneum and extravasation of contrast media from the duodenum. At laparotomy, perforated duodenal diverticulum was found and active bleeding was observed on inner wall of ruptured diverticulum. Other multiple diverticula were also observed in the entire duodenum. A cholecystectomy was performed and small catheter was inserted in bile duct through cystic duct to confirm the location of ampulla of Vater. After total duodenectomy with preservation of pancreas head, the openings of bile duct and pancreatic duct were identified and ductoplasty was performed. Internal stent was inserted to bile duct and pancreatic duct individually. The retrocolic ductojejunostomy was performed by end–to–side duct to mucosa interrupted suture. The jejunum was fixed to the intact head of the pancreas anteriorly and posteriorly by interrupted sutures. Billroth II gastrojejunostomy was performed as usual manner.

Results: Postoperatively, grade A pancreatic fistula was developed, however, the patient recovered without any other event with conservative treatment. On follow–up abdominal CT, there was no abnormal finding. The patient is well at the two–month follow–up without any symptom.

Conclusion: PPTD is an adequate treatment option for multiple duodenal pathology or injury.

**P-105-2** Changes of characters and treatment of acute cholangitis in 10 years interval – experience of northern Taiwan tertiary center

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Purpose: The aim of the study was to analyze the difference of the characters and treatment of acute cholangitis in 2002–2003 and 2013 in northern tertiary referral hospital according to the assessment criteria of the Tokyo Guidelines 2013 (TG13). Materials and methods: There were 285 and 220 cases enrolled in the two cohorts and the demographic data were collected. The severity, biliary stricture, hepatolithiasis, malignancy, treatment, hospital stay, and outcome were analyzed. Result: The female to male ratio was 2.3 (41.8% vs. 58.2%) and there was no significant change in cirrhosis nor in Child–Pugh grade (38.3%, 47.6% and 14.1%, in Child A, B, and C, respectively). Hepatolithiasis was diagnosed in around 50% in both cohorts, and 35.0% patients had intrahepatic stricture. There was increased in moderate severity and decrease in Charcot’s triad in 2013. Treatment with ERCP, PTCD, and surgery was 47.7%, 15.5%, and 18.2% respectively. Multivariate analysis showed biliary cancer, moderate/severe disease, Charcot’s triad, and Child grade B/C were related to poor prognosis. But effective treatment for moderate/severe group was improved in 2013. Conclusion: Poor prognosis include biliary cancer, moderate/severe disease, Charcot’s triad, and Child grade B/C.

**P-105-3** The efficacy of perioperative rehabilitation for patients undergoing hepato–biliary–pancreatic surgery

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Background: Since January 2014, we introduced perioperative rehabilitation for patients undergoing hepato–biliary–pancreatic surgery (referred to as HBP surgery). We report the current status and effectiveness of perioperative rehabilitation for patients undergoing HBP surgery.

Methods: Between January 2014 and December 2016, we performed hepatectomy for 35 patients and pancreatocoduodenectomy (referred to as PD) for 11 patients in our institution. We evaluate the perioperative outcome of the patients undergone hepatectomy and PD (rehabilitation group), and the post operative hospital stay was compared between rehabilitation group and control group (patients undergone hepatectomy and PD in 2013).

Results: After the introduction of the perioperative rehabilitation, there was no serious postoperative complication in patients undergone hepatectomy and PD. In patients after hepatectomy, the median of postoperative hospital stay after hepatectomy of rehabilitation group and control group was 13days (4–22), 15days (10–31), respectively. In patients after PD, the median of postoperative hospital stay of rehabilitation group and control group was 22 (15–58) days, 40 (34–48) days, respectively. The median of postoperative hospital stay of perioperative rehabilitation group was significantly shorter than control group in patients after hepatectomy and PD (p<0.05).

Conclusion: Introducing of the perioperative rehabilitation for patients undergoing HBP surgery may contribute to the shorter hospital stay without serious complication. Perioperative rehabilitation is expected to reduce postoperative complications and improve fast recovery after HBP surgery.
P-105-4 Incidence of deep vein thrombosis in hepato–biliary pancreatic patients

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Background: Major surgery is known to be one of the risk factors of deep vein thrombosis (DVT). Recent studies have revealed that more than 20% of Japanese patients have asymptomatic DVT after surgery. Considering the aggressiveness of operations, hepato–biliary pancreatic (HBP) surgery may be a higher risk factor of DVT.

Patients: To evaluate the risk of DVT in HBP surgery, a consecutive 50 patients receiving major HBP surgery in our institute in 2016 were prospectively examined for DVT.

Methods: All the patients received intermittent pneumatic compression of the lower thigh but did not receive prophylactic anticoagulant. DVT was screened by Doppler–ultrasonography before and after surgery (within 2 days before surgery, and on 6–8th postoperative day). D–dimer (ng/ml) was also tested within a week before surgery, and on 6th postoperative day.

Results: Preoperative screening identified venous thrombus in the soleus of seven patients. Their D–dimer was mildly elevated (1.9 +/- 1.8) but did not significantly differ from that of the patients who did not have venous thrombi (1.2 +/- 1.8). Postoperative development of new thrombi was observed in only one patient, and no patient suffered pulmonary embolism. The postoperative D–dimer value ranged widely (0.4 – 42.2) and was not useful in estimating risk of postoperative thromboembolism.

Conclusion: This preliminary observational study suggested that the preoperative incidence of DVT in HBP patients is comparable to that in colorectal patients. Postoperative incidence of DVT in HBP patients was low. Routine usage of prophylactic anticoagulant may not be required for HBP patients.

P-105-6 Estimation of Right Lobe Graft Weight from Computed Tomographic Volumetry for Living Donor Liver Transplantation

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Objective: To establish a right lobe graft weight (GW) estimation formula for living donor liver transplantation (LLLT) from right lobe graft volume without veins (GVw/o veins) including portal vein and hepatic vein measured by computed tomographic (CT) volumetry and compare its estimation accuracy with those of existing formulas.

Background: Right lobe GW estimation formulas established using graft volume with veins (GVw/veins) excluding portal and hepatic veins measured by CT volumetry have been reported and found to be accurate. However, the effect of the change in the blood flow on the liver vessels after PD for DCC. The assessment of the liver vessels was performed using enhanced computed tomography (CT) images. The proper hepatic artery (PHA) diameter was measured using arterial phase images, and the portal vein (PV) diameter was measured using portal phase images. Furthermore, we calculated the arterio–portal vein ratio (APR) from the ratio of the PHA diameter to the PV diameter. We assessed the liver vessels using CT before surgery, at postoperative week (POW) 2, at postoperative months (POM) 3–6, and at postoperative year (POY) 1.

Results: Regarding the chronological changes in the PHA diameter, the median diameter of the PHA was 4.5 mm before surgery, 5.0 mm at POW 2, 5.3 mm at roughly POM 3–6, and 4.9 mm at POY 1. The PHA diameter increased after surgery in about 80% of subjects at POM 3, 67% at roughly POM 3–6, and 67% at POY 1. Regarding the chronological changes in the PV diameter, the median diameter of PV was 11.9 mm before surgery, 11.7 mm at POW 2, 11.6 mm at roughly POM 3–6, and 11.7 mm at POY 1. The PV diameter decreased after surgery in about 50% of subjects at each postoperative point. The median APR was 2.6 before surgery, 2.5 at POW 2, 2.4 at roughly POM 3–6, and 2.2 at POY 1.

Conclusions: The PHA diameter tended to increase after PD for DCC. However, the effect of the change in the blood flow on the liver parenchyma is unclear, and further investigations are necessary.

P-105-6 A Single-incision laparoscopic cholecystectomy with conventional laparoscopic cholecystectomy : single center experience

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Background: Single-incision laparoscopic cholecystectomy (SILC) was developed to improve outcomes as compared with conventional laparoscopic cholecystectomy (CLC). A few potential benefits associated with a SILC have been reported by previous studies. The aim of this study was to describe the single center experience with a SILC as compared with CLC.

Method: Data were gathered from 187 consecutive patients who received a SILC between April 2014 and November 2016. Inclusion criteria in SILC were low BMI(<26 kg/m2), no previous abdominal surgery and no biliary drainage procedures such as ERC, PTGBD. Patient clinical characteristics were collected such as body mass index(BMI), age, operative time, postoperative complication, hospital stay etc. SILC group was compared with 400 patients who underwent a CLC in the same period.

Result: There was significant difference between the two groups in comparison of factors to age (39.4±10.5 years vs 54.3±12.9 years; p<0.05), BMI (22.3±3.4 kg/m2 vs 25.4±3.6 kg/m2; p<0.05) for those patients undergoing a SILC the median operating time was 45.6 minutes (vs 33.5 minutes p<0.05). Postoperative complications were found no significant differences in the single–port group compared with the conventional group (5 vs 24; P = 0.06). No statistically significant differences were found between both groups in length of hospital stay, readmissions and morbidity.

Conclusion: If proper patient selection for SILC has been considered, it has the potential to be a safe technique with a low complication rate, compare to CLC. Further prospective studies are needed to prove the feasibility of the SILC.
P-106-2 Our ingenuity of movement towards NOTES
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【Purpose】Laparoscopic cholecystectomy has long been established as a standard surgical procedure, but in recent years a trend towards minimally invasive has been made. Actually this movement towards NOTES performed as a single port surgery mainly. In our hospital, we have undertaken various minimally invasive principles at the time of laparoscopic cholecystectomy, this time we will introduce such ingenuity. 【Method】We have had experience of 2 port type cholecystectomy for more than 10 years ago, and transition to single port surgery is comparatively easy. However, the difficulty is still remaining and there is a need for dedicated training and new ingenuity. After the shift to single port surgery, various unexpected problems occurred. For instance include interference of the laparoscope and other forces becoming parallel in the field of view. For such cases, using a flexible laparoscope is effective, but succeeded in reducing interference by using a complete flexible scope such as a gastrocamera or a cholangioscope. For the latter, instead of using only the clip, we adapted it by using ligation technique by suture. On the other hand we use barbed suture or EndGrab as a traction equipment. 【Result】Using the various surgical procedure and equipment, it becomes same as conventional laparoscopic cholecystectomy. And no complications specific to single port or minimum invasive surgery have been observed. The hospitalization period was also equivalent. 【Conclusion】It seems that the trend of minimally invasive surgery will continue to be promoted, and we think that it is necessary to respond to this trend.

P-106-3 Novel biliary drainage in laparoscopic common bile duct exploration (LCBDE) – laparoscopic retrograde transhepatic biliary drainage (LRTBD) and direct biliary drainage (DBD)
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【Background】LCBDE sometimes needs biliary drainage in the end of surgery. In previously cholecystectomized cases, the cystic duct was disappeared or too short not to use transcutaneous catheterization. Therefore, we have developed two kinds of novel biliary drainage. 【Method】① LRTBD: Under cholangioscopic visualization, a guide wire is advanced to the bile duct of Segment 5, penetrated the duct wall and liver, then pulled out by fine forceps from outside, and a catheter is placed over the wire as PTBD manner. ② DBD: A catheter is inserted in about 10cm length toward the intrahepatic bile duct between continuous suture of the choledochotomy site, without fixation in the end of procedure. 【RESULTS】LRTBD has been performed in 8 cases and DBD in 4 cases, postoperative bile drainage was satisfactory and short term removal was possible. In LRTBD minimal bleeding due to catheter mislodge and minimal bile leak after removal occurred in Grade I of Clavien–Dindo classification. In one case delayed hepatic duct stricture was treated via LRTBD route. DBD did not cause any complication. 【Conclusions】LRTBD track could be useful for postoperative biliary treatment and DBD would be easy setting. Both methods would enable catheter removal whenever unnecessary. LRTBD and DBD could be indispensable and useful to impossible transcutaneous biliary drainage.

P-106-4 Laparoscopic cholecystectomy for morbidly obese patients
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Background/Purpose: Morbid obesity (BMI ≥ 35 kg/m²) is associated with numerous comorbidities such as diabetes, and is usually adequate to bariatric surgery in the world. In Japan, morbidly obese patients have not been frequent, and the incidence in adult population is only 0.5%. However, a lot of visceral fat and thick abdominal wall due to morbid obesity can disturb clear operative field and limit operative handleings under the laparoscope. Since 2005, we have performed bariatric surgery, and here, our experience in laparoscopic cholecystectomy (LC) for morbid obesity was presented. Methods: From 2009 to 2016, 20 morbidly obese patients undergone LC in our institute, and were 12 females and 8 males, and the averaged BMI was 44kg/m². Nineteen of the 20 patients (95%) received concomitant other operations which included bariatric surgery in 17 patients, splenectomy in one and abdominal tumor extirpation in one. The gallbladder diseases were gallbladder stone in 18 (symptomatic in 11), chronic cholecystitis in one and gallbladder polyyp in one. LC was performed by the usual 4-trocar method. Results: We did not experience open conversion. The operation time of LC was 66 minutes on the average, and estimated blood loss was 21g. All patients received heparin to prevent venous thromboembolism, and one of the patients experienced postoperative intraperitoneal bleeding which was conservatively cured. The other patients did not have any postoperative complications, and mean postoperative stay was 10 days. Conclusions: LC for morbid obesity is also feasible and safe in Japan.

P-106-5 Reduced port surgery compared to conventional laparoscopic cholecystectomy for benign gall-stone disease
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Introduction: Laparoscopic cholecystectomy using reduced port surgery (LC–RPS) may include improved cosmesis, fewer wound complications, and decreased pain. However, surgical techniques of LC–RPS require particular port devices and instruments, and are technically more demanding than the conventional laparoscopic cholecystectomy (LC–C). The aim is to compare LC–RSP with LC–C retrospectively. Materials and methods: A total of 108 patients undergoing LC for benign gallstone disease were divided into two groups: LC–RSP group (n=66) and LC–C group (n=42). Results: There were no significant differences in terms of sex, body weight, BMI, preoperative treatment associated with ERCP, and previous laparotomy between LC–RSP and LC–C groups. The average of patients age was significantly higher in LC–C group than in LC–RSP group (p<0.05). The ratio of high score (>3) of ASA physical status was significantly higher in LC–C group than in LC–RSP group (p<0.05). There were no significant differences in operation time, bleeding, the ratio of conversion to open cholecystectomy, and postoperative complication (Clavien–Dindo grade: >3), whether the average of hospital stay after operation was significantly shorter in LC–RSP group than in LC–RSP group (p<0.05). Conclusion: LC–RPS is safe and feasible cholecystectomy technique. This can be recommended in selected patients.
P-106-6 TANKO/Reduced port laparoscopic treatment for choledocholithiasis

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We evaluated prognosis of our consecutive choledocholithiasis patients who underwent Reduced port laparoscopic treatment between January 2008 and December 2016 (23 cases). All of the routine procedures including choledochotomy, intraoperative ultrasound, cholecodochoscopy, and intraoperative cholangiography guidance were performed. The median age of the patients was 77 (range 48–87) years. The median length of the operation was 266 (range, 136–625) minutes, and the median estimated blood loss was 23 (range, 5–100) ml. No conversion to laparotomy was observed. The mean length of the hospital stay was 13 (range, 9–32) days. Neither major postoperative complications, nor postoperative mortality were observed. The patients were also highly satisfied with the cosmetic outcome. Overall, reduced port laparoscopic treatment for choledocholithiasis is a less invasive and feasible treatment.

P-107-1 Prognostic factors in ampullary cancer in patients undergoing pancreatoduodenectomy

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Background: Patients with ampullary cancer (AC) have better outcomes among periampullary malignancies. However, little is known about prognostic factors for resectable patients with AC. The aim of the present study was to evaluate prognostic factors for patients with AC who received curative resection. Methods: The 109 patients who consisted of 62 males and 47 females with the median age of 69 years (range: 42–90) registered from 1992 to 2015 in Kansai Medical University. Clinicopathological characteristics and surgical outcomes were evaluated in this study. Results: According to the degree of contiguous extent of the primary tumor, the 5–year survival rates (and MST) were 82.7% (NR) in patients with T1 cancer (n=33, 30.2%), 66.3% (197 month) in T2 (n=43, 39.4), and 50.2% (63 month) in T3 (n=33, 30.2%). Lymph node metastases (LN mets) were present in 26 (23.8%) of all cases. The metastatic rate of regional lymph nodes was 1.8% for #8, 4.6% for #12, 9.2% for #13, 2.7% for #14, and 2.7% for #16. The 5–year survival rates (and MST) were 75.1% (197 months) in patients without LN mets, 34.1% (30 months) in patients with LN mets (p<0.0001). Univariate and multivariate analysis revealed that LN mets was an independent prognostic factor (HR = 3.79; 95% CI = 1.36–10.22; P = 0.011). Conclusions: LN mets is poor prognostic factor in AC patients. The development of effective adjuvant chemotherapy is required for improving the prognoses of patients with LN mets.

P-107-2 The Strategy for Iatrogenic Duodenal Perforation

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Background: Iatrogenic duodenal perforation (IDP) is a severe complication caused by endoscopic operation and surgery. In this study, we introduce the strategy for IDP based on our experience.

Methods and Materials: We retrospectively reviewed 8 cases who diagnosed IDP at our institution between 2003 and 2014. Results: Endoscopic retrograde cholangiopancreatography (ERCP) or endoscopic submucosal dissection (ESD) caused IDP in 5 cases, on the other hand surgical injury in 3 cases. Three surgical methods which including simple suture, utilizing T tube, and duodenojejunostomy to the injured site were provided to repair IDP. There were no sever complication among the patients who underwent patching or anastomosis to the injured site utilizing jejunum as a material for reinforcing the repaired portion. In the case of simple suture anastomotic leakage had occurred and the case using T tube had required reoperation and they required long term treatment. At last, all patients could have been discharged. We emphasize following points according to the procedure for repairing IDP.

1: keeping the restraint to repaired as smart as possible
2: having continuously effective drainage
3: removing fat tissue around the right kidney after resecting the Gerota’s fascia

We realized those issues were crucial in the management for IDP through our experience. Conclusion: IDP is a severe disease, so we should provide treatment strategy preventing the complications.

P-107-3 A single-institution experience of surgical resection for duodenal carcinoma

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Background/Aims: Since the population with duodenal carcinoma is only 0.3% in gastrointestinal carcinoma, it has not been established the standard treatment strategy yet, however, it is believed that surgical resection gives the only chance for cure. Although there is no secure consensus for clinical/pathological features associating with prognosis, some studies suggested that lymph node metastasis was indicated the variables associating with survival, despite persuasive number of cases for investigation. We investigate and report the cases of duodenal carcinoma received surgical resection with lymph node dissection.

Materials and Methods: Eight patients receiving pancreatoduodenectomy between September 2006 and September 2015 were investigated following factors; clinical features of patient or tumor, surgical outcomes and long-term prognosis. Results: TNM classification according to the guideline for small intestine cancer in International Union Against Cancer were as follows; T1/2/3/4: N0/N1/2: 3.2.3 patients, respectively. Three of 8 patients developed postoperative complications, and there was no death in perioperative period. Overall survival rate of 1-, 3- and 5-year were 87.5, 72.9, 72.9%, respectively. Three patients met recurrence in liver, and all of them showed following three factors in those specimen; pancreatic invasion, lymph node metastasis and either historical vascular invasion. Conclusions: Eight cases of duodenal carcinoma with 72.9% of 5–year survival after surgery were reported.
**P-107-4 Limited resections for duodenal gastrointestinal stromal tumors and their oncologic outcomes**

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JUNCHUL CHUNG, HYUNGCHUL KIM

PURPOSE: Limited resection is considered a treatment option for duodenal gastrointestinal stromal tumors (GISTs) whenever technically feasible, but the optimal technique for this is still not well defined. We present the various types of limited resections for duodenal GISTs and analyze their postoperative outcomes.

METHODS: The subjects of this retrospective clinicopathologic analysis were 21 patients who underwent limited resections for duodenal GIST between May, 2001 and June, 2014. The median follow-up period was 52 months (range 5–125 months). RESULTS: The patients comprised 12 men and 9 women, with a median age of 59 years (range 45–75 years), all of whom were treated by various forms of limited resection with clear margins. There were ten wedge resections with primary closure (eight open/two laparoscopic), two wedge resections with Roux-en-Y duodenojejunostomy, three segmental duodenectomies with end-to-end duodenoduodenostomy, and six segmental duodenectomies with end-to-end duodenojejunostomy. Hepatic metastasis was found 27 months after surgery in one patient, who was given imatinib mesylate for 17 months to slow disease progression. The other 20 patients were alive and recurrence free at the time of writing.

CONCLUSION: Excellent recurrence-free survival was achieved after limited resections, supporting the consideration of various methods of limited resection as the treatment of choice for duodenal GISTs.

**P-107-5 Short-term outcomes of pancreaticoduodenectomy for elderly patients: An analysis in a single institute**

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Background: As recent advancement of pancreatic surgery enables the pancreaticoduodenectomy to be applied to elderly patients, its feasibility need to be carefully investigated.

Methods: Patients who underwent the pancreaticoduodenectomy, between January 1, 2008 to December 31, 2016 in our institute, were analyzed retrospectively.

Results: Eight patients elder than 80 year–old (mean 81.1 ± 0.8; 1 male and 7 female) underwent the surgery for pancreatic or biliary malignant tumors, while 60 patients between 70 to 79 year–old received it in the same period. Pancreateicjejunostomy and pancreaticogastrostomy were performed in 7 and 1 patients, respectively. Portal vein reconstruction was performed to 2 patients. Mean operation time was 491.0 ± 117.0 minutes and mean blood loss was 1037.5 ± 804.1 ml. No patient had lethal complication, while 4 patients had grade A post–operative pancreatic fistula. Mean post–operative hospital stay was 31.3 ± 14.3 days.

Conclusion: With both cautious pre–operative patient selection and peri–operative procedure, the pancreaticoduodenectomy can be safely applied to elderly patients and could contribute to their prognosis.

**P-107-6 Early recurrence following pancreaticoduodenectomy. in patients with ampullary cancer**

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**Background.** We aimed to identify the factors of patients with early recurrence (within 6months) following curative resection for ampullary cancer.

**Methods.** In this retrospective study, the postoperative outcomes and clinicopathologic factors for recurrence that occurred in 43 of a total of 103 patients who underwent pancreaticoduodenectomy for ampullary adenocarcinoma between January 2002 and August 2014 were analyzed. Thereafter, we identified the factor that associated with early recurrence (within 6months) following surgery through the univariate and multivariate analyses.

**Results.** The median survival length was 26.3 months in patients with recurrence (n=43) following surgery. Recurrence occurred within a year in more than half the patients with recurrence following surgery (median DFS = 11.4 months). The patients with recurrence were divided into two groups: early recurrence and late recurrence. 14 patients (32.6%) showed the early recurrence and they showed the shorter median DFS and median OS than those of patients with late recurrence (DFS, 4.2 Vs. 17.3 months; OS, 13.8 Vs. 39.4 months). Poor cell differentiation, T stage ≥ 3, Lymph node(LN) metastasis, multiple LN metastasis, high LN metastasis ratio(LNR), perineural invasion were associated with early recurrence in univariate analysis (all p < 0.05). Among them, LN metastasis (odds ratio, 13.377; 95% confidence interval, 1.055–169.562; p = 0.045). However, there was no difference in reappeared site between the patients with early and late recurrence.

**Conclusion.** LN metastasis was the independent risk factor for early recurrence in patients with ampullary ca. following curative resection.

**P-107-7 Application of personal 3D modeling service -- experience in a regional hospital**

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**BACKGROUND:** Personalized 3D modeling has been a topic of intense interest and research, especially in pre–operative planning. We want to evaluate whether 3D modeling service applicable to the regional hospital.

**METHODS:** 3D model is created from 1.25–mm thin–slice CT images. These images are processed with the use of open–source software (VR–Render), includes the visualization of multiplanar CT images provided by a specialist applies color contrast to each layer of tissue and highlights all the anatomical details precisely. The segmentation of the organs or vessels can be visualized and the 3D model was created. From 2015 to 2016, there are 262 patients underwent 3D modelling preoperatively for planning or discussion.

**RESULTS:** For the hepatic–biliary and pancreas part, there are 39 models (24.5%) in 2015 and 46 models (45.1%) in 2016; there are 159 cases in 2015 and 102 cases in 2016 totally. Surgeons planned the procedure by physically rotating the 3D model to see the interconnections among liver, biliary system and pancreas on their own laptop or computer. The procedure of personalized 3D modeling could be finished in 2 – 4hrs.

**CONCLUSIONS:** The personal 3D model may further improve the understanding of complex anatomy and therapeutic strategies. Personal 3D modeling service is more applied in clinical evaluation, especially for the liver, biliary system and pancreas.