PREDICTION OF EARLY POST OPERATIVE MORTALITY IN DECEASED DONOR LIVER TRANSPLANTATION BY USING CLINICAL PROFILE

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Background: Liver transplant often results in hemodynamic and biochemical changes in the immediate post-operative period, often causing concern to the treating physician. To study the pre-operative clinical profile, the hematological and biochemical changes in the immediate post-operative period up to 7 days following DDLT patients.

Patients and Methods: A detailed assessment of the patient’s pre-operative clinical diagnosis, presence of co-morbid illness and postoperative hematological, biochemical, microbiological and clinical events was made between survivors and those who died. Various parameters were compared between two groups to understand the various that determined early postoperative outcome in DDLT patients.

Results: A total of 35 patients, categorized into group I-26 patients (Survivors) and group II-9(mortality). There was no difference in the fluctuation of hemoglobin levels between the two groups (10±4%). Early leukocytosis and persistent azotemia predicted early morbidity and mortality. A significant fall of platelet count predicted mortality. Transaminases showed a significant rise between the 2nd and 3rd postoperative days and stabilized and showed a downwards trends by the 7th–9th postoperative days in both group. Hypernatremia predicted early mortality. Cause of death was intra-operative events like cardiac arrhythmias, and in ischemic cardiac artery thrombosis(1), sepsis and multi-organ failure(4). Two patients required renal replacement therapy for resistance renal failure in group II.

Conclusion: Pre-operative co-morbid illness, postoperative worsening azotemia, persistent leukocytosis, and sepsis and cardiac events in the immediate postoperative period predicts an outcome post DDLT.

IS ALCOHOLIC PANCREATITIS AND LIVER DISEASE ARE FRIENDS OR FOES?

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Background: Alcohol is known cause for chronic liver disease and chronic pancreatitis. The two diseases often do not co-exist. This study compares the similarities and dissimilarities on a case to case basis between alcohol related acute recurrent pancreatitis and alcohol related chronic liver disease with an intention to identify risk factors predisposing an individual to one disease but not to the other.

Methods: Consecutive patients presenting with US/CECT proven pancreatitis, liver disease or a combination were included in the study. Controls were men who consuming alcohol for more than 5 years, but had normal liver and pancreas on biochemical and radiological evaluation. Female gender, pancreatitis and liver disease due to other etiological factors or alcohol consumption less than 5 years were excluded from the study. Patients were categorized as GpI: Alcoholic related pancreatitis, GpII: Alcoholic liver disease, GpIII: combination of pancreatic and alcohol related liver disease. Patient details included were age, baseline demographic characteristics, literacy status, per capita income, details of alcohol consumption, smoking and diet details. Pertaining to the disease, information on age of onset of disease, the duration of disease and date/month of diagnosis were recorded. All patients had liver function tests, baseline amylase and lipase estimation, ultrasound and CECT. Likewise definite evidence of chronic pancreatitis on CECT was considered mandatory for inclusion in the study.

Results: There were 53 controls. There were 59 patients with pancreatitis (GpI), 97 with liver disease (GpII), 7 with both liver and pancreatic disease (GpIII). The demographic profile, socioeconomic status, pan chewing, diet pattern and smoking pattern in the three groups were similar. Age of first consumption of alcohol was also similar in all the 3 groups. The mean age of presentation in the three groups was 37.4 ± 10.2, 44.6 ± 9.4, and 45.3 ± 6.9 years respectively. Current alcohol consumption was more in Gp I (71.2%) compared to Gp II (50.5%), and Gp III (57.1%) (p < 0.05). The mean duration of alcohol consumption was 13.1, 16.5 and 15.4 years respectively. The average current consumption of alcohol per week was similar in all, i.e. Gp II (765.3 g), Gp I and II (653 g each). Average consumption and duration of consumption of alcohol was not significantly different in all the 3 groups.

Conclusion: Unlike the western reports, the age of presentation for both alcoholic liver disease and pancreatic disease is similar i.e. 13 ± 2 years. What predisposes an individual to develop liver or pancreatic disease is probably genetically determined.

SUCCESSFUL TREATMENT OF MALIGNANT BILIARY-CUTANEOUS FISTULA USING A T-TUBE

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Background and aims: Biliary-cutaneous fistulas are uncommon but can be a source of significant morbidity after hepato-biliary surgery. Residual malignancy may be associated with the development of postoperative fis-
tula. Conservative treatment and invasive treatment including surgery is considered. We report a case of post operative biliary-cutaneous fistula which was successfully treated by resection of fistula tract including wide excision of hepaticojejunalostomy site with T-tube insertion.

Methods: Right hepatectomy with Roux-en-Y hepaticojejunalostomy was performed for a 78-year-old man with Klatskin tumor Bismuth type IIIA. Postoperative 4 weeks, bilious discharge was found in the wound and CT showed biliary-cutaneous fistula. The liver function sustained normal so we decided to observe. To 1 month after the development of fistula, closure of the fistula was not found so we performed percutaneous transhepatic biliary drainage but closure did not occur. Thus, we performed resection of fistula tract including wide excision around the hepaticojejunalostomy site and T-tube insertion. Malignancy was found in the fistula tract, and T-tube was removed after 2 months. No recurrence was found for 12 months after the first operation.

Results: Postoperative biliary-cutaneous fistula was successfully treated with resection of fistula tract including wide excision of hepaticojejunalostomy site and T-tube insertion.

Conclusions: There may be possibility of malignancy in cases of biliary-cutaneous fistula which is not successfully treated with conservative treatment, so wide excision of hepaticojejunalostomy site should be included in the surgery for postoperative biliary-cutaneous fistula and this treatment strategy may increase the curative potential.

225

INITIAL POSTOPERATIVE DECESSES CLINICAL OUTLINE IN DECEASE DONOR LIVER TRANSPLANT RECIPIENTS: A PRELIMINARY REPORT

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Background and Aim: Liver transplant often results in hemodynamic and biochemical changes in the immediate postoperative period, often causing concern to the treating physician. Aim of the study to determine the pre-operative clinical profile, the hematological and biochemical changes in the immediate postoperative period up to 7 days following DDLT patients.

Method: A detailed assessment of the patients pre-operative clinical diagnosis, presence of co-morbid illness and postoperative hematological, biochemical, microbiological and clinical events was made between survivors and those who died. Various parameters were compared between two groups to understand the various that determined early postoperative outcome in DDLT patients.

Results: A total of 34 patients, categorized into group I-26 patients (Survivors) and group II-8 (mortality). There was no difference in the fluctuation of hemoglobin levels between the two groups (10 ± 4%). Early leukocytosis predicted early morbidity and mortality between 2 groups. This difference was statistically significant (p < 0.01). Serum creatinine increased in both groups, but it is much higher in group II compared to group I (p < 0.05). The serum platelet count in group I was 35000 ± 18000 platelets/mL, whereas in group II it had reduced to 80000 ± 120000 platelets/mL (p < 0.001). PT was correlated well with outcome, although the trend was the same in both groups. INR was also significantly higher in group II patients. Transaminases showed a significant rise between the 2nd and 3rd postoperative days and stabilized and showed a downwards trends by the 7th–9th postoperative days in both group. Cause of death was intra-operative events like cardiac arrhythmias, and in ischemic cardiac events (2), pulmonary thromboembolism (1), and hepatic artery thrombosis (1), sepsis and multiorgan failure (4). Two patients required renal replacement therapy for resistance renal failure in group II.

Conclusion: Pre-operative co-morbid illness, postoperative worsening azotemia, persistent leukocytosis, and sepsis and cardiac events in the immediate postoperative period predicts an outcome post DDLT.

RISK FACTORS FOR EARLY OCCURRENCE OF LUNG METASTASIS IN PATIENTS WITH HEPATOCELLULAR CARCINOMA AFTER TRANSARTERIAL CHEMOEMBOLIZATION

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Aim: To analyze the risk factors for early occurrence of lung metastasis in patients with hepatocellular carcinoma (HCC) after transarterial chemoembolization (TACE).

Methods: 202 patients diagnosed as HCC without previous treatment and detected lung metastases after treated with TACE were studied retrospectively. Patient’s laboratory tests and imaging around TACE, parameters in TACE, and time and location of lung metastasis were obtained. Time to progression (TTP) was defined from the time for first TACE to diagnosis of lung metastases. Calculate the incidence of lung metastases by Kaplan-Meier method for each factor and compare the difference between groups of each factor by Log-rank test. All factors entered into COX regression model for univariate analysis and followed by multivariate analysis.

Results: Before the occurrence of lung metastases, 44 patients also accepted local or comprehensive treatment after TACE, the rest 158 patients had no other treatment. 69 patients (34.2%) manifested unilateral lung metastasis while 133 patients (65.8%) bilateral. The median TTP, from first TACE to lung metastasis, was statistically significant in group II than group I (p < 0.01). Serum creatinine increased in both groups, but it is much higher in group II compared to group I (p < 0.05). The serum platelet count in group I was 35000 ± 180000 platelets/mL, whereas in group II it had reduced to 80000 ± 120000 platelets/mL (p < 0.001). PT was correlated well with outcome, although the trend was the same in both groups. INR was also significantly higher in group II patients. Transaminases showed a significant rise between the 2nd and 3rd postoperative days and stabilized and showed a downwards trends by the 7th–9th postoperative days in both group. Cause of death was intra-operative events like cardiac arrhythmias, and in ischemic cardiac events (2), pulmonary thromboembolism (1), and hepatic artery thrombosis (1), sepsis and multiorgan failure (4). Two patients required renal replacement therapy for resistance renal failure in group II.

Conclusion: Pre-operative co-morbid illness, postoperative worsening azotemia, persistent leukocytosis, and sepsis and cardiac events in the immediate postoperative period predicts an outcome post DDLT.
4 months (95% CI; 3.3–4.7), ranging from 1 month to 57 months. Take all factors into consideration, tumor thrombus grade in patients (p = 0.011), the degree of AFP change in 1 month (p = 0.002), times of TACE (P < 0.001) and adopting other treatment after TACE (P < 0.001) were significant independent risk factors for lung metastasis in patients with HCC after TACE by COX univariate and multivariate analysis.

Conclusion: To patients with high grade of tumor thrombus in the preoperative imaging and significantly increased or strong positive AFP 1 month later, lung metastases tended to occur significantly earlier. Nevertheless, repeated TACE and integrated other local treatment if the hepatic function remained preserved, can significantly postpone the occurrence of lung metastasis.

246
PALLIATIVE HEPATOJEJUNOSTOMY IN INOPERABLE HILARMALIGNANCIES PRESENTING WITH OBSTRUCTIVE JAUNDICE.
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Purpose: Decompression of the biliary system

Material/Methods: 14 patients with irresectable malignant tumors of the liver hilum.

Results: All patients had more than 70% reduction in serum bilirubin level on day 5 of the operation. The technique is simple and safe in experienced hands and provides excellent symptomatic relief.

Conclusion: As majority of patients are unable to afford internal stents, this procedure is cost effective with minimal morbidity if patients are selected properly.

Malignant biliary obstruction at the level of the liver hilum causes mechanical cholestasis leading to severe jaundice. This leads to symptoms like pruritis, recurrent cholangitis and malaise. As most of these patients present late, and are deemed inoperable, relieving jaundice improves their quality of life. Most of the palliative decompression is achieved either by internal stenting procedures or external diversion using a percutaneous transhepatic approach. Both methods have disadvantages including frequent need for reintervention either because of displacement, blockage due to tumor growth, stent infections and recurrent cholangitis.

In this study, I report my experience with peripheral hepatojjunostomy for decompression of the biliary system in 11 patients with irresectable malignant tumors of the liver hilum. This technique does not use mucosa-to-mucosa anastomosis, but rather a jejunal-mucosa anastomosis to a peripheral cut surface of the liver, exposing the dilated bile ducts. All patients had more than 70% reduction in serum bilirubin level on day 5 of the operation. The technique is simple and safe in experienced hands and provides excellent symptomatic relief.

As majority of patients are unable to afford internal stents, this procedure is cost effective with minimal morbidity if patients are selected properly.

247
LIVER SURGERY AT JINNAH HOSPITAL; INNOVATIONS MATCHING THE FACILITIES
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24, E-1, Gulberg III, Lahore, Pakistan

Purpose: Liver Surgery has been accepted as a highly specialized surgery and the world over, Hepato- Pancreateo- Biliary (HPB) is now a recognized specialty of General Surgery. Liver surgery has gone through the embryonic phase and now the mortality and morbidity has been brought down to 4% and 10% respectively is specialist Centres.

Liver Surgery requires both the expertise and the technical support to reduce the morbidity and mortality of patients. With the Purpose of new liver resecting devices like CUSA, Tissue Link, water-jet, Habib’s Radiofrequency Instruments, the operative blood loss has been reduced considerably. Also the use of Fixed Abdominal Retractor Systems and vascular staples the operating time has been reduced and facilitated safe liver resections. The use of Argon Gas has reduced the risk of post-operative hemorrhage. The post-operative monitoring of patients in an ICU also ensures smooth recovery and early management of any post-operative complication. I present my series of 19 major and minor resections at Surgical Unit II that were carried out during the last 18 months.

Methods: At Jinnah Hospital, none of these facilities were available and therefore innovations were required to do resections that were safe, cost effective and fitted the available resources. “Kelly Classy” instead of CUSA was used to resect the liver; Simple abdominal retractors were fixed to the available bars to retract the rib cage and liver was packed to avoid post-operative bleeding that were removed 48–72 hours after initial surgery. After the initial 2 liver resections, none of the patients were transferred to ICU and were extubated after the operation. The innovative techniques, total cost of the operation, blood loss, morbidity and mortality would be presented.

Results: There was no operative mortality. One patient with cirrhosis died of liver failure and one patient died with sepsis secondary to peritonitis due to perforated appendix. The first two patients were sent to ICU, but later on the patients were managed in the HDU of the ward. The mean blood loss was 700 ml. The mean LOS (Length of stay) was 9 days. The total cost of sutures used during surgery was Rs.7600. Overall, the results were comparable to other units in the developing countries.

Conclusions: Liver surgery can be performed safely even in the constrained environment, provided it is done and managed in a unit with special interest.
ASSESSMENT OF AN OPTIMAL PROGNOSTIC SYSTEM FOR PREDICTING MORTALITY IN PATIENTS AWAITING LIVER TRANSPLANTATION: CHILD-PUGH VERSUS MELD

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Background: Decompensated cirrhosis is associated with a poor prognosis and liver transplantation provides the only curative treatment option with excellent long-term results. The Model for End-Stage Liver Disease (MELD) score is now used for allocation in liver transplantation (LT) waiting lists, replacing the Child-Turcotte-Pugh (CTP) score. However, the optimal strategy based on scoring systems and/or waiting time is still under debate. Aim of the study to compare the CTP scores and MELD score for 3, 6 months survival in cirrhotic patients waiting for liver transplant.

Methods: We investigated 216 consecutive patients listed for single-organ liver transplantation for nonfulminant liver disease between April 2010 and June 2011. To assess the ability of MELD and CTP score predicting the risk of death, the study was performed by range by using c-statistic for area under the receiver operating characteristic curve.

Results: 56 patients died during the observation period. The mean CTP score at baseline, 3, 6 months was 7.4, 7.67 and 8.1 respectively for patients who died on waiting. The mean MELD at 3, 6 months was 12.2, 7.63, 8.9 and 9.48 respectively for patients who died on waiting list. The Mean MELD at 3, 6 months was 12.2, 7.67 and 8.1 respectively for patients in the waiting list and 14.8, 19.25 and 21.57 respectively for patients who died on waiting. The sensitivity and specificity to identify mortality or severe deterioration for CTP was 83.9% and 89.5%, respectively; for MELD 88.6%, 91%, respectively. In stratified analysis there were significant (< 0.001) differences between MELD and CTP for the c-statistic in patients with low and intermediate range MELD scores at 3 and no significant difference in 6 months.

Conclusion: MELD has a better performance over the CTP score in determination of priorities for organ allocation. The outcome with lower range MELD cannot be reliably predicted only with their MELD scores, and alternative prognostic markers should be used in conjunction to enhance the predictive accuracy. Because in patients with a longer time on waiting list CTP may serve as an additional factor for assessment of patient prognosis. So, prognostic markers like ascites and hyponatremia should be added with MELD to enhance the predictive accuracy.

PROGNOSTIC SIGNIFICANCE OF PREOPERATIVE PERIPHERAL BLOOD MONOCYTE RATIO IN PATIENTS WITH HEPATOCELLULAR CARCINOMA

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Background: Leukocyte subsets in peripheral blood, which include neutrophils, lymphocytes, and monocytes, have not been well-established as prognostic factors in patients with hepatocellular carcinoma (HCC).

Method: Consecutive patients who underwent curative hepatic resection for HCC at the National Cancer Centre, Republic of Korea, from April 2001 to December 2008 were enrolled in this study. Clinicopathologic factors, survivals, and prognostic factors were analysed with respect to preoperative lymphocyte subsets, especially monocyte ratio.

Results: The 603 patients had a median follow-up of 40.0 months and a 5-year overall survival rate of 67.7%. In univariate analysis, preoperative lymphocyte ratio ≤ 35% and monocyte ratio > 7% were significantly poor prognostic factors. In multivariable analysis, preoperative monocyte ratio > 7%, satellite nodule, and microvascular invasion were independent risk factors for cancer-specific survival and disease-free survivals (hazard ratio of monocyte ratio > 7%: 1.77, p = 0.02 and 1.57, p = 0.006, respectively). Considering the monocyte ratio with preoperative α-fetoprotein level, patients with both abnormal α-fetoprotein level (> 12 ng/mL) and monocyte ratio > 7% showed significantly worse cancer-specific and disease-free survivals than other groups (p < 0.001). The cirrhotic patients with monocyte ratio > 7% showed significantly poor cancer-specific and disease-free survivals compared to the noncirrhotic patients (p = 0.033 and < 0.001, respectively).

Conclusions: The preoperative monocyte ratio > 7% of peripheral blood is an independent risk factor for cancer-specific and disease-free survivals after hepatic resection for HCC. The preoperative monocyte ratio might be considered as a novel biomarker for HCC.

PALLIATIVE PANCREATICODUODENECTOMY IN Pancreatic AND PERIAMPUllARY ADENOCARCINOMAS

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Background: This study aims to clarify the role of a palliative pancreaticoduodenectomy in both pancreatic and peripancreatic adenocarcinomas.

Methods: Data on patients with peripanillary adenocarcinoma who underwent surgery between January, 1997 and December, 2009 were analyzed. Survival outcomes were compared between resections and bypass operations, and between curative (R0) and palliative...
resections, with a microscopically (R1) and a grossly (R2) positive resection margin.

**Results:** There were 595 surgical patients, including 47.4% curative resections (R0) and 17.8% palliative resections (R1 + R2). The positive margin rate after a pancreaticoduodenectomy was 8.0% for a R1 and 19.3% for a R2. For periampullary adenocarcinomas, there was a significant survival difference between the R0, palliative, and no resection groups. However, there was no significant survival difference between the R0 curative resections and the palliative pancreaticoduodenectomies for pancreatic head adenocarcinoma. Note that the survival outcome after either a curative or a palliative pancreaticoduodenectomy was still better than the survival outcome of a bypass operation.

**Conclusion:** There was a survival benefit after a pancreaticoduodenectomy regardless of the resection margin or primary origin of the periampullary adenocarcinoma, as compared to a bypass operation. The resection margin after a pancreaticoduodenectomy did not play a role in the survival outcome in pancreatic head adenocarcinoma. Therefore, we recommend that pancreaticoduodenectomies should be attempted whenever possible.

**262**

**PANCREATIC AND PERIAMPULLARY MIXED TUMORS**

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**Background:** There is no data regarding the tumor incidence by histological type and biological behavior in terms of number of malignancy inside the mixed tumors, tumor location, and histopathology. With analysis of the pooled data, we tried to clarify the characteristics and survival outcomes of the pancreatic and periampullary mixed tumors.

**Methods:** Data of mixed tumors in the pancreas and periampullary region from our prospectively-collected computer database and cases reported in the English literature were included for analysis together.

**Results:** There were 43 mixed tumors. The mixed tumor composed of adenocarcinoma and neuroendocrine neoplasm was most common (42%). Thirty-two (74%) mixed tumors were malignant, and 28% were composed of double malignancies. The most common histopathological diagnosis was neuroendocrine neoplasm (43%) including 36% neuroendocrine tumor and 7% neuroendocrine carcinoma. The median tumor size was 3 cm, and larger in the benign group (6.3 vs. 2.5 cm, p = 0.038). There was no significant survival difference between malignant mixed tumors with double vs. single malignancy, pancreatic vs. non-pancreatic origin, and adenocarcinoma vs. non-adenocarcinoma.

**Conclusions:** Neuroendocrine neoplasms are the most common histopathological diagnosis in pancreatic and periampullary mixed tumors. There is no significant survival difference in terms of number of malignancy, tumor location and histopathology.

**262**

**XANTHOGRAUOMATOUS CHOLECYSTITIS PRESENTING AS HEMOBILIA**

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**Background and aims:** Hemobilia is a rare condition defined as bleeding into the biliary tree from an abnormal communication between a blood vessel and bile duct. Most common causes of hemobilia are iatrogenic trauma, accidental trauma, gall stones, tumors, inflammatory disorders, and vascular disorders. Among these, iatrogenic trauma to the liver and biliary tree is the major cause of hemobilia. In contrast, non-traumatic hemobilia due to gallstone, inflammation, and vascular malformations are extremely rare. Here we reported a case with Xanthogranulomatous cholecystitis presenting as hemobilia.

**Methods:** A 70-year-old man was sent to the emergency department at our hospital with a complaint of right upper quadrant abdominal pain for 1 day. Vital sign was stable and past history included diabetes mellitus and previous endoscopic retrograde cholangiopancreatography (ERCP) history due to common bile duct stone 3 years ago. At that time he was treated by endoscopic sphincterotomy with CBD stone removal. There were icteric sclera, right upper quadrant abdominal tenderness and positive Murphy’s sign on physical examination. Laboratory data on admission showed white blood cell (13000/mm3), hemoglobin (14.9 g/dL), platelet (173000/mm3). Liver function tests showed that total bilirubin (5.4 mg/dL), alkaline phosphates (159 I U/L), aspartate aminotransferase (AST) (287 I U/L), alanine aminotransferase (ALT) (159 I U/L), r-glutamyl transpeptidase (r-GTP) (391 I U/L), and C-reactive protein (CRP) (9.8 mg/dL) were elevated. Coagulation tests were normal. Abdominal computed tomography (CT) scan showed marked thickening of the gallbladder wall with 2.8 cm sized radiopaque stone and biliary dilatation with distal CBD stones. Based on these findings, ERCP was done for CBD stone removal. ERCP showed that there was no CBD stone and there was hematome resulting in CBD obstruction. After hematome removal, old blood colored bile was actively draining. Then, we performed emergence open cholecystectomy and choledocholithotomy with T-tube drainage, intra-operative cholangiography.

**Results:** At laparotomy, gallbladder was severely inflamed and adherent to omentum, small bowel, and colon and there were maximum 3 cm sized multiple black colored stones and pus-like fluid in gallbladder with edematous wall thickening. And there was no CBD stone and no abnormality at intraoperative cholangiography. A histological examination indicated xanthogranulomatous cholecystitis based on the findings of a granulomatous lesion in the gallbladder wall. The patient was discharged 2 weeks following surgery without any problems.

**Conclusions:** Xanthogranulomatous cholecystitis patient has a history suggestive of an episode of acute cholecystitis. Also it can be presenting as hemobilia.
PERIBILIARY CYST IN HEALTHY YOUNG PATIENT
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Background and aims: Peribiliary cysts originate from cystic dilatation of the peribiliary glands. Almost all the peribiliary cysts are found in patients with advanced liver disease and particularly with disturbance of the portal venous system, as almost all patients have severe portal hypertension. Peribiliary cysts should be distinguished from premalignant conditions, such as Caroli’s disease, localized primary sclerosing cholangitis, mucinous cystic neoplasm (MCN) and intraductal papillary neoplasm of the bile duct (IPNB). Herein, we report a case of peribiliary cyst resembling unilobar Caroli’s disease in a healthy young patient.

Methods: A 31-year-old man was referred to our hospital for further evaluation of the presence of hepatic mass, detected on ultrasonogram (US) performed for routine screening examination. The patient was asymptomatic. He had no history of liver disease or alcohol abuse. All the routine laboratory tests including liver function tests and tests for tumor markers yielded normal findings. An ultrasonogram showed about 3 cm sized multiseptated cystic mass in the right hepatic lobe. An abdominal computed tomography (CT) scan and a magnetic resonance cholangiopancreatography (MRCP) demonstrated a 2.8 x 2.2 cm sized multilocular irregular cystic mass in segment VI. The mass was located at a distance from hepatic hilum. The findings suggested unilobar Caroli’s disease or biliary cystic neoplasm, such as mucinous cystic neoplasm or intraductal papillary neoplasm of the bile duct. Concern regarding the potential risk of malignancy in the context of suspected Caroli’s disease, mucinous cystic neoplasm, and intraductal papillary neoplasm of the bile duct were discussed with the patient, who consequently opted for surgical resection.

Results: A right hemihepatectomy was performed. At laparotomy, multiple cystic lesions were found surrounding segment VI bile duct. The patient was discharged 2 weeks following surgery without any complications. Histological examination of the resected specimen showed multiple cysts distributed along the major segmental portal tracts of the segment VI. On microscopic examination, numerous peribiliary cysts lined by cubic or flattened epithelium were seen around normal appearing intrahepatic bile ducts. There was no evidence of dysplasia.

Conclusions: Peribiliary cysts can occur in normal liver and can mimic the condition of unilobar Caroli’s disease. Accurate identification of peribiliary cysts and differentiation from other potentially premalignant or malignant cystic lesions is mandatory.

THE EFFECT OBSERVATION OF ULTRASOUND-GUIDED PERCUTANEOUS PUNCTURE TREATMENT IN LOCALIZED EFFUSION AFTER HEPATECTOMY
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Background the localized effusion is a common complication after liver resection, and ultrasound-guided percutaneous puncture drainage treatment is a effective way for decreasing the effusion.

Objective: To observe the clinical effect of ultrasound-guided percutaneous puncture in localized effusion after liver resection.

Methods: Review the clinical data of 83 patients after hepatectomy concurrent localized effusion and all of them received ultrasound-guided percutaneous puncture treatment, the curative effect evaluation index is temperature and white blood cell count change before and after puncture treatment, besides, discusses the influence of the part, scope, character of located effusion on temperature and white blood cell count before the puncture treatment.

Results: The 83 patients successfully received puncture treatment 100 times, the temperature and white blood cell count before puncture treatment compared with after treatment 1, 3, 5 days, the difference have statistical significant (p < 0.05), and after 1 day compared with 3 day, 3 days compared with 5 day, there were not significant statistical difference(P > 0.05); The location, scope and character of located effusion had not significant influence on temperature and white blood cell count before the puncture treatment(P > 0.05).

Conclusion: Localized effusion occurrence has relations with liver resection surgery and patients own conditions, patients fever and white blood cell count anomaly before puncture treatment have no obvious relation with The location, scope and character of the effusion; Ultrasound-guided puncture drainage treatment can fast effectively solve the effusion complication after liver resection, and has advantage of simple operation and less complications occurrence. Thus it is worthy of clinic application.

CLINICAL SIGNIFICANCE OF METASTASIS-RELATED LONG NONCODING RNA IN HEPATOCELLULAR CARCINOMA
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Background: Although a great improvement has been made in recent years, the mechanisms of hepatocarcinogenesis still remain unclear. Emerging studies have shown that long noncoding RNAs (lncRNAs) are involved in the process of tumorigenesis.

Methods: Using gene-expression profiling, we assessed the differentially expressed IncRNAs between CSQT-2...
and Hep3B cell lines. A total of 651 HCC patients, three independent cohorts, were analyzed to further test lncRNAs association with the process of hepatocarcinogenesis through quantitative reverse-transcriptase-polymerase-chain-reaction assays (qRT-PCR) and in-situ-hybridization (ISH). As different metastasis stages of HCC in vivo, 241 patients with different stages of portal vein tumor thrombus (PVTT) were set as testing cohort to determine the relationship between lncRNAs and metastasis of HCC. 372 HCC patients were validation cohort to analyze the prediction role of lncRNAs for diagnosis of HCC patients no matter whether they have PVTT or not. In addition, 38 HCC patients who had received systemic therapy to sorafenib after undergone hepatectomy were analyzed to evaluate the difference lncRNA level response to therapy with sorafenib.

Results: A long ncoding RNA-BX648637 was markedly upregulated in highly metastasis HCC cell line CSQ-T-2 than that in Hep3B, thus termed as metastasis relation long ncoding RNA (MeRL). A RNA duplex was formed, which increased stability and expression of ICAM1 (Intercellular adhesion molecule-1), between MeRL and ICAM1. In 245 PVTT patients, qRT-PCR revealed that both MeRL and ICAM1 were higher expression in PVTT tissue than that in its paired parenchyma tumor (tumor, T). Patients with high tumoral MeRL and ICAM1 expression showed significantly higher type of PVTT (p = 0.0168 and p = 0.0322) than those with low expression. In 372 HCC patients, including 281 patients without PVTT and 91 with PVTT, there were also high expression levels of MeRL and ICAM1 in tumor tissue than in its paired peritumoral (PT) tissues. Patients whose tumors had high MeRL had shorter overall survival (p < 0.001) and disease-free survival (p < 0.001). And they also had bigger tumor size (p < 0.001), high TNM stage (p = 0.001) and high rates of intrahepatic metastasis (P < 0.001). Moreover, analysis of results from 38 HCC patients indicated that the treatment effective of sorafenib were better in patients with low tumoral MeRL expression than those with high (p = 0.043).

Conclusions: The expression levels of lncRNAs differ between in tumor tissues and in its paired peritumoral tumor tissues. The MeRL expression level is correlated with survival of HCC patients and response to adjuvant therapy with sorafenib.

PATHOBIOLOGICAL FEATURES OF HEPATOCELLULAR CARCINOMA

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Background and aim: The traditional model of morphological diagnosis on the liver and intrahepatic biliary tumors (LIBTs) can no longer meet the needs of modern oncology surgery. We aim to explore the establishment of pathobiological diagnostic mode and technology system of LIBT.

Method: To systematically summarize the pathological features of 40656 LIBTs, which were surgically resected during the period between 1982-1- 2011.12. in Eastern Hepatobiliary Surgery Hospital, Shanghai, and meanwhile to carry out the screening of tumor molecular diagnostic markers, new diagnostic projects as well as applicable diagnostic technical methods.

Results: Based on the analysis of the characteristics of our large series LIBTs and a systematic literature review, we propose a new surgicopathological classification of LIBTs comprising three types: tumor-like LIBTs, benign LIBTs, and malignant LIBTs, six subtypes: lesions derived from hepatocytes; cholangiocytes; vascular, lymphoid and hemopoietic tissues; muscular, fibrous and adipose tissues; neural and neuroendocrine tissues; and miscellaneous tissues, consisting of more than 100 kinds of LIBTs, which is more than the numbers of 30 kind of tumor lesions proposed by WHO’s classification. We also set up an archival paraffin-embedded tissue based microdissection technology for detecting genetic alterations of LIBTs, including the screening of a sensitive and specific immunohistochemical spectrum; genomic instability of focal nodular hyperplasia and hepatocellular adenoma; the risk of recurrence and metastasis of hepatocellular carcinoma (HCC) after resection; the clonal origins of recurrent HCC(RHCC), and so-called dual-phenotype HCC (DPHCC) that displays typical morphological features to strongly coexpress both hepatocyte and cholangioocyte markers within the same tumor cells, etc. Therefore, a pathobiological diagnostic mode with the characteristics of LIBTs is primarily established in our Department. During this period of time, we also put forward some new concepts such as HCC beyond 3 cm can be used as a predictor of relatively benign behavior and a turning point of biological transformation; there were 6 sub-molecular clonal patterns of RHCC, suggesting different clonal origins; patients with DPHCC have poor outcomes than those with classical HCC, suggesting a new entity or a new subtype of HCC, etc.

Conclusions: Pathobiological features of LIBTs constitute an important foundation for clinical diagnosis and treatment. More attention should be paid to the update of tradition pathological diagnostic mode and provision the new index system for clinical treatment programs.

272

PANCREAS TRANSPLANT AT TAIPEI VETERANS GENERAL HOSPITAL

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Background: Insulin-dependent diabetes mellitus (IDDM) or Type 1 diabetes eventually leads to nephropathy, neuropathy, retinopathy and angiopathy after 10–30 years. Currently, pancreas transplant is the treatment of choice in tight control of blood sugar for IDDM patients, and further to stabilize, prevent or even to reverse the diabetic complications. According to the International Pancreas Transplant Registry (IPTR) and United Network for Organ Sharing (UNOS), over 25,000 cases of pancreas transplant have been performed worldwide, with an increase of more than 1,600 – 1,800 cases per year, mainly in the USA.
The 1-year pancreas graft survival rate is 86.0% and 5-year is 69.8%, very close to those of kidney transplant. Among the whole pancreas transplants, 80% are simultaneous pancreas-kidney transplant (SPK), 15% pancreas after kidney transplant (PAK), and 5% pancreas transplant alone (PTA).

Materials: From 2003 to 2012, there were 77 pancreas transplants performed for 74 patients at Taipei Veterans General Hospital, with 29 SPK, 8 PAK, 36 PTA and 4 PBK.

Results: The blood sugar usually returned to normal level within 5 hours (median) after revascularization of the pancreas grafts. The fasting blood sugar maintained within normal range thereafter throughout the whole clinical course in most cases. The technical success rate was 95.5%. There were 8 graft loss, due to acute rejection in 1, chronic rejection in 2, technique failure in 3 and 2 died with functioning graft, and 4 of them received another successful re-transplant. All SPK patients are free from dialysis, but 1 primary non function of kidney graft. Post-transplant infection disease included 5 CMV gastroenterocolitis, 1 CMV pneumonia, 4 UTI (urinary Tract Infection), 2 BK virus infection, herpes zoster infection, 1 pseudomembranous colitis, 2 varicella zoster infection, 1 skin infection with MRSA and cryptococcus, 2 bacterial pneumonia, 1 sepsis.

Conclusion: Pancreas transplant provided an ideal insulin-free solution for DM, especially IDDM. Pancreas transplant could be performed with similar successful rate of kidney transplant if they were done simultaneously.

273

LYMPHADENOPATHIC KAPOSI’S SARCOMA MIMICKING PTLD AFTER PANCREAS TRANSPLANT

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Background: Kaposi’s sarcoma currently comprises more than 5% of all de novo neoplasms in this group. The average time to development of Kaposi sarcoma following transplantation is 15-30 months. Human herpesvirus 8 (HHV-8) genomic sequences have been identified by polymerase chain reaction in more than 90% Kaposi sarcomas.

Materials: From 2003 to 2012, Kaposi’s sarcoma was identified for study from 73 patients with 77 pancreas transplants performed at Taipei Veterans General Hospital. Literature review was also done.

Results: Only one case of Kaposi’s sarcoma was identified, with an incidence of 1.5%. The patient suffered from varicella zoster Infection (chicken pox) 11 months after pancreas transplant alone (PTA). Four months later (15 months after PTA), lymphadenopathy with enlargement of multiple lymph nodes in neck, around celiac trunk, along the superior mesenteric artery and abdominal aorta, which mimicked post-transplant lymphoproliferative disorder (PTLD). The biopsy for pathology turned out to be Kaposi’s sarcoma. HHV-8 viral gene was detected by the molecular (PCR) assay. The lymphadenopathic Kaposi’s sarcoma regressed 3 months after treatment by adding sirolimus, reducing the dose of tacrolimus and discontinuing mycophenolate mofetil. There has been no evidence of tumor recurrence for almost 3 years, and he has been enjoying an insulin-free life with euglycemia for more than 3 years.

Conclusion: This is an unusual HHV-8 associated Kaposi’s sarcoma mimicking PTLD presenting as lymphadenopathic form, instead of usual cutaneous form. Sirolimus is recommended for the treatment of Kaposi’s sarcoma, in addition to reduction, cessation or modification of immunosuppressive regimen.
method of treatment of hemobilia caused by intrahepatic bleeding is a standard modality.

Discussion:

Transcatheter embolization is a standard approach to avoid the surgical risk in biliary surgery, and can be of value as a new diagnostic and treatment modality.

286 PERCUTANEOUS TRANSHEPATIC INJECTION OF HISTOACRYL INTO THE PSEUDOANEURYSM SAC IS EFFECTIVE IN TREATMENT OF HEMOBILIA CAUSED BY INTRAHEPATIC PSEUDOANEURYSM

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Introduction: Hemobilia caused by hepatic artery pseudoaneurysm is uncommon but potentially lethal. Intrahepatic arterial pseudoaneurysms are usually caused by trauma or iatrogenic injury to the liver and biliary tree. Transcatheter embolization of hepatic pseudoaneurysms is an effective method of treatment. However, if transcatheter embolization is not feasible, a percutaneous tranhepatic injection of histoacryl into the pseudoaneurysm sac with sonographic or CT guidance can be used as an alternative approach.

Case report: Case 1: A 73-year old male with a history of surgery for right trisectionectomy due to hilar cholangiocarcinoma (Klatskin tumor type IV) 28 days ago, bleeding was occurred through left PTBD. A 0.8 cm-sized intrahepatic pseudoaneurysm was found at left PTBD inserted site in CT scan. We performed a selective angio-embolization of the pseudoaneurysm through the left hepatic artery. However, during the procedure, a tearing of the intima of the proper hepatic artery was occurred. Transcatheter embolization was not feasible. So, we directly injected histoacryl into the pseudoaneurysm sac with sonographic guidance. After well control of pseudoaneurysm by injection of histoacryl, the patient was recovered completely and seems to be in excellent condition, 3 month after treatment.

Case 2: A 73-year old female with a history of surgery for gastric cancer(LADG, B-II) 1 month ago, was found duodenal stump leakage, so PCD was inserted through Seg 6 of liver. Intrahepatic pseudoaneurysm was found at intrahepatic drainage site. Coil embolization has been attempted, but it has not been successful due to collateral vessels. So, we treated same method like above case. After the treatment, the patient was in stable condition during 4 month.

Discussion: Transcatheter embolization is a standard method of treatment of hemobilia caused by intrahepatic arterial pseudoaneurysm. However the percutaneous tranhepatic injection of histoacryl into the pseudoaneurysm sac was found to be feasible and effective for pseudoaneurysms after transcatheter embolization was failed.

305 PERCUTANEOUS TRANSHEPATIC CHOLEDOCHOSCOPE FOR REMOVAL OF INTRA-HEPATIC DUCTAL STONES

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Objective: Intrahepatic stones as a result of Recurrent Pyogenic Cholangitis (RPC) are prevalent in Asia. Treatment of hepatolithiasis is challenging especially when there is a wide distribution of stones inside both liver lobes. Percutaneous tranhepatic choledochoscopic approach under local anesthesia allows clearance of intrahepatic (IHD) stones without the need of hepatic resection. We evaluate our results and outcome on this treatment modality.

Method: This is a retrospective study from 2001 till 2010. Patients suffered from IHD stones who received stones clearance by percutaneous tranhepatic choledochoscope were included. Electrohydraulic Lithotripsy (EHL), endoscopic basket and balloon dilatation are tools for stones clearance. The distribution of IHD stones; the mean number of endoscopic sessions required; the time interval to achieve complete stones clearance; successful rate; complications rate and recurrent rate are determined.

Results: 117 patients who had IHD stones were treated by percutaneous tranhepatic choledochoscope from year 2001 till 2010. Mean age was 61. Distribution of IHD stones included: 42.6% at left lobe; 20.9% at right lobe and 36.4% in both lobes. 31% had bile duct stricture from RPC while 4.7% had iatrogenic bile duct stricture. To achieve complete stone clearance, median number of endoscopic sessions required was 3.6 times and median time duration required was 14.4 weeks. Overall complications rate was 3.5%. They included sepsis (2.2%); haemobilia (1.1%) and bile leak (0.2%). No procedure related mortality. Successful rate in complete clearance of stones was 86.8%. The overall mean follow up time after complete stones clearance was 57 months. Overall IHD stones recurrent rate was 13.2% at a mean time interval of 35.7 months. We observed a 2.6% incidence rate of cholangiocarcinoma transformation.

Conclusion: Percutaneous choledochoscope is a minimal invasive and safe local anesthetic procedure for IHD stones clearance. It allows a satisfactory stones clearance in short term but the long term recurrent rate is still high when compared to that of liver resection. However, in patients with wide spread IHD stones or in elderly patients who have short life expectancy and high anesthetic risk, percutaneous choledochoscopic removal of stones is still a treatment option. In selected patients, a combined approach can help to improve long term outcome.
Conclusions: In the presence of cholangitis due to previously untreated gallstones, none of them had simultaneous gallstones. All the patients followed up for an average of 26.6 months. In the recurrent group, 13.2% had CBD stones recurrence at a mean time of 23 weeks. Complications rate was 7.5%. No procedure was required was 2; median time interval required was 10 weeks. The number of endoscopic sessions required; time interval to achieve complete CBD stones clearance; successful rate; complications rate and recurrent rate are determined.

Results: 53 patients who received CBD stones clearance by percutaneous transhepatic choledochoscope were identified from 2001 till 2010. Mean age was 77.5. Seventeen out of 53 (32%) had gallstones simultaneously but cholecystectomy and ECBD were not performed due to patients’ high anaesthetic risk or patients refused open surgery. Reasons for unsuccessful ERCP; number of endoscopic sessions required; time interval to achieve complete CBD stones clearance; successful rate; complications rate and recurrent rate are determined.

Methods: This is a retrospective study from 2001 till 2010. Patients who had cholangitis due to obstructing CBD stones but failed ERCP received Percutaneous Biliary Drainage (PTBD). PTBD tract was dilated subsequently to enable the passage of a choledochoscope. Electrohydraulic Lithotripsy (EHL) and endoscopic basket are tools for stones clearance. Patients with intrahepatic ductal stones (IHD) simultaneously were excluded. Reasons for unsuccessful ERCP; number of endoscopic sessions required; time interval to achieve complete CBD stones clearance; successful rate; complications rate and recurrent rate are determined.

Results: From 1976 to 2010, 731 (511 male; 70%) patients with EHO who had a history of variceal bleeding with or without growth retardation and/or symptomatic hypersplenism underwent a proximal splenorenal shunt. Forty (5%) of these were emergency procedures. The relevant data was extracted from a prospectively maintained database. An attempt was made from January 2009 to November 2011 to obtain up-to-date follow up information on all these patients. Patient characteristics, short-term results (postoperative hospital stay, morbidity and mortality), postoperative outcome, long-term complications and their management were analyzed.

Results: The mean age, symptom duration and episodes of variceal bleeding were 17.6, 6.6 and 3.4 years, respectively. 268 (36.7%) patients had received endotherapy prior to surgery. The incidence of fundal varices and congestive gastropathy was significantly higher (p<0.001) in patients who had prior endotherapy. Although 55% patients had hypersplenism, only 8% were symptomatic. Overall 8 (1.1%) patients died, 5 (0.7%) after elective and 3 (7.5%) after emergency procedures. Postoperative morbidity was 10.3%, 9.3% after elective and 27.8% after emergency procedures. Mean (SD) postoperative hospital stay was 7.5 (4.6) days. Reversal of hypersplenism occurred in all patients. Of the 73% patients followed up for an average of 70.1 (range 1–364) months, rebleeding occurred in 50 (9.5%). Need for further endotherapy was obviated in 89.9%. Liver function remained normal in all and none developed post-splenectomy infection or encephalopathy. The estimated 15-year overall and bleed-free survival was 97.0% and 95.8%, respectively.

Conclusion: In patients with EHO, proximal splenorenal shunt provides safe, effective and durable control of variceal bleeding. In the long-term, PSRS obviates the need for further endotherapy or blood transfusions in nearly 90% and ensures a 15-year overall survival of >95% in these patients.
MANNOSE-BINDING LECTIN-2 GENE POLYMORPHISMS ASSOCIATE WITH THE DEVELOPMENT OF LIVER DISEASES AFTER HEPATITIS B VIRUS INFECTION

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Background and aims: Mannose-binding lectin-2 (MBL-2) is an important immunomodulatory factor that is involved in complement activation and oncogenesis. Genetic polymorphisms of MBL-2 were found to be responsible for MBL-2 functionality, low serum levels and also many disease developments. The aim of our study was to elucidate the role of MBL-2 genotypes in the development of liver diseases after HBV infection. Methods In our study we investigated the association of single nucleotide polymorphisms (SNPs) in the first exon (rs7096206) and promoter region (rs1800450) of the MBL-2 with susceptibility to liver diseases after HBV infection. We detected the genotypes of these two polymorphisms in 335 hepatitis B virus (HBV)-related HCC patients, 97 HBV-related liver cirrhosis, 133 non-HCC/cirrhosis patients with HBV infection and 175 healthy controls. Further stratification analysis was also performed according to patients’ clinic pathologic characteristics, including TNM stage and Child-Pugh grades.

Results: The prevalence of GG genotype and G allele of rs1800450 polymorphism was significantly higher among liver cirrhosis patients compared with healthy controls. Furthermore, combined with rs7096206 polymorphism, AC haplotype is significantly less frequent in HCC and liver cirrhosis patients. Regrettfully, we did not find the association between these polymorphisms and patients’ clinic pathologic characteristics.

Conclusions: These results suggest that mannose-binding lectin-2 polymorphisms seem to be involved in the development of HBV-induced cirrhosis and hepatocarcinogenesis in Chinese population.

AN EVALUATION OF 11C-ACETATE & 18F-FDG DUAL TRACER PET-CT SCAN IN DETECTING HEPATOCARCINOMA

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Background: 18F-FDG PET-CT scan is limited by its high false-negative rate (sensitivity: 60.9%) in detecting hepatocellular carcinoma (HCC) due to the fact that HCC cells can have net glycolysis similar to or even lower than that of normal liver tissue.

Objective: To evaluate the efficacy of 11C-Acetate & 18F-FDG dual tracer PET-CT scan (dual PET scan) in detecting primary or recurrent HCC.

Method: We retrospectively reviewed dual PET scan performed for our patients from October 2010 to October 2011 in 30 suspicious lesions reported by contrast CT scan of liver. All the patients were subsequently followed up for at least six months.

Results: 30 suspicious lesions were scanned in that period but 7 were excluded from the study because of their lack of pathological diagnosis to support the positive diagnosis of HCC shown by the dual PET scan. The patients’ age ranged from 46 to 82 with a mean of 64. All of them were hepatitis B carrier. Male to female ratio was two to one. Half of them were suspected to have primary HCC while the others were investigated for recurrent HCC. There were 15 positive scans and they were all supported by pathological prove. Two lesions were reported as negative and they were closely followed up afterwards for more than 6 months and supplemented with either ultrasound or CT scan to confirm their “disease negative” state. For the three false positive cases, two were operated on which showed negative pathology results, for the third one because of its diffuse peculiar Acetate uptake, close follow-up for more than 6 months with repeated CT scan showed resolution of the suspicious lesion. Two of the three false negative cases were counter-proved by positive pathology after resection base on worsening clinical grounds and the last one was treated by TACE after follow-up CT scan showed increase in size of the lesion.

Compared to traditional 18F-FDG PET-CT scan, the dual PET scan exhibited good results with sensitivity of 83.8% and specificity of 40%. The positive predictive value was 83.3% and the negative predictive value was 40%.

Conclusion: The dual PET-CT scan can be a useful adjunct to the traditional imaging methods such as CT in diagnosing and managing HCC.

ROBOTIC ASSISTED SPLEEN-PRESERVING DISTAL PANCREATECTOMY

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Aim: To report on technical issue and outcome of patient having robotic assisted spleen preserving distal pancreatectomy

Results: The recent introduction of robotics into pancreatic surgery has equipped surgeons with even better tools since the era of minimally invasive surgery began. Unique advantages of robotic system also applies to pancreatic resection and allow better dissection, hence spleen preservation. We described our experience on spleen-preserving distal pancreatectomy for treatment of a patient with branch type intraductal papillary mucinous neoplasm (IPMN) over tail of pancreas. Patient presented with abdominal pain and CT found a benign or borderline malignant lesion radiologically. Robot assisted spleen preserving distal pancreatectomy was done without resection of splenic vessels. Vascular branches supplying distal pancreas was divided between ligatures. Operative time was 458 minutes and blood lost was 300 ml. Post operatively the patient recovered.
OCT4 AND BIRC5 COLLABORATE TO PROMOTE CANCER CELL PROLIFERATION VIA THE MEDIATOR CCND1 AND EDUCE POOR PROGNOSIS IN LIVER CANCER

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Background: The OCT4 and BIRC5 genes are preferentially expressed in human cancer cells and mediate cancer cell survival and tumor maintenance. However, the molecular mechanism that regulates OCT4 and BIRC5 is not well characterized and requires further study.

Methods: The expression of OCT4 and BIRC5 was detected in 7 hepatocellular carcinoma (HCC) cell lines and 49 HCC specimens, the regulatory mechanism between OCT4 and BIRC5 and their correlation with the disease-free survival (DFS) and overall survival (OS) of HCC patients were analyzed.

Results: OCT4 indirectly enhances the activity of the BIRC5 promoter and regulates BIRC5 expression in hepatocellular carcinoma (HCC). CCND1 expression and promoter activity were strictly consistent with OCT4 expression levels in HCC cells. An octamer motif for OCT4 in the CCND1 promoter may have directly and partly participated in the regulation of CCND1 promoter activity, suggesting that the OCT4-mediated overexpression of CCND1 increases BIRC5 expression by activating the BIRC5 promoter. Co-suppression of OCT4 and BIRC5 induces cancer cell apoptosis and cell cycle arrest, thereby efficiently inhibiting the proliferative activity of cancer cells. HCC patients with OCT4 and BIRC5 co-expression had poorer disease-free survival (DFS) and poorer overall survival (OS) than patients who were negative for both OCT4 and BIRC5.

Conclusion: OCT4 and BIRC5 act in colludium to promote cancer recurrence, resulting in the poor prognosis of HCC patients. These data suggest that both OCT4 and BIRC5 are potentially beneficial for HCC prognosis evaluation and may become targets of HCC treatment.

338
EXTRAHEPATIC BILE DUCT RESECTION FOR PROXIMAL BILE DUCT CANCER IN HIGH-RISK PATIENTS

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Background: Standard operative procedures in the treatment of proximal bile duct cancer are bile duct resection plus hepatectomy. Bile duct resection alone is indicated only when the tumor is a localized type without invasion and spreading. It is also an option for high-risk patients.

Objective: The purpose of this report was to study the surgical treatment effect and outcome of proximal bile duct cancer in high-risk patients.

Methods: Retrospective analysis was conducted for 3 patients who were treated with bile duct resection alone for bile duct cancer.

Results: This procedure was performed on 3 patients aged over 70 years with Bismuth type I bile duct cancer. A tumor-free bile duct resection margin and negative regional lymph nodes were obtained in all 3 patients. No complication occurred. Two patients are doing well without recurrence at 20 and 8 months respectively. One is alive at 16 months with lymph node metastasis.

Conclusion: Extrahepatic bile duct resection can be an alternative radical treatment for proximal bile duct cancer in selected patients.

339
SELECTIVE GLISSONIAN PEDICLE CONTROL: A USEFUL TECHNIQUE IN LAPAROSCOPIC LIVER RESECTION

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Background: Laparoscopic liver resections are becoming a common procedure and bleeding remains the major concern during parenchymal transection. Pringle’s maneuver can be performed but ischemic reperfusion injury can lead to postoperative morbidity. Selective hemi hepatic inflow control can reduce the severity of visceral congestion and total liver ischemia.

Objective: The purpose of this report was to describe our experience with laparoscopic selective Glissonian pedicle control for minor hepatic resection.

Methods: Ten patients submitted to laparoscopic liver resection in our institute due to malignant lesion.

Results: The technique was successfully performed without complication. The tumor size was 4.3 cm (range, 2.5 –8.0 cm). Mean operative time consumed to achieve complete control of right or left pedicle was 26.5 min (range, 18–46 min). Mean intraoperative blood loss was 150 ml (range, 50–300 ml) and no blood transfusion was needed. The postoperative course of the patients was uneventful and they were discharged an average of 4.8 days (range, 3–7 days) after the operation.

Conclusion: Safe laparoscopic liver surgery requires knowledge of the regular techniques of vascular occlusion for on-demand use when necessitated to reduce blood loss.

well and discharged day 4 after surgery. Patient was clinically followed up once as was well since operation.

Conclusion: Robotic spleen-preserving distal pancreatectomy is feasible and safe to perform in our experience. The advantage of robotic system allows surgeon to perform more meticulous dissection and potential advantage on spleen preservation. However, whether this confers to any clinical benefit is still a question to answer.

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344

DIAGNOSTIC VALUE OF SERUM N-GLYCOMICS IN CHOLANGIOCARCINOMA

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Background and aims: Cholangiocarcinoma (CC) is a primary malignancy of the epithelial lining of the biliary tree. Early stage CC often goes undetected, so most patients are diagnosed at an advanced or disseminated stage with a poor prognosis. Imaging techniques are still the most important diagnostic tools, and carbohydrate antigen 19-9 (CA19-9) is the most common used serum biomarker in laboratory test to identify CC. A more sensitive and specific non-invasive serological marker is required for the early diagnosis of CC, and the present study is to assess the diagnostic value of N-glycan in CC.

Methods: N-glycome of glycoprotein was profiled using DNA sequencer-assisted fluorophore - assisted carbohydrate electrophoresis (DSA-FACE) technique in a total of 249 cases of serum, including 88 cases of CC, 28 cases of cyst of bile duct, 44 cases of calculus of bile duct, as well as 89 cases of healthy control. The diagnostic effect of N-glycans were evaluated by the receiver operating characteristic curve (ROC) analysis and indicated by area under the curve (AUC).

Results: A total of 12 main N-glycan peaks were analyzed in the profiles, and structures of all these peaks were identified previously. When compared with healthy controls, serum N-glycan profiles in cyst patients showed no significant changes, while peak1 (agalacto core-α,1,6-fucosylated biantennary glycan) and peak2 (agalacto core-α,1,6-fucosylated bisecting bi-antennary glycan) raised significantly in patients with calculus. Three fucosylated triantennary glycans peak9, peak 10 and peak11 increased dramatically in CC cases compared to that in other three groups (p < 0.001). Meanwhile, these three peaks showed elevated levels in CC with lymphatic metastasis compared with CC without lymphatic metastasis. Peak10 was most effective among N-glycan peaks in distinguishing CC from other three groups upon ROC analysis. We established a mathematical N-glycan based model combined with CA19-9 as CA19-9×p10, and the combined mathematical model improved diagnostic value to identify CC. To differentiate CC from healthy controls, the AUC of combined model, peak10 and CA19-9 was 0.943, 0.922 and 0.936, respectively. Similarly, the combined model has more effective diagnostic value to distinguish CC from cyst cases and calculus cases than peak10 or CA19-9 alone, as the AUC were 0.930 vs. 0.905 vs. 0.920, and 0.871 vs. 0.850 vs. 0.835, respectively.

Conclusions: N-glycans are promising to be non-invasive biomarkers for CC. The diagnostic model based on N-glycans and CA19-9 could improve the efficacy in CC diagnosis and progression monitoring.

348

ACUTE BILIARY PANCREATITIS – DIAGNOSIS, MANAGEMENT AND OUTCOME, SINGLE CENTER EXPERIENCE

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Till recently, two most common causes of acute pancreatitis were thought to be alcohol and idiopathic. With better understanding of the subject more number of patients of acute pancreatitis with biliary etiologies are detected. With more detailed investigations number of idiopathic acute pancreatitis are declining. Biliary sludge and microlithiasis has been proved to be the one of the prominent etiological factors. In a case of severe acute pancreatitis biliary etiology should be considered in the presence of rise in serum bilirubin and alkaline phosphatase level, presence of multiple small calculi with sludge in the gall bladder and/or dilatation of the common bile duct with presence of sludge or calculi. Endoscopic ultrasound (EUS) is the best diagnostic tool to detect micro lithiasis or calculi in common bile duct. Since EUS services and expertise is not available in all the centers, diagnosis can be entertained on abdominal ultrasonography and biochemical tests. This is a single center experience in the management of severe acute biliary pancreatitis at Seth Nandatal Dhoot Hospital, Aurangabad, India from 2009 to 2012. During this period total 148 patients were treated for severe acute pancreatitis. Out of these 22 were found to be biliary pancreatitis. Of these 13 patients underwent ERCP and papillotomy was performed. Four of these patients also had to undergo biliary duct stenting. All the patients of biliary pancreatitis were advised cholecystectomy in the same hospital admission. Open cholecystectomy was done in 5 patients along with pancreatic necrosectomy while 15 patients underwent laparoscopic cholecystectomy.

Conclusion: Patients of acute biliary pancreatitis need to be recognized and diagnosed immediately on admission. E.R.C. P. and endoscopic interventional procedures should be timely done. If not diagnosed and treated promptly they carry high morbidity and mortality. Cholecystectomy is recommended in the same hospital stay to prevent recurrence. Laparoscopic cholecystectomy is feasible in majority of the patients.

349

HYPERPARATHYROIDISM – A RARE CAUSE OF ACUTE PANCREATITIS

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Introduction: Hyperparathyroidism is considered to be a rare cause of pancreatitis. Various mechanisms have been described for hyperparathyroidism leading to acute pancreatitis. One of them is conversion of inactive trypsinogen to active one by hypercalcemia. Routinely in acute pancreatitis hypocalcemia is observed. Raised serum calcium levels in the setting of acute
pancreatitis should raise the suspicion of hyperparathyroidism. In the management of these cases treatment of hyperparathyroidism should be considered promptly and in the initial stage of management.

Case report: 66 years old, diabetic lady, thin built, emaciated, presented with acute abdominal pain in epigastric region with tachycardia, tachypnea and tenderness, guarding all over the abdomen. She had repeated attacks of similar pain since last 6 months. There was no history of alcohol abuse and patient had no history of endocrine disease. Investigations revealed raised serum amylase, lipase. Serum calcium was raised. USG and CT abdomen revealed signs of acute pancreatitis with bilateral urolithiasis.

Patient was put on standard treatment of severe acute pancreatitis but did not show much clinical recovery in first week. In view this clinical situation Parathormone (PTH) level was estimated and found to be raised. Patient underwent 99m Tc MIBI Nuclear scan which revealed parathyroid adenoma. Parathyroid adenoma was localized at lower pole of left thyroid. After resuscitation patient was offered surgery for parathyroid adenoma. Parathyroid adenoma was excised. Serum calcium and PTH levels dropped after surgery and patient had a steady improvement.

Discussion: Hyperparathyroidism is a rare cause for acute pancreatitis however it should be promptly suspected in a setting of hypercalcemia with acute pancreatitis. Various mechanisms have been described for hyperparathyroidism producing acute pancreatitis. One of them is activation of trypsinogen by hypercalcemic status. PTH itself has been suggested as a cause of pancreatitis. It may inhibit pancreatic blood circulation directly or hypercalcemia might affect blood vessels as well as pancreatic duct leading to narrowing of ducts and vessels. Some authors have described that PTH may act as a toxin and produce local thrombo end arteritis and necrosis of pancreatic tissue.

Our case supports relationship between parathyroid adenoma and pancreatitis. There was no other demonstrable cause for pancreatitis and symptoms resolved with good clinical improvement after removal of parathyroid adenoma.

351
AN EVALUATION OF 11C-ACETATE AND 18F-FDG DUAL TRACER PET-CT SCAN IN DETECTING HEPATOCELLULAR CARCINOMA
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Background: 18F-FDG PET-CT scan is limited by its high false-negative rate (sensitivity: 60.9%) in detecting hepatocellular carcinoma (HCC) due to the fact that HCC cells can have net glycolysis similar to or even lower than that of normal liver tissue.

Objective: To evaluate the efficacy of 11C-acetate and 18F-FDG dual tracer PET-CT scan (dual PET scan) in detecting primary or recurrent HCC.

Method: We retrospectively reviewed dual PET scan performed for our patients from October 2010 to October 2011 in 30 suspicious lesions reported by contrast CT scan of liver. All the patients were subsequently followed up for at least 6 months.

Results: 30 suspicious lesions were scanned in that period but 7 were excluded from the study because of their lack of pathological proof to support the positive diagnosis of HCC shown by the dual PET scan. The patients’ age ranged from 46 to 82 with a mean of 64. All of them were hepatitis B carriers. Male to female ratio was two to one. Half of them were suspected to have primary HCC while the others were investigated for recurrent HCC. There were 15 positive scans and they were all supported by pathological proof. Two lesions were reported as negative and they were closely followed up afterwards for more than 6 months and supplemented with either ultrasound or CT scan to confirm their “disease negative” state. For the three false positive cases, two were operated on which showed negative pathology results, for the third one because of its diffuse peculiar acetate uptake, close follow-up for more than 6 months with repeated CT scan showed resolution of the suspicious lesion. Two of the three false negative cases were counter-proved by positive pathology after resection base on worsening clinical grounds and the last one was treated by TACE after follow-up CT scan showed increase in size of the lesion.

Compared to traditional 18F-FDG PET-CT scan, the dual PET scan exhibited good results with sensitivity of 83.8% and specificity of 40%. The positive predictive value was 83.3% and the negative predictive value was 40%.

Conclusion: The dual PET-CT scan can be a useful adjunct to the traditional imaging methods such as CT in diagnosing and managing HCC.

357
JAUNDICE AND LIFE-THREATENING HEMOBILIA – A RARE PRESENTATION OF ADULT CHOLEDOCHAL CYSTS
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Background: Haemobilia with jaundice as a result of cholestasis and bleeding from a choledochal cyst is uncommon. Ascertainment the diagnosis is often challenging and a delay in diagnosis can have significant consequences with haemodynamic instability and potential mortality. Although surgery remains the definitive treatment modality, interventional radiology for haemostasis is increasingly recognised as an option.

Methods: Due to this rare presentation, we present a case series of two patients presented to our institution from 2007 to 2012 with jaundice and hemobilia associated with a choledochal cyst and the challenges associated with its clinical diagnosis and management.

Results: Case one – a 37-year-old lady presented to us with upper gastrointestinal bleeding (UGIB) for one day associated with high grade fever and symptoms of obstructive jaundice for 1-month. She was haemodynamically unstable on arrival. Initial diagnosis of ascending cholangitis with underlying upper gastroin-
testinal bleeding was made. She had CT scan, OGDS, ERCP and angiogram done which revealed a diagnosis of a bleeding choledochal cyst. The bleeding was successfully arrested following angiographic embolization of the gastroduodenal artery which we postulate to have been eroded by gallstone. Case two – a 71-year-old male who was incidentally found to be jaundiced during a procedure for transurethral resection of prostate (TURP) in a private centre and had ERCP performed revealing blood clots in common bile duct and a bleeder. An ERCP was repeated in our centre showed a choledochal cyst with an active bleeder which underwent an urgent endovascular embolization. As patient had a recurrent bleed a few days later, emergency surgery was performed. The choledochal cyst was excised and under-running of bleeder done with successful arrest of further haemorrhage.

Conclusion: A good multidisciplinary team approach involving the surgeons, gastroenterologist and interventional radiologist ensures good optimal outcome to prevent mortality in this extremely rare presentation. Such presentation should be considered as a differential diagnosis in patient with jaundice and haemobilia as it can be fatal, thereby, warranting immediate and urgent attention as seen in the above cases.

363
EN BLOC SIMULTANEOUS PANCREAS AND KIDNEY COMPOSITE GRAFT TRANSPLANT WITH LIMITED VASCULAR ACCESS
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Purpose: Limited vascular access could be encountered in an obese or re-transplant patient. We described modifications that facilitated an en bloc simultaneous pancreas and kidney (SPK) composite graft transplant in an obese type 2 diabetic patient with renal failure under hemodialysis.

Materials and methods: At the back-table, the superior mesenteric artery and splenic artery of the pancreas graft were reconstructed with a long “Y” iliac artery graft. The smaller left renal artery is anastomosed end-to-side to the longer graft left renal vein. Thus, this en bloc composite graft allowed to facilitate “real” SPK transplant using single common graft artery and vein for anastomosis to one recipient arterial and venous site. The en bloc pancreas and kidney composite graft was implanted by suturing the graft left renal vein to IVC and graft common iliac artery the recipient distal aorta. Exocrine drainage was provided by anastomosis of the graft duodenum to a roux-en-y jejenum limb in a side-to-side fashion. Immunosuppressants included basiliximab, tacrolimus, mycophenolate mofetil and methylprednisolone.

Results: The operative time was 7 h with cold ischemic time of 6 h and 25 min and warm ischemic time of 47 min. The patient was discharged on postoperative day 20, with a serum creatinine level of 1.4 ng/mL and a blood glucose level of 121 mg/dL. He has not had any rejection episodes or postoperative complications in the following 12 months after the en bloc SPK transplant.

Conclusion: En bloc pancreas and kidney composite graft might be an option for patients with limited vascular access. This technique (1) facilitates “real” simultaneous pancreas and kidney (SPK) transplant with only single common artery and vein for implanting the composite graft; (2) minimizes dissection of vessels and conserves recipient vessels.

365
GEMCITABINE PLUS NAB-PACLITAXEL SHOWS A SIGNIFICANT ANTITUMOR ACTIVITY IN RESECTABLE PANCREATIC CANCER, ASSESSED BY ELASTOGRAPHY
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Introduction: For pancreatic cancer, complete macroscopic resection in combination with chemo-radiotherapy is the only potentially curative treatment. Despite this, overall survival is still poor, maybe because the reduced absorption of the chemotherapy, affected by the stromal surrounding the pancreas. Nab-paclitaxel demonstrates clinical activity when administered in combination with gemcitabine in advanced pancreatic cancer, maybe disrupting the pancreatic cancer stroma.

Aim: This study was designed to determine the efficacy of this combination in patients with operable pancreatic adenocarcinoma, analysing moreover the efficacy of preoperative elastography to assess it.

Methods: From a prospective database, from September 2011 to February 2012 patients with resectable to borderline resectable pancreatic cancer were identified. All of them underwent neoadjuvant treatment with gemcitabine (1000 mg/m² days 1, 8 and 15) and nab-paclitaxel (125 mg/m² days 1, 8 and 15) for two cycles prior to surgery. All tumors were monitored with elastography twice: before and after the two cycles. After surgery all the specimens were evaluated to assay tumor regression rate (TRR) (Ryan score).

Results: Among 15 patients included, 6 were excluded: 3 patients showed a progression disease (hepatic metastases) and finally not operated; other 3 for the pathology report of neuroendocrine tumor. One patient had a complete pathological response (TRR 0) and seven patients had near complete responses tumor (TRR 1). Only one patient had no pathological response (TRR 3). Specimen TRR 3 was poorly differentiated, while the remaining were well (n = 4; 50%) and moderately differentiated (n = 4; 50%). The rest of the studied variables (tumor size, affected lymph nodes, T invasion and lymphovascular/perineural invasion) were similar between the two groups. Specimen TRR 3 showed a decline of only 6% of tissue stoma with elastography; the remaining 8 TRR 0-1 specimens showed a decrease significantly higher decline with an average of 71% (range: 11.4290.19%) (p = 0.003).

Conclusions: Neoadjuvant treatment with infusion of gemcitabine plus nab-paclitaxel induced a high rate of
pathologic response in patient with pancreatic adenocarcinoma. Furthermore, it can be easy monitored by the no invasive elastography. These results merits further studies.

366 ARTERIAL BLOOD SUPPLY OF HEPATOCELLULAR CARCINOMA IS ASSOCIATED WITH EFFICACY OF SORAFENIB
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Background and aims: The relationship between prognosis of patients treated with sorafenib and parameters of computed tomography (CT) and magnetic resonance imaging (MRI) has been reported. This study aimed to identify predictive factors for survival placing emphasis on the correlation of imaging findings and survival.

Methods: From April 2009 to December 2010, 38 HCC patients treated with sorafenib were included in this study. HCCs were classified as good arterial supply and poor arterial supply according to the enhancement intensity on CT scan or MRI. Clinical data were collected and survival time was analyzed.

Results: Among the 38 patients, the median survival time (MST) was 10.7 months (95% CI, 8.7–12.7) and the 1-year overall survival (OS) was 41.0%. On univariate analysis, patients with good arterial supply of tumors had longer survival time compared with that of patients with poor arterial supply of tumors (p = 0.002), and only arterial supply of the tumors remained statistically predictive for overall survival on multivariate analysis (HR 0.22, 95% CI, 0.07–0.67, p = 0.008).

Conclusion: Arterial blood supply is an independent predictor for survival in patients treated with sorafenib, and patients with good arterial supply of tumors benefit more than those with poor arterial supply of tumors.

367 NURSING OF ADVERSE EFFECTS IN PATIENTS TREATED WITH LIVER RESECTION PLUS SORAFENIB FOR HEPATOCELLULAR CARCINOMA
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Background and aims: The combination of surgical resection and sorafenib therapy becomes interested by clinical physicians. This study aims to observe the adverse effects in patients with hepatocellular carcinoma treated by liver resection plus sorafenib, and search for the nursing options.

Methods: From April 2009 to December 2010, all patients with hepatocellular carcinoma treated by liver resection plus sorafenib were prospectively included in the study. Adverse effects were observed and nursing options were given.

Results: A total of five patients were included in the study, the mean age was 38.6 ± 13.4 years. All the five patients had different degrees of adverse effects, of which 5(100%) had diarrhea, 3(60%) had hand-foot skin reaction, 1(20%) had hypertension and 1(20%) had alopecia. All patients had diarrhea within 1 month after operation. No patients had grade 3/4 adverse events. Given nursing interventions and some medications, none of patients suffered dose reduction or treatment discontinuation.

Conclusions: The incidence of diarrhea was high in patients treated with liver resection plus sorafenib. Given psychological and symptomatic nursing guidance, all the adverse effects can be tolerable.

368 A HEPATO-PANCREATO-BILIARY DEPARTMENT MODEL TO IMPROVE THE ROBOTIC SYSTEM
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Background: Robotic surgery has emerged as one of the most promising surgical advances since its introduction. Despite its worldwide acceptance in many different surgical specialties, high level experience surgical centers are still lacking.

Reasons of it can be found in only few numbers of robotic centers that currently exist in the world, in the low interest of most surgeons still more attracted by laparoscopic surgery and finally in the high cost of it.

Aim: This report aims to describe the organizational system we have developed progressively in our center in order to improve the use and the efficacy of robotic System.

Methods: Our center is a no public university hospital which has a single robotic system that can be used simultaneously any day of the week by the general surgeon, urologist and gynaecologist staff. Almost all days of the week the robotic area is used by general surgery department. The department of general surgery consists of eight surgeons with two surgeons who have extensive experience in oncological abdominal surgery. There are not specific sub-speciality areas and generally high complexity surgical procedures are commonly performed by the two experienced surgeons. The first 65 cases were performed exclusively by the two experienced surgeons with three more surgeons that joined the Robotic System 6 months ago.

Abdominal disease subsidiary of robotic surgery are performed under the medical insurance coverage thanks to an agreement resulting in a slight lower salary for the surgeon.

Results: Since the first robotic surgery performed 2 years ago in our department, a total of 81 robotic surgical procedures have been performed, 36 of them in the first 6 month of this year, most of them for oncology diseases.

We harvested a 5% of conversion rate with an overall morbidity of 19% and without post-operative mortality.

Conclusions: The organizational model previously described is facilitating the constant and progressive
development of the robotic surgery. A broad and flexible availability of the robotic system, a progressive increase of surgeons joining this approach, the absence of sub-specialty areas and the insurances agreements with the hospital has facilitated the development of the robotic system in our center.

375
HEPATOPANCREATO DUODENECTOMY WITH PORTAL VEIN RECONSTRUCTION USING LEFT RENAL VEIN IN ADVANCED BILE DUCT CANCER

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Introduction: An aggressive surgical management of the advanced bile duct cancer has improved survival significantly in recent years. In the advanced bile duct cancer, hepatopancreato-duodenectomy (HPD) is necessary to accomplish curative complete resection, even though high rates of morbidity and mortality still remain. We reported our experience with HPD with portal vein reconstruction using left renal vein in advanced bile duct cancer and discuss the clinical significance of this challenging case.

Case report: A 47-year-old male was admitted in Konyang University Hospital with a chief complaint of jaundice. CT showed with 7 cm sized mass located at S4,5a with GB and duodenal invasion, and invaded to right and confluent portal vein, right hepatic artery, as well as metastatic lymph nodes in the hepatoduodenal ligaments. MRCP showed that mass forming and periductal infiltrative type Klatskin tumor (type IIIa) invaded GB and duodenum. So, right hepatectomy with S4a segmentectomy and caudate lobectomy with portal vein reconstruction using left renal vein, and pancreatoduodenectomy with radical lymph node dissection was performed.

Estimated blood loss was 1000 mL and operative time was 12 h 10 min. Diet was started at POD 6 and discharged at POD 18 without complications. The patient was received 7-cycle chemotherapy and doing well 7-month after surgery.

Conclusion: Hepatopancreato-duodenectomy with simultaneous resection and reconstruction of the portal vein using left renal vein is technically demanding. However, this surgery may offers a better chance of long-term survival in selected patients.

376
INTRADUCTAL PAPILLARY MUCINOUS NEOPLASM OF THE BILE DUCT WITH INTRAHEPATIC RUPTURE

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Introduction: Mucin producing intraductal papillary neoplasm of the bile duct(IPMN-B) has previously been reported in various terms including intraductal papillary neoplasia of the liver, mucin-hypersecreting biliary papillomatosis, and mucin-producing cholangiocarcinoma. At present, no definitive terminology or definition has been decided by World Health Organization, because it has a similar histopathologic features of intraductal papillary mucinous neoplasm of the pancreas (IPMN-P), the term of “intraductal papillary mucinous neoplasms of the bile duct” is frequently used. Especially malignant IPMN-B is referred as intraductal growth type of intrahepatic cholangiocarcinoma (ICC), which is a rare disease and reveal a more favorable prognosis than other types of ICC such as mass-forming type and periductal-infiltrating type. Therefore through precise preoperative diagnosis and wide complete resection of the lesions, a more favorable prognosis can be expected.

Case presentation: A 52-year male patient was admitted for RUQ pain during 4 days through ER. He had no special past medical and social history. He had right shoulder pain and febrile sensation. Vital sign was 100/72 mmHg, 30 beats/min, 25 Resp. rates, 37.2 °C. His physical examination showed mile tenderness of RUQ abdomen and enlarged palpable liver. Initial laboratory values revealed WBC 14,700, Hg 11.7, Plt 132,000, and AST/ALT of 1,880/1,770 IU/L, TB 2.23 mg/dL, AFP of 1.47 ng/mL, ca19-9 of 16.2 U/mL, and anti-HBV AB(+). Initial ABDO CT was shown subcapsular hemobilia in right liver with dilated S2,3,4 bile duct with internal enhancing mass in left bile duct, so diagnosed malignant IPMN-B with intrahepatic rupture. PET-CT showed no distant metastasis and the high FDG uptake in the tumor within left bile duct. The S4 bile duct with mass was attached to midpoint of middle hepatic vein, so we performed a modified left hepatectomy with segmental resection of middle-hepatic vein and reconstruction with gore-tex(8 mm). Operation time was 7 h 30 min and blood loss was 350 cc. The histopathologic examination for resected specimen showed well differentiated, 6 x 4 x 2.5 cm sized, intraductal papillary carcinoma of the bile duct. There was no metastasis of regional lymph node. The patient had no postoperative complications and was discharged.

Conclusion: Mucin producing intraductal papillary neoplasm of the bile duct(IPMN-B) reveal a more favorable prognosis than other types of ICC. Therefore through precise preoperative diagnosis and wide complete resection of the lesions, a more favorable prognosis can be expected.

377
OPEN LIVER RESECTION WITH THUNDERBEAT (R) IN A PIG MODEL: AN INITIAL EXPERIENCE

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Introduction: Intraoperative massive hemorrhage is the most serious complication in liver surgery and it will affect the post surgery morbidity and mortality. To avoid intraoperative bleeding, several devices for parenchymal resection have been developed. In recent years, a new instrument for coagulation or sealing the vessels, THUNDERBEAT(R) (Olympus(R)) was developed. It is a new instrument for coagulation or sealing the vessels, because it has a similar histopathologic features of intraductal papillary mucinous neoplasm of the pancreas (IPMN-P), the term of “intraductal papillary mucinous neoplasms of the bile duct” is frequently used. Especially malignant IPMN-B is referred as intraductal growth type of intrahepatic cholangiocarcinoma (ICC), which is a rare disease and reveal a more favorable prognosis than other types of ICC such as mass-forming type and periductal-infiltrating type. Therefore through precise preoperative diagnosis and wide complete resection of the lesions, a more favorable prognosis can be expected.
mechanism, the device could seal large vessels up to 7 mm in diameter compared to conventional ultrasonic energy device. The combination of these two types of energy enables THUNDERBEAT(R) to increase the speed of transaction by increasing tissue temperature. This study demonstrates the safety of the THUNDERBEAT(R) in liver resection.

Methods: Two Yorkshire pigs underwent open liver resection removing 75% of the liver. THUNDERBEAT(R) was used during liver transection. Post resection, we evaluate the presence of bile leak and hemorrhage. Hemoglobin level was checked immediately post operation and 24 h later. Blood lost was recorded for both surgeries.

Results: Blood lost in the first pig was approximately 250 mL. The second pig was 200 mL. Post operation Hb level is 6.7 g/dL in the first pig and 24 h post operation the Hb is 8.2 g/dL. Post operation Hb level is 8.0 g/dL in the second pig and 24 h post operation the Hb is 8.2 g/dL. At the post-mortem, there was no bleeding and bile leakage in both pigs.

Conclusion: Liver resection can be safely done by using THUNDERBEAT(R) and with no significant blood loss during the surgery.

378
UPDATE ON DIAGNOSTIC APPLICATION OF CONTRAST ENHANCED ULTRASOUND FOR THE LIVER
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Contrast enhanced ultrasound (CEUS) has been considered a new diagnostic method with positive effects on the diagnosis of the liver for decades. Recent years, owing to technical advantages including 3D-CEUS, new agents and software for qualification analysis, CEUS has been demonstrated highly accurate and sensitive. Amount of studies have indicated it is not inferior to contrast-enhanced computed tomography (CT) and magnetic resonance imaging (MRI) in some aspect. This review focuses on the recent advances of CEUS for the diagnosis of liver diseases.

379
LAPAROSCOPIC CHOLECYSTECTOMY FOR THE PATIENTS WITH LIVER CIRRHOSIS IN OUR HOSPITAL
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Background: Laparoscopic cholecystectomy (LSC) has been formalized and become the first choice of cholecystectomy. Indication of LSC has been expanding for previously contraindicated cases. It has also increased enforcement to liver cirrhotic cases. We reported the LSC for liver cirrhotic cases in our hospital.

Methods: Between April 2004 to December 2011, 1576 patients were underwent LSC in our hospital. Liver cirrhotic cases were 17. Eight patients were Child A, eight patients were Child B, one patient was Child C. Clinicopathological data were analyzed in each groups. The comparison between two groups was significant with p < 0.05 by Mann–Whitney U test and the $\chi^2$ test.

Results: The median operative time of LSC for the patients of liver cirrhosis was 97 min. The median operative time of all cases of LSC was 147 min. There were significantly different between two groups. The median postoperative hospital stay of all LSC cases was 2 days. They were significantly different between two groups. The median postoperative hospital stay of Child B and C group was 10 days. The median postoperative hospital stay of Child A group was 2.5 days. There were significantly different between two groups.

Conclusions: Laparoscopic cholecystectomy in patients with liver cirrhosis is possible to enforcement, but there is a possibility that operation time and post-operative hospital stay is prolonged.

380
PANCREATICODUODENECTOMY FOR PANCREATIC AND PERIAMPUllARY LESIONS IN THE YOUNG
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Background and aims: This study is to investigate post-surgical outcomes after pancreaticoduodenectomy and assess the biological behavior of periampuillary malignancies, specifically in the younger patients <60 years old.

Methods: Demographics, clinical presentations, surgical risks, pathological characteristics of the tumor, and survival outcomes were evaluated between young and old patients.

Results: There were 585 PD patients, 172 patients were younger than 60 years of age. Compared with the older population, there were more neuroendocrine neoplasms (7.6% vs. 1.9%), and less ampullary adenocarcinoma (23.8% vs. 32%) and distal common bile duct adenocarcinoma (2.9% vs. 8.5%) in younger patients. In the younger aged patients, lower surgical mortality (2.3% vs. 8%), shorter hospital stays (21 days vs. 27 days) and a less advanced stage of cancer (11.4% vs. 19.4%) were found. The 5-year survival rate was found to be superior in the young as compared with older patients in periamppillary malignancies (29.5% vs. 25.1%) and pancreatic head adenocarcinoma (13.5% vs. 7.7%).

Conclusions: PD does not carry more surgical morbidity or post-operative complications in the young, whereas it is associated with less surgical mortality when compared with the old. After pancreaticoduodenectomy, younger aged patients have a better 5-year survival in periamppillary malignancy and pancreatic head adenocarcinoma.
SEGMENT 6 PRESERVING HEPATECTOMY FOR CENTRALLY LOCATED HEPATOCELLULAR CARCINOMA

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Background and aims: In order to preserve liver function and reduce risk of hepatic failure, extended central hepatectomy (ECH) (resection of Couinaud’s segments 4, 5, 7 and 8) was proposed for management of centrally located hepatocellular carcinoma (HCC) invading or in the vicinity of right hepatic vein (RHV) and middle hepatic vein (MHV). Thick inferior RHV (IRHV), present only in 20–24% of cases, is sufficient for drainage of segment 6 (S6). However, if it is absent, venous outflow from S6 should be reconstructed. Here, we discuss our surgical technique of extended central hepatectomy.

Methods: Between 2008 and 2012, five patients with centrally located HCC invading or in the vicinity of RHV and MHV underwent ECH. Thick IRHV (>5 mm in diameter) was preserved during dissection. Intermittent vascular inflow occlusion with alternate clamping of the right/left Glissonian pedicles was used. When congestion/cyanosis of S6 was noticed after transection of RHV, confirmed by intraoperative Doppler ultrasonography (IODUS), interposition graft for S6 outflow reconstruction has been used. Graft patency was confirmed by IODUS.

Results: They were all males with mean age of 57 years. Mean future remnant liver volume after extended right lobectomy on preoperative computed tomography volumetry for segments 2 + 3 was 27.7% while on segment 6 preservation it was 44.7%. Mean tumor diameter was 7.36 cm. ECH was performed in all cases. Thick IRHV was found in one case. Congestion of segment 6 after RHV division was noted in four cases. Outflow reconstruction was performed with GoreTex graft (8 mm) between RHV stump in S6 and RHV stump (three cases) or MHV stump (one case) on the IVC side. Mean parenchymal transection time was 126 min. Only one case needed intraoperative blood transfusion. Postoperative complications were bile leak (one case), pleural effusion (two cases), ascites (one case). GoreTex graft patency rate was 75% at 1 month. There were no perioperative mortalities.

Conclusions: Extended central hepatectomy is a safe alternative for extended hepatic resection in selected patients with the aim of preservation of functional liver parenchyma. Segment 6 outflow reconstruction, if needed, is feasible with sound patency rate.

RESECTION FOR SECONDARY MALIGNANCY OF THE PANCREAS

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Background and aims: This study tried to clarify the role of pancreatic resection in treatment of secondary malignancy with metastasis or local invasion to pancreas in terms of surgical risk and survival benefit.

Methods: Data of secondary malignancy of the pancreas from our 19 patients and cases reported in the English literature were pooled together for analysis.

Results: There were 329 cases of resected secondary malignancy of the pancreas, including 241 metastasis and 88 local invasion. The most common primary tumor metastatic to the pancreas and amenable to resection was RCC (73.9%). More than half (52.3%) of the primary cancers with local invasion to the pancreas were colon cancer, and nearly half (40.9%) were stomach cancer. The median metastatic interval was 84 months (7 years) for overall primary tumors and 108 months (9 years) for RCC. The 5-year survival for secondary malignancy of the pancreas after resection was 61.1% for metastasis and 58.9% for local invasion, with 72.8% for RCC metastasis, 69.0% for colon cancer, and 43.8% for stomach cancer with local invasion to the pancreas.

Conclusions: Pancreatic resection should not be precluded for secondary malignancy of the pancreas since long-term survival could be achieved with acceptable surgical risk in selected patients.

REVIEW OF CLINICAL CHARACTERISTICS INTRAHEPATIC BILIARY CYSTADENOMA AND CYSTADENOCARCINOMA

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Background and aims: As rare cystic neoplasms of the liver, biliary cystadenoma and cystadenocarcinoma are hard to diagnose before pathological examination for similar clinical and radiological characteristics. We aim to discuss the diagnosis and treatment of two diseases.

Methods: Patients who underwent liver resection between January 2001 and December 2011 at EHBH with biliary cystadenoma (36 cases) and biliary cystadenocarcinoma (15 cases) were reviewed.

Results: No significant differences were founded in age, gender, symptom duration, serum CA199, tumor size between biliary cystadenoma and cystadenocarcinoma. Biliary cystadenoma and cystadenocarcinoma were found 13/6/16, 11/2/2 cases in the left, media and right lobe of liver respectively, with significant difference (p = 0.003). Enhanced mural nodule and multiple septa in radiological features tended to be more common in biliary cystadenocarcinoma, but statistical significance is 0.061 and 0.040, respectively. Only 4 of 15 patients of biliary cystadenocarcinoma received radical resection.

Conclusions: Biliary cystadenocarcinoma is more frequently occurred in left lobe in liver, and have lower Hb lever than biliary cystadenoma. It shows more frequently hilar lymph node enlargement, multilocular lesion and enhanced mural nodule. Most patients with biliary cystadenocarcinoma cannot be achieved by radical resection when clinical symptom occurred.
HSULF-1 GENE EXHIBITS ANTICANCER EFFICACY THROUGH NEGATIVELY REGULATING VEGFR-2 SIGNALING IN HUMAN CANCERS

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Background: Human sulfatase 1 (hSulf-1) is a heparin-degrading endosulfatase that desulfates cell surface heparan sulfate proteoglycans (HSPGs) in extracellular matrix and negatively modulates heparin-binding growth factor and cytokine signaling in cell proliferation. But hSulf-1 function is complicated, and its molecular mechanism has not been well known.

Methods: Expression of hSulf-1 and vascular endothelial growth factor receptor (VEGFR-2) were detected by immunohistochemistry in 87 cases of clinical cancer specimens. To further investigate the functions of hSulf-1 gene in regulating the VEGFR signaling, a series of vectors expressing hSulf-1, hSulf-1 small hairpin RNA (shRNA) and VEGFR-2 shRNA were generated. In ovarian cancer cell line SKOV3 and hepatocellular carcinoma (HCC) cell line BEL-7404, we reactivated hSulf-1 expression by infection of adenovirus carrying the hSulf-1 gene (Ad5-hSulf1). hSulf-1 shRNA and VEGFR-2 shRNA was transfected into the Ad5-hSulf1 infected cancer cells respectively. The expression of hSulf-1 and p-VEGFR2Tyr1175 were detected by Western blotting and the expression of hSulf-1 and p-VEGFR2Tyr1175 were examined by western blotting in nude mice with Ad5-hSulf1. HSulf-1 shRNA and VEGFR-2 shRNA was transfected into the Ad5-hSulf1 infected cancer cells respectively. The expression of hSulf-1 and p-VEGFR2Tyr1175 were detected by Western blotting and the cell viability were evaluated by MTT-assay. To evaluate the effect of hSulf-1 on tumor growth, we treated human cancer xenografts in nude mice with Ad5-hSulf1. The microvessel density (MVD) was performed by CD31 immunohistochemistry and the expression of hSulf-1 and p-VEGFR2Tyr1175 were examined by western blotting and immunohistochemistry.

Results: We demonstrated that hSulf-1 expression was downregulated in 87 cases of cancer specimens compared with their adjacent normal tissues. There is an obvious decrease of p-VEGFR2Tyr1175 level in the hSulf-1-positive HCC than hSulf-1-negative HCC (p < 0.05). hSulf-1 re-expression could downregulate the VEGFR-2 phosphorylation and inhibit cancer cell proliferation both in SKOV3 and BEL-7404. When hSulf-1 expression was re-inhibited by hSulf-1 shRNA, the content of p-VEGFR2Tyr1175 recovered nearly to normal levels. The viability of BEL-7404 after transfection of VEGFR-2 shRNA was further decreased in the context of hSulf-1 effect. In human cancer xenografts, tumor growth was inhibited markedly after injections of Ad5-hSulf1, with the tumor inhibition rates of 46.19% and 49.56% in SKOV3 and BEL-7404 models. The MVD in tumor tissues were 24.67 ± 6.51 and 52.33 ± 12.34 in the Ad5-hSulf1 and control groups. hSulf-1 expression significantly reduced tumor microvessel density and also downregulated the expression of p-VEGFR2Tyr1175 and p-AKTThr308.

Conclusions: The results demonstrated that hSulf-1 re-expression both in ovarian and HCC cells induces anti-tumor efficacy by attenuating the phosphorylation of VEGFR-2 and suppressing angiogenesis. Therefore, hSulf-1-mediated antiproliferation and antiangiogenesis could be a reasonable approach for cancer therapy.

HEPATIC ANGIOMYOLIPOMA: RADIOLOGIC-PATHOLOGIC CORRELATION AND CLINICAL FEATURES IN 178 CASES

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Aim: To review the main clinical, radiological and pathological features of hepatic angiomyolipoma (HAML).

Methods: We retrospectively analyzed the radiologic-pathologic correlation and clinical features of 178 patients who underwent surgical resection for HAML.

Results: 43 males and 135 females with a median age of 43.5 years (range: 17–76 years) were enrolled in the study. Out of the 178 patients, 148 (83%) were hospitalized for medical examinations. Routine blood tests, including those for z-fetoprotein (AFP), carcinoembryonic antigen (CEA), and carbohydrate antigen determinant (CA19-9), were normal. Liver function was classified as Child-Pugh A for all patients. Sixteen patients were positive for hepatitis B surface antigen (HBsAg), while two had liver cirrhosis. 75 lesions were located in the right hepatic lobe, 42 in the left hepatic lobe, and 12 in the hepatic caudal lobe. All patients underwent examination by ultrasound sonography (US), and additional examinations by computed tomography (CT) and magnetic resonance (MR) were carried out for 115 and 81 patients, respectively. Various diseases including HAML, liver cancer, liver hemangioma, hepatic lipoma, hepatic hamartoma, focal nodular hyperplasia and liver adenoma, were diagnosed, each with different radiological appearances. All the patients underwent liver resection (96 right hepatic lobectomy, 41 left hepatic lobectomy, and nine caudal lobe hepatic lobectomy). Several sampled tissues were positive for HBsAg (93/102, 91.2%), b-catenin (122/167, 73.1%), myoglobin (105/156, 67.3%), HMB-45 (119/163, 73.0%), D2-40 (143/156, 91.7%), and vimentin (162/169, 95.9%).

Conclusion: The diagnosis of HAML remains difficult and mainly relies on pathological findings. Although HMB-45 is considered the main histopathological biomarker for HAML, b-catenin, myoglobin, D2-40 and vimentin may be also helpful in the diagnostic process. When the diagnosis of HAML is suspicious or hypothesis, surgical resection remains the recommended strategy due to the difficulty in diagnosis preoperatively and the potentially invasive growth of the lesion.
SURGICAL TREATMENT OF BRONCHOBILIARY FISTULA DUE TO RADIOFREQUENCY ABLATION OF RECURRENT HEPATOCELLULAR CARCINOMA

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Bronchobiliary fistula (BBF) is an extremely rare complication of radiofrequency ablation (RFA), in which there is an abnormal communication between the biliary tract and the bronchial trees. The definite procedure such as surgery for this BBF should be considered only when the non-invasive interventions failed. In this report, we describe the surgical management for BBF complicated by an abscess which encountered after RFA in a 52-year-old woman with recurrent hepatocellular carcinoma (HCC). She had undergone central bisectonectomy for HCC 7 years ago and been treated with sixth transarterial chemoembolization and first RFA for recurrent HCC after that. After occurred a liver abscess and BBF in the posterior section of the liver, patient was received posterior sectionectomy and hepaticojunostomy, drainage of the lung abscess, diaphragmatic resection and repair because it was impossible to drain abscess radiologically. Symptomatic improvement was achieved by operative treatment, and pleural effusion and pneumatic consolidation was obliterated on a 2-month follow-up image.

ANALYSIS OF THE RELATIONSHIPS BETWEEN CLINICOPATHOLOGIC FACTORS AND SURVIVAL IN GALLBLADDER CANCER FOLLOWING A SURGICAL RESECTION

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Background: This study elucidated the relationships between various clinicopathologic factors and the outcome of patients with gallbladder cancer (GBC) treated by surgical resection with curative intent.

Methods: Between January 2003 and January 2011, 76 patients with GBC underwent surgical resection with curative intent in our hospital. We then conducted a retrospective analysis of clinicopathologic data. Thirteen clinicopathological variables were selected for univariate and multivariate analysis to evaluate their influence on the outcome.

Results: The actuarial 1-, 3-, and 5-year survival rates in the 76 resected cases were 56.6%, 32.7%, and 23.8%, respectively. The univariate analysis revealed that curative resection (p < 0.001), lymph node metastasis (p < 0.001), AJCC stage (p = 0.030), tumor location (p = 0.008), histologic differentiation (p = 0.028), intraoperative blood loss (p = 0.011), and preoperative jaundice (p = 0.012) were significant risk factors for survival. Multivariate analysis revealed that noncure-
415
CLINICOPATHOLOGICAL FEATURES AND SURGICAL OUTCOME OF INTRADUCTAL PAPILLARY CHOLANGIOCARCINOMA
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Background and aims: Despite a marked clarification for intraductal papillary neoplasm of the bile duct over recent several years, intraductal papillary cholangiocarcinoma (IPC) still remains unknown. This study was performed to evaluate clinicopathological features and prognosis with comparison to flat-type cholangiocarcinoma (FTC).

Methods: Between July 1995 and December 2011, a total of 80 patients underwent surgical resections for intrahepatic and extrahepatic cholangiocarcinoma at Dankook University Hospital. The patients were divided into two groups according to the final pathologic diagnosis: IPC and FTC group. The clinicopathological characteristics and long-term outcome were compared between both groups.

Results: A total of 11 patients (13.8%) received a curative intent surgery for IPC. Mean age of the patients with IPC was 57.7 (38-72 years) and male patients were dominant. Of them, two patients underwent surgery for recurrent lesions in regional lymph node and remnant distal bile duct, respectively, and are now in disease-free status. One patient was postoperative mortality and two patients died of recurrent disease about 1 and 4 years after surgery. There were no statistical differences in age, gender, tumor location, hospital mortality, and disease-free survival between the groups. However, surgical radicality, stage, and overall survival were better in the IPC group. The overall 3-year and 5-year survival rates of the patients with IPC were 81.8% and 68.2%.

Conclusions: The patients with IPC showed an excellent prognosis compared to the patients with FTC. In addition, an aggressive surgery for recurrent IPC could prolong survival in selected cases.

416
INTERNAL VERSUS EXTERNAL DRAINAGE WITH PANCREATICOJEJUNOSTOMY AFTER PANCREATICODUODENECTOMY: RESULTS OF A PROSPECTIVE RANDOMIZED TRIAL
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Background and aims: Pancreatic fistula can develop to a fatal complication. This study compared postoperative hospital stay and complications in patients with an external or internal drainage tube in pancreaticojejunostomy after pancreaticoduodenectomy.

Summary background data: Complications of pancreaticoduodenectomy affect the postoperative course, and a stent is often placed across the pancreaticojejunostomy to reduce complications. However, no study has previously compared pancreatic stent types with regard to postoperative course.

Methods: We conducted a prospective randomized trial with 100 patients who underwent pancreaticoduodenectomy. We compared the effects of external and internal drainage tubes on postoperative course during the period from April 2005 to August 2007. This study has been registered at ClinicalTrials.gov using the Protocol Registration System (NCT 00628186).

Results: The median postoperative hospital stay was 21 days (range: 8-163 days) in the internal drainage group, significantly shorter than the median stay of 24 days (range: 21-88 days) in the external drainage group (p = 0.016). The incidences of pancreatic fistula classified as either grade B or grade C was 6% in both groups. The incidence of delayed gastric emptying was also similar in both groups.

Conclusions: Internal drainage with pancreaticojejunostomy significantly shortened postoperative stay after pancreaticoduodenectomy and was associated with the same incidence of complications compared with external drainage. Thus, internal drainage with pancreaticojejunostomy should be recommended for management after pancreaticoduodenectomy.

419
SANN-JOONG-KUEY-JIAN-TANG COULD INHIBIT HEPATIC CANCER HEP-G2 CELLS BY INCREASING TNF-A BUT DECREASING TCTP EXPRESSION IN VITRO
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Background and aims: In 2008, the estimated death of liver malignant tumor is 47,830 in male; hepatic cancer is in the second position of the causes of cancer related death worldwide. Due to current chemotherapeutic medicines for hepatic cancers are unsatisfactory. Hepatic cancer remains a challenging disease and need to identify new treatments. Sann-Joong-Kuey-Jian-Tang (SJKJT), a traditional medicinal prescription, has been used to treat tumor and lymph node lesions, and exhibits cytotoxic activity in many cancer cell lines. In our previous studies showed that SJKJT could inhibit colon
cancer colo 205 cells through inducing apoptosis by up regulate the protein expressions of Fas, TNF-α, Caspase-8 and Caspase-3 in vivo and in vitro. SJKJT are widely accepted as an option for the treatment of many human cancers. However, the effects and molecular mechanisms of SJKJT in human hepatocellular carcinoma have not been clearly elucidated. In the present study we evaluated the efficacy of SJKJT in human hepatic cellular carcinoma Hep-G2 cells.

Methods: The cytotoxicity of SJKJT in hep-G2 cells was measured by MTT assay. The cell cycles were analyzed by FACS. The protein expressions of hep-G2 cells were treated with SJKJT were evaluated by western blotting. The protein expression of Caspase-3 was also detected by immunofluorescence staining.

Results: The results showed that SJKJT could inhibit hep-G2 cells with time and dose dependent. During SJKJT treatment for 48 and 72 h, the half-maximum inhibitory concentration (IC50) was 1.48 and 0.94 mg/mL, respectively. The FACS results showed when increase the dose of SJKJT could increase the percentages of sub-G1 phase. The immunofluorescence stain showed hep-G2 treated with SJKJT increase the expression of Caspase-3. The western blot results showed the protein expressions of TNF-α, Caspase-8, Caspase-3 and Bax were up regulated, but the TCTP and Mcl-1 were decreased in hep-G2 cells were treated with SJKJT.

Conclusions: SJKJT could inhibit human hepatic cellular carcinoma Hep-G2 cells through inducing apoptosis. One of the molecular mechanisms may be through increasing TNF-α.

425

RECENT TREND OF HEPATOCELLULAR CARCINOMA IN ELDERLY PATIENTS UNDERWENT HEPATECTOMY

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Background and aims: Recently the number of Hepato-cellular carcinoma (HCC) in elderly patients is increasing. Although, in 1990s, hepatectomy for the elderly HCC were recognized as a high-risk group for postoperative morbidity, recent advantages of surgical technique and perioperative management have reduced postoperative morbidities and mortality in the elderly patients. The aim of this study was investigating the recent trend and the postoperative outcome of hepatocellular carcinoma in the elderly patients after 2001.

Methods: From clinical records, retrospectively, 255 patients who initially underwent a hepatectomy for HCC from January 2001 to December 2010 at Wakayama Medical University Hospital were identified and reviewed. Of them, three patients who required bile duct reconstructions or additional simultaneous surgical procedures other than cholecystectomy were excluded from this study. In this study, age over than 75 years old was defined as the elderly patients. Clinical characteristics were compared between the elderly and younger patients. Risk factors for postoperative complications (Grade 3, 4 of Clavien’s classification) were identified by Kaplan regression analyses. Survival curve was analyzed by Kaplan-Meier method. Prognostic factors for survival were also assessed using Cox proportional hazards model.

Results: The population of the elderly patients was annually increased and 66 patients (26%) were recognized in this study. Incidence of HCC without underlying viral hepatitis was significantly high in elderly patient. However, the Child-Pugh score was similar between these two groups. Although the incidence of ischemic cardiovascular event was significantly high in elderly patients, the distribution of ASA score 3 was not differ between these two groups. The tumor status including tumor size, number, vascular invasion, and serum AFP level was not significantly different between the two groups. The independent risk factors [odds (95% confidence interval)] for postoperative complications were ASA score 3 [4.6(2.0–10.4)], blood transfusion [2.4 (1.0–5.8)], operation time [1.4 (1.1–1.8)]. Survival after hepatectomy was similar between these two groups and independent prognostic factors for elderly HCC patients were only the factor of vascular invasion.

Conclusions: The incidence of HCC in elderly patients was increasing. In the elderly HCC patients, the etiology of background liver disease was different to the younger and non-viral liver disorder was dominant in the elderly. Aging itself was not a risk factor for postoperative complications and survival outcome. Therefore, equal efficacy and safety of surgical treatment between the elderly and the younger patients for HCC were proved.

431

SURGICAL TREATMENT OF HEPATOBLASTOMA INVADING INFERIOR VENA CAVA

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Background: Hepatoblastoma (HB) accounts for approximately 1% of all paediatric malignancies. Although rare, HB is the most common primary malignant hepatic tumor in children, with an annual incidence of 0.5–1.5 per million in the paediatric population. A majority of cases occur between the ages of 6 months and 3 years. Worldwide, there are two different strategies regarding the treatment of paediatric HB. The North American groups support immediate surgery for localised tumors, whereas Europe favours pre-operative chemotherapy in all cases, followed by surgery. Hepatic resection is the main treatment modality for hepatic tumors in childhood. Advances in diagnostic technique, preoperative preparation, surgical technique, and postoperative management increased the success rate. The aim of this study is to report our experience in hepatic lobectomy, which is relatively rare procedure in hepatoblastoma invading inferior vena cava.

Study design: Medical records of 20 patients with hepatoblastoma invading inferior vena cava, who underwent hepatic lobectomy between January 2000 and June 2010 were reviewed retrospectively. Age, gender,
diagnosis, physical examination findings, results of preoperative laboratory investigations, radiological examination, resectability criteria, postoperative pathological results, incisions, operation technique, intraoperative transfusions, drains used, antibiotic prophylaxes, and intraoperative and postoperative complications were evaluated for all patients.

**Results:** Right lobectomy \((n = 9)\), left lobectomy \((n = 2)\), extended left lobectomy \((n = 1)\), and extended right lobectomy \((n = 5)\) and middle lobectomy \((n = 3)\) were performed. Pathological examination of resected tumors revealed hepatoblastoma \((n = 20)\), which were 13 cases of fetal, 5 cases of embryonal, 2 cases of mixed. Patients were observed in the intensive care unit for 3.4 ± 0.3 days. Postoperative complications were sepsis, jaundice and intra-abdominal abscess \((n = 1)\), fever \((n = 3)\), and subdiaphragmatic abscess with pleural effusion \((n = 1)\).

**Conclusions:** Hepatic lobectomy is a major operation, which is feasible yielding curative results in children. The tumor is adjacent to major vessels, they may be resected and reconstructed. Safe hepatic resections with acceptable blood loss can be performed by a technique relying on good anatomic dissection and surgical control. The diagnosis of HB is mainly based on histology. More than 90% of the epithelial type, fetal survival rate is high.

**433 ULTRASOUND DIAGNOSIS OF PRIMARY HEPATIC MALIGNANT FIBROUS HISTIOCYTOMA**

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**Background and aims:** To describe and analyze ultrasound appearances of primary hepatic malignant fibrous histiocytoma (MFH) of the liver.

**Methods:** A retrospective analysis of clinical data and ultrasonic images was performed on 16 patients with pathologically proven hepatic MFH.

**Results:** There were 5 females and 11 males in the study. The age ranged from 41 to 66 years old, with an average of 51.6 years old. Ultrasound: of the 16 patients, all the tumors were single, which including 9 tumors were located in the right lobe of the liver, 6 tumors were located in the left lobe, 1 tumor were located in caudate lobe of the liver. The tumor sizes were found to be larger than 10.0 cm in 10 cases, ranged from 5.0 cm to 10.0 cm in 10 cases, less than 5.0 cm in 3 cases. The majority of the tumors showed hypochogenic (11 cases), a small part as a hyperechoic (3 cases), a hyperechoic (1 case) or clutter echo (1 case). Tumor internal echo were heterogeneous, including 1 case of honeycomb, 2 cases of multiple nodular fusion. Most tumors and the surrounding boundaries were unclear (11 cases) with silent halos around the tumors. The color Doppler flow imaging (CDFI) results showed no significant difference in blood flow signal. According to CT or MRI, the main signal intensity of large mass were hypointensive on T1WI and hyperintensive on T2WI. Dynamic enhancement scanning revealed, 6 cases of uneven enhance in arterial phase, 1 case of portal vein phase uneven enhancement, 3 cases of portal vein phase decline, 4 cases delayed decline, 2 cases of delay in low signal. Laboratory biochemical examination indicated normal AFP in 14 cases, and two other cases were 20.9 µg/L, 21.4 µg/L, 16 cases of normal CEA, 13 cases of normal CA199 and poor liver function in 4 cases. The pathologic results identified 15 cases of primary hepatic malignant fibrous histiocytoma and 1 case of primary intrahepatic bile duct malignant fibrous histiocytoma.

**Conclusions:** It is difficult to make right clinical diagnosis of hepatic MFH. The ultrasonic manifestations of primary hepatic MFH varied from case to case. Final diagnosis is generally entrusted to pathological assessment of surgically resected or biopsy samples. Ultrasound examination should be combined with clinical and imaging material, comprehensive analysis, for the diagnosis of malignant liver tumors.

**442 PROGNOSTIC FACTORS AND OUTCOME OF CHINESE PATIENTS WITH HCC AND CRLM UNDERWENT HEPATECTOMY IN A SINGLE REGIONAL CENTER**

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**Background and Aims:** Hepatectomy for patients with hepatocellular carcinoma (HCC) and colorectal liver metastases (CRLM) carries high mortality despite advances in early diagnosis and treatment modalities. Moreover, the ‘true’ mortality may be under-estimated with current definition of 30 days mortality after surgery. Our study was designed to evaluate the perioperative results in a single regional center and the prognostic factors, also to better define perioperative mortality.

**Methods:** The study recruited 144 patients with HCC and CRLM who underwent hepatectomy at the author’s hospital between 2009 and 2011. Their clinical-pathological characteristics, surgical management, perioperative morbidity and mortality were assessed. Survival was assessed at 30, 90, 180 days post-operatively.

**Results:** Postoperative mortality at 30, 90, 180 days were 2.1%, 2.8% and 4.9% respectively (figure1), while were 3.0%, 6.1% and 9.1% when cases of major hepatectomy recruited only (figure2). Differences in 30- and 180-day mortality were both significant \((p < 0.05)\), with 57% more deaths occurred after 30-day period (figure3). Morbidity rates were 19.9% and 28.1% in overall and major hepatectomy group respectively. Cox multivariate analysis indicated that age, prothrombin time, albumin level, tumor number, intra-operative blood loss, requirement of transfusion and presence of complications (pneumonia and liver failure) were independent prognostic factors for mortality \((p < 0.05)\). Mean of intra-operative blood loss was in improving
trend (697 mL in 2009, 653 mL in 2010 and 457 mL in 2011), therefore the transfusion rate was also reduced (18.9% in 2009, 16.1% in 2010 and 8.3% in 2011).

Conclusions: The 180 days mortality after hepatectomy was 4.9% and 9.1% in overall and major hepatectomy group respectively in our center. Reporting deaths that occur within 30 days of surgery underestimates and misleads the hepatectomy mortality. Age, prolonged prothrombin time (> 12.6 sec), low albumin level (< 35 g/L), multiplicity of tumor, intra-operative blood loss amount, need of transfusion, presence of complicated pneumonia and liver failure were the risk factors that may impact mortality.

444

SEROTONIN PROMOTES THE PROLIFERATION OF SERUM-DEPRIVED HEPATOCELLULAR CARCINOMA CELLS VIA UPREGULATION OF FOXO3A

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Background and aims: Peripheral serotonin is involved in tumorigenesis and induces a pro-proliferative effect in hepatocellular carcinoma (HCC) cells; however, the intracellular mechanisms by which serotonin exerts a mitogenic effect remain unclear. In this research, we examined whether FOXO3a, a transcription factor at the interface of crucial cellular processes, plays a role downstream of serotonin in HCC cells.

Methods and results: The cell viability and expression of FOXO3a was assessed in three HCC cell lines (HuH7, HepG2 and Hep3B) during serum deprivation in the presence or absence of serotonin. Serum free media significantly inhibited HCC proliferation and lead to reduced expression of FOXO3a. Serotonin reversed the serum-deprivation-induced inhibition of cell proliferation and upregulated FOXO3a in HuH7 cells; however, serotonin had no effect on the proliferation of serum-deprived HepG2 or Hep3B cells. Consequently, we demonstrated that serotonin promoted the proliferation of HuH7 cells by increasing the expression of FOXO3a. Knockdown of FOXO3a enhanced the ability of serum deprivation to inhibit HCC proliferation. We also provide preliminary evidence that different expression levels of the 5-HT2B receptor (5-HT2BR) may contribute to the distinct effects of serotonin in different serum-deprived HCC cells.

Conclusions: This study demonstrates that serotonin promotes the proliferation of serum-deprived HCC cells via upregulation of FOXO3a, in the presence of sufficient levels of the serotonin receptor 5-HT2BR. Drugs targeting the serotonin-5-HT2BR-FOXO3a pathway may provide a novel target for anticancer therapy.

445

PERCUTANEOUS RADIOFREQUENCY ABLATION VERSUS REPEAT HEPATECTOMY FOR RECURRENT HEPATOCELLULAR CARCINOMA: A PROSPECTIVE RCT STUDY

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Objective: Percutaneous radiofrequency ablation (PFA) is known to be as effective as hepatectomy for small hepatocellular carcinoma (HCC) in the long-term. We wished to ascertain how it is for recurrent small HCC.

Methods: From January 2009 to November 2011, a series of sixty-one patients were included in the study according to the criteria: each patient had one recurrent HCC, less than 5 cm in diameter. Twenty-six of the 61 patients were treated with PRFA and the other 35 were treated with repeat hepatectomy.

Results: The interval from first surgery to recurrent for repeat hepatectomy and PRFA groups were (1,239.60 ± 1,017.00) d and (903.42 ± 975.11) d respectively (P = 0.066). The tumor-free time after repeat hepatectomy and PRFA were (310.23 ± 159.50) d and (278.27 ± 123.29) d respectively (P = 0.584). Size of tumor in repeat hepatectomy and PRFA were (7.34 ± 3.16) cm² and (5.59 ± 3.40) cm² (P = 0.215), the total expenditure for each patient of the two groups were (26,150.66 ± 7,923.60) yuan and (21,135.00 ± 1,156.76) yuan (RMB), and the time of hospitalization for each of the two groups were (15.29 ± 4.28) d and (7.46 ± 2.20) d (p < 0.001). Conclusion: PRFA is proved to be as effective as repeat hepatectomy in the treatment of recurrent small HCC, and superior to repeat hepatectomy as it is less invasive.

448

A NEW CLASSIFICATION SYSTEM FOR PORTAL-SUPERIOR MESENTERIC VEIN RESECTION AND RECONSTRUCTION AND ITS CLINICAL SIGNIFICANCE FOR PROGNOSIS

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Background and aims: Advanced liver cancer, perihilar cholangiocarcinoma and pancreatic cancer may invade the portal vein (PV), superior mesenteric vein (SMV), and splenic vein (SV), which was considered as a contraindication in the past. Nowadays, portal-superior mesenteric vein (PV/SMA) resection and reconstruction (PSRR) is more and more used. PSRR varies with resection locations, and no classification system for PSRR has been reported. Here, we propose the first classification system for PSRR and report the preliminary clinical significance for prognosis.

Methods: Totally 39 patients who had pancreatic cancer, liver cancer or cholangiocarcinoma underwent
PSRR from July 2008 to September 2012. We classified the PSRR to four types and five subtypes (IR, IL, II, III, IV) based on our clinical experience and PV/SMV anatomy. The association among PSRR type, post-operative mortality, morbidity, hospital stay, age, sex, anastomotic time, pre-operative bilirubin level were analysed.

**Results:** PSRR type and anastomotic time are two main predictable factors for prognosis. Long anastomotic time attributes to higher morbidity ($P = 0.034$) and higher grade of complications ($p = 0.013$). PSRR types were not significant associated with anastomotic time ($p = 0.39$), though subtype IL seemed more tricky and time-consuming in some cases. Different PSRR types do not have significant difference in morbidity ($p = 0.33$) but subtype IL has higher grade of complications ($p = 0.0018$, compared with other subtypes).

**Conclusions:** The new classification system for PSRR may be helpful for hepato-pancreato-biliary surgeon training, and along with anastomotic time, offers a predictable factor for prognosis after operation. Care should be taken when subtype IL is used or/and long anastomotic time is needed in surgical treatment of liver cancer and prihilar holangiocarcinoma.

454

**INFLUENCE OF VISCERAL OBESITY TO POSTOPERATIVE PULMONARY COMPLICATIONS (PPCS) AFTER PANCREATICODUODENECTOMY.**

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**Background and aims:** Postoperative pulmonary complication (PPCs) was common and lethal complications in all digestive surgery. Obesity is thought to be risk factor for PPCs after surgery, whereas, in far studies Body mass index (BMI) was not associated with increasing PPCs. On the other hand, visceral obesity is thought to be involved with high abdominal pressure, resulting a risk factor for PPCs, but these studies did not assess for distribution of visceral fat. We conduct that this study is to determine whether PPCs are associated with obesity defined by BMI and visceral fat area (VFA) or not.

**Methods:** 317 patients, undergoing pancreaticoduodenectomy in Wakayama Medical University Hospital between February 2003 and December 2009 were enrolled in the present study. VFA was measured using a preoperative cross-sectional CT scan at the level of the umbilicus by FatScan software version 3.0 (N2 systems Inc., Japan).

**Results:** In result, PPCs were occurred in 14 patients (4.4%) and median VFA of patients with PPCs was 135.7 cm$^2$, significantly higher than without PPCs (75.9 cm$^2$, $p = 0.0058$), however there was identical in BMI. Then BMI and VFA were categorized into two groups; high-BMI and low-BMI (cut-off value 25.0 kg/m$^2$), high-VFA and low-VFA group (cut-off value 130 cm$^2$), and a multivariate logistic analysis of risk factor for PPCs was done. Consequently, only high-VFA was predicted the independent risk factor influencing PPCs ($p = 0.0390$, odds ratio 4.246, 95% confidence interval 1.076-16.759).

**Conclusion:** In conclusion, preoperative VFA measurements using CT scan may be more useful for the prediction of the development to PPCs than BMI calculation.

459

**COLLATERAL VESSEL HARVESTED FROM SURFACE OF RESECTED SPLEEN USED AS INTERPOSITION GRAFT IN PROXIMAL SPLENORENAL SHUNT**

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**Background, aim and Methods:** Proximal splenorenal shunt (PSRS) is the preferred treatment in patients with extrahepatic portal venous obstruction for prevention of variceal re-bleeding. It improves portal biliopathy. Nearly 10% patients have thrombosis of both splenic and superior mesenteric vein precluding use of these vessels for creating a porto-systemic shunt. There are situations where mobilization of splenic vein is not possible because of a friable splenic vein or replacement of splenic vein by large thin walled collaterals. We present our experience of two cases where splenic vein could not be mobilized from the pancreas for above mentioned reasons. Collateral on the surface of resected spleen was harvested and used as interposition graft between the left renal vein and the splenic vein. This helped us avoid the need for harvesting the autologous internal jugular vein or using a synthetic graft for creating the porto-systemic shunt.

**Results:** Both the patients did well in the postoperative period and are on follow up with no evidence of shunt thrombosis.

**Conclusion:** Use of a collateral vessel harvested from the surface of resected spleen is an alternative to autologous internal jugular vein or synthetic graft in patients undergoing splenectomy with proximal splenorenal shunt.

460

**CTACE VERSUS DEBTACE TREATMENT FOR INTERMEDIATE/ADVANCED HCC: A SINGLE-CENTER RETROSPECTIVE FIVE-YEAR SURVIVAL ANALYSIS.**

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We present our experience in the non surgical treatment for HCC comparing two different technique: conventional vs. DebTace. All the patients have at least 12 month of follow up. Results are discussed pointing out the role of DebTACE in disease free more than in overall survival.
DETENTION OF CANCER STEM CELLS IN HEPATOCELLULAR CARCINOMA: EXPRESSION OF CRIPTO-1 AND PROGNOSTIC RELEVANCE AS BIOMARKER FOLLOWING SURGICAL RESECTION

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Aim of our study was to evaluate if it’s possible obtaining a specific marker useful for predicting HCC aggressiveness.

LB-100 ENHANCES THE THERAPEUTIC EFFECTS OF CHEMOTHERAPEUTIC DRUGS FOR HEPATOCELLULAR CARCINOMA

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Background and aims: Hepatocellular carcinoma (HCC) is one of the most malignant diseases and there are no satisfactory internal treatments to date. For the patients who do not have the opportunity to recept “curative resection”, chemotherapy is an important treatment. However, the effects of chemotherapy for HCC is not yet good enough to inhibit progression of HCC. Here, we report LB-100, a PP2A inhibitor, works as a promising chemotherapeutic drug sensitizing agent to inhibit HCC in vitro and in vivo.

Methods: We used cell counting kit-8 (CCK-8) to evaluate the effects of LB-100 together with cisplatin and doxorubicin in four HCC cell lines HepG2, Hep3B, Huh-7 and SUN-449. We used flow cytometry to analyze the cell cycle of HCC cells being treated by these drugs. We also constructed nude mouse model of HCC and treated them with 2 mg/kg of LB-100 or/and 2 mg/kg doxorubicin i.p. qod for 16 days. Relative tumor volume was defined as times of tumor volume increased based on the volume on the first day of treatment.

Results: The cytotoxic effects of cisplatin and doxorubicin were significantly enhanced by LB-100, while LB-100 itself hardly showed influence on the viability of these HCC cells except Hep3B, on which LB-100 showed dose-dependent cytotoxic effects. The proportion of cells on S/G2 phase was significantly increased by LB-100. LB-100 greatly enhanced the effects of doxorubicin for HCC inhibition in vivo.

Conclusions: LB-100 is a promising cisplatin and doxorubicin sensitizing agent to inhibit progression of HCC in vitro and in vivo. The mechanism of its effects may be that LB-100 drives HCC cells from G0 phase to S/G2 phase, in which HCC cells are more sensitive to chemotherapeutic drugs.

USE OF STERNOTOMY FOR REMOVAL OF AN INTRA-THORACIC HEPATOCELLULAR CARCINOMA: A CASE REPORT

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Background and aim: Median sternotomy is rarely employed for resection of hepatocellular carcinoma (HCC). It has only been reported for resection of advanced HCC with tumor thrombus extending into the supra-hepatic inferior vena cava (IVC). We report on the technical issue and outcome of a patient with huge HCC protruding into the right thoracic cavity where successful hepatectomy was performed through a laparotomy combined with median sternotomy.

Methods and Results: A 39-year-old gentleman with hepatitis B associated Child’s A cirrhosis presented with a 19 cm right lobe HCC. All major vessels were patent, but the middle hepatic vein and IVC were compressed by the tumor. Attempt to shrink down the tumor before resection failed despite repeated sessions of transarterial therapy, and subsequently the tumor increased to 24 cm in size with significant protrusion into the right thoracic cavity. The retro-hepatic and supra-hepatic IVC was compressed and pushed to the midline. He underwent a right hepatectomy through a roof-top incision with upper midline extension to a median sternotomy in order to gain control of the suprahepatic IVC. The diaphragm was split at midline anteriorly. The diaphragmatic pericardium and right mediastinal pleura were opened for isolation of intrapericardial IVC. Liver transection was then performed in the standard way with prior hilar dissection. The specimen was removed en bloc with part of the diaphragm. The diaphragmatic defect was closed primarily without tension. The operative time was 8.5 hours, with 3,600 mL of blood loss. Pleural drain and pericardial drain were placed for 4 days. He had an uneventful recovery and was discharged on day 14. Pathological examination revealed a right hepatectomy specimen of 3,474 g. The moderately to poorly differentiated HCC measured 24 cm in maximum diameter, with microscopic vascular invasion. The tumor was partially enclosed by a fibrous capsule. There was no satellite nodule. Resection margin measured about 1 cm. The adherent diaphragmatic tissue showed inflammation with no evidence of malignant infiltration.

Conclusion: Selective use of median sternotomy provides good access for supra-hepatic IVC control and enables safe resection of huge liver tumor protruding into the thoracic cavity. The approach also facilitates the application of venous bypass in case resection of part of the IVC and vascular reconstruction is necessary. Furthermore, it is a viable alternative to the right thoraco-abdominal approach, of which is associated with very high rate of chest complications and postoperative pain as a result of rib cutting.
475

RISK FACTORS OF HOSPITAL MORTALITY AFTER RE-LAPAROTOMY FOR POST-HEPATECTOMY HEMORRHAGE FOR PATIENTS WITH HEPATOCELLULAR CARCINOMA

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Objective: To identify risk factors of hospital mortality after re-laparotomy for post-hepatectomy hemorrhage (PHH) in patients with hepatocellular carcinoma (HCC).

Summary background data: PHH requiring re-laparotomy is a life-threatening condition associated with high-risk hospital mortality. However, risk factors of hospital mortality have not yet been investigated.

Methods: Perioperative data of 258 patients with HCC who underwent re-laparotomy for PHH from 1997 to 2011 were reviewed and evaluated by univariate and multivariate analyses to identify risk factors of hospital mortality in these patients. The time periods of hepatectomy during 1997–2004 and during 2005–2011 represent the earlier and later period, respectively.

Results: The overall occurrence rate of re-laparotomy for PHH was 8.9% (9.6% and 8.4% in the earlier and later period, respectively; p = 0.300). The median time gap between hepatectomy and re-laparotomy was 9 (0.5 ~ 165) hours. Hospital death occurred in 43 of all 258 patients 16 ~ 40 days after re-laparotomy, and the overall mortality rate in these patients was 16.7% (20.0% and 14.6% in the earlier and later period, respectively; p < 0.001). Multivariate analysis showed that the earlier period of hepatectomy (p = 0.041), ineffective hemostasis during re-laparotomy due to coagulopathy (P = 0.035), time gap between hepatectomy and re-laparotomy > 9 h (p = 0.038), postoperative liver failure (P < 0.001), and postoperative acute renal failure requiring hemodialysis (P = 0.025) were independent risk factors for hospital mortality.

Conclusions: Hospital mortality in patients undergoing re-laparotomy for PHH was considerably high but has reduced in recent years. The indications and timing of re-laparotomy for PHH are very important for hepatic surgery in such patients. More attention should be paid to patients who develop postoperative liver failure and/or serious acute renal failure.

478

DEVELOPMENT OF A NEWLY DESIGNED BILIARY INTERNAL FISTULA TUBE FOR ENDOSCOPIC TRANSLUMINAL BILIARY DRAINAGE

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Background: A transluminal biliary drainage has recently been performed as an alternative procedures of endoscopic retrograde biliary drainage and percutaneous transhepatic biliary drainage. However, the procedure has the risk for the difficulty to exchange the drainage tube, if biliary-enteric fistula remains incomplete. Aim: We have developed a biliary internal fistula tube (BIFT) which has been constructed with a conventional biliary stent tube and a bioabsorbable polymer seat (BAPS). In this study we attempted to investigate the difference between the BIFT and conventional tube (CT) in biliary-enteric fistula formation. Materials: The BIFT is a 7.5Fr conventional biliary stent tube wrapped with the BAPS, which is 0.5 mm thickness. The BAPS is an ideal scaffold for tissue regeneration with porous property to allow easy penetration of cells.

Method: BIFT group (n = 2): The pigs were laparotomized to expose the extrahepatic bile duct (EHBD). Next, the duodenal side of the EHBD below a junction of a cystic duct was ligated. The 5 cm BIFT was placed between gallbladder(GB) and duodenum(DU). CT group (n = 2): The 5 cm CT was placed between GB and DU in a similar manner of the BIFT group. In both group these pigs were sacrificed and re-laparotomized at 2 weeks and at 6 weeks after the placement.

Results: All operated pigs survived until sacrifice. BIFT group: At 2 weeks after the placement. The BIFT became surrounded by connective tissue between GB and DU. The part of the BAPS remained, but the conventional biliary stent tube has gone. In microscopically the connective tissue had a lot of inflammatory cells and the trace of the BAPS. At 6 weeks after the placement, the distance between GB and DU was shortened. A biliary-enteric fistula, which had 1.5 cm bore diameter and 2 cm length, was constructed between GB and DU. CT group: At 2 weeks after the placement, the exposed CT was found between GB and DU. At 6 weeks after the placement, the CT became surrounded by connective tissue, and the distance between GB and DU came closer to each other. However, the connective tissue between GB and DU was fragile and easy to be divided. The lumen of the CT has biliary sludge and almost became obstructed.

Conclusion: The placement of the BIFT induced rapid and good fistulization, and has the potential for application as a novel device for transluminal biliary drainage avoiding the need for exchange of tubes.

479

A CLINICAL CASE SERIES OF SINGLE-PORT LAPAROSCOPIC HEPATECTOMY

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Background: The recent use of single-port access surgery in cholecystectomy and other abdominal surgeries has confirmed its safety and validity as a treatment option. However, there are few reports regarding the use of complete single-port access surgeries in hepatectomy for neoplasms.

Method: Between January 2008 and March 2012, 63 LHs were performed in our hospital (Saitama Medical University International Medical Center, Saitama, Japan). We performed single-port laparoscopic hepatectomy (SLH) in 10 patients, among whom 7 patients had hepatocellular carcinoma, 2 had metastatic liver tumor, 1 had endocrine liver tumor, and 1 had heman-
Ligation of the distal common bile duct was performed for SLH if they had solitary tumors measuring 3 cm or less on the caudal surface of the liver. In an abdominal approach, a SILS™ Port (Covidien, Mansfield, MA, USA) was inserted through a 20-mm incision on the upper median umbilical site. In hepatectomy, 2 devices are typically used in order to shorten the operative time. The parallel approach method is used to operate these devices. One device is the Bipolar LAP forceps unit (Erbe Elektromedizin GmbH, Tuebingen, Germany), which is connected to the electrosurgical unit VIO300D (Erbe Elektromedizin GmbH, Tuebingen, Germany) for low-voltage coagulation. The other device is the disposable suction irrigation system LA-GIS (Lagis Enterprise Co., Ltd, Taichung, Taiwan), which is useful for irrigation, suction, and retraction of the liver.

Results: No patient developed intraoperative complications that required additional port access and conversion to laparotomy. Operative time was 148 min (141-235 min). The postoperative course of the patients was uneventful, and they were discharged at an average of 235 min. The postoperative course of the patients was uneventful, and they were discharged at an average of 235 min. Approximately 2 weeks after discharge, the patients did not experience wound pain or liver dysfunction.

Conclusion: SLH is a safe and feasible procedure for a specific group of candidates, including patients with high-grade liver dysfunction.

480 GALLBLADDER POLYPS: WHEN TO OPERATE
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Background and aims: Gallbladder polyp is a common finding on ultrasonography (USG), yet its management is still controversial. It has been recommended that cholecystectomy be performed for gallbladder polyps larger than 10 mm in size because of association with gallbladder cancer. The aim of this study is to look at the natural history and histological characteristics of USG detected gallbladder polyps, and to propose optimal management of these lesions.

Methods: Patients with USG detected gallbladder polyps who subsequently underwent cholecystectomy were identified retrospectively. Patients with USG findings suspicious of cancer of the gallbladder were excluded. Histological analysis was performed for all patients.

Results: From 1998 to 2012, 82 patients with USG detected gallbladder polyps who subsequently underwent cholecystectomy were identified. The median age was 51.1 years (range 28 to 82 years). 48 (58.5%) were female. 39 (47.6%) had multiple polyps. 11 (13.4%) had concomitant gallstones. 33 of the patients had serial USG performed, with a median interval of 15 months between USG (range 1 to 109 months). Increase in size was noted in 11 (33.3%). 41 (50%) had cholecystectomy performed due to symptoms, 33 (40.2%) due to concern for possible malignancy. Histological examination post cholecystectomy found only 1 patient (1.2%) with malignant polyp, who had adenocarcinoma. It measured 2.1 cm on USG. Neoplastic polyp (adenoma) was found in 19 patients (23.2%). Of the 27 patients with gallbladder polyp < 0.5 cm, only 1 (3.7%) had adenoma. Of the 24 patients with gallbladder polyp 0.5-0.99 cm, 2 (8.3%) had adenoma. Of the 16 patients with gallbladder polyp 1.0-1.49 cm, 6 (37.5%) had adenoma. Of the 8 patients with gallbladder polyp 1.5-1.99 cm, 4 (50%) had adenoma. Of the 4 patients with gallbladder polyp 2.0-2.49 cm, 3 (75%) had adenoma. Of the 3 patients with gallbladder polyp 2.5 cm or above, all (100%) had adenoma. The rest of the patients were found to have non-neoplastic lesions. Out of all 82 patients, 12 (14.6%) had cholesterol polyp, 13 (15.9%) had cholesterolosis, 3 (3.7%) had hyperplastic polyp, 2 (2.4%) had papillary hyperplasia, 2 (2.4%) had adenomyomatosis and 30 (36.6%) had only chronic cholecystitis.

Conclusion: Risk of gallbladder malignancy resulting from gallbladder polyp is low. The risk of finding neoplastic gallbladder polyp increases with size. Small gallbladder polyps < 1 cm may be monitored by serial USG. Cholecystectomy is recommended for gallbladder polyps > 1 cm.

483 DIABETES MELLITUS IN PANCREATIC CANCER
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Background and aims: Diabetes mellitus (DM) is widely considered to be associated with pancreatic cancer. Pancreatic cancer has a dismal prognosis because cancer-specific symptoms occur only at an advanced stage. We conducted a retrospective study to examine the relationship of new onset DM with pancreatic cancer and whether this group of patients have early curative disease that can be identified for screening.

Methods: To determine the incidence of new onset diabetes (< 2 years duration from diagnosis of pancreatic cancer), we retrospectively reviewed the medical records of 151 patients (86 men and 65 women; mean age 62 (range 29-88) years who had pancreatic cancer and underwent surgery between Jan 2006 to Aug 2012 in Tan Tock Seng Hospital. DM was defined as fasting blood glucose > 7.0 mmol/L.

Results: Of the 151 patients, 51 (33%) had DM of which 11 (7%) had new onset DM. Among the 11 with new onset DM, 9 were asymptomatic (no cancer-specific symptoms), at DM onset. In these 11 patients, the median duration of DM prior to pancreatic cancer diagnosis was 2 months (range 1-23) months. Postoperatively, out of the 11 patients with new onset DM, 8 had early stage 1 or 2 disease, 1 had stage 3 disease and 2 had metastatic stage 4 disease.

Conclusion: Diabetes is common in pancreatic cancer. Our data suggests that the incidence of new onset DM
in pancreatic cancer is 7%. The majority of new onset DM occurs when the cancer is asymptomatic and at an early stage disease, providing a window of opportunity for screening to detect early curative pancreatic cancer.

486

TECHNIQUES AND INDICATIONS OF PANCREAS SPARING DISTAL DUODENECTOMY

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Background and Aims: Infra-ampullary pancreas sparing duodenectomy is an attractive alternative to classical pancreactico-duodenectomy whenever feasible for benign as well as malignant conditions. It avoids dissection and morbidities of duct to mucosa anastomoses. It also conserves the pancreas. We highlight that pancreas sparing distal duodenectomy is appropriate and oncologically adequate treatment for malignancies involving D3, 4 (below the ampulla) without the risks of classical pancreatoduodenectomy.

Methods: Pancreas sparing distal duodenectomy involves careful separation of D3 from the underlying head of pancreas, complete mobilization of the ligament of Treitz and resection of the involved distal D2 and D3. Intestinal continuity is established with end to end or side duodeno-jejunal anastomosis. Duenal adenocarcinoma and NET are rare malignancies of the digestive system that would otherwise be treated by pancreatoduodenectomy. Three cases of duodenal cancer that were successfully treated with infra-ampullary pancreas sparing duodenectomy are discussed. All these patients presented with upper abdominal discomfort with weight loss and iron deficiency anemia. Imaging and endoscopic studies for case 1 showed D3,4 involvement. Ampulla was identified free. An infra-ampullary pancreas sparing duodenectomy was done. Histology confirmed moderately differentiated adenocarcinoma. Case 2 imaging showed a mass lesion in close proximity to the pancreatic head. Since this patient had undergone a right nephrectomy, extensive adhesions were present behind the hepatic flexure and around the duodenum. An infra-ampullary pancreas sparing duodenectomy with excision of the mass was done. Histology confirmed 4 foci of small primaries (neuroendocrine tumor) in the duodenum and the mass being the metastatic lymph node. Case 3 was detected (neuroendocrine tumor) in the duodenum and the mass showed better prognosis than patients with detectable HBV DNA levels (p = 0.041 and 0.046, respectively). In multivariate analysis, BCLC stage (HR, 0.524; 95% CI, 0.343-0.802; p = 0.006) and HBV viral load (HR, 1.757; 95%CI, 1.175-2.628; p = 0.006) were prognostic factors of survival.

Conclusions: Baseline hepatitis B viral load was associated with the prognosis of patients with HBV-related HCC who underwent the treatment of sorafenib.

492

HBV-DNA MAY PREDICT THE OVERALL SURVIVAL IN PATIENTS WITH HEPATITIS B VIRUS-RELATED HCC TREATED BY SORAFENIB

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Background and aims: High serum load of hepatitis B virus (HBV) deoxyribonucleic acid (DNA) is a strong risk factor of hepatocellular carcinoma (HCC) development and is strongly associated with recurrence of HCC. Herein we aimed to explore potential correlations between the HBV load and prognosis of patients with HBV-related HCC treated with sorafenib.

Methods: One hundred and forty-seven consecutive patients with HBV-related HCC who were treated with sorafenib were enrolled in this study. Serum HBV DNA level, together with other clinical variables, was selected for univariate and multivariate analysis to evaluate their influence on prognosis.

Results: Median patient age was 52 years, and 91.2% were men. There were 59 patients with intermediate HCC (BCLC stage B) and 88 patients with advanced HCC (BCLC stage C) with a median overall survival (OS) of 13.0 months (95% CI, 8.7-17.3) and 8.0 months (95% CI, 6.0-10.0) (p = 0.002). Patients with undetectable HBV DNA levels (≤ 1000 UI/mL) had greater median OS than those with detectable HBV DNA levels [13.0 months (95% CI, 9.4-16.6) vs 7.0 months (95% CI, 3.9-10.1), p = 0.006]. When stratified by BCLC stage, both BCLC stage B and BCLC stage C patients with undetectable HBV DNA levels showed better prognosis than patients with detectable HBV DNA levels (p = 0.041 and 0.046, respectively). In multivariate analysis, BCLC stage (HR, 0.524; 95% CI, 0.343-0.802; p = 0.003) and HBV viral load (HR, 1.757; 95% CI, 1.175-2.628; p = 0.006) were prognostic factors of survival.

Conclusions: Although technically challenging, infra-ampullary pancreas sparing duodenectomy can be considered for malignancies of the distal duodenum below the ampulla without compromising on margins and avoiding pancreatic anastomoses.

494

LAPAROSCOPIC PERIESOPHAGOGASTRIC DEVASCULARIZATION AND SPLENECTOMY IN THE MANAGEMENT OF PORTAL HYPERTENSION

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Background and aims: Devascularization has been widely used in the management of portal hypertension. Laparoscopic periesophageal devascularization and splenectomy for portal hypertension resulting from liver cirrhosis is being adopted. We performed this...
study to investigate the safety, feasibility, and effectiveness of this laparoscopic procedure.

Methods: A retrospective analysis was conducted on 41 patients with portal hypertension resulting from liver cirrhosis who underwent laparoscopic periesophageal devascularization and splenectomy between May 2007 and June 2011. After splenectomy was performed, devascularization was accomplished, completely freeing 6 to 8 cm of the distal esophagus. The evaluation included clinical characteristics, laboratory data, endoscopic findings, operative morbidity, and mortality, and 4 years of follow up outcomes.

Results: The operation was completed successfully in all the patients, except that conversion was required in one patient. Mean operation-time was 252 min (range, 170-430 min); Mean blood loss was 502 mL (range, 100-1200 mL). The Mean weight of removed spleen was 832 (range, 422-2000 g). Thrombocytopenia in the patients with hypersplenia was significantly improved at postoperative day 7. Liver function remained stable postoperatively. The operative mortality was 2.4%. 22.0% of the patients experienced other postoperative complications such as pleural effusion, pulmonary infection, and injury to the pancreas. During follow-up (3-52 months), endoscopic findings demonstrated significant improvement in variceal grade. 7.5% of the patients experienced recurrent bleeding and grade II encephalopathy developed in one patient. Two patients were found with portal vein thrombosis. The major cause of death was HCC. The overall cumulative survival rate was 93.6% at 1 year, 81.1% at 2 years, and 72.1% at 3 years, respectively.

Conclusions: Laparoscopic periesophageal devascularization and splenectomy is a feasible and effective procedure for portal hypertension resulting from liver cirrhosis. We believe it is a good treatment option in the management of portal hypertension.

LAPAROSCOPIC RADICAL CHOLECYSTECTOMY FOR T1B AND T2 STAGE GALLBLADDER CARCINOMA: SURVIVAL OUTCOME IN COMPARISON WITH OPEN RADICAL CHOLECYSTECTOMY

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Background and aims: The role of laparoscopic radical cholecystectomy for early stage gallbladder carcinoma remains uncertain. This study investigated the feasibility of laparoscopic radical cholecystectomy for T1b and T2 stage gallbladder carcinoma, compared the survival results of laparoscopic vs. open radical cholecystectomy for patients with T1b or T2 stage gallbladder carcinoma.

Method: Fifteen cases of patients with T1b (n = 4) or T2 (n = 11) stage gallbladder carcinoma were treated with laparoscopic radical cholecystectomy from August 2006 to May 2012. The surgical results were analysed and the survival rates of this group were compared with 20 cases of patients with T1b (n = 4) or T2 (n = 16) stage gallbladder carcinoma treated with open radical cholecystectomy.

Results: The patients underwent laparoscopic cholecystectomy firstly, after frozen pathology examination, reveal T1b or T2 stage gallbladder carcinoma, laparoscopic regional lymphadenectomy of the hepatoduodenal ligament and wedge resection of the gallbladder bed were performed. The median operative time was 230 minutes, and the median blood loss was 150 mL. The median number of retrieved lymph nodes was 4. The complication rate was 7% and the median postoperative hospital stay was 5 days. The median follow-up time was 26 months. During the follow-up period, which ranged from 3 to 68 months, three patients died of tumor recurrence at 25, 26, and 30 months respectively. The 1, 3, 5 years survival rate of laparoscopic radical cholecystectomy group were 100%, 68%, and 68%. The 1, 3, 5 years survival rate of open radical cholecystectomy group were 100%, 79%, and 60%. A comparison of survival rates between the two groups demonstrated no significant difference (Log-Rank y2 = 0.016, p = 0.900).

Conclusion: Laparoscopic radical cholecystectomy is feasible and safe with similar survival rate as open radical cholecystectomy in patients with T1b and T2 stage gallbladder carcinoma.

Fig. 1 Lparoscopic view of the operative field after completion of node dissection.

504
THE ASSOCIATION BETWEEN CENTRAL VENOUS PRESSURE AND BLOOD LOSS DURING LIVER RESECTION IN RELATION TO INTRAOPERATIVE BLOOD TRANSFUSION

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Aims: This study aims to evaluate the association of central venous pressure (CVP) with intra-operative blood loss and blood transfusion during liver resection. We postulate that during liver resection, the CVP is kept at a fairly high level and the impact of this is increased intra-operative blood loss that consequently results in increased blood transfusion.

Methodology: We performed a retrospective review of the 43 liver resection operations performed over a period of one year (2011). Electronic patient records, case notes and intra-operative anaesthetic records were thoroughly examined. Parameters examined include estimated blood loss, intra-operative CVP and, in those patients who received blood transfusion, the volume given as well as pre- and post-operative haemoglobin (Hb) levels.

Results: For the 43 patients analyzed, the median CVP was 8 (4-14) mmHg. In the subgroup of patients with a CVP range of between 8.5-14 mmHg, the estimated blood loss was more than 1500 mL. A total number of 19 cases were transfused intra-operatively. In 12 of
them, post-operative Hb was higher than the pre-operative Hb, averaging around 63% of over-transfusion. Only in 5 cases, the pre-operative Hb was noted to be higher than the post-operative Hb. The table (table 1) below illustrates the relationship between estimated intra-operative blood loss and the range of CVP.

Conclusion: There is an association between lower intra-operative CVP and less estimated blood loss with a reduction in the need for intra-operative blood transfusion. In several cases, the post-operative Hb levels are noted to be higher than pre-operative Hb levels. This may reflect an element of over transfusion or over estimation of the intra-operative blood loss. Literature search was carried out and it largely revealed that intra-op CVP during liver resection should ideally be kept less than 5mm Hg in order to reduce blood loss as well as to reduce intra and post operative blood transfusion.

505
THERMAL ABLATION VERSUS REPEATED HEPATIC RESECTION FOR RECURRENT INTRAHEPATIC CHOLANGIOCARCINOMA
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Background and aims: Effective treatment for recurrent intrahepatic cholangiocarcinoma (RICC) is still critical question. Repeated hepatic resection(HR) and thermal ablation therapy(TAT) were being increasingly used to treat RICC. This study is aimed to compare the efficacy and safety of repeated HR and TAT for RICC.

Methods: 109 patients with RICC after curative resection were retrospectively studied. 32 patients with 44 tumors were treated by repeated HR and 77 patients with 133 tumors were treated by TAT. The effectiveness and prognosis of two groups are compared.

Results: There was no significant difference between the two groups in the overall survival rates after initial HR (p=0.266) and after repeated HR or TAT (p = 0.996) and there was no significant difference between the two groups in the disease-free survival rates (p = 0.692). The 1-, 2- and 3-year overall survival rate after initial HR were 90.6%, 80.7% and 47.8% in repeated HR group and 88.3%, 63.4%, and 30.6% in TAT group. The 1-, 2- and 3-year overall survival rate after repeated HR or TAT were 83.8%, 38.0%, and 20.5%, respectively. Intra-op CVP during liver resection should ideally be kept less than 5mm Hg in order to reduce blood loss as well as to reduce intra and post operative blood transfusion.

Conclusion: Repeated HR and TAT are both efficacy treatment for RICC. TAT has a similar efficacy compared with repeated HR, but when tumor is bigger than 3 cm repeated HR may be a better choice. TAT can provide an opportunity to effectively treat with RICC especially for patients who are not suitable for surgical resection.

506
PROGNOSTIC SIGNIFICANCE OF GROSS TUMOR PATTERN IN THE PATIENTS WITH SINGLE HCC OVER 5 CM AFTER CURATIVE RESECTION [PLEASE CHECK FOR THE EDITS MADE IN THE TITLE.]
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Background & aims: The morphologic growth patterns have been reported to be a significant prognostic factor for hepatocellular carcinoma (HCC) after curative liver resection. The present study investigated the relationship between gross pattern of HCC and tumor size as a prognostic factor for the patients with single HCC after curative liver resection.

Methods: From January 1996 to December 2007, 610 patients underwent curative resection for HCC at Yonsei University Health System, Seoul, Korea. Among them, 535 patients with single tumor were included in the current study. First, the prognostic factors for disease (DFS) and overall survival (OS) were investigated for 535 patients. Second, the patients were divided according to tumor size by 5 cm and DFS and OS were analyzed according to 14 clinicopathologic factors.

Results: The gross pattern of tumor was the significant prognostic factors for DFS and OS in univariate analysis (p = 0.013 and 0.007) but not in multivariate analysis. The gross pattern of tumor was not the significant prognostic factors for DFS and OS in the patients with tumor size below 5cm (p = 0.240 and 0.246). According to comparison of clinicopathologic features between single nodular pattern with other gross patterns in the patients with HCC over 5cm, microvascular invasion (p < 0.001), gross vascular invasion (p < 0.001), and poorly differentiated histologic grade (p = 0.010) were more in the patients with non-single nodular gross pattern. Gross pattern was the significant prognostic factor for both DFS and OS in multivariate analysis for the patients with tumor size over 5cm (p = 0.012 and 0.003).

Conclusions: Gross pattern of HCC was a significant prognostic factor for long-term survival of HCC after curative liver resection when the size of tumor was more than 5cm. Thus, the patients with single nodular gross pattern even the tumor size over 5cm may be the good candidate for surgical treatment for HCC.
SHORT-TERM AND LONG-TERM SURGICAL OUTCOME OF LEFT-SIDE PREDOMINANT HILAR CHOLANGIOCARCINOMA

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Backgrounds & aims: Achieving negative surgical margin by radical surgical resection including right- (RH) or left-sided hepatectomy (LH) with caudate lobectomy has been recognized as a standard treatment option for hilar cholangiocarcinoma (HCCA). However, anatomical variation and short extrahepatic part of right hepatic duct usually makes LH technically difficult. The current study attempted to evaluate the perioperative and long-term surgical outcomes of LH compared to RH.

Methods: From April 2001 to August 2012, a total of 147 patients underwent surgical resection to treat HCCA at Yonsei University Health System, Korea. Among them, 103 patients took RH (group A; n = 65) and LH (group B; n = 38) including caudate lobectomy.

Results: There were no significant differences in perioperative outcomes between group A and B: postoperative complication rate (34, 52.3% Vs 20, 52.6%; p = 0.975), postoperative mortality (12, 18.5% Vs 2, 5.3%; p = 0.0059), and R0 resection rate (55, 84.6% Vs 35, 92.1%). Especially, postoperative ascites, which was related to liver dysfunction, was more in RH (18.5% Vs 0%) although postoperative bile leakage was more in LH (7.7% Vs 28.9%). There were no significant differences in long term surgical outcomes between two groups. The median disease-free survival of the patients under RH and LH were 24 ± 3.69 and 17 ± 2.09 (p = 0.468). The overall survival of the patients under RH and LH were 28 ± 12.27 and 21 ± 2.06 (p = 0.620). Although the perioperative mortality rates of LH were not significantly lower than those of RH (p = 0.059), those were comparably lower (5.3% Vs 18.5%).

Conclusions: In this study, there were no significant differences in R0 resection rate and long survival between LH and RH although postoperative bile leakages were more in LH while ascites were more in RH. Therefore, aggressive left hepatectomy should be performed when LH can be indicated as an alternative option for RH to treat HCCA considering the location of tumor and remnant liver volume after aggressive surgery.

PREDICTION OF 1-YEAR SURVIVAL AFTER KASAI OPERATION USING BACK PROPAGATION NEURAL NETWORK

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Background: Kasai operation is the putative first line treatment for infant patients with biliary atresia (BA). Yet its outcome remains unsatisfying. Predictors developed by linear mathematic techniques, for poor outcome after Kasai operation failed to achieve sufficient accuracy. Back propagation neural network (BPNN) is an efficient non-linear method to form a comprehensive prognostic model.

Method: 33 patients with BA who underwent Kasai operation as the primary treatment in our center during Jan. 2008-Jan 2011 (mean age 3.2 months) were included. Records of these patients were retrospectively reviewed. By forwarding selection, Age, bilirubin, INR, Albumin, creatinine, PELD score and anatomical pattern of the patients were selected as input neurons. After the training of the network, 4 hidden neurons were proved to be the most efficient pattern for the network. We randomly selected 23 patients to form the training set and the other 10 patients were recruited as training set to test the accuracy of the model. All input parameters were further analyzed to identify their weight in the model.

Result: The follow-up duration ranged 12-48.5 months. One-year survival of the patients was 60.6%. The network showed prediction accuracy for patient survival and death were 83.3% and 100% respectively with overall accuracy of 90%. Result of the cross-correlation function showed age and anatomical pattern had significant influence on the output of the network.

Conclusion: BPNN is an efficient technique to predict the one year survival of the patients with BA after Kasai operation. Age and anatomical pattern were dominant parameters to predict the prognosis after Kasai operation.

APPLICATION OF A “COMMON BILE DUCT WINDOW” IN LAPAROSCOPIC CHOLECYSTECTOMY

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Objective: To develop a new technique for bile duct injury prevention in laparoscopic cholecystectomy.

Methods: Fifty-five patients who underwent laparoscopic cholecystectomy at our hospital from June 1, 2011 to October 31, 2011 were studied. The concept of a “common bile duct window (CBD window)” was utilized during laparoscopic cholecystectomy. The rates of appearance of a “CBD window” and of a hepatic duct / common bile duct in the hepatic hilum – “CBD
window” line – were observed intraoperatively. The relationship among the hepatic duct / common bile duct, cystic duct and hepatic hilum – “CBD window” line – were analyzed. 

**Results:** The rate of appearance of a “CBD window” was 92.7% (51/55); 98% (50/51) of the hepatic duct/common bile duct was in the hepatic hilum – “CBD window” line – and could be exposed, and the cystic duct was located on the right side of this line. In the case of acute cholecystitis, the “CBD window” can still be visualized in most patients, even if significant inflammatory changes have occurred in the hepatoduodenal ligament.

**Conclusion:** The relationship among the hepatic duct, common bile duct and cystic duct can be better determined by using the “CBD window” as an anatomical landmark to dissect the hepatic duct / common bile duct. The application of a “CBD window” can reduce the incidence of bile duct injury during laparoscopic cholecystectomy.

510

**META-ANALYSIS OF SURVIVAL AND DISEASE RECURRENCE FOR SMALL HEPATOCELLULAR CARCINOMA AFTER RADIOFREQUENCY ABLATION AND SURGICAL RESSECTION**

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**Background:** Radiofrequency ablation (RFA) has emerged as a popular therapy for small hepatocellular carcinoma. This review compared the survival and disease recurrence rates after surgical resection or RFA.

**Method:** A systematic review was conducted using MEDLINE, Embase, Pubmed, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic reviews, Cochrane Methodology Register and the Database of Abstracts of Reviews of Effects from January 2001 until June 2012.

**Results:** These studies included a total of 18 articles: 4 RCTs and 14 NRCTs. The 3, 5 years overall survival rates of RES was higher than the RFA group. RFA had a higher rate of local recurrence. But the complication rates of RES was higher than the RFA group.

513

**ANALYSIS OF RISK FACTORS OF INTRA-ABDOMINAL COMPLICATIONS AFTER PANCREATICODUODENECTOMY BASED ON AN UNIFORM DEFINITION**

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**Background and aims:** To investigate the intra-abdominal complications (IACs) and its main risk factors after pancreaticoduodenectomy (PD) based on an uniform definition. Methods: A retrospective analysis was made on 295 cases who underwent PD from January 2001 to July 2010. The diagnosis of IACs was based on an uniform definition suggested by International Study Group of Pancreatic Surgery and Pancreatic Surgery Group of Chinese Medical Association Surgery Branch, and the risk factors of IACs were analyzed by multivariate logistic regression analysis.

**Results:** The overall rate of IACs was 45.4%. The overall mortality was 3.4% and the re-laparotomy rate was 5.1%. The IACs included 49 (16.6%) cases of delayed gastric emptying, 37 (12.5%) pancreatic fistula, 18 (6.1%) hemorrhage, 16 (6.1%) intra-abdominal infection, 8 (3.4%) incision infection or dehiscence, 4 (1.4%) bile leakage, 1 (1.4%) gastrointestinal fistula and 1 (1.4%) ileus. In multivariate analysis, pancreatic duct diameter (OR = 3.310) and parenchyma texture (OR = 2.278) were independent risk factors for pancreatic fistula, pancreatic fistula (OR = 2.945) and high serum bilirubin level (OR = 1.062) were independent risk factors for hemorrhage, pancreatic fistula (OR = 2.104) and intra-abdominal infection (OR = 1.326) were independent risk factors for B/C grade delayed gastric emptying, and digestive tract fistula (OR = 1.965) was independent risk factor for intra-abdominal infection.

**Conclusions:** The usage of uniform definition is useful for the diagnosis and treatment of complications after PD, and benefit for academic exchange. Effective prevention aimed at its risk factors is helpful to decrease IACs after PD.

514

**CLINICAL ANALYSIS OF 21 CASES OF RARE HEPATIC BENIGN TUMORS**

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**Background and aims:** To investigate the diagnosis and treatment of rare hepatic benign tumors.

**Methods:** The clinical data of 21 patients with rare hepatic benign tumor in our hospital from May 2004 to March 2011 were retrospectively analyzed, including 5 cases of inflammatory pseudotumor, 4 focal nodular hyperplasia, 3 hepatocellular adenoma, 3 inflammatory granuloma, 2 angiomyolipoma, 2 hepatic tuberculosis, 1 leiomyoma and 1 hamartoma.

**Results:** The accuracy of image examination (BUS, CT and MRI) for differential diagnosis between benign and malignant hepatic tumor was 47.6%. Two patients were performed left lateral lobectomy, 2 left hemihepatectomy, and 17 local liver resection. The mean operating time was 135 ± 55 min (rang, 60~270 min). 18 patients had no intraoperative blood transfusion, the other 3 cases were received blood transfusion with 1800 mL, 600mL and 950mL, respectively. The morbidity was 4.8%, and there was no reoperation and death. The mean length of postoperative hospital stay was 10.3 ± 4.4 d (rang, 5~26 d). All patients had no recurrence in the follow-up period.
Conclusions: Combined with various kinds of image examination could improve the diagnosis accuracy of rare hepatic benign tumor, but the qualitative diagnosis is still difficult before operation. For most of rare hepatic benign tumor patients with symptoms or suspicion of malignancy or risk of malignant change, hepatectomy is the most effective therapeutic method.

516
EN BLOC PANCREATICODUODENECTOMY FOR LOCALLY ADVANCED GASTRIC OR COLONIC CARCINOMA: REPORT OF 15 CASES
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Background and aims: To investigate the feasibility and efficacy of combined with pancreaticoduodenectomy (PD) for locally advanced gastric or colonic carcinoma.

Methods: The clinical data of 15 patients with locally advanced gastric or colonic carcinoma invading pancreaticoduodenal region undergoing en bloc PD between May 2004 to December 2010 were retrospectively analyzed, including 12 cases of primary or recurrent gastric carcinoma and 3 colonic carcinoma.

Results: The median operating time was 6 h (rang, 4–12 h) and the median length of postoperative hospital stay was 21 d (rang, 7–63 d). The morbidity was 46.7%, the re-operation rate and the mortality were 6.7%. Median survival was 23 months and 1, 2, 3-year survival rate were 62.2%, 44.4%, 22.2%, respectively.

Conclusions: En bloc PD could be considered as one of the therapeutic options for local advanced gastric or colonic carcinoma with pancreaticoduodenal region involvement and could improve the survival time. The strict mastery of operation indications, meticulous operative technique, radical resection and intensive postoperative management are the keys to the prognosis.

517
CLINICAL ANALYSIS OF 328 CONSECUTIVE PANCREATICODUODENECTOMIES
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Background and aims: To explore the morbidity and mortality and the long-term survival after pancreaticoduodenectomy (PD).

Methods: The clinical data of 328 consecutive patients undergoing PD between January 2001 and January 2011 were retrospective analyzed.

Results: The morbidity was 34.1% (112/328). Delayed gastric emptying (16.5%), pancreatic fistula (11.9%), hemorrhage (7.0%), intra-abdominal infection (5.2%) and pulmonary infection (4.9%) were the 5 most common postoperative complications. The re-laparotomy rate was 6.1% and the mortality was 3.0%. The 1-, 3- and 5-year survival rate of periampullary carcinoma were 79.1%, 51.5% and 33.8%, respectively; the median survival time was 38 months. Patients with negative lymph node status had a median survival of 47 months, and their 1-, 3-, and 5-year survival rate were 81.7%, 57.6% and 40.6%, respectively. Patients with positive lymph node status had a median survival of 24 months, and their 1-, 3-, and 5-year survival rate were 72.1%, 36.4% and 16.8%, respectively. The long-term survival of patients with negative lymph node was significantly better than those with positive lymph node (p = 0.003). The 1-, 3-, 5-year survival rate of pancreatic carcinoma were 67.6%, 29.1% and 9.7%, respectively; the median survival time was 16 months. The 3-year survival rate of patients with positive lymph node status was 0. The 1-, 2-, 3-year survival rate of nonperiampullary primary carcinoma were 71.4%, 39.6% and 19.8%, respectively; the median survival time was 21 months.

Conclusions: The strict mastery of indication for extended PD, meticulous operative technique, careful observation and timely aggressive management in the postoperative period are the keys to reduce morbidity and mortality after PD. The lymph node status is the important factor of prognosis of peripancreatic and pancreatic carcinoma. PD should be considered for locally advanced nonperiampullary tumors with the advantage of improving the survival time.

519
POST PANCREATICODUODENECTOMY HAEMORRHAGE: REPORT OF 23 CASES
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Background and aims: To explore the cause, prevention and treatment of post pancreaticoduodenectomy haemorrhage.

Methods: The clinical data of 279 patients undergoing PD between January 2001 and April 2010 were retrospective analyzed. The diagnosis of haemorrhage was according to the definition and classification of post-pancreatectomy (PPH) proposed by international study group of pancreatic surgery (ISGPS).

Results: PPH occurred in 18 patients (6.5%, 18/279), including 6 intraluminal and 12 extraluminal PPH. Early haemorrhage was recorded in 6 patients, and late haemorrhage in 12 patients. 5 patients were mild and 13 severe PPH. According to the clinical grading of ISGPS, 11 belongs to Grade B and 7 belongs to Grade C. The median time of onset was 5.5 days. Ten (55.6%, 10/18) patients underwent reoperation. The overall mortality was 22.2% (4/18).

Conclusions: Timely and decisive reoperation is an important method to management of PPH. The meticulous operative technique, complete hemostasis, prevention of pancreatic fistula and intra-abdominal infection are the keys to reduce PPH.
LYMPH NODE RATIO OF PANCREATIC CANCER HAS LIMITED PROGNOSTIC RELEVANCE

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Background: Metastatic lymph node ratio has been suggested as a prognostic factor of pancreatic cancer. However, some reported for other malignancies that patients with a small number of metastatic lymph nodes have comparable survival with node negative patients. The aim of this study was to evaluate the prognostic impact of metastatic lymph node ratio of pancreatic cancer.

Methods: Data were collected from 717 patients who underwent surgery for pancreatic head cancer at Seoul National University Hospital. Long-term prognosis was analyzed according to lymph node ratio (LNR) and absolute positive lymph node number.

Results: The study subjects were at mean age of 59.7 years (male: female = 1.8:1) with median follow up of 10.6 months (range, 0.2-176.4). Curative intended resection rate was 55.5% (n = 398). After curative intended resection, types of operation included Whipple’s operation (n = 203, 51.0%), pylorus-preserving pancreateoduodenectomy (n = 179, 45.0%), and total pancreatectomy (n = 16, 4.0%), and portal vein resection was performed in 17.6% (n = 70). After curative intended resection, lymph node metastasis was identified in 57.3% (n = 228) of the patients and total retrieved lymph node was at mean of 19.5. Mean positive lymph node was 1.9 and mean lymph node ratio (LNR) was 0.11. Patients with LNR higher than 0.2 had higher T stage (p = 0.024) but R0 resection rate or portal vein resection rate was comparable with those with LNR less than 0.2. Overall median survival of the patients after curative intended resection was 18.4 months and patients without lymph node metastasis had higher survival outcome than those with lymph node metastasis (median survival 25.5 vs. 14.8 months, p < 0.001). Patients with only 1 positive lymph node had poor prognosis than those without lymph node metastasis (median survival 17.3 vs. 25.5 months, p = 0.001). Patients with 1 positive lymph node had comparable survival outcome with those with 2 positive lymph nodes or with more than 3 positive lymph nodes (median survival 17.3, 15.5, 13.6 months, p = 0.195). For node positive patients, survival outcome was comparable in patients with LNR < 0.2, 0.2 ≤ LNR < 0.4, 0.4 ≤ LNR (p = 0.085)

Conclusion: Only 1 positive lymph node metastasis significantly worsens the prognosis of patients with pancreatic cancer. When lymph node metastasis is present, number of metastatic lymph node or LNR has limited prognostic relevance.

HEPATIC HEMANGIOMA: CLINICAL EXPERIENCE IN A SINGLE CENTER WITH 820 CASES

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Background & Aims: Clinical features of hepatic hemangioma are not well defined, and indications for different therapeutic options remain controversial. The aim of this study was to investigate the features of the disease and to evaluate the indications for respective therapeutic options.

Methods: The study involves retrospective review of both inpatients and outpatients with liver hemangioma from January 2006 to December 2010.

Results: The mean age of all the 820 patients at diagnosis was 43.9 ± 9.8 years with a female: male ratio of 2.76:1. Symptoms were present in 20.1% of patients, and increased with tumor size, with left and caudate lobe hemangiomas becoming symptomatic at a relatively smaller size. Altogether 264 inpatients underwent surgery, included 131 enucleations, 117 hepatectomies and 16 laparoscopic hepatectomies. There were no significant difference between enucleation and hepatectomy subgroup on patient’s age, female to male ratio and tumor size. Enucleation showed advantages over hepatectomy in terms of intraoperative blood loss and postoperative hospital stay. However, postoperative complications were similar between the two subgroups (11.6% VS 13.7%, P = 0.597) and a postoperative mortality was reported in one patient (1.2%) of hepatectomy subgroup. Of the 47 cases who underwent transcatheter arterial embolization, treatment was unsuccessful in 42.1%, including 7.9% who had complications needing further intervention.

Conclusions: We propose that there should be strict indications for the surgical treatment of hepatic hemangiomas. Enucleation has advantages over hepatectomy. Transcatheter arterial embolization should only be used in strictly selected situations.
UP-REGULATION OF FAM189B CONTRIBUTES TO HUMAN HEPATOCELLULAR CARCINOMA PROLIFERATION VIA MODULATING WWOX SIGNALING

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Background and aims: Hepatocellular carcinoma (HCC) is one of the most fatal tumor globally. Up to date, no effective treatment has been explored for HCC patients, especially for advanced ones. Family with sequence similarity 189B (FAM189B), a putative oncogene selected by microarray, was found to be significantly up-regulated in HCC specimens. Whether genetic alterations of FAM189B are involved in the oncogenesis of HCC is unknown.

Methods: In present study, the expression of FAM189B was detected by using reverse transcription-polymerase chain reaction and immunohistochemistry assay. Then, siRNA and recombinant plasmid were used to knockdown and overexpression FAM189B, respectively. Cell viability was measured by CCK-8, colony formation assay and soft agar colony formation assay, successively. Cell cycle and apoptosis was assessed by flow cytometry. The potential pathways involved in cellular proliferation was explored by Western blot, Co-IP and immunofluorescence.

Results: Over expression of FAM189B enhanced HCC-derived Focus and Huh7 cell viability, colony formation in soft agar in vitro and tumorigenicity in vivo. By contrast, FAM189B knockdown via RNAi markedly suppressed these phenotypes, as documented in YY-8103 and WRL-68 HCC cell lines. Mechanistic analyses indicated that FAM189B could physically associate with WW domain oxidoreductase (WWOX) and modulate WWOX tyrosine phosphorylation. Ectopic overexpression of FAM189B inhibit WWOX-p53 signaling pathway via reducing phosphorylation of WWOX at Tyr-33 residue in Focus. Conversely, FAM189B silencing activated the tyrosine-33 phosphorylation of WWOX, induced WWOX-p53 mediated mitochondrial apoptosis in WRL-68. In addition, FAM189B upregulation could block WWOX-cyclin D1 pathway via WWOX (Tyr-287) dephosphorylation in Huh7, which stimulated cell cycle progression. While, tyrosine-287 residue phosphorylation of WWOX by FAM189B silencing may potentially caused WWOX-cyclin D1 signaling activation, leading to cell cycle arrest in YY-8103. Together, our findings suggest that cytoplasmic protein FAM189B could contribute to HCC tumorigenesis by regulating cell proliferation via modulating WWOX signaling.

Conclusions: FAM189B contributes to the tumorigenesis of HCC and potentially represent a new target of HCC gene therapy.

THE PRELIMINARY REPORT OF A EUS-GUIDED ENDOSCOPIC NECROSECTION AND TEMPORARY CYSTOGASTROSTOMY FOR INFECTED PANCREATIC NECROSIS

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Introduction: Pancreatic pseudocyst with infected necrotic tissue is associated with a high rate of complications and death. Standard treatment is open necrosection but is associated with significant morbidity, mortality, and prolonged hospital stay. Endoscopic cyst drainage with necrosection is an alternative and less invasive technique. Here we report our experience using pseudocyst drainage with cystogastrostomy and endoscopic necrosection for infected pancreatic necrosis with fully covered self-expanding metallic stents (CSEMS).

Material and Methods: Between 2011 and 2012, 12 patients underwent endoultrasound guided endoscopic necrosection and temporary cystogastrostomy for infected pancreatic necrosis by using CSEMS. Patient details, disease severity scores, scores for severity assessed at CT, treatment procedures, length of hospital stay, and outcome for patients undergoing endoscopic therapy were recorded. Patients proceed to intervention if infection is strongly suspected on clinical and radiological grounds or is confirmed bacteriologically. After the necrosis cavity had been accessed, with the assistance of endoscopic ultrasound, a large orifice was created and necrotic debris was removed using special short fully covered 15 mm diameter SEMS with large flares was deployed across the tract under radiological control. Completeness of the necrosection procedure was ascertained by visualization of a clear pseudocyst cavity on endoscopy.

Results: A total of 12 patients (10 men, 2 women; median age 39, range 19-76) who were treated successfully. Median APACHE 2 score on presentation was 11 (range 3 ± 18). Two patients presented with organ failure and needed intensive care. Necrosis was successfully treated endoscopically in all patients, requiring a median of 2 endoscopic interventions (range 1 ± 4). The tissue samples obtained at the first necrosection confirmed infection in 12 patients. Complication included superinfection in patient who made an uneventful recovery. After median of 5 weeks the metal SEMS was extracted by endoscopy. The patients have remained asymptomatic and median follow-up was 4 (2 ± 11) months.

Conclusion: Endoscopic necrosection and temporary cystogastrostomy with self-expanding metallic stent approach is feasible, safe, and effective in patient with
infected pancreatic necrosis. The benefits of this endoscopic approach using fully covered self-expandable metallic stent in terms of less morbidity is conceivable and our report demonstrates that such an approach is feasible.

540

DUODENUM PRESERVING PANCREATIC HEAD RESECTION VERSUS PANCREATICODUODENECTOMY FOR BENIGN PANCREATIC NEOPLASMS

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Background and aims: The classical duodenopancreatectomy is no longer a standard procedure in benign pancreatic head neoplasm, and is continuously being replaced by operations such as the duodenum-preserving pancreatic head resection. These procedures allow the preservation of exocrine and endocrine pancreatic function, and contributes to an improvement in life quality. The aim of this study was to compare the safety and efficiency of (duodenum preserving pancreatic head resection, DPPHR) and (duodenopancreatectomy, PD) in treatment for benign neoplasm of the pancreatic head.

Methods: Fifty-seven patients undergoing PD or DPPHR for benign neoplasm of pancreatic head between January 2003 and December 2009 were retrospectively reviewed. They were followed up for more than 2 years. The preoperative variables, operation data, mortality, morbidity and duration of hospital stay after the two types of surgery were compared. Quality of life was assessed cross-sectionally using the standard Chinese version of the EORTC QLQ-C30 (vs. 3.0).

Results: 31 patients underwent PD and 26 underwent DPPHR for the treatment of benign pancreatic head neoplasm. The characteristics of patients were similar between the two groups. Operation time (310 ± 91 min vs 249 ± 71 min), duration of hospital stay (14.0 ± 9.8 days vs 9.1 ± 7.4 days) and estimated blood loss (302 ± 103 mL vs 232 ± 73 mL) were all less for DPPHR patients (p < 0.05). There was no postoperative death in either group. Mortality (32.26% vs 30.77%, p > 0.05). And quality of life scores was more excellent in DPPHR group.

Conclusions: DPPHR is as effective as PD in treatment of the patients with benign pancreatic head neoplasm. Post-operative mortality and morbidity did not differ between the two groups. DPPHR resulted in a shorter hospital stay, less blood loss and less operation time. DPPHR will be more recommended for some patients with benign pancreatic head neoplasm.

Key words: Duodenum preserving pancreatic head resection, duodenopancreatectomy, Benign pancreatic head neoplasm
HEPATIC PERIVASCULAR EPITHELIOID CELL TUMORS-NOT OTHERWISE SPECIFIED (HPECOMAS-NOS)

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Background and aims: Neoplasms of perivascular epithelioid cells (PEComas) are characterized by epithelioid to spindle cells with eosinophilic to clear cytoplasm, an intimate relationship with blood vessels, and coexpression of myoid and melanocytic immunohistochemical markers. While most reported hepatic PEComas, such as angiomylipoma (AML), behave in a benign fashion, emerging PEComas cases without typical characteristics require further clarification.

Methods: We report a case of primary hepatic perivascular epithelioid cell tumors-not otherwise specified (HPEComas-NOS) with untypical pathological and immunohistochemical features compared to those of the benign hepatic AML cases.

Results: A 63 year old female was admitted to the first affiliated hospital of medical college of Xi’an Jiaotong university in October 2011 for further examination of the liver tumor which was detected by computed tomography (CT). Non-enhanced CT scan revealed a lower density mass in the right lobe with a well demarcated margin and homogeneous density (Fig. 1A). Contrast-enhanced CT showed significantly and heterogeneously patchy enhancement of the lesion on arterial phase, being slightly hypodense on delayed CT scan (Fig. 1B). The decision was made to resect the liver neoplasm and in October 2011, the patient underwent a hepatectomy. The patient did not receive any adjuvant or neoadjuvant therapy, and she remains alive with no recurrence or metastases after 10 months of close surveillance. Histologically, the liver tumor was composed mainly of medium to large epithelioid cells and focal areas of spindle/elongated cells around numerous small blood vessels which were arranged in small nests, trabeculae or sheet-like patterns with numerous intervening vascular spaces(Fig. 2A, B). The neoplastic cells were mainly epithelioid but occasionally spindled, with abundant cytoplasm that varied from eosinophilic and granular to clear. Immunohistochemically, both the epithelioid and spindle neoplastic cells of the liver tumor were strong and diffusely positive for HMB-45 (cytoplasmic)(Fig. 3A), smooth muscle actin (cytoplasmic and membranous)(Fig. 3B), CD34 (Fig. 3C) and Vimentin (cytoplasmic and membranous) immunostaining (Fig. 3D). The tumor cells showed local (< 20% of the neoplastic cells), strong, immunoreactivity for Ki67 (nuclear)(Fig. 3E). The neoplastic cells failed to express hepatic carcinoma marker (AFP)(Fig. 3F), S-100 protein, cytokeratins c-kit/CD117.

Conclusion: HPEComas-NOS may be a special type of PEComas classified as “malignant potential” or at “high risk of aggressive behavior”, suggesting further clarification of Hepatic PEComas and long-term follow-up of patients with HPEComas-NOS.

562

RIPC PROTECT LIVER ISCHEMIA REPERFUSION INJURY VIA HEME OXYGENASE-1 INDUCED AUTOPHagy

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Background and aims: Autophagy has been implicated in many physiological and pathological processes and there’s growing evidence linking autophagy to protective role of preconditioning in liver ischemia/reperfusion (IR). Heme oxygenase-1 (HO-1) is essential to limit inflammation and prevent cell death or apoptosis response to IR which was demonstrated to up-regulated in the liver graft after remote ischemic preconditioning (RIPC) in our previous study. The aim of the present study was to certify the hypothesis that RIPC protected liver from IR via HO-1 mediated autophagy.

Methods: RIPC was performed with regional ischemia of limbs before liver ischemia performed in the RIPC group and the activity of HO-1 was inhibited with Protoporphyrin IX zinc(II) (ZnPP) preoperation in the ZnPP group. Autophagy was assessed by the expression of LC3-II. The HO-1/ERK/ P38/ MAPK pathway was detected in the mixed model of starvation-induced autophagy and mineral oil-induced IR in vitro.

Results: In the process of liver IR, the expression of LC3-II was accordingly increased peaked at 12-24 h after IR. The ultrstructure of liver after IR also revealed that there existed abundant autophagosomes in the liver cells after IR. However, the autophagy was promptly initiated after RIPC which alleviated the liver IRI consequently and the expression of HO-1 was also up-regulated simultaneously. The autophagy was inhibited when the HO-1 was inactivated by Znpp which would result in the aggravation of liver IRI subsequently in vivo. In the model of IRI for hepatocytes in vitro, the starvation-induced autophagy could protect rat hepatocytes form IRI which would be deteriorated by ZnPP. The phosphorylations of P38 MAPK and ERK1/2 were up-regulated in the starvation-pretreated liver cells and down-regulated after treatment of ZnPP.

Conclusions: RIPC induced autophagy can protect liver from IR injury in part via HO-1 p38 MAPK-dependent signaling.
565

COMPREHENSION OF DIAGNOSIS AND TREATMENT OF BILOMA COMPLICATED BY LIVER TUMOR AFTER TACE

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Abstract: Objective: To investigate the diagnosis and treatment of biloma complicated by liver tumor after treated by transcatherer arterial chemoembolization.

Methods: 1695 patients with liver tumor, from August 2005 to August 2010 in our hospital, treated by TACE and examined by computed tomography were collected, 33 patients with biloma were found, account for 9.1%. All 33 patients with biloma were treated by percutaneous transhepatic intracavitary duct drainage, 2 cases were treated by surgery after drainage.

Results: 22 cystic, 8 columnar and 3 cystic and columnar coexisted dilatational bilomas were found, account for 66.7%, 24.2% and 9.1% respectively. 28 patients were cured after treated by percutaneous transhepatic intracavitary duct drainage, 2 patients that ineffectved were cured by surgery after drainage. 3 patients were died of concurrent infection, organ function damage.

Conclusions: Biloma is one of the rare complications by liver tumor after treated by TACE, and there is high incidence in patients with liver tumor treated by TACE frequently, in particular among the tumors lack of blood supply. The effect of percutaneous transhepatic intracavitary duct drainage and sugery resection is definite when conservative treatment is not effective.

Keywords: Liver tumor, Chemoembolization, Biloma, Drainage.

566

CLINICAL APPLICATION OF LAPAROSCOPIC COMMON BILE DUCT EXPLORATION THROUGH TRANSCYSTIC OR A MINI-INCISION ACCESS

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Aims: To summary the clinical experiences on laparoscopic common bile duct exploration (LBDE) through a mini-incision access at the confluence part of CBD and cystic duct.

Methods: Retrospectively analyze the clinical materials of 46 cases of LBDE through transcystic or mini-incision access between Oct 2006 and Dec 2011 in our hospital. An incision of 2-3 mm was made in the point of CBD and cystic duct for exploration. The incision was directly sewed up after the exploration. Results

sixty-four piece of stones were found in extrahepatic biliary tract in all patients. The mean duration of postoperative hospitalization was 6.2 ± 1.7d. All patients were followed up for a mean of 12 months. Two patients had residual stones and were cured with endoscopic sphincterotomy. One patient suffered from bile leakage and was cured through open abdominal surgery. No biliary tract stricture were found in all patients.

Conclusions: LBDE through the mini-incision in the joint CBD and cystic duct is safe and convenient. If patients are suitable, it is more in line with the concept of minimally invasive surgery.

567

EPHA2-MEDIATED AKT/MTOR AND PYK2/C-SRC ACTIVATIONS CONTRIBUTE TO TUMOR GROWTH AND METASTASIS IN CHOLANGIOCARCINOMA

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Background and aims: Aberrant expressions of EphA2 was believed to be associated with worse tumor behaviors of many carcinomas. This study was to examine the expression EphA2 in cholangiocarcinoma (CC) and its biological roles in tumor growth and metastasis.

Methods: EphA2 expressions were investigated in CC tissues and cells by immunoblot and immunohistochmical analyses, according to CC cell differentiation. Tumor growth and metastasis were assessed in the animal model system. Downstream signal pathway of EphA2 was explored in vitro cell culture system.

Results: Aberrant expression of EphA2 was highly observed in the CC cells (JCK and SCK) and tissues with worse differentiation and metastatic ability. In vitro soft agar assay and in subcutaneous tumor model, EphA2 enhanced colony formation and accelerated tumor growth, which seemed to be mainly associated with Akt (T308)/mTORC1 activation. The stable transfectants of EPHA2 showed some morphological changes of the epithelial mesenchymal transition (EMT). The ability of metastasis was also enhanced in mice lung metastasis model, which seemed to be resulted from Pyk2 (Y402)/c-Src activation. Furthermore, each pathway concurrently effect on the other pathway.

Conclusion: These results suggested that EphA2 might be involved in tumor growth and metastasis through Akt/mTORC1 and Pyk2/c-Src activations. Therapeutic strategies that target EphA2 may be useful to control the behaviors of CC.
ANALYSIS ON PROGNOSIS FACTORS AND THERAPEUTIC EFFICACY OF 246 UYGHUR PATIENTS WITH PRIMARY HEPATIC CARCINOMA IN XINJIANG REGION

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Background and aims: Primary hepatic carcinoma (PHC) is the high incidence of malignant tumors in China, the prognosis is poor. This study aims to find the prognostic factors affecting the survival of uygur patients with primary hepatic carcinoma and the outcomes of different therapeutic patterns were compared in this article.

Methods: We retrospectively analyzed the clinical and follow-up data of 246 uygur patients with primary hepatic carcinoma. The factors that may influence the prognosis and survival were analyzed using the log-rank test. And multivariate analysis was performed by Cox proportional hazard model to find the independent prognostic factors.

Results: The median survival time for the 246 patients was 10.7 months. The survival rates at 1, 2, 3, 5 years were 41.97%, 22.13%, 14.87% and 8.92%. Univariate analysis by log-rank test showed that the age, hepatic cirrhosis, tumor staging, tumor number, as cites, portal vein thrombus, metastasis, lymph node metastasis, Child-Pugh stage, serum AST, TBIL, ALB, GGT, ALP, TBA, LDH level were the prognostic factors. While the multivariable analysis with Cox proportional hazard model showed that the age, tumor staging, portal vein thrombus, Child-Pugh stage and serum LDH level were independent prognostic factors. The therapeutic efficacy of treatments which include surgery, transcatheter hepatic arterial chemoembolization (TACE), chemoradiation, radiofrequency ablation (RFA) was much better than supporting therapy. The median survival time implied that integrated therapy was better than single therapy treatment. For patients treated with TACE and other treatments, the median survival time was 64.9 months.

Conclusion: The age, tumor staging, portal vein thrombus, Child-Pugh stage and serum LDH level were significant independent factors influencing survival. The therapeutic efficacy of surgery, TACE, chemoradiation, RFA was much better than supporting therapy. Integrated therapy is beneficial for improving therapeutic effect. The therapy combine with TACE and other treatments is potential for advanced the PHC.

SCREEN OF DIFFERENTIAL EXPRESSION PROTEINS IN RAT LIVER REGENERATION AFTER PH

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Background and aim: It is generally known that the acceleration of liver regeneration presents some significant potential clinical benefit for various liver-associated diseases. However, the molecular mechanism of liver regeneration remains obscure. Consequently, we aim to further investigate some functional proteins or pathways involved in the repair of liver damage.

Methods: Adult male Sprague–Dawley rats underwent approximately 70% partial hepatectomy (PH) and sham surgery. Liver specimens were collected at 2, 6, 12, 24, 36, 48, 72, and 168 h after PH and sham surgery, respectively. Thereafter, we abstracted the proteins followed by two-dimensional gel electrophoresis to observe the changes in protein express levels after PH, then compared these with those in sham-operated rats. Subsequently, liver specimens from PH rats were examined by RT-PCR analysis. Western-blotting was performed to identify prohibitin (PHB) that might play an important role in liver regeneration.

Results: We found that protein spots began to rise at 2 h, peaked at 36 h, and reduced gradually at 48 h. This was in accordance with the change in liver DNA synthesis between 24 h and 36 h. After which, we used image master software to obtain 938 ± 90 spots in each gel. Thus, 37 significant proteins were found to be involved in oxidative stress response, acute reaction, lipid and energy metabolism, nerve intracellular signaling, and cell proliferation, among others. Prohibitin, identified as one of significant proteins in gel, was validated by western-blotting and RT-QPCR.

Conclusion: Liver regeneration following partial hepatectomy affects various signaling and metabolic pathways.
ase and gamma-glutamyl transferase between two groups. The time of beginning to eat liquid meals was significantly shorter in IG than CG (p < 0.05). The incidence of delayed gastric emptying was significantly lower in IG than CG (p = 0.014). Among 18 patients with different degrees of acute cholangitis in two groups, two patients (2.6%) in IG and 16 (7.6%) in CG suffered from acute cholangitis within six months follow-up after discharge, but with no statistical difference between two groups (p = 0.126). In long-term follow-up, we have got significantly lower incidence of chronic cholangitis by the new technique of choledochojejunostomy (p = 0.047).

Conclusions: Consecutive 76 cases in IG had satisfactory perioperative and long-term prognosis with shorter time of beginning to eat liquid meals and lower incidence of delayed gastric emptying. This new procedure of choledochojejunostomy by the way behind antrue pyloricum was feasible and safe with no mortality and low complication rates.

576

APPLICATION ANALYSIS ABOUT CORRESPONDING INTENSITY OF POST END-EXPIRATORY PRESSURE VENTILATION IN INTRA-ABDOMINAL HYPERTENSION

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Objective: To observe the cardiopulmonary function affection and analyze the efficacy by giving PEEP adapted to the different intra-abdominal pressure in patients with intra-abdominal hypertension.

Methods: We took the patients in our hospital from Mar 2008 to Jan 2012 with IAP > 20 mmHg, mechanical ventilation and no lung diseases into the study. The patients with 50% O2 inhalation were given 1 h positive end-expiratory pressure (PEEP) = 5 cmH2O (control), PEEP = 5 cmH2O + 1/5 intra-abdominal pressure (IAP) (weak PEEP group), PEEP = 5 cmH2O + 1/3 IAP (moderate PEEP group) and PEEP = 5 cmH2O + 1/2 IAP (high PEEP group), respectively. Cardiac output (CO) and PaO2 were investigated to observe the changes under different PEEP, and then the extra-vascular lung water (EVLW) was observed by PICCO after 6 h treatments by weak and moderate PEEP.

Results: The CO of patients treated by weak and moderate PEEP were not significant decreased compared with control (p = 0.82, 0.63, n = 15), while the PaO2 of weak, moderate and high PE EP treating increased 12%, 18% and 22%, respectively (P < 0.05). The EVLW of patients treated by weak and moderate PEEP for 6 h decreased 12% and 15%, there was no difference between these two groups (p = 0.71, n = 15), but there were significance between them and control (p < 0.05, n = 15).

Conclusion: Appropriate PEEP according to the IAP can significantly improved PaO2 but have no significant effect on CO. It is worthy of further clinical application.

577

RESECTION WITH PLANNED HEPATECTOMY CONFFERS SURVIVAL BENEFIT IN HILAR CHOLANGIOCARCINOMA

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Background and Aims: Despite more aggressive surgical therapy, the prognosis of hilar cholangiocarcinoma (HCCA) patients is still poor. The aim of this study was to identify prognostic predictors for overall survival of patients with hilar cholangiocarcinoma with special focus on survival benefit of planned hepatectomy (PH).

Methods: A total of 136 consecutive patients with HCBT34 underwent resection from January 2006 to December 2010 were continually scrutinized. All parameters were collected from database prospectively recorded. Cox proportional hazards regression models were used to determine the association between possible prognostic variables and survival time.

Results: Negative margins were obtained in 96 patients (70.5%) and significantly associated with PH (89% vs 41%, p < 0.01). The mean survival time and 5-year survival rate was 49 ± 6 months and 29% for patients underwent PH, respectively, compared with 25 ± 3 months and 8% for patients did not (p < 0.01). Multivariate analysis demonstrated resection without PH (=Relative Risk (RR) 4.95% CI 2–6) and high preoperative serum peak bilirubin level (=RR 3, 95% CI 2–4) as adverse prognostic variables.

Conclusions: Resection with PH offers the best chance of long term survival. In addition, low preoperative serum peak bilirubin level showed independent survival advantage.

579

ROBOTIC VERSUS OPEN MIDDLE PANCREATECTOMY

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Background: Middle pancreatectomy (MP) is a recent skill for the treatment of benign and premalignant central parenchymal preservation is the most important advantage of this operation. We used robotic surgical system to carry out minimally invasive middle pancreatectomy.

Methods: From March 2010 to March 2012, 10 patients (8 females and 2 male), with a mean age of 47.5 ± 12.5 (31–62) years, underwent robot-assisted laparoscopic middle pancreatectomy at the Hepato-Bilio-
Pancreatic Surgical Department of Ruijin Hospital in Shanghai, China. Perioperative outcome were collected and compared with 36 open MPs performed in our institution at the same period.

Results: All 10 surgeries were successfully performed using the robotic surgical system. There were no mortalities. The mean operation time was 219.0 ± 47.2(150-330) min, average blood loss is 158.0 ± 107.4(50-400) mL. Pancreatic fistula occurred(ISGPF definition) in 7 cases (Grade A 5 cases, Grade B 2 cases), and anastomotic bleeding in 1. All complications resolved with conservative management. The mean postoperative hospital stay was 19.2 ± 9.4(13-41) days. Compared with open surgery, robotic group had a significantly less blood loss (158.0 ± 107.4 VS 341.1 ± 333.5 mL,p = 0.007), but the age, mean operation time, pancreatic fistula rate, complication rate, and tumor size were similar in the two groups. The robotic group had no transfusion (0.0 ± 0.0 VS 144.4 ± 329.9 mL,p = 0.013) and stayed in hospital for a significantly shorter time (19.2 ± 9.4 VS 28.6 ± 23.1 days,p = 0.036).

Conclusions: Robotic middle pancreatectomy is a feasible, less-invasive option for the resection of benign or borderline tumors of the neck or proximal body of the pancreas. It provides comparable functional advantages as well as reduced operative trauma.

581

CLINICAL APPLICATION OF A NOVEL TECHNIQUE OF PANCREATICOGASTROSTOMY WITH DUCT-TO-MUCOSA ANASTOMOSIS: A REPORT OF 75 CASES

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Objective: To introduce a novel reconstructive technique of the implanting pancreaticogastrostomy (IPG) with duct-to-mucoanostomosis after pancreateoduodenectomy (PD) or local resection of pancreas and evaluate its feasibility and efficiency.

Methods: The IPG was constructed as follows: An appropriate seromuscular incision was made in the posterior wall of the stomach, which was dissected from the layer of mucomuscular/mucosa for about 1.5 cm in deep. A 2 cm-freed pancreatic stump was implanted into the pouch between two layers of seromuscular and mucomuscular/mucosa by a continual suture using 4-0 Prolene from the left (greater curvature) to the right on the posteriосuperior of the gastric wall and the front capsule of pancreas stump. A hole was made on the mucosa close to the pancreatic duct. The duct to mucosa anastomosis was performed using 5-0 Polidioxanone Suture (PDS) by the maneuvers of one point suturing. A stent tube in duct was remained as inner drainage. The IPG was finished by the continuing suture on the posteriorinferior wall of gastric to the posterior of pancreas. The Clinical data of 75 cases who received IPG from Sep 2009 to may 2012 were recorded prospectively and obtained from Database. The statistical analyses of surgical complications, including pancreatic leakage were performed.

Results: PD or local resection of pancreas were performed for 81 cases in this period, among them 75 cases received IPG as Pancreateoenteric reconstruction. There were 51 males and 24 females with a mean age of 61.1 ± 11.6 years (range, 21 to 81 years). Operations were consisted of 68 PD and 7 local resection of pancreas due to malignancy for 64 cases and benign disease for others. The mean time for IPG was 25.9 ± 3.3 min, and the median was 26 min (range, 18 to 35). Hospitalization days after the surgery were 14.3 ± 7.4 d (range, 7 to 49). Thirty-one complications including pancreatic fistula were occurred in 26 cases indicating an operation morbidity of 34.7% (26/75). Total pancreatic leakage (fistula) occurred in 4 cases (5.3%), but graded B/C was occurred only in one case (1.3%). The remaining complications included 7 cases of delayed gastric emptying, 2 cases of gastrointestinal anastomosis bleeding, 1 case of bile leakage, 5 cases of severe steatorrhea and others in 8 cases. All of them were healed or relieved by either reoperation or conservative treatment. The operation mortality is zero.

Conclusions: The results of this initial application for IPG indicate that the technique is simple and feasible, can be performed with very low risk. It may provide a favorable outcome and could be an alternative method of pancreateoenteric reconstruction after PD. However, to determine its superiority over the conventional procedures, this operative technique should be evaluated more comprehensively in the further clinical study with larger series of cases.

Key words: Pancreateoduodenectomy, Pancreaticogastrostomy, Pancreatic leakage

582

LIVER RESECTION FOR SOLITARY LARGE HEPATOCELLULAR CANCER – EARLY OUTCOMES: A REPORT OF 16 CASES

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Background: Large HCCs are traditionally considered to be aggressive tumors with poor prognosis and little benefit from resection. Resection of large HCC is technically difficult and associated with morbidity and mortality. We describe our early experience with liver resection for solitary large HCC.

Methods: A retrospective review of 16 patients with solitary large HCC (≥ 10 cm) who were operated at 2 related tertiary referral hospitals in South India was done. Patient demographics, tumour-related factors, liver function, operative factors, adjunctive procedures, immediate post-operative outcome and early survival were analyzed.

Results: Of the 16 patients, 13 were men. The median age was 55 years (37-78). Four of the 14 patients were cirrhotic with Child’s score A; 3 were HBV positive. AFP was elevated in 6 patients with a mean level of
8890.2 IU/mL (range: 2.9-121000). The mean maximum diameter of the tumour was 15 cm (10-25). Adjunctive procedures were used in 3 (18.7%) patients. It included PVE (2), hepatic artery ligation and neo-adjuvant chemotherapy in one patient each. Nine patients underwent hepatectomy by anterior approach and seven by conventional approach. The average operative time was 8.06 h (4-10) and the average blood loss was 1350 mL (300-4000 mL). There was one perioperative mortality (6.25%) as a result of portal vein thrombosis and progressive liver failure. Two patients suffered serious intraoperative events viz, air embolism in 1 and bleeding necessitating packing and reoperation in another patient. Two patients required reoperation; one for pack removal and another for portal vein thrombosis. Morbidity was found in 3 (31.25%) patients. These included postoperative ascites in 3 (18.75%), biliary fistula in 1 (6.25%) and portal vein thrombosis in 1 (6.25%). Two patients received postoperative chemotherapy. Of the 14 patients who were available for follow-up, at a median follow up of 24 months, 5 patients had disease recurrence. Four of these patients died due of recurrent disease; another patient with isolated parietal wall recurrence was treated with reexcision. One patient died at 39 months due to interstitial lung disease. Two of these 5 patients presented with very early recurrence (<3 months) and they were both large HCCs in the background of cirrhosis and very high AFP levels.

Conclusion: Our experience with solitary large HCC suggests that liver resection can be done safely with acceptable morbidity and mortality. Solitary large HCC in a non-cirrhotic liver and low/normal AFP is associated with good survival when treated by liver resection.

585

COMBINATION OF ODDD-REGULATED ADENOVIRUS EXPRESSING RANTES AND NK-92 EXERTS ANTITUMOR ACTIVITY IN HEPATOCELLULAR CARCINOMA

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Oncolytic adenoviruses are modified based on adenovirus serotype 5 (Ad5), which belongs to subgroup C and depends on Coxsackie–adenovirus receptor (CAR) to recognize target cells. However, expression of CAR is generally low or lost in certain tumors including HCC. In contrast, CD46 is highly expressed in various kinds of malignant tumor cells. Therefore, we constructed an adenovirus vector expressing the human RANTES/CCL5 gene regulated by oxygen-dependent degradation domain (ODD), and analyzed its antitumor effects in vitro and in vivo. The human RANTES/CCL5 gene was fused with ODD by PCR and the recombinant oncolytic adenovirus containing RANTES-ODD, SG511-CCL5-ODD, was constructed by Gateway System, which infected cells by binding CD46. Viral replication experiments were performed to evaluate the selective replication ability of SG511-CCL5-ODD. RANTES expression was determined by ELISA. Chemotactic test was used to analyze the ability of the expressed RANTES to recruit NK92 cells. The antitumor effects of SG511-CCL5-ODD were examined in HCC xenografts in nude mice. A chimeric oncolytic adenovirus, SG511-CCL5-ODD, was constructed successfully. Cells infected with the recombinant virus could express RANTES selectively in different environments controlled by ODD, and the expressed RANTES could recruit NK92 cells by its chemotactic effect in vitro and improve the anti-cancer immune response in HCC xenografts in nude mice. The chimeric adenovirus SG511-CCL5-ODD highly expressed RANTES-ODD fusion gene in the hypoxia of HCC under the control of the ODD and effectively attracted NK92 cells and a huge number of immunocytes. These factors had complementary advantages and cooperated with each to exert enhanced antitumor efficacy.
condition. Coincidentally, hypoxia-induced factor-1z (HIF1z) and vascular endothelial growth factor (VEGF) mRNA were significantly higher in EH-CA1a cells than in EH-CA1b cells. Both cell lines were tumorigenic in nude mouse, however, EH-CA1a cells showed more aggressive characteristics. Most importantly, the EH-CA1a cells showed much more resistance against radiotherapy and chemotherapy with Gemcitabine. Metastasis-related genes including MMP-2, MMP-9, epithelial-mesenchymal transition (EMT) markers, Vimentin, Snail, and Twist, are more highly expressed in EH-CA1a cells than in EH-CA1b cells. Moreover, the percentage of cells expressing cancer stem cell-like marker, CD133, in EH-CA1a cells is much higher than that in EH-CA1b cells.

**Conclusion:** Establishment of these two cell lines will not only shed light on intratumoral heterogeneities of BDC, but also potentially facilitate the development of novel therapeutic approaches of BDC.

**Key words:** bile duct carcinoma (BDC), intratumoral heterogeneity, epithelial-mesenchymal transition (EMT), cancer stem cell, chemoradioresistance

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**588 LASER LITHOTRIPSY IN A DIFFICULT CASE OF HEPATOCHOLEDOCHOLITHIASIS WITH DISTAL COMMON BILE DUCT STRICURE**

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**Introduction:** The presence of intrahepatic lithiasis is an operative dilemma for surgeons. Not all cases are amenable to endoscopic retrograde cholangiography (ERCP) extraction, and intraoperative biliary extraction is fraught with difficulties. A usual option is to insert a t-tube to allow percutaneous cholecystomy extraction post-operatively. Hepatic resection is also another option but has a higher morbidity. Recent studies have shown the applicability of laser lithotripsy in the removal of intrahepatic stones.

**Methods:** We report a case of intrahepatic lithiasis not amenable to ERCP and intraoperative biliary extraction that was done in a center specialized in urologic cases.

**Summary:** A 52 year old male presented colicky abdominal pain where ultrasound showed calculous cholecystitis. Patient was initially treated with antibiotics but developed jaundice with acolic stools after a week. Patient was admitted and repeat ultrasound revealed calculous cholecystitis with suspicious obstructing calculi in the proximal CBD, distal CBD stricture was noted. Ductal dilatation and stone extraction failed, hence a F10 stent was inserted and scheduled for surgery. Intraoperative ultrasound revealed multiple stones in the CBD and was extracted through a cholecodochotomy. A 0.5 cm stone was impacted in the secondary radicles of the right hepatic duct. A flexible cysto-nephroscope Fr 8.5 was inserted and stone basket extraction done but failed. Laser lithotripsy was used to break the stone into smaller fragments, flushed out and extracted more proximally. A roux-en-y hepaticojejunostomy was done to bypass the distal CBD stricture. Patient recovered and was eventually discharged.

**Conclusion:** In intrahepatic stones that have failed ERCP and biliary extraction, the combination of a surgical enterotomy, biliary endoscopy, and laser lithotripsy could provide a viable option for stone removal. However, for centers not specialized in hepatobiliary surgery with lack of equipment, this could pose a significant challenge on its applicability.

**Keywords:** Laser lithotripsy, hepatolithiasis, choledocholithiasis, heptaocholedocholithiasis, choledochoscopy

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**589 TUMOR NECROSIS FACTOR-α INDUCES EPITHELIAL-MESENCHYMAL TRANSITION THROUGH NF-KB IN HEPATOCELLULAR CARCINOMA.**

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**Background:** Pro-inflammatory cytokines including tumor necrosis factor-α (TNF-α) produced in the hepatocellular carcinoma (HCC) microenvironment promote tumor development and metastatic progression. Invasion of HCC was associated with epithelial–mesenchymal transition (EMT), however, whether TNF-α promotes invasion through EMT in HCC remains unclear.

**Objective:** To study the roles of TNF-α in EMT of hepatocellular carcinoma (HCC) cells.

**Methods:** We selected two different HCC cell lines (Hep3B and SMMC-7721) to treat with TNF-α for 24 h. The invasion was evaluated by Transwell and Wound healing assay. The morphological change was observed by microscope and the expression of E-cadherin, Vimentin, Twist and N-cadherin was observed by RT-PCR, Western blotting and Immunofluorescent staining. Luciferase and Western blotting assay were used to detect the activity of NF-κB. The expression of Snail was observed by RT-PCR and Western blotting.

**Results:** Wound healing assay discovered that the scuffing distance of cells exposed to TNF-α was significantly increased compared with no-treatment group, and Transwell assay showed that the number of cells penetrated to the membrane was significantly increased. The phenotype of EMT was significantly upregulated after treatment of TNF-α. NF-κB was activated by TNF-α, and the upregulation of EMT was suppressed by inhibitors of NF-κB. In addition, the activity of Snail was significantly upregulated after treatment of TNF-α, and inhibitors of NF-κB reduced this change. Conclusion TNF-α promotes EMT of HCC through NF-κB-mediated Upregulation of Snail.
TWO CASES OF HEPATIC CARCINOMA POST-HEPATIC RESECTION PRESENTING WITH CHYLOUS ASCITES

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Background: Chylous ascites is a rare phenomenon characterized by milky turbid ascitic fluid usually caused by ruptured lymphatics associated with a variety of causes. The main causes are usually malignant tumors, hepatic cirrhosis and tuberculosis. This case report aims to present two cases of chylous ascites post-hepatic resection that presented with significantly different outcomes.

Presentation: Case No. 1. A 53 year old male alcoholic drinker presented with one month history of gradual abdominal enlargement, jaundice and dyspnea. Two years earlier, he underwent segment VII hepatic resection which revealed hepatocellular carcinoma with a cirrhotic background. One year after, patient had left lateral segmentectomy for segment 2-3 metastasis (Figure 1), and underwent chemoradiotherapy for mediastinal and left axillary lymph nodes metastasis 6 months after. Abdominal paracentesis done revealed the presence of chylous ascites. Patient’s ascites was refractory to diuretics, Octreotide and other medical management leading to his eventual demise 19 days after.

Case No. 2. A 48 year male with hepatitis B was diagnosed by CT scan with a 19 cm liver tumor involving segment V, VII and VIII infiltrating the pleura and right lower lung lobe, and multiple lymphadenopathy on the peripancreatic and paraaortic area. Right hemihepatectomy with enbloc resection of the diaphragm, mediastinal and left axillary lymph nodes dissection was done (Figure 2). Patient developed chylous ascites 8 days post-op but eventually subsided with NPO, dietary fat restriction and intravenous octreotide for 7 days. Patient recovered well.

Conclusion: Chylous ascites may present in 0.5-1% of patients with cirrhosis and ascites. It can occur later as a consequence of hepatocellular carcinoma. Post-surgical chylous ascites is rare although post-resectional hepatocellular carcinoma with lymphatic involvement could lead to the development of chylous ascites. The presence of liver cirrhosis with ascites could have led to liver failure causing intractable ascites that was refractory to treatment while prolonged multimodal conservative therapy aiming at decreasing lymph production amidst optimal nutritional supplement may help resolve post hepatectomy chylous ascites.

Keywords: Chylous ascites, Cirrhosis, Hepatic resection, Octreotide

THE EFFECT OF ACTIVE HEPATIC STELLATE CELL IN HEPATOCELLULAR CARCINOMA CHEMoresistance

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Background: Hepatocellular carcinoma chemoresistance is a particularly troublesome clinical problem. Active hepatic stellate cells (HSCs) in tumor microenvironment play a role in HCC invasion, migration and apoptosis, while its effect in generation of tumor chemoresistance is still unknown.

Objective: To find out the effect of HSCs in hepatocellular carcinoma chemoresistance and possible mechanism.

Methods: HCC cell lines Hep3b, Huh7 and SMMC-7721 were incubated in active hepatic stellate cell line (LX-2) conditioned medium (HSC-CM), rate of apoptosis was identified by flow cytometry and proportion of cell activity was determined via MTT at 12 h and 24 h after HCC treated with cisplatin. RT-PCR and western blot were used to survey the expression of EMT signatures. The cytokines expression in HSC-CM was found out by enzyme-linked immune sorbent assay (ELISA).

Results: Compared to the cisplatin group, Hep3b, Huh7 and SMMC-7721 cells in the presence of HSC-CM expressed higher EMT signatures and performed lower apoptosis rate, higher cell activity at 12 h and 24 h after treated with cisplatin. The ELISA indicated that high expression of HGF in the HSC-CM and HGF neutralizing antibody reversed the effect of chemoresistance induced by HSC-CM.

Conclusion: Active HSCs could induce HCC cell EMT, a possible mechanism to promote HCC chemoresistance.

APPLICATION OF RADIOFREQUENCY-ASSISTED LIVER RESECTION IN TREATMENT OF HUGE HEPATIC TUMOR

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Background and aims: Surgical resection is the most effective therapy for huge hepatic tumor (10 cm or greater) but a surgical procedure of great challenge because of the technical complexity, risk of massive bleeding, and severe intra- or postoperative complications especially for patients with severe cirrhosis. The objective of this research is to assess the efficiency of radiofrequency-assisted liver resection on controlling intraoperative blood loss and postoperative complications.
Methods: 31 cases with huge hepatic tumor underwent surgical resections from March 2011 to June 2012 were researched retrospectively, in which 15 cases adopt radiofrequency-assisted liver resection (RF-LR group) while 16 cases adopt the clamp-crush liver resection (CC-LR group). The characteristics including cirrhosis, prothrombin time, tumor size, intraoperative bleeding, resection time, blood transfusion, hilar blocking, postoperative complications, ICU and hospital staying days were compared. All the measurement data were analyzed using Mann-Whitney U test and the enumeration data were analyzed using chi-square test or Fisher probabilities.

Results: The number of patients with primary liver carcinoma, metastatic liver tumor and hepatic hemangio-oma was 10, 2, 3 respectively in RF-LR group and 13, 1, 2 in CC-LR group. Cirrhosis cases was 9 and 8 respectively in RF-LR group and CC-LR group (p = 0.722). There were no significant differences in tumor size between RF-LR group (661.5 cm³) and CC-LR group (600 cm³) (p = 0.874), while the volumes of intraoperative blood loss (600 mL vs. 1000 mL), the number of patients who received blood transfusion (6 vs. 13), the ICU staying days (1d vs. 7d) and hospitalization days (10d vs 12d) in RF-LR group were significantly lower than in CC-LR group (p = 0.005, p = 0.029, p = 0.037, p = 0.029). The resection time in RF-LR group was 240 (150-360) min and in CC-LR group the date was 247.5 (180-420) min (p = 0.511). Patients underwent hilar blocking were 9 and 14 in two groups, but there were no significant differences. There were only one case of bile leakage in RF-LR group while three cases in CC-LR group (p = 0.060). Referred to abscess, the date were 0 vs 1 (p = 1.000). The amounts of drainage (3 days) in two groups got no statistical difference (270 mL vs 210 mL, p = 0.362). No patients died intraoperatively and the hepatic function of all the subjects recovered to normal in the 7th day after operation.

Conclusions: Radiofrequency-assisted liver resection can effectively control intraoperative blood loss, reduce transfusion cases and ICU/hospital staying time, and it has great value in liver resection for the treatment of huge hepatic tumor.

596
THE RISK FACTORS OF POOR PROGNOSTIC IN MASSIVE HEMORRHAGE HEPATECTOMY PATIENTS IN MAINLAND CHINA
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Background: Massive bleeding during hepatectomy is a risk for mortality and morbidity. We examined the risk factors for massive bleeding and their correlations with poor outcomes.

Methods: The study was a retrospective case series. The amount of total blood transfusion above 3000 mL during the operation is the include criteria for patients. The general data of the patients before and during the operation were analyzed. The poor prognosis was defined as died in the hospital or abandoned treatments and died at home. The paired and unpaired t student and χ² tests when comparing normal and categorical variables, respectively. The factors related different prognostic results were compared by SPSS13.0 software by a univariate and multivariate analysis.

Results: In the last five years, 61 patients experienced massive hemorrhage in our Hospital. 8 patients died in the hospital and 14 patients died at home and 39 patients recovered. The univariate analysis result shows that: age, Child Pugh Classification, operation time, Pringle maneuver time, blood transfusion during the operation, the value of PH and HGB when transferred to ICU, acute kidney failure occurs or the mechanical ventilation time longer than four hours are all risk factors related to poor prognosis (p < 0.05). The stepwise multivariate logistic regression analysis was used for the above nine factors. The result shows that: the amount of blood transfusion during the operation higher than 10,000 mL, the Pringle maneuver time longer than 35 minutes, the value of PH lower than 7.2 when transferred to ICU, acute kidney failure occurs or mechanical ventilation time longer than four hours. The amount of drainage and blood transfusion on the operation day, 1st day and 2nd day of the death group are higher than that of the survival group.

Conclusion: The risk factors for poor prognostic of massive hemorrhage in hepatectomy patients includes: the amount of blood transfusion during the operation higher than 10,000 mL, the Pringle maneuver time longer than 35 minutes, the value of PH lower than 7.2 when transferred to ICU, acute kidney failure happens or mechanical ventilation time longer than four hours. The amount of drainage higher than 1000 mL on the operation day or the amount of drainage higher than 500 mL on the 1st day indicate a poor prognosis. The medical staff should discuss the possibility and necessity of operation for huge liver tumor and make a thorough evaluation and preparation before the operation.

597
ROLE OF ADJUVANT TACE IN PREVENTION OF EARLY RECURRENT FOR HCC IN BCLC STAGE A1 AFTER RADICAL HEPATECTOMY, A RCT
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Background and aims: High recurrence rate leads to poor prognosis of HCC patients after radical hepatec- tomy. Adjuvant transcatheter arterial chemoemboliza- tion (TACE) is a controversial therapy to prevent early recurrence. Published retrospective researches and none randomized controlled trials have shown contradictory results of adjuvant TACE for HCC patients in Barce- lona-Clinic-Liver-Cancer (BCLC) stage A1; therefore,
we need a strict randomized controlled trial to evaluate whether adjuvant TACE could reduce early tumor recurrence of these patients.

Methods: 165 patients, who underwent radical hepatectomy from Jan. 2008 to Dec. 2009 and 160 legal ones were randomly equally divided into 2 groups. Group A received adjuvant TACE one month after hepatectomy, and group B did not receive any adjuvant therapies. Follow-up was done regularly. Disease free survival (DFS) time and recurrence rate within two years were statistically analysed.

Results: Median follow-up duration was 37 months. Altogether 55 patients recurred. 48 recurrences happened within 1 year. Mean DFS time of group A and B were respectively 34.36 ± 1.59 months (5-43 months) and 32.10 ± 2.02 months (3-46 months) (p = 0.173) (Fig.1). 0.5, 1 and 2 year recurrence rates of two groups were 11.1% vs. 17.7%, 17.3% vs. 24.1%, 23.5% vs. 36.7% (p = 0.173), respectively. Multivariate COX regression analysis indicated that AFP (+) (HR:2.702, 95%CI:1.237-5.900, p = 0.013), blood transfusion(yes) (HR:3.067, 95%CI:1.412-6.664, p = 0.005), tumor diameter ( > = 3cm) (HR:1.892, 95%CI:1.025-3.493, p = 0.041), tumor with entire peplos (HR:0.431, 95%CI:0.244-0.781, p = 0.005) and Edmondson-Steiner grade (HR:2.575, 95%CI:1.389-4.773, p = 0.003) were factors related to early recurrence. A stratified analysis was done according to the result of COX analysis. In 67 patients with tumor diameter > = 3cm, mean DFS time of group A and B were respectively 30.30 ± 2.72 months (5-43 months) and 19.24±2.71 months (3-40 months) (p = 0.030) (Fig.2). 0.5, 1 and 2 year recurrence rates of two groups were 15.2% vs. 35.3%, 24.2% vs. 46.3%, 2.71 months (3-40 months) (p = 0.030), respectively. Multivariate COX regression analysis indicated that TACE (+) (HR: 0.268, 95%CI: 0.118-0.607, p = 0.002) was a protective factor and blood transfusion(yes) (HR:7.632, 95%CI:3.116-18.691, p < 0.0001) was a risk factor. However, in the other 93 patients with tumor diameter < 3 cm, there was no significant difference between the two groups of DFS time and within 2-year recurrence rate (p = 0.501).

Conclusions: Adjuvant TACE is not recommended as a routine therapy to prevent early tumor recurrence for HCC patients in BCLC stage A1 after radical resection. However, these patients with tumor diameter > = 3cm, adjuvant TACE is also considered for, especially if they accept blood transfusion perioperative period.

599 FOREIGN BODY IN THE COMMON BILE DUCT -ABSORBABLE GAUZE-A CASE REPORT

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Absorbable gauze migration into the common bile duct following operation on liver is an extremely rare complication. Migrated Absorbable gauze into the common bile duct can cause abdominal pain, obstruction, serve as a nidus for stone formation, and cause cholangitis. We report a case of cholangitis due to a migrated absorbable gauze after operation on liver, which was successfully treated by endoscopic extraction.

600 THE VALUE OF REAL-TIME TISSUE ELASTOGRAPHY IN THE DIFFERENTIAL DIAGNOSIS OF FOCAL NODULAR HYPERPLASIA AND HEPATIC ADENOMA

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Background and aims: Focal nodular hyperplasia (FNH) and hepatic adenoma (HCA) are the most frequently seen non-vascular benign liver tumors. The importance of differentiating these lesions is based on the fact that HCA should be surgically resected and FNH can be only observed. They are often asymptomatic, and the diagnosis principally depends on the enhanced CT, MRI and US by the arterial phase enhancement, filling direction, stellate arteries, and portal phase enhancement. Different with those, the real-time tissue elastography (RTE) can inspect and measure the stiff of these lesions. We are aimed to investigate the diagnostic value of real-time tissue elastography in the differential diagnosis of FNH and HCA, in expectation to offer a new method.

Methods: Between July 2010 and July 2012, 28 persons who underwent real-time tissue elastography and were histologically proved FNH (n = 22) or HCA (n = 9). It was retrospectively assessed with grade scores (grade 1–5) and the strain ratio (SR) of the lesions was calculated.

Results: Majority of lesions with grade 3-4 on elastography were identified as FNH on pathology, while most of masses with grade 1 on elastography were confirmed as HCA on pathology. The grade scores of FNH and HCA were significantly different (p = 0.0002). The strain ratio of FNH was significantly higher than that of HCA(7.47 ± 4.53 vs. 1.64 ± 0.88, p < 0.0001).

Conclusion: The stiff of FNH is significantly higher than that of HCA in RTE, which is helpful in differential diagnosis.

602 STAPLED BILIARY-ENTERIC ANASTOMOSIS AFTER PANCREATICODUODENECTOMY FOR PATIENTS WITH PANCREATIC HEAD CARCINOMA: A SINGLE-CENTER STUDY

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Purpose: This study aimed to evaluate the safety and efficacy of stapled biliary-enteric anastomosis after pancreaticoduodenectomy, and to analyze the anastomotic outcomes 12-month after the operation.
Methods: A retrospective analysis of a prospectively collected database was conducted, which included 24 patients with a main bile duct greater than 20 mm who underwent stapled biliary-enteric anastomosis after pancreaticoduodenectomy for the treatment of pancreatic head carcinoma between September 2007 and March 2011.

Results: All patients successfully underwent the surgery. Mean operative time for stapled biliary-enteric anastomosis was $4.56 \pm 0.85$ min and mean length of hospital stay was $13.71 \pm 3.00$ days. There were no mortalities and morbidities directly related to mechanical anastomosis during hospital stay. Additionally, a significant decrease of serum biliary enzymes to normal levels was observed at 1-month after surgery. During a 12-month follow-up period, only one patient developed cholangitis, and no evidence of anastomotic leakage and stricture formation in the present series.

Conclusion: Stapled biliary-enteric anastomosis can be performed more time-saving and easier than traditional hand-suturing. Moreover, the technique is safe and effective for biliary-enteric reconstruction after PD when the caliber of main bile duct is suitable to perform it.

604

ARE THE FACTORS AFFECTING EARLY RECURRENCE AND AFFECTING LATE RECURRENCE AFTER CURATIVE HEPATECTOMY DIFFERENT?

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Background and aims: Recurrence after curative hepatectomy remains a great challenge for surgeons. Factors affecting recurrence had been discussed for years. Whether the factors affecting very early recurrence and very late recurrence differ remains unclear. The aim of this study is to elucidate the difference.

Methods: A consecutive series of 352 patients receiving potentially curative hepatectomy were enrolled into this study. All were regularly followed up. Recurrence developed in 189 patients (53.7%) who were divided into group A (recurrence $\leq 12$ months; very early recurrence), group B (recurrence $> 12$ to $\leq 24$ months; early recurrence), group C (recurrence $> 24$ to $\leq 36$ months; late recurrence), and group D (recurrence $> 36$ months; very late recurrence).

Results: The significant factors affecting recurrence of group A ($n = 153$) included liver cirrhosis ($p = 0.033$), high AFP value ($p = 0.000$), elevated ALT ($p = 0.000$), rupture ($p = 0.041$), stage ($p = 0.000$), surgical margin ($p = 0.000$), incomplete capsule ($p = 0.000$), satellite nodule ($p = 0.000$), multi nodule ($p = 0.000$), multi centric ($p = 0.000$), grade of differentation ($p = 0.000$) and vascular invasion ($p = 0.000$). These factors affecting group B ($n = 27$) are hepatitis ($p = 0.033$), elevated ALT ($p = 0.027$), stage ($p = 0.000$), satellite nodule ($p = 0.000$), multi nodule ($p = 0.002$), grade of differentation ($p = 0.000$) and vascular invasion ($p = 0.000$). The factor affecting group C ($n = 2$) included high AFP value ($p = 0.006$) and these affecting group D ($n = 7$) are high AFP value ($p = 0.044$), satellite nodule ($p = 0.000$). From survival time points of view, the multivariate analysis showed significant factors of group A are multi nodule ($p = 0.017$) and multi centric ($p = 0.010$); group B are grade ($p = 0.008$) and hepatitis ($p = 0.019$) respectively.

Conclusion: The factors affecting early recurrence and late recurrence are different. Margin, vascular invasion and grade of cellular differentiation are main determinant for very early or early recurrence, while AFP value is the key determinant of late or very late recurrence.

605

SELECTIVE TROPISM OF RAT LIVER EPITHELIAL CELLS TO HEPATOCELLULAR CARCINOMA – AN IN VIVO STUDY OF RAT

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Background and aims: Hepatocellular carcinoma (HCC), one of the most malignancies worldwide, is prevalent in asian counties. For those unsuitable for resection or transplantation, medical or target therapy is limited. Progenitor cells may be the “cell of origin” for cancer because of their capacity for unlimited replication. Progenitor cells posing a selective migration capacity to tumor has been reported. However, after the progenitor cells entering into the tumor, how they affect the tumor remain unknown.

Methods: Rat liver epithelium cells (RLE cells) were separated from 10-day-old suckling F344 rats. These progenitor cells were infected with enhanced green fluorescence protein (EGFP). They were decided into CD90+ cells or CD90- cells into liver with 1.5 cm far from injection of EGFP, these cells were observed to migrate into the tumor site. At the 20th day, the rats were sacrificed to analyze the size of tumor and the tropism of these cells.

Results: After sorting, flow cytometric analysis showed the purity of CD90+ cells 94.1% and that of CD90- cells 99.0%. Tropism of both CD90+ cells and CD90- cells to the tumor was demonstrated from the presence of EGFP within the tumor after injection. A significant reduction of the size of the tumor on 20th day after...
609

THE IMPACT OF TACE BEFORE LIVER TRANSPLANTATION ON THE PROGNOSIS OF PATIENTS WITH HEPATOCELLULAR CARCINOMA

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Background & aims: The impact of transarterial chemoembolization (TACE) before liver transplantation (LT) for hepatocellular carcinoma (HCC) on patient long survival is unknown. Investigate the impact of transarterial chemoembolization (TACE) before liver transplantation (LT) for hepatocellular carcinoma (HCC) on patient to prolong survival.

Methods: Between Jan 2002 to Dec 2010, 204 patients with HCC in PLA general hospital liver transplant center were evaluated for LT. Among these 204 patients, 88 patients received transarterial chemoembolization before LT (TACE group) and 116 patients did not (no-TACE group). Kaplan-Meier estimates were calculated 5 years after LT and were compared with the log-rank test.

Results: In TACE group and non-TACE group, the diseases free survival, with tumor survival time, tumor recurrence, tumor size, vascular invasion, tumor number, AFP are significant different. Different classification factors preoperative TACE on liver transplant recipients: Child-Pugh classification, surgical approach, tumor size, vascular invasion, Edmndson classification of tumors, the number of tumors, AFP, postoperative complications are significant different. Patients with preoperative TACE treatment and no-TACE treatment ,the 1, 3, 5-year cumulative survival rates were 70.5% vs. 91.4%, 53.3% vs. 83.1%, 46.2% vs. 80.8%, respectively. The median survival time of 51.857 ± 5.042 vs. 80.930 ± 3.308. Log-Rank test χ² value = 22.547, p = 0.000, p < 0.05. 1, 3, 5-year cumulative disease-free survival rates were 62.3% vs. 87.9%, 48.7% vs. 82.1%, 48.7% vs. 82.1%, respectively. The median survival time of 50.386 ± 4.901 vs. 80.281 ± 3.216. Log-Rank test χ² value = 22.063, p = 0.000, p < 0.05.

Conclusions: TACE before liver transplantation for hepatocellular carcinoma patients have no positive significance on its long-term survival rates and tumor-free survival rate, however, reduced the long-term survival.

610

LIVER-TO-SPLEEN RATIO AS AN INDEX OF CHRONIC LIVER DISEASES AND SAFETY OF HEPATECTOMY

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Background and aims: Severe complications such as hepatic failure are the main causes for post-hepatectomy death. Accurate preoperative evaluation of func-
tional liver reserve is the key to ensure safety of the operation. The currently available evaluation of functional liver reserve are still not accurate. Former researches found spleen would gradually enlarge with liver chronic disease such as fibrosis and cirrhosis got worse. So preoperative liver-to-spleen ratio (LSR) may be an indicator to evaluate severity of liver disease and may indicate safety of hepatectomy.

Methods: The volumes of liver and spleen were evaluated on computed tomography (CT) scan in 70 patients who received partial hepatectomy. Preoperative liver-to-spleen ratio (LSR) was calculated. Statistical analysis was conducted to examine the relation between LSR and the grade of chronic liver diseases in 70 patients and to evaluate the safety of hepatectomy indicated by LSR.

Results: LSR had a negative correlation with the grade of chronic liver diseases(liver disease grade: normal, fibrosis1-4, liver cirrhosis, confirmed by pathological examine) (r = -0.871, p < 0.0001). Moreover, LSR = 3.333 was the cut-off point for diagnosing liver cirrhosis. This ratio had a sensitivity of 94.7% and a specificity of 90.2% (AUC = 0.963, 95%CI: 0.912–1.000). LSR was also related to some preoperative serum chemical test: pre-albumin (r = 0.493, p < 0.0001), PT (r = -0.335, p = 0.005), INR (r = -0.338, p = 0.005), PLT (r = 0.435, p < 0.0001). The evaluation suggested that for patients who received hepatectomy with LSR > 2.904 the incidence of postoperative inadequacy and mortality from liver failure were significantly reduced than those with LSR ≤ 2.904 (3.7% vs. 56.25%, p < 0.0001) with a sensitivity of 90% and a specificity of 88.3% (AUC = 0.880, 95%CI: 0.811–1.000). LSR was still related to some postoperative serum chemical test: total bilirubin (day3,7), prealbumin (day1,3,7), PT (day1,3,7), INR (day1,3,7). Logistic regression indicated that LSR > 2.904 was the independent factor which affected liver inadequacy or failure of postoperative safety (B = -4.203, OR = 0.015, 95%CI: 0.002–0.137, p < 0.0001).

Conclusions: Preoperative LSR correlated well with the grade of chronic liver diseases and it predicted the safety of major hepatectomy. LSR is also able to indicate liver synthesis function and is correlated with portal hypertension according to the relationship of LSR and serum chemical test.

611 PORTAL VEIN CLAMPING ONLY CONFFERS PROTECTION AGAINST HEPATIC ISCHEMIA-REPERFUSION INJURY IN CIRRHOTIC RATS

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Background and aims: Portal triad blood inflow occlusion during liver surgery is effective in reducing intraoperative bleeding, whereas cirrhosis weaken the tolerance of liver to hemorrhage and ischemia reperfusion injury resulted from vascular occlusion. A suitable vascular occlusion method is vital for a successful operation. We aimed to explore the protective effects of portal vein clamping only (PVC) on cirrhotic livers of rats underwent ischemia and reperfusion injury and compared with intermittent portal triad clamping (IC).

Methods: Cirrhotic rats induced by carbon tetrachloride were randomly assigned into 4 groups: sham operation (SO), portal triad clamping (PTC), PVC and IC (15 min ischemia alternated with 5 min reperfusion). After 45, 60 or 75 min of different portal vascular clamping, the hepatic injury and liver function were investigated by assessing the 7d survival rate, liver blood loss, serum alanine aminotransferase (ALT), liver tissue malondialdehyde (MDA), liver tissue ATP, indocyanine green retention rate at 15 min (ICGR15) and histopathology changes.

Results: The 7d survival rates of PVC and IC group were higher than PTC group with 60 or 75 min of ischemia. The amount of liver blood loss during hepatectomy ranked as follows: group PTC < group IC, group PVC < group SO(p < 0.01),and there was no difference between IC and PVC. At 1 h, 6 h and 24 h postreperfusion, the ALT and MDA levels of group PTC, PVC and IC increased significantly compared to SO (p < 0.01), but PVC was much higher than group PVC and IC (p < 0.05). The ICGR15 of PTC and IC rats was similar, which was significantly higher than those of PVC and SO rats (p < 0.05). Although the ATP levels of all the three clamping groups decreased markedly after ischemia and reperfusion compared with SO group, the ATP level of PVC was much higher than PTC and IC group (p < 0.05). The hepatic injury of group PVC and IC were similar but both slighter than those of group PTC according to histopathological analysis.

Conclusions: The method of portal vein clamping alone (PVC) could confer protection against hepatic ischemic reperfusion injury as intermittent portal triad clamping (IC) in cirrhotic liver of rats. However, the PVC method is more efficient in retaining the energy and function of hepatocytes than the method of IC and suggesting better prognosis.

612 CORRELATION BETWEEN JAUNDICE AND PROGNOSIS OF GALLBLADDER CANCER

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Background: To explore the correlation between jaundice and the prognosis of gallbladder cancer.

Methods: We retrospectively analyzed 181 patients with gallbladder cancer who were treated at our department from December 2002 to June 2010. Jaundice was found in 91 patients and 90 patients without jaundice.

Results: The median survival time in patients with jaundice (8.8 ± 1.6 months) was significantly shorter than that in one without jaundice (24.8 ± 3.0 months) (p < 0.01). All patients with jaundice had stage III or IV gallbladder cancer of whom the median survival...
time was shorter than that in stage III or IV gallbladder cancer patients without jaundice (16.3 ± 2.3 months) (p < 0.01). The patients with jaundice had a lower rate of radical resection (30.8%) than did stage III or IV gallbladder cancer patients without jaundice (62.2%). The jaundice group’s median survival (19.5 ± 4.5 months) was comparable to the survival (22.1 ± 3.1 months) of in-patients without jaundice in stages III & IV (P > 0.05).

Conclusions: Jaundice is an important factor indicating the prognosis of patients with gallbladder carcinoma. Most patients with jaundice have reached stages III & IV, and the low rate of radical resection also results in the poor prognosis of these patients. Therefore; an increased rate of radical resection should improve the prognosis of patients with jaundice.

Key words: Gallbladder cancer; Radical resection; Patient survival

614
ANALYSIS ON THE EFFICACY OF POSTOPERATION RADIOTHERAPY IN GALLBLADDER CANCER
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Objective: To summarize the treatment experiences of gallbladder cancer, evaluate the efficacy of postoperative radiotherapy, and investigate the method of improving the survival rate of gallbladder cancer patients.

Method: Retrospectively analyzed the clinical data and follow-up results of 127 gallbladder cancer patients among which 84 cases was resected radically alone and 43 cases had an combination of surgery and postoperative radiotherapy between June 2003 to December 2009. According to AJCC staging criteria, compare the survival time and 1,3,5-year survival rates of the surgical group and the postoperative radiotherapy group in the different pathological staging and resection margin case.

Results: (1) The median survival time of postoperative radiotherapy group in Stage III was 16.9 months, 1 year, 3 year, 5 year survival rates were 55.7%, 23.5% and 18.2%, which were higher than that of simple operation group (median survival time was 14.3 months, 1 year, 3 year, 5 year survival rates were 42.7%, 22.6% and 16.7%), the difference was statistically significant (p < 0.05). In Stage IV, the median survival time of postoperative radiotherapy group and operation group were 9.7 months and 6.3 months, 1 year survival rate were 14.2% and 9.8%, the 3 year survival rate were 7.2% and 3.9%, the 5 year survival rate were 7.2% and 1.9%, the difference was statistically significant (p < 0.05). And there was no statistically significant difference in stage I, II. (2) R0 or R1 resection, the median survival time and the 1,3,5-year survival rates of postoperative radiotherapy group was significantly higher than surgery alone group in III, IV patients (p < 0.05). (3) The main side effects in postoperative radiotherapy include nausea, vomiting and abdominal pain and to be symptomatic and supportive therapy may be successful completion of radiotherapy.

Conclusion: With regard to the gallbladder cancer patients in III, IV stage, according to the different Staging, choosing a positive modus operandi and postoperative radiotherapy will enhances the survival rate. For I, II stage gallbladder cancer patients, postoperative radiotherapy did not significantly improve survival.

615
THE EFFICACY OF RADIATION THERAPY FOR PATIENTS WITH ADVANCED GALLBLADDER CARCINOMA AND ANALYSIS OF PROGNOSTIC FACTORS
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Objective: To analyze the efficacy and evaluate the security of advanced gallbladder cancer radiation therapy retrospectively, in order to improve the prognosis.

Methods: 87 cases of gallbladder carcinoma were taken with three-dimensional conformal radiation therapy. 81 cases can be evaluated. Nevin staging for IV was in 23 cases, 58 cases were in V. Male was in 35 cases, 46 cases were of women. Single dose of 1.8 to 2.2 Gy, once a day, five times a week, the total dose was 38 to 65 Gy.

Results: Cox regression analysis showed that: The serum CA199 value, efficacy and prognosis were with relation. Patients with advanced gallbladder carcinoma was in 81 cases, complete remission rate was 12.3% (10 cases), partial remission rate was 42.0% (34 cases), the efficiency was 54.3%. The survival rate of 3 month was 95.1% (77 cases), survival rate of 6-month period was 69.1% (56 cases), and the survival rates of 1 year, 2 years and 3-year were 24.7%, 3.7%, 1.2%, and the median survival was 8.5 months. The main response of Toxicity is the recent gastrointestinal tract returned to normal after symptomatic treatment. Digestive reaction of grade I was in 31 cases, grade II was in 10 cases, the rate was 50.6%. The hematological toxicity of leukopenia and degree I was in 15 cases, II was 5 cases, the rate was 24.7%. The thrombocytopenia of I was in 8 cases, II degree was in 3 cases, the rate was 35.5%. No one cases was with termination treatment due to severe radiation reaction.

Conclusions: The three-dimensional conformal radiotherapy can prolong survival time of patients with advanced gallbladder, and alleviate the symptoms; most patients can tolerate side effects.
SURGICAL TREATMENT OF HEPATOCELLULAR CARCINOMA WITH INFERIOR VENA CAVA TUMOR THROMBOSIS

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Background and aims: Hepatocellular Carcinoma (HCC) with Inferior Vena Cava (IVC) tumor thrombosis is rare, and its prognosis is extremely poor. Non-surgical treatment for these patients causes tumor invasion to Right Atrium leading to heart failure and sudden death. The surgical treatment of this disease can prevent the unfortunate heart failure and invasion of tumor in the Right Atrium. We report the case of this surgery to investigate the Preoperative planning, surgical techniques and postoperative efficacy of this disease;

Methods: A 42-year-old man suffered from HCC with IVC tumor thrombosis invasion, was admitted to our hospital in MAY 2012. To prevent functional insufficiency of liver or liver failure at postoperative period, we decided to reserve the sixth(VI)segment of the liver via reserving the inferior right hepatic veins (IRHV), thus the patient underwent Liver resection segment V, VII, VIII, Cholecystectomy, and Inferior Vena Cava tumor thrombosis removal Surgery in our hospital;

Results: The patient shows great recovery without any significant complications with normal AFP value and liver function, CT scan shows no metastasis. No sign of recurrence have noticed during the follow-up till November 2012;

Conclusions: Liver resection and IVC tumor thrombosis removal Surgery can be safely performed on the case of HCC with Tumor Thrombosis in IVC; surgical treatment can relieve the patient from the risk of sudden death caused by heart failure and pulmonary; When the IRHV existing, resection the segment V, VII, VIII, reserving the segment VI of the liver can prevent functional insufficiency of liver or liver failure at postoperative period.

POTENTIAL RISK FACTORS FOR INTRAHEPATIC CHOLANGIOCARCINOMA (ICC) AND ANALYSE

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Aims: To evaluate potential risk factors for intrahepatic cholangiocarcinoma (ICC) and analyse clinicopathologic characteristics of ICC patients with seropositive hepatitis B surface antigen (HBsAg).

Methods: A retrospective case-control study was conducted. Cases were 317 ICC patients referred to the Eastern Hepatobiliary Surgery Hospital in China between 2003 and 2006. Controls were 634 healthy individuals. Adjusted odds ratios (ORs) were calculated in logistic regression analysis. Among 317 consecutively enrolled ICC patients, 154 patients were seropositive HBsAg (48.6%). We compared clinicopathologic characteristics of these patients (group I) with ICC patients seronegative for HBsAg (group II; n = 163) and compared the age and sex distributions of patients in group I with randomly selected hepatitis B virus (HBV)-associated hepatocellular carcinoma (HCC) (group III; n = 1140).

Results: Compared with the controls, ICC patients had a high prevalence of seropositive HBsAg, cirrhosis, hepatolithiasis and hepatic schistosomiasis. Compared with seronegative-HBsAg ICC patients, seropositive-HBsAg ICC patients were younger, more frequently male and had a higher proportion of abnormal amino-transferase and serum alpha-fetoprotein (AFP) level, histological inflammation and cirrhosis, right-lobe focus, poor tumour differentiation, tumour encapsulation and microvascular invasion; had a lower proportion of abnormal serum carbohydrate antigen 19-9 (CA19-9) level and lymphatic metastasis. The age and sex distribution profiles were nearly identical between seropositive-HBsAg ICC patients and HBV-associated HCC patients.

Conclusions: The HBV infection, cirrhosis, hepatolithiasis and hepatic schistosomiasis may be potential risk factors for ICC. HBV-associated ICC shares many clinicopathological similarities with HBV-associated HCC. The result indicated HBV-associated ICC and HBV-associated HCC may hold common disease process for carcinogenesis.

COMBINATION THERAPY OF MULTIPLE MICRO TRAUMA TECHNOLOGY ON HEPATOCELLULAR CARCINOMA

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Objective: To compare efficacy of therapy scheme as Transhepatic Artery Chemoembolization (TACE) + Radiofrequency Ablation (RFA) + Introportal Vein Chemoembolization (PVCE) + Percutaneous Ethanol Injection (PEI) therapy (quadruplet group) with TACE + RFA combinational therapy (diad group) in treating hepatocellular carcinoma (HCC).

Methods: 25 cases in quadruplet group were treated by TACE for 3 weeks, then by RFA, after 2 months, by PVC + PEI; 23 cases in diad group were treated by TACE for 3 weeks and then by PEI. After completion of each treatment course in both groups, Alpha-fetoprotein (AFP) was tested 2 months later, abdomen colorul doppler, CT and AFP were retesed 6 months later.

Results: AFP was significantly decreased in 23 cases of quadruplet group and 20 cases of diad group among those with AFP positive results. 6 months later, examinations of CT, colorful Doppler and AFP in two
groups showed: quadruplet group has significantly decreased (X2 = 6.81, p < 0.01) blood supply of cancer tissue and significantly diminished (X2 = 8.29, P < 0.01) tumor size, few cases with AFP elevation (X2 = 5.06, P < 0.05); lower 1 year relapse rate and two years mortality than that in diap group (X2 = 5.30, P < 0.05).

Conclusion: TACE+RFA+PVC+PEI combinational therapy is a safe double intervention treatment for HCC scheme with less side effects, which is better than TACE+PEI scheme in killing remnant tumor and reducing relapse.

622

PANCREATICODUODENECTOMY FOR THE PATIENTS WITH MALIGNANT CHOLEDOCHAL CYST: REPORT OF 4 PATIENTS AND REVIEW

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Due to easy canceration developed into bile duct cancer, congenital bile duct cystic dilatation have usually been considered a precancerous lesion. Once the malignant transformation occurs, it is difficult to resection and the prognosis is poor. In the past three years, we have successively for 4 cases of malignant congenital cystic dilatation of bile duct patients underwent radical pancreateicoduodenectomy. All of 4 patients were female, aged 35–46 years old. 1 of the patients died at 11 months after surgery, two cases have survived for more than two years, the longest surviving more than 31 months, and no signs of recurrence and metastasis, and 2-year cumulative survival rate was over 50%. The pancreateicoduodenectomy could make part of patients with congenital bile duct cystic dilatation of malignant long-term survival, have a good effect.

623

OCCULT HEPATITIS B VIRUS INFECTION: AN IMPORTANT RISK FACTOR FOR DEVELOPMENT OF INTRAHEPATIC CHOLANGIOCARCINOMA

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Background/Aims: While some data are available concerning occult hepatitis B virus (HBV) infection (OBI) in patients with hepatocellular carcinoma (HCC), there is no information about the cryptic infection in individuals with intrahepatic cholangiocarcinoma (ICC). The aim of this study was to investigate the correlation of OBI and ICC development.

Methods: A retrospective case-control study was conducted. Cases were 183 cryptogenic ICC patients (group I) with referred to the Eastern Hepatobiliary Surgery Hospital in China between Jan 2003 and Oct 2007. Controls were 549 healthy individuals (group II). The cases and controls were matched in age, sex and inhabitancy. Data were analyzed by statistical technique of Chi-square test and conditional logistic regression. Adjusted odds ratios (ORs) and 95% confidence interval (95%CI) were calculated in logistic regression analysis. The intrahepatic total HBV DNA in 63 paraffin-samples was collected from group I (n=44), HBV-associated ICC patients (n = 3) and cavernous hemangioma of liver patients with seronegative HBsAg (hepatitis B S antigen) (group III; n = 16). We performed PCR-fluorescence probing to determine the levels of sera and intrahepatic HBV DNA, and compared the intrahepatic HBV DNA of 44 patients in group I with group III.

Results: HBeAg was negative in all of cryptogenic ICC patients and controls. 26.23% and 31.69% of patients in group I and group II were negative for all serological antibodies of HBV, respectively. Compared to group II, group I had a lower prevalence of anti-HBs (antibody of HBsAg) (50.27% vs. 59.93%, p = 0.022) and had a higher prevalence of anti-HBe (37.16% vs. 8.01%, p<0.001) or anti-HBc (62.30% vs. 20.40%, p < 0.001). Multivariate analysis confirmed that anti-HBe and anti-HBc positivity were associated with ICC (OR, 2.244; 95% CI, 1.070-4.705) and 4.050 (2.141-7.663), respectively. Compared with group III, cryptogenic ICC patients were more frequently male and elder, but no statistical difference in age was found between two groups. Cryptogenic ICC cases had a more highly detectable rate of intrahepatic total HBV DNA than group III (63.64% vs. 18.75%, p = 0.002).

Conclusions: The OBI may be a potential risk factor for ICC development. HBsAg seroclearance do not signify eradication of HBV and could not entirely prevent the development of ICC.

625

CONTRAST-ENHANCED INTRAOPERATIVE ULTRASONOGRAPHY FOR DETECTION OF MALIGNANT LIVER TUMORS: A META-ANALYSIS

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Background and Study aims: Malignant liver tumors include primary hepatic carcinomas and secondary hepatic metastases. Postoperative early recurrence is a critical problem influencing the life span of patients. Some early recurrences seem to occur from minor or inconspicuous tumors which were overlooked during both preoperative and intraoperative investigations. Though many detection techniques, such as CT, MRI and intraoperative ultrasonography(IOUS), have improved the detection rate of tumors, some lesions were still neglected. Contrast-enhanced intraoperative ultrasonography(CE-IOUS) has been reported to improve the tumors detection rate significantly. We aimed to assess the accuracy of CE-IOUS in diagnosing malignant liver tumors by pooling data of existing trials.
Methods: A literature search was independently done by two reviewers to identify all relevant studies. Studies pertinent to the diagnostic performance of CE-IOUS for detection of malignant liver tumors were included without restriction of language. Reviews, comments, case reports and studies with insufficient data were excluded. The Quality Assessment of Diagnostic Accuracy Studied (QUADAS) questionnaire was used to assess the quality of the selected studies. The significance and the extent of heterogeneity were calculated using Q test and I2 index respectively. Meta-analysis was done using fixed effect model or random effect model by using Meta-Disc software (Version1.4).

Results: 9 studies involving 584 patients and 2057 lesions were analyzed. Test of heterogeneity was significant for the analysis, meta-analysis was performed using random effect model. The pooled sensitivity of CE-IOUS for detection of malignant liver tumors was 92% (95% CI, 0.91-0.94), and the specificity was 81% (95% CI, 0.76-0.86), the positive likelihood ratio (LR) was 3.59 (95% CI, 1.64-7.89) and the negative LR was 0.08 (95% CI, 0.03-0.21). The area under the curve (AUC) under the summary receiver operating characteristic (SROC) was 0.9445.

Conclusions: Contrast-enhanced intraoperative ultrasonography improves the ability to detect potential malignant liver tumors, and helps to adjust surgical approach. Thus, it will be a reasonable and effective modality for management of liver tumors.

627

BLOCKADE OF STORE-OPERATED Ca2+ ENTRY INHIBITS HEPATOCELLULAR CARCINOMA CELL MIGRATION AND INVASION BY REGULATING FOCAL ADHESION TURNOVER

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Background and aim: Store-operated Ca2+ entry (SOCE) is a main Ca2+ influx pathway controlling the intracellular Ca2+ concentration in normal hepatocytes and hepatocellular carcinoma (HCC) cells. Ca2+ influx has been demonstrated to be involved in liver oncogenesis. Stromal interacting molecule (STIM) 1 acts as a sensor for the level of Ca2+ stored in the endoplasmic reticulum, and Orai1 protein constitutes the pore-forming subunit of the store-operated channels. Recently, STIM1 and Orai1 were found critical for breast tumor cell migration and metastasis. However, the effects of Ca2+ influx pathway on migration and metastasis have not been studied in hepatocellular carcinoma.

Results: Here, we found that STIM1 had a higher expression in hepatoma tissues than in pericancerous tissues of the same patients. In general, STIM1 expression is elevated in HCC cell lines compared to a normal hepatocyte cell line. HCC-LM3 cell, which has a higher migration ability, expresses five times higher level of STIM1 than other HCC cell lines.

Conclusions: STIM1 could then be explored as a prognostic marker to screen liver cancer patients with high metastatic potential. Inhibition of SOCE and STIM1 enhances focal adhesions and decreases the focal adhesion turnover, suggesting the therapeutic potential of SOCE and STIM1 as new molecular targets for metastatic HCC.

628

EFFICACY AND SAFETY EVALUATION OF SIMULTANEOUS SURGICAL TREATMENT OF PRIMARY HEPATOCELLULAR CARCINOMA ASSOCIATED WITH PORTAL HYPERTENSION

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Background and aims: To evaluate the efficacy and safety of simultaneous surgical treatment (radical hepatic resection combined with splenectomy and portaazygous devascularization) of primary hepatocellular carcinoma (HCC) associated with portal hypertension (PHT).

Methods: The data of 108 primary HCC patients with and without PHT treated surgically during April 2004 to April 2008 in one single surgical unit of Shanghai Eastern Hepatobiliary Surgical Hospital were analyzed. These patients were divided into three groups: simultaneous surgical treatment group, control group I, and control group II. Patients in the simultaneous surgical treatment group were diagnosed with HCC associated with severe PHT. Control group A included patients diagnosed with HCC associated with mild PHT and treated with radical hepatic resection. Control group II included patients with HCC without PHT and treated with radical hepatic resection. The clinical data and follow-up results were examined and compared between theses three groups.

Results: The average costs and length of hospital stay were higher in the simultaneous surgical treatment group comparing to the two control groups. One patient in control group A had died during the per-operation period, 58 patients had died during the 3-year follow-up period. The occurrence of post-operative ascites and the levels of post-operative white blood cell (WBC) and platelet counts were higher in the simultaneous surgical treatment group comparing to the two control groups. Long-term hemorrhage rate in the simultaneous surgical treatment group is significantly lower than that of control group I. Long-term survival rate of simultaneous surgical treatment group is similar to that of control group II and were both better than that of control group I.

Conclusions: Treating HCC associated with severe PHT with simultaneous surgeries is considered effective and safe. When treating patients with HCC associated with mild PHT, PHT should also be treated in addition to radical hepatic resection.
629
LIVER TRANSPLANTATION IN PATIENTS WITH COMPLETE SITUS INVERSUS: CASE REPORT FOR BILIARY STENOSIS AND MANAGEMENT
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Background and aim: Orthotopic liver transplantation (OLT) in patients with complete situs inversus (CSI) has been scarcely reported worldwide as the lower incidence of CSI and the serial problems in transplanting techniques.

Methods and Results: We reported such a case with hepatocellular carcinoma who underwent orthotopic liver transplantation with 90° clockwise rotation of the normal graft around the median line and end-to-end anastomosis for all the vessels. The patient had a satisfactory recovery in the early period after operation, while 5 months later, an anastomotic stenosis of bile ducts resulting from the change of original anatomical position. Fortunately, it was successfully healed through endoscopic retrograde biliary drainage (ERBD) and repeated percutaneous transhepatic cholangial drainage (PTCD) with favorable liver function and no tumor recurrence at 72 months post-transplantation.

Conclusions: Patients with CSI undergoing OLT would similarly yield a good outcome. Stomastenosis of bile duct is one of the major complications for them, but it could be well circumvented by prompt endoscopic and interventional therapy.

630
EFFECT EVALUATION OF VASCULAR RESECTION FOR PATIENTS WITH HILAR CHOLANGIOCARCINOMA: ORIGINAL DATA AND META-ANALYSIS
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Aim: To evaluate the effect of vascular resection (VR) in surgical management of hilar cholangiocarcinoma (HCCA), this report did a clinical analysis and conducted a systematic review, combined other studies, based on meta-analysis.

Methods: 238 HCCA patients underwent hepatectomy in the Eastern Hepatobiliary Surgery Hospital. Binary logistic regression analysis was performed to investigate the potentially complications associated factors. Kaplan-Meier test was employed to compare the long-term survival of patients in four groups (R0+PVR-free, R0+PVR, R1 and R2). Meta-analysis was performed with RevMan 4.3.2 software.

Results: The results suggested that hepatectomy and HAR were important negative factors from complications (p < 0.01). Compared with patients in other groups, survival of patients in R0+PVR group was worse than R0+PVR-free group, better than R2 group and similar to R1 group with p = 0.001, 0.047 and 0.606 respectively. The results of meta-analysis suggested patients who underwent VR had higher complications rate and mortality rate than patients who did not. Moreover, patients with vascular resection had lower long-term survival rate.

Conclusion: VR used to be considered effective to the patients with vascular invasion. However our study suggest that the surgical decision of undergoing VR should be made cautiously, since VR could diminish the survival time in some cases.

631
MICRORNA-X PROMOTES GALLBLADDER CARCINOMA CELL PROLIFERATION, MIGRATION AND INVASION BY TARGETING Y
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MicroRNAs (miRs) are conserved small non-coding RNAs that negatively regulate gene expression. The miR profiles are markedly altered in cancers and some of them have a causal role in tumorigenesis. Here, we report changes in miR-X expression profile in Gallbladder carcinoma (GC) and we found that miR-X strongly affected Gallbladder carcinoma tumorigenesis. The results showed that the expression level of miR-X was higher in Gallbladder carcinoma cells and tissues compared with the control. We hypothesized that high level expression of miR-X was significantly associated with a more aggressive and/or poor prognostic phenotype of patients with Gallbladder carcinoma. In this work, up-regulation of miR-X expression enhanced tumorigenesis while down-regulation of miR-X expression impaired tumorigenesis, which showed lower level of cell proliferation and higher level of cell apoptosis. In addition, colony formation, invasion and migration were also significantly impaired by miR-X inhibitor. Further studies showed that miR-X could directly target the...
635 IDENTIFICATION OF BIOMARKERS FOR DISTINCTION BETWEEN CHOLANGITIS AND CHOLANGIOCARCINOMA ASSOCIATED WITH HEPATOLITHIASIS

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The mechanism of occurrence and development of cholangiocarcinoma associated with Hepatolithiasis remains unclear. For help to disclose this process, we screened immunohistochemical biomarkers using iTRAQ-2DLC-ESI-MS/MS technique between chronic cholangitis and cholangiocarcinoma associated with Hepatolithiasis. A total of 814 proteins were quantified, including 30 proteins up-regulated and 29 proteins down-regulated in total of 814 proteins were quantified, including 30 proteins up-regulated and 29 proteins down-regulated. Univariate analyses revealed that the gross appearance (p = 0.038), duodenal infiltration (p = 0.000), and pT stage (p = 0.013) were significantly associated with lymph node metastasis. Subsequently, multivariate logistic analysis revealed that the strongest risk factor was duodenal infiltration (p = 0.000), followed by gross appearance (p = 0.033).

Conclusions: Duodenal infiltration is the most sensitive indicator of lymph node metastasis in CPV. Preoperative diagnosis of duodenal infiltration depth conducted by IDUS can be used to predict lymph node metastasis.

636 DEPTH OF DUODENAL INFILTRATION AS AN INDICATOR OF LYMPH NODE METASTASIS IN CARCINOMA OF THE PAPILLA OF VATER

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Background: Although nodal involvement is one of the most important prognostic factors for carcinoma of the papilla of Vater (CPV), a detailed relationship between clinicopathological factors and nodal involvement has not been evaluated.

Methods: From January 2005 to December 2010, 94 patients with CPV underwent pancreatoduodenectomy and dissection of regional lymph nodes at Eastern Hepatobiliary Surgery Hospital. We carefully reviewed nodal involvement in each patient to investigate clinicopathological variables in relation to lymph node metastasis.

Results: Forteen of 21 (67%) patients with ulcer formation within the lesion was seen in positive lymph node metastasis group versus 30 of 73 (41%) in negative group. No nodal involvement was found in patients with I layer duodenal invasion, or II layer duodenal invasion. The nodal metastasis rate was 17% (4 of 24) in III layer invasion, 50% (10 of 20) in IV layer, and 68% (30 of 44) in V layer, respectively. The overall diagnostic accuracy rate in tumor duodenal infiltration: 98% (92 of 94) with intraductal ultrasonography (IDUS) versus 78% (73 of 94) with endoscopic ultrasonography (EUS). Univariate analyses revealed that the gross appearance (p = 0.038), duodenal infiltration (p = 0.000), and pT stage (p = 0.013) were significantly associated with lymph node metastasis. Subsequently, multivariate logistic analysis revealed that the strongest risk factor was duodenal infiltration (p = 0.000), followed by gross appearance (p = 0.033).

Conclusions: Duodenal infiltration is the most sensitive indicator of lymph node metastasis in CPV. Preoperative diagnosis of duodenal infiltration depth conducted by IDUS can be used to predict lymph node metastasis.

638 FLUFENAMIC ACID REGULATES ANGIOGENESIS

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Angiogenesis plays critical roles in development, tumor growth and metastasis. Flufenamic acid (FFA) is an anti-inflammatory agent known to alter ion fluxes across plasma membrane. Its role in angiogenesis has not been fully addressed yet. Here, we report that FFA regulates angiogenesis both in vitro and in vivo. Applying FFA to human umbilical vein cells (HUVECs) for 72 hours attenuates HUVECs growth. The reduction of cell number is due to disturbance of cell proliferation, as BrdU incorporation rate is lower in the FFA treated group than in the control group. However, FFA promotes tube formation of HUVECs instead of inhibits, not like its role on proliferation. At last, in the chick embryo chorioallantoic membrane (CAM) assay, FFA promotes the formation of macroscopic blood vessels. These results suggest that FFA regulates angiogenesis at two levels, inhibition of proliferation and promotion of tube formation.

639 COMBINATION THERAPY OF MULTIPLE MICRO TRAUMA TECHNOLOGY ON HEPATOCELLULAR CARCINOMA

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Aims: To compare efficacy of therapy scheme as Transhepatic Artery Chemoembolization (TACE) + Radiofrequency Ablation (RFA) + Introportal Vein Chemotherapy (PVC) + Percutaneous Ethanol Injection (PEI) therapy (quadruplet group) with TACE +...
RFA combinational therapy (diad group) in treating hepatocellular carcinoma (HCC).

Methods: From Oct 2005 to Aug 2010, 25 cases in quadruplet group were treated by TACE for 3 weeks, then by RFA, after 2 months, by PVC + PEI; 23 cases in diad group were treated by TACE for 3 weeks and then by PEI. After completion of each treatment course in both groups, Alphafetoprotein (AFP) was tested 2 months later, abdomen colorful doppler, CT and AFP were retested 6 months later.

Results: AFP was significantly decreased in 23 cases of quadruplet group and 20 cases of diad group among those with AFP positive results. 6 months later, examinations of CT, colorful Doppler and AFP in two groups showed: quadruplet group has significantly decreased (X²=6.81, P < 0.01) blood supply of cancer tissue and significantly diminished (X²=8.29, P < 0.01) tumor size, few cases with AFP elevation (X²=5.06, P < 0.05); lower 1 year relapse rate and two years mortality than that in diad group (X²=5.30, P < 0.05).

Conclusion: TACE + RFA + PVC + PEI combinational therapy is a safe double intervention treatment for HCC scheme with less side effects, which is better than TACE + PEI scheme in killing remnant tumor and reducing relapse.

644 TO IDENTIFY SERUM BIOMARKERS FROM NMR-BASED METABONOMIC DATA IN PATIENTS WITH HEPATOCELLULAR CARCINOMA

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Background and aims: Hepatocellular carcinoma (HCC) is one of the most common malignant tumors in the world. However, current biomarkers for the diagnosis of HCC cannot meet the need of accuracy and sensitivity. More reliable biomarkers for HCC diagnosis are therefore needed.

Methods: Serum from 60 HCC patients and 54 healthy controls were analyzed using a proton nuclear magnetic resonance (1H-NMR)-based approach in conjunction with random forest (RF) analysis to discriminate their serum metabolic profiles.

Results: 11 potential biomarkers have been identified, and the feasibility of using these biomarkers for the diagnosis of HCC was evaluated, where 100% sensitivity was achieved in detecting HCC patients even with AFP values lower than 20 ng/mL. The alterations in these metabolites were associated with perturbations in lipolysis, Krebs cycle, amino acid catabolism and purine metabolism in HCC patients.

Conclusions: Our results suggested that these potential biomarkers identified appear to have diagnostic and/or prognostic values for HCC, which deserve to be further investigated. In addition, it also suggested that random forest is a classification algorithm well suited for selection of biologically relevant features in metabonomics.

654 EVALUATING IN COMBINATION OF MODIFIED PERICARDIAL DEVASCULARIZATION WITH SPLLENORENAL SHUNT FOR PORTAL HYPERTENSION WITH UPPER DIGESTIVE TRACT HEMORRHAGE

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Aims: To study the effect of modified pericardial devascularization (MPCDV) combined with splenorenal shunt (SRS) for portal hypertension with upper digestive tract hemorrhage.

Methods: From September 2005 to May 2010, the clinical and follow-up data of 46 cases with portal hypertension with upper digestive tract hemorrhage were collected. The survival analysis was conducted between MPCDV+SRS group (n = 24) and MPCDV group (n = 22) divided by treatment.

Results: There was no difference in baseline clinical data between the two groups. After treatment, the FPP in MPCDV+SRS group (37.1 ± 9.7) cm H₂O was higher than in MPCDV group (30.1 ± 8.9) cm H₂O (p < 0.01)). The positive rates of portal hypertensive gastropathy (PHG), upper digestive hemorrhage and portal embolism in MPCDV+SRS group were significantly lower than in MPCDV group after operation (X² = 7.56, p < 0.01, X² = 4.75, p < 0.01 and X² = 6.11, p < 0.05 respectively). But there was no difference in hepatic encephalopathy between the two groups (p > 0.05).

Conclusion: The clinical effect of combination of MPCDV with SRS is better than only MPCDV.

655 A CASE OF PORTAL RECONSTRUCTION USING A PERICHOLODOCHAL PLEXUS IN DIFFUE PORTAL VEIN THROMBOSIS

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Portal vein thrombosis (PVT) has not been considered as a contraindication to liver transplantation (LT). Most cases of PVT were overcome with eversion thromboendoovenectomy. However, in case of failure of thrombectomy due to diffuse PVT, other alternative modalities should be considered such as interposition vein graft, renoportal anastomosis (RPA), or cavoporal anastomosis (CPA).
Here, we report our successful experience of reconstruction of portal flow with collateral vein during deceased donor LT (DDLT) for a patient who had total occlusion of portal system. A 60-year-old man who presented with alcoholic cirrhosis and 28 episodes of variceal bleeding underwent DDLT. At laparotomy, no portal system vein was found to be patent, because well organized thromboses occluded main portal vein, SMV and splenic vein. Splenorenal shunt did not develop. Only choledochal vein plexus was found on the ventral part of common bile duct, even it had occlusion with partial thrombus. After failing of version thromboendovenectomy of native portal vein, we performed the anastomosis of the donor PV to patient’s choledochal vein plexus. Postoperative Doppler ultrasound revealed normal blood flow of portal vein. Patient revealed uneventful course and discharged on 18th postoperative days.

In case of complete occlusion of portal vein system, it is difficult to decide which methods can be appropriate to restore portal perfusion. Collateral vein is not used, because the blood flow is not sufficient and the wall is fragile to suture. Furthermore, the long-term results are not known. A choledochal vein plexus was the only option in our case. Further discussion and study is needed.

666

PROTECTIVE EFFECTS OF HYDROGEN ENRICHED SALINE ON LIVER ISCHEMIA REPERFUSION INJURY BY REDUCING OXIDATIVE STRESS AND HMGB1 RELEASE

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Backgrounds: Hydrogen treatment was recently associated with down-regulation of the expression of HMGB1 and pro-inflammatory cytokines during sepsis and myocardial IRI, but it is not known whether hydrogen has an effect on HMGB1 in liver IRI. The objective of the present study was to the anti-inflammatory effects of hydrogen-rich saline and determine any attenuation of liver IRI and its effects on the HMGB1 pathway.

Method: A rat model of 60 minutes 70% partial liver ischemia reperfusion injury was used. 1% hydrogen enriched saline (2.5, 5 or 10 ml/kg) was injected intra-peritoneally 10 minutes before hepatic reperfusion, and at 2, 6, 12, and 20 hours post reperfusion. Liver injury was assessed by serum alanine aminotransferase (ALT) enzyme levels and histological changes. We also measured mono di aldehyde (MDA), hydroxoy nonenal (HNE) and 8-hydroxy-guanosine (8-OH-G) levels as markers of the peroxidation injury induced by reactive oxygen species (ROS). In addition, pro-inflammatory cytokines including TNF-α and IL-6, and high mobility group box B1 protein (HMGB1) were measured as markers of post ischemia-reperfusion inflammation.

Results: Hydrogen enriched saline treatment significantly attenuated the severity of liver injury induced by ischemia-reperfusion. The treatment group showed reduced serum ALT activity and markers of lipid peroxidation and post ischemia reperfusion histological changes were reduced. Hydrogen enriched saline treatment inhibited HMGB1 expression and release, reflecting a reduced local and systemic inflammatory response to hepatic ischemia reperfusion.

Conclusions: These results suggest that, in our model, hydrogen enriched saline treatment is protective against liver ischemia-reperfusion injury. This effect may be mediated by both the anti-oxidative and anti-inflammatory effects of the solution.

668

A RETROSPECTIVE STUDY OF GENERAL ANESTHESIA COMBINED WITH EPIDURAL BLOCK USED IN 3858 PATIENTS UNDERWENT HEPATECTOMY

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Backgrounds: Most of patient undergoing hepatic surgery have a long-term cirrhosis history and combined with pathophysiology disorders, a better understanding of anesthetic character about hepatic surgery is perhaps important and beneficial. The objective of this study is to investigate the merit and defect of general anesthesia combined with epidural block used in patients undergoing hepatectomy.

Methods: The Patients were admitted from 1999 to 2004 in Eastern Hepatobiliary Surgery Hospital in Shanghai, China, and all patients were performed hepatectomy, totally 4058 patients’ anesthetic records and postoperative data were analyzed, including patients underwent general combined with epidural (CGEA, n = 3858), general anesthesia group (G, n = 100) and epidural block group (E, n = 100). The intraoperative stability of vital signs, needs of intravenous anesthetics/analgesics, muscle relaxants and cardiovascular drugs were compared. During the postoperative awake phase, the extubation time, pain relief time and awake related complications in 3 groups were also be compared.

Results: General anesthesia combined with epidural block group influenced patient’s heart rate and blood pressure, but using low dose of cardiovascular activator (ephedrine) can rectify this effect greatly. CGEA can markedly reduce needs of atracurium, fentanyl and inhaled anesthetics. In a weak phase, General anesthesia combined with epidural block group can awake and extubate earlier with lower dysphoria, urosechis and maintains longer-term pain relief than that of other groups.

Conclusion: General anesthesia combined with epidural block was safe and reasonable for hepatectomy compared with general or epidural anesthesia. The side effects of the technique were hypotension bradycardia and to light general anesthesia, which can result in awareness during surgery, and also, the use of CGEA in hepatic surgery is increasing because of the favorable recovery characteristics that facilitate early hospital discharge.
SPLENECTOMY COMBINED ESOPHAGEAL-GASTRIC DEVASCULARIZATION AFFECTS INOSMRNA-EXPRESSING IN PORTAL HYPERTENSION RAT LIVER CANCER

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Background and aims: To investigate the effect of splenectomy combined esophageal-gastric devascularization on inducible nitric oxide synthase mRNA (iNOSmRNA)’s expression in rat liver cancer

Methods: Thirty prehepatic hypertension Sprague-Dawley rats were randomly divided into three groups: group A (prehepatic portal hypertension rats with splenectomy combined esophageal-gastric devascularization with implanted tumor tissue), group B (prehepatic portal hypertension rats with implanted tumor tissue) and group C (prehepatic portal hypertension rats; control group). Immunohistochemical staining was used to detect the expression of iNOSmRNA, and the microvessel density (MVD) was measured by counting CD34-positive vascular endothelial cells.

Results: The tumor tissue expression levels of iNOSmRNA in group A and group B were higher than those in group C (LSD-t test; iNOSmRNA=2.32 ± 0.24, 2.98 ± 0.28 and 1.06 ± 0.18, respectively; P < 0.05). The MVD in group A was lower than that in Group B (18.76 ± 1.21 vs. 19.98 ± 1.28, P < 0.05). Group C was a negative control. In addition, we also found a positive correlation between the expression of iNOS mRNA and the MVD in tumor tissue.

Conclusions: iNOSmRNA and the MVD’s expressions are involved in the advancement of rat liver cancer. Splenectomy combined esophageal-gastric devascularization could reduce iNOS mRNA’s expression in rat liver cancer.

PLANNED HEPATECTOMY IN HILAR CHOLANGIOCARCINOMA: EXPERIENCE OF PROF. JIANG XIAOQING’S TEAM DURING 5 YEARS

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Background and aims: Planned hepatectomy (PH) for hilar cholangiocarcinoma (HCCA) is the standard protocol in our department in recent years. Percutaneous trans hepatic biliary drainage (PTBD) and portal vein embolization (PVE) increasing the volume of the future liver remnant (FLR) and thereby decreasing the risk of postoperative liver failure was carried out. We conduct this study to summarize the experience in surgical treatment of HCCA during the past 5 years.

Methods: Between Jan 2007 and Jan 2012, 146 consecutive patients with hilar cholangiocarcinoma who were scheduled to receive major hepatectomy were involved in this study. All PVEs were performed in patients with an estimated FLR of <50%. Hepatic volume and functional changes after PVE were analysed, and operative outcomes were compared between patients with or without PVE.

Results: PTBD was performed in 113 patients PVE procedures in 47 patients. There were three cases of acute cholangitis following pre-operative PTC catheter drainage. There was no mortality following PTCD. PVE-related complications occurred in 6 patients (12.8%) and did not preclude hepatectomy, which included bile leakage (n = 1) and coil displacement (n = 6) inducing one death. Two weeks after PVE, the FLR to total liver volume ratio increased statistically (40.7 ± 7.2% vs. 44.8 ± 6.9%; p < 0.001), and the mean increase in FLR was 4.9 ± 3.4 cm³/day. In the PVE group, 43 patients (91.5%) underwent radical surgery, and the rest were precluded because of insufficient hypertrophy of FLR and tumor dissemination. The PVE group had similar operative mortality and morbidity compared to the non-PVE group. The 1- and 2-year survival for PVE group (radical surgery only) and non-PVE group was 72.5% and 54.2%; 70.7% and 53.7%, respectively. There was no significant difference in survival.

Conclusions: PH is a safe and efficacious procedure, and offers potential benefit for patients with HCCA.

HEPATIC EPITHELIOID HEMANGIOENDOTHELIOMA IN OUR HOSPITAL: A CLINICAL FEATURES AND IMAGING FINDINGS STUDY OF 15 CASES

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Objective: To study the clinical features, imaging findings and prognosis of hepatic epithelioid hemangiendothelioma (HEHE) in Eastern Hepatobiliary Surgical Hospital, and to improve the level of recognition and preoperative diagnosis of HEHE.

Methods: Clinical data of 15 pathology-confirmed HEHE patients, admitted in our hospital from 1999 to 2010 were collected and analyzed retrospectively. Results: Besides 7 cases of abdominal discomfort, this cohort of HEHE patients does not show common typical manifestations. Laboratory examinations found 8 low ALB/GLB (A/G) cases, 3 mild anemia cases, and 1 high alanine aminotransferase (ALT) case, but no abnormal AFP, CEA or CA19-9 cases. Plain computed tomography (CT) scanning found uneven multiple low-density lesions in most cases, and dynamic enhanced CT scanning demonstrated peripheral enhancement in hepatic arterial (HA) phase and more peripheral enhancement in portal vein (PV) phase, and ring enhancement were detected in delayed phase. Magnetic resonance imaging (MRI) demonstrated low signal intensity and even lower lesion centers in T1-weighted images (T1WI), but slightly high signal intensity lesions and higher lesion centers in...
T2-weighted images (T2WI). Enhanced MRI scanning showed ring enhancements but no obvious enhanced centers. Lesions were further enhanced in delayed MRI scanning. Prognosis of this cohort: ten of these 15 patients alive nowadays including four cases alive with the tumor.

Conclusions: Comprehending the radiological characteristics of HEHE facilitates the level of recognition and preoperative diagnosis of this disease and avoids inappropriate surgeries.

676

COMBINATION THERAPY OF MULTIPLE MICRO TRAUMA TECHNOLOGY ON HEPATOCELLULAR CARCINOMA

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Due to the unique biological activity of hepatocellular carcinoma (HCC), single intervention therapy has poor efficacy. TACE+PEI combinational therapy has achieved certain effect in improving quality of life and prolonging life span, however, the incomplete treatment is still the most important cause for relapse. From Oct 2005 to Aug 2010, the author has chosen Trans hepatic Artery Chemoembolization (TACE) + Radiofrequency Ablation (RFA) + Introportal Vein Chemotherapy (PVC) + Percutaneous Ethanol Injection (PEIT) combinational method to treat 25 HCC patients and compared its efficacy with TACE + PEI method in 23 HCC patients.

Aims: To compare efficacy of therapy scheme as TACE + RFA + PVC + PEI therapy (quadruplet group) with TACE + RFA combinational therapy (diad group) in treating HCC.

Methods: 48 cases with HCC (35 males, 13 females), within the age range from 27 to 65 years old, with the mean age at 38.1 years; Cases in both groups were confirmed by pathology diagnosis with Doppler guided puncture; tumor size was between 4.0 cm × 3.8 cm × 3.5 cm and 10.1 cm × 9.1 cm × 8.7 cm; 40 cases with single nodes, 8 cases with 2–3 nodes, Alpha fetoprotein (AFP) positive in 23 cases in quadruplet group and 20 cases in diad group 25 cases in quadruplet group were treated by TACE for 3 weeks, then by RFA, after 2 months, by PVC + PEI; 23 cases in diad group were treated by TACE for 3 weeks and then by PEI. After completion of each treatment course in both groups, AFP was tested 2 months later, abdomen color doppler, CT and AFP were retested 6 months later.

Results: Patients in both groups were followed up for 2 years. AFP was significantly decreased in 23 cases of quadruplet group and 20 cases of diad group among those with AFP positive results. 6 months later, examinations of CT, color doppler and AFP in two groups showed: quadruplet group has significantly decreased (X2 = 6.81, p < 0.01) blood supply of cancer tissue and significantly diminished (X2 = 8.29, p < 0.01) tumor size, few cases with AFP elevation (X2 = 5.06, p < 0.05); Fever and transient abdomen were common; 1 case with hemobilia in diad group, 2 cases in quadruplet group and 3 cases in diad group had arrest of bone marrow and recovered after treatment. lower 1 year relapse rate and two years mortality than that in diad group (X2 = 5.30, p < 0.05).

Conclusion: TACE + RFA + PVC + PEI combinational therapy is a safe double intervention treatment for HCC scheme with less side effects, which is better than TACE+PEI scheme in killing remnant tumor and reducing relapse.

677

SIGNIFICANCE OF THE EXPRESSION OF ENDOSTATIN % CD105 AND KI-67

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Aims: To investigate significance of the expression of endostatin % endoglin (CD105) and Ki-67 in surgical specimens of hepatocellular carcinoma (HCC).

Methods: The clinical pathological records of 46 HCC patients who underwent hepatectomy were retrospectively reviewed. Immunohistochemical staining for endostatin % CD105 and Ki-67 was performed individually to each section according to non-biotin two-step method, so were HE staining and blank control. Slides were photographed after staining and pictures were analyzed with computer-aided photomicroscopic picture analysis system. The relationship among the expression with the postoperative recurrence of HCC as well as CD-105-labeled microvessel density (MVD) and Ki-67 proliferation index were determined.

Results: The expression of Endostatin was mainly in HCC, and was lower in HCC tissue than in its adjacent tissue. It shows significant difference of MD and IOD in HCC tissue compared with the adjacent tissue (p < 0.05, p < 0.01). When compared with normal hepatic tissues, the MD difference was un significant (p = 0.471), and the IOD difference was significant (p < 0.05). The expression of Endostatin was positively correlated with the time for the postoperative recurrence of PLC (r = 0.669, Py < 0.01). However, it was negatively correlated with MVD and Ki-67 index (r = -0.312, p < 0.05; r = -0.330, p < 0.05). CD105 was mainly expressed in HCC capillary vessels and its adjacent hepatic blood sinusoids. The CD105-labeled microvessel density (MVD) was negatively correlated with the time for the postoperative recurrence of HCC (r = -0.458, p < 0.05), and was positively correlated with Ki-67 index (r = -0.813, p < 0.01). Ki-67 was mainly expressed in hepatic nuclei of HCC tissues, while almost none in its adjacent tissue and nonmalignant tissues. The difference was significant (P < 0.01). The Ki-67 index was negatively correlated with the time for the postoperative recurrence of HCC (r = -0.408, p < 0.05), and was positively correlated with MVD (r = -0.813, p < 0.01).

Conclusions: The expression of endostatin was mainly in HCC, and was lower in HCC tissue than in its adjacent tissue. It was closely correlated with blood vessel hyperplasia and cellular proliferation, and was contrib-
Hepatitis B reactivation after RFA or hepatic resection for small HCC: a retrospective study

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Background and Purpose: Reactivation of hepatitis B virus (HBV) happens after systemic chemotherapy, trans arterial chemo embolization (TACE) or hepatic resection carried out for HBV-related hepatocellular carcinoma (HCC). The incidence and risk factors of HBV reactivation after radiofrequency ablation (RFA) are unclear.

Patients and Methods: From August 2006 to August 2011, 218 consecutive patients with HBV-related small HCC treated with RFA (n = 125) or hepatic resection (n = 93) were retrospectively studied. The incidence of HBV reactivation and risk factors were analyzed.

Results: HBV reactivation developed in 20 (9.2%) patients after treatment. The incidence of HBV reactivation was significant lower in the RFA group (5.6%, 7/125) than the hepatic resection group (14.0%, 13/93, p = 0.034). On univariate and multivariate analyses, no antiviral therapy (OR 11.7; 95% CI 1.52-90.8, p = 0.018) and treatment with RFA/hepatic resection (OR 3.36; 95% CI 1.26 – 8.97, p = 0.016) were significant risk factors of HBV reactivation. On subgroup analyses, the incidence of HBV reactivation was lower in patients who received antiviral therapy than those did not receive antiviral therapy in both the liver resection group (2.9% vs. 20.7%, p = 0.027) and the RFA group (0% vs. 7.6%, p = 0.188), although the difference was not significant in the latter group.

Conclusion: The incidence of HBV reactivation after RFA was relatively low when compared with hepatic resection. Prophylactic antiviral therapy is recommended, especially to patients who are going to receive hepatic resection for HBV-related HCC to decrease the incidence of post-treatment HBV reactivation.

A modified TNM-7 staging system to better predict the survival in patients with hepatocellular carcinoma after hepatectomy

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Purpose: To evaluate the accuracy of the 7th edition of the American Joint Committee on Cancer staging system (TNM-7) for patients undergoing hepatectomy for hepatocellular carcinoma (HCC) and to propose a modified TNM system for prediction of survival.

Patients and Methods: Clinico-pathological data for 1313 patients who underwent hepatectomy as initial treatment for HCC between 2000-2008 were retrieved from a prospective database. Overall survival (OS) and disease-free survival (DFS) were analyzed to evaluate the predictive value.

Results: The 1, 3, 5 year OS and DFS of 1313 patients were 79.2%, 55.4%, 45.5%, and 52.6%, 36.1%, 31.8% respectively. Multivariate analysis revealed that major vascular invasion was the most important prognostic factor for both OS and DFS, along with tumor number and size. Patients with stage T1 and T2 disease had significantly better OS and DFS than those with T3 disease (P < 0.001). For stage T3 and T4 disease, there was no significant difference between T3a and T4 (p = 0.552) but patients with T3b disease had a worse OS and DFS than those with T4 disease (p = 0.006 and p < 0.001 respectively). A modified TNM system within the existing framework was proposed to combine the current T3a and T4 together as the new T3 and to change T3b to the new T4. Analysis showed that this modified system had a better prognostic power than either TNM-6 or TNM-7.

Conclusion: TNM-7 would seem to be inaccurate for staging advanced HCC. The modified system can improve both the prognostic accuracy of the current staging system and the hazard discrimination of disease to be consistent among subgroups of HCC.

Imaging findings of biliary hemartoma with pathologic correlation

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Purpose: To evaluate the imaging findings of biliary hamartomas (von Meyenburg complexes, VMCs) and
discuss the differential diagnosis with other related diseases.

Methods: Imaging findings of biliary hamartomas on ultrasonography (US), computed tomography (CT), magnetic resonance imaging (MRI), MR cholangiopancreatography (MRCP) and hepatobiliary scintigraphy were retrospectively analyzed in six patients.

Results: On ultrasound images, five of the six cases showed multiple small hyper- and hypo-echoic lesions with comet-tail echoes, especially when magnified by US with the usage of zoom function. In all the six cases, multiple tiny hypo dense lesions less than 10 mm in diameter were revealed as scattered throughout the liver with no enhancement on CT. These tiny lesions were demonstrated to be hyper- and hypo-intensity on T2- and T1-weighted images, respectively, in three patients who underwent MRI examinations. MRCP was performed in two patients, and clearly showed multiple tiny irregular- and round-shaped hyper-intensity lesions. MRCP and hepatobiliary scintigraphy showed normal appearances of intra- and extra-hepatic bile ducts in two and one patients, respectively.

Conclusion: Imaging modalities are useful in the diagnosis and differential diagnosis of VMCs. A correct diagnosis might be obtained when typical imaging findings are present even without a histological confirmation.

684

HIGH EXPRESSION OF HIGH MOBILITY GROUP BOX 1 (HMGB1) PREDICTS POOR PROGNOSIS FOR HCC AFTER CURATIVE HEPATECTOMY

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Background: High mobility group box 1 (HMGB1) overexpression has been reported in a variety of human cancers. However, the role of HMGB1 in hepatocellular carcinoma (HCC) remains unclear. The aim of present study was to analyze HMGB1 protein expression in tumor, para-tumor and normal tissue and to assess its prognostic significance for HCC after curative heptectomy.

Methods: The level of HMGB1 mRNA and protein in tumor, para-tumor and normal tissue was evaluated in 11 HCC cases by Reverse Transcription-polymerase chain reaction (RT-PCR) and Western blot. Additionally, HMGB1 protein expression in 161 HCC was analyzed by immunohistochemistry and correlated with clinicopathological characteristics and survivals. Student’s t-test, spearman’s rank correlation, Kaplan-Meier plots and Cox proportional hazards regression model were used to analyze the data.

Results: By RT-PCR and Western blot, the levels of HMGB1 mRNA and protein were significantly higher in HCC, compared to that in para-tumor (p < 0.001) and normal tissue (p < 0.001). Immunohistochemical staining revealed that high expression of HMGB1 was detected in 42.9% (69/161) HCC cases. High expression of HMGB1 was significantly associated with incomplete encapsulation (p = 0.035) and advanced TNM stage (p = 0.036). Multivariate analysis showed that high expression of HMGB1 was an independent prognostic factor for both overall (p = 0.009, HR = 1.834, 95% CI: 1.167–2.881) and disease-free survival (p = 0.018, HR = 1.622, 95% CI: 1.088–2.419), along with tumor size. Subgroup analysis revealed that high expression of HMGB1 predict poorer survival only for tumor >5 cm (p = 0.031), but not for tumor ≤5 cm (p = 0.101).

Conclusions: HMGB1 protein might contribute to the malignant progression of HCC, high expression of HMGB1 predicts poor prognosis for patients with HCC after curative hepatectomy, especially for patients with tumor >5 cm.

685

FAMILY HISTORY OF LIVER CANCER IS NOT ASSOCIATED WITH PROGNOSIS FOR PATIENTS WITH HEPATOCELLULAR CARCINOMA AFTER HEPATECTOMY

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Purpose: Family history of liver cancer is a major risk factor for hepatocellular carcinoma (HCC). In this study, we investigated the prognoses of patients with HCC with a family history.

Methods: Data for 1313 patients who underwent hepatectomy as initial treatment for HCC between 2000 and 2008 at a tertiary cancer center hospital were retrieved from a prospective database. A positive family history was defined as a self-reported history of cancer in first-degree relatives. Clinicopathologic characteristics were compared by family history. Kaplan-Meier plots and Cox proportional hazards regressions were applied for overall survival (OS) and disease-free survival (DFS).

Results: Of 1313 patients, 169 patients (12.9%) had first-degree relatives with a history of liver cancer. There were no significant differences between patients with or without family history in basic clinicopathologic characteristics. Either in whole group or each stage according to TNM staging system, first-degree family history was not associated with survival in all patients or patients with HBV positive. Multivariate analysis revealed that first-degree family history was not a prognostic factor for either OS or DFS.

Conclusion: A first-degree family history of liver cancer is not associated with prognosis for patients with HCC after hepatectomy.
686
TACE AS AN INITIAL TREATMENT FOR BCLC B HBV-RELATED HCC: RATIONAILITY AND EFFECTIVENESS AS VERIFIED IN A LARGE CHINESE COHORT
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Background and aims: Trans arterial chemo embolization (TACE) is recommended as a standard care for intermediate stage hepatocellular carcinoma (HCC) in western guidelines. This study aimed to verify the rationality and effectiveness of TACE as an initial treatment for BCLC B stage HBV-related HCC in a large Chinese cohort, as there has been little published data to support such a sue of TACE in the East.

Methods: 1516 patients with BCLC B stage HBV-related HCC who received TACE as an initial treatments were retrospectively studied. The treatment response after TACE was assessed by the mRECIST criteria. The overall survival (OS) was calculated with life-table method and compared with the Mantel-Cox test. The prognostic factors of OS were assessed using multivariate Cox proportional hazards regression analysis.

Results: The 1, 3, and 5-year OS were 84%, 29%, and 19% for the whole group of patients. Multivariate analysis revealed alpha-fetoprotein, Child-Pugh classification, tumor size and number to be independent prognostic factors. Using the mRECIST criteria after the initial TACE, 328 (21.6%) patients achieved complete response (CR), 589 (38.9%) partial response (PR), 398 (26.3%) stable disease (SD) and 201 (13.2%) progressive disease (PD). The 5-year OS for patients with CR, PR, SD and PD were 39%, 19%, 2%, and 0%, respectively (p < 0.0001). Child-Pugh A liver function (p = 0.002) and smaller tumor (p < 0.0001) were significantly associated with CR/PR response. After the initial TACE, the 5-year OS for patients who received various follow-up treatments with surgical resection, local ablation, repeated TACE and other therapies were 52%, 29%, 12%, 10%, respectively (p < 0.0001).

Conclusion: TACE is a safe and efficacious treatment for BCLC B stage HBV-related HCC. A low AFP level, small tumor, few tumor number and good liver function predicted good survival. Tumor response after initial TACE, an independent prognostic factor of overall survival, was associated with tumor extent and influenced subsequent treatment.

687
ISOLATION TECHNIQUE IN ABDOMINAL SURGERY-A PRACTICAL TECHNIQUE
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Intraoperative cancer cells or bacteria spreading are the main contributors to perioperative complications. We developed isolation technique in abdominal surgery to summarize related technologies and make them more standardized and continuously enriched with the importance emphasized at the same time. It is the clinical practice guided by the concept of minimally invasive surgery and fast track surgery. Isolation technique in abdominal surgery aimed to isolate one or more intra-abdominal organs as well as one part or even the entire peritoneal cavity which is a potential for benefit to reduce the risk of intraoperative or postoperative pollution and protect cancer cells or bacteria from spreading into vessels, retroperitoneum or peritoneal cavity. The surgical procedures of the technique in abdominal surgery can be divided into three areas of operations, including inside and outside isolation technique, upper and lower isolation technique, and anterior and posterior isolation technique. These procedures can improve the exposure of operative field, avoid side injury and reduce the incidence of postoperative complications such as abdominal infection.

688
THE ROLE OF FIBROBLAST GROWTH FACTOR-INDUCIBLE 14 IN HEPATOCELLULAR CARCINOMA
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Background: The prognostic value of the expression of fibroblast growth factor-inducible 14 (Fn14) in hepatocellular carcinoma (HCC) is unknown.

Methods: Real-time PCR (RT-PCR), western blot assays and immunohistochemistry analysis were performed to detect Fn14 expression in paired liver samples between HCC and normal liver tissue.

Results: Most of the tumor tissues expressed significantly higher levels of Fn14 compared to adjacent nontumor tissues, with Fn14High accounting for 54.6% (142/260) of all the patients. The Pearson $\chi^2$ test indicated that Fn14 expression was closely only associated with serum Alpha Fetal Protein (AFP) (p = 0.002)
and tumor number (p = 0.019). Univariate and multivariate analysis revealed that along with tumor diameter and portal vein tumor thrombosis (PVTT) type, Fn14 was an independent prognostic factor for both OS(HR = 1.398, p = 0.008) and recurrence (HR = 1.541, p = 0.001).

Conclusions: Fn14 overexpression in HCC is strongly correlated with poor surgical outcome, and this molecule may be a candidate biomarker for prognosis as well as a target for therapy.

691 BACK PAIN AS AN UNUSUAL PRESENTATION OF HEPATIC PECOMA: A CASE REPORT AND REVIEW OF LITERATURE
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Background: PEComa is a very rare entity which is formed by perivascular epithelioid cells and it is characterized by dual melanocytic and myoid differentiation. An increasing number of reports have documented PEComas arising at various anatomical locations and uterus is the most common site. Only a very few cases of PEComa of the liver have been described worldwide so far.

Case presentation: We herein present a patient suffering from back pain as an unusual presentation resulting from a hepatic tumor which could be suspected as HCL or hepatic adenoma by preoperative imaging scanning. A final histopathologic examination revealed a benign epithelioid tumor with a solid growth pattern, abundant vascularity, poor fat, and frequently dilated vascular channels without signs of tuberous sclerosis. Immunohistochemically, the tumor cells were strongly positive for HMB-45, SMA, Melan-A, CD68 and they were negative for S-100 and LCA, respectively. Because of unpredictable natural history of PEComas, the patient has been closely followed up for 24 months. However, no recurrence has so far been observed.

Conclusions: Contrast enhancement MRI or CT may be useful to reduce the risk of preoperative misdiagnosis and immunohistochemical findings play a crucial role in establishing final correct diagnosis on hepatic PEComa. Surgical resection with an adequate margin of healthy tissue remains the gold standard of treatment. A long-term periodic follow-up is essential in all cases presenting with hepatic PEComa.

693 INFERIOR VENA CAVA RESECTION WITH RIGHT HEPATECTOMY IN CASE OF CHOLANGIOCARCINOMA WITH INFERIOR VENA CAVA INVASION.
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Introduction: Involvement of inferior vena cava (IVC) was considered a contraindication for liver resection. Advancement of operative technique, vascular prostheses and neo-adjuvant treatment have enabled surgeons to performed operation in cases which previously thought to be unacceptable. We here presented a successful resectable case of cholangiocarcinoma with IVC invasion.

Methods: A 66 year-old female suffered from abdominal pain with prolonged fever for 1 month. Her abdominal CT scan revealed 5X7X6 cm mass involving segment I, VI and VII of liver with IVC invasion. Physical examination and all laboratories were reported normal.

Results: Right hepatectomy and IVC resection was performed in this patient. Operation started by mirror-L incision then right lobe of liver was mobilized. Right portal pedicle were selective encircled for inflow control. Supra-hepatic IVC and infra-hepatic IVC were encircled for outflow control. After right portal pedicle and infra-hepatic IVC was clamped, right hepatectomy with caudate lobectomy was done. At this stage, supra-hepatic IVC was clamped for oclude blood flow from common trunk then IVC was transected and was replaced by 20 mm Dacron graft. Operative time was 360 minutes and blood loss was 700 ml. Pathological report revealed a 7 cm well differentiated cholangiocarcinoma of segment I, VI, VII with IVC invasion. Free all resected margin and negative all 13 lymph nodes. Post-operative course was uneventful. Patient was discharged on 12th post-operative day. Adjuvant chemotherapy was given and disease free survival was 12 months.

Conclusions: En bloc hepatectomy with IVC resection is the only curative procedure for patients with liver cancer involving IVC.

695 LAPAROSCOPIC PANCREATIC DUODENECTOMY VIA REVERSE - "V" APPROACH WITH FOUR PORTS: INITIAL EXPERIENCE AND PERI-OPERATIVE OUTCOMES
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Background: Laparoscopic pancreatic duodenectomy (LPD) is one of the few remaining sacrosanct areas in surgery and is not widely accepted to date. To simplify this surgical procedure and improve its efficacy, we
performed LPD via reverse “V” approach with four ports. The present series aimed to evaluate the feasibility, safety, and efficacy of the modified LPD.

Methods: This is a retrospective study of selected patients who underwent laparoscopic pancreaticoduodenectomy at our center between April 2011 and April 2012. We have described the salient features of our technique and follow-up protocol. Patient characteristics, tumor histology, operative outcomes, resection margins, morbidity, and mortality were reviewed.

Results: The procedure could be completed laparoscopically with tumor-free margins in all patients, including patients with pancreatic ductal adenocarcinoma (n = 6), ampullary carcinoma (n = 6), intraductal papillary mucinous neoplasm (n = 2), pancreatic cystadenocarcinoma (n = 2), pancreatic head adenocarcinoma (n = 3), and bile duct cancer (n = 2). The mean age of patients was 65 years (range 42 to 75 years). Median blood loss was 240 mL (range, 30–1000 mL), and the mean operating time was 368 minutes (range, 258–438 minutes). There was no perioperative mortality.

Conclusions: Laparoscopic pancreaticoduodenectomy via reverse “V” approach can be performed with safety and good results in properly selected patients. Localized malignant lesions, irrespective of histopathology, are particularly amenable to this approach. The preliminary experience showed a promising outcome for LPD via reverse “V” approach.

697

THE SAFE MINIMAL RESIDUAL LIVER VOLUME AND UTMOST PORTAL FLOW IN A STABLE HEPATOTECTOMY MODEL OF PIG

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Background: Although the history of liver resection has been over 100 years, it is not clear how much liver volume excised is too much? This study was aimed to evaluate the safe minimal residual liver volume (MRLV) and the utmost portal vein inflow (PVF) the liver remnant can sustain should less than 5.6 times baseline.

Methods: Bench dissection of 10 cadaveric porcine livers was performed to calculate each liver lobe volumes. Twenty one pigs were subjected to different liver resection volumes of 77–82% (20%-R group, n = 7), 83–87% (15%-R group, n = 7) and 88–92% (10%-R group, n = 7) using the hilar pedicle suture technique. The survival rate, hemodynamic change, LPS or inflammatory response, the injury and regeneration of the residual liver was observed after surgery.

Results: The liver remnant in 20%-R group with about 4 times baseline PVF per unit volume, subjected to mild portal overflow injury and regenerate successfully, whereas in the 15% R-group with about 5.6 times baseline PVF, 3 animals were alive on postoperative day (POD) 14; in the 10%-R group with more than 6 times baseline PVF, subjected to severe portal overflow injury, none survived to POD 14. The 14d-survival rates were 100%, 42.8%, and 0 respectively in 20 R-group. 15% R-group 10%-R group, were significantly different.

Conclusions: The deaths of animals in the group with 15% of liver remnant supports the hypothesis that the 15% of liver remnant represents a critical residual liver parenchyma in pigs, the safe MRLV should beyond 15% of total liver volume, and the utmost PVF the liver remnant can sustain should less than 5.6 times baseline.

700

THE CHANGING EPIDEMIOLOGY OF RECURRENT PYOGENIC CHOLANGITIS IN SINGAPORE

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Background and aims: Environmental factors are postulated to be crucial in the pathogenesis of recurrent pyogenic cholangitis (RPC). We have observed two distinct groups of patients presenting with RPC in our institution. The local Singaporeans tend to present at an older age and the foreign patients from the region typically present at a younger age. The aim of this study is to review these two groups of patients, to identify differences in the disease presentation, characteristics and the subsequent management of these patients and to relate these differences in the to the changing landscape of development in Singapore.

Methods: A single-centre retrospective study was conducted on 80 consecutive RPC patients from 1st January 2002 to 1st October 2011. The epidemiological data, clinical presentation, laboratory and imaging investigations and therapeutic procedures were reviewed from a prospectively collected department database.

Results: The mean age of onset in locals is 63.1 and 36.0 years for foreigners (p = 0.001). There is a higher proportion of the foreigners to have lived in rural conditions than the local population. (p = 0.002). Other than vomiting, serum albumin levels and isolated organism, the two groups presented largely similarly in terms of clinical presentation and disease severity.

Discussion: Singapore is uniquely placed after a transition from a third to first world country. Although Singapore underwent sanitation improvements and subsequent eradication of liver flukes, the diet of locals remained mostly unchanged. Sanitation is thus, a much more significant factor compared to diet change to a more western diet. Aggressive management is also recommended to prevent future complications.
PRIMARY EXTRA-GASTROINTESTINAL STROMAL TUMOR ARISING IN THE PANCREAS: REPORT OF A CASE.

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Background: Gastrointestinal stromal tumors (GIST) are CD117 (C-Kit) positive mesenchymal neoplasms considered to originate from the interstitial cells of Cajal. GISTs usually originate in the wall of the stomach or small intestine. Rarely, GISTs arise primarily in the omentum, mesentery, or retroperitoneum, at which sites they are referred to as “extra gastrointestinal stromal tumors”. Pancreatic GISTs are extremely rare and there have only been eleven previous reports in the literature.

Case report: A 61-year-old male was incidentally detected on an MDCT to have a 13 x 9.8 x 7.8 cm tumor at the retro gastric space during an evaluation for urinary symptoms. The tumor had a variegated appearance with solid and necrotic components and appeared exophytic to the stomach with involvement of the distal body/tail of pancreas and the splenic hilum. The splenic vessels were displaced and draped around the mass. A provisional diagnosis of a gastric GIST was considered. An OGD scopy showed a diffuse bulge without any mucosal involvement of stomach. A CT guided biopsy revealed a stromal tumor. Intra-operatively the tumor was distinctly separate from the stomach but involved the short gastric vessels. It was inseparable from the body and tail of pancreas. The patient underwent distal pancreatectomy with splenectomy and a wedge resection of the fundus of stomach. Histology showed a mixed spindle cell tumor composed of fascicles of spindle cells amidst loose hyalinoses stroma with focal calcification. The mitotic count was 02 mitoses per 50 high-power fields. The tumor cells expressed CD34, C-Kit (weak) and DOG-1 and were immuno negative for S-100 protein and Desmin. The sections of the stomach were unremarkable. Based on these findings, the final pathologic diagnosis was a GIST of the pancreas.

Conclusion: This case consolidates the possibility that GIST can involve the pancreas as a primary site.

THE INFLUENCE OF EXTERNAL BILIARY DRAINAGE AND BILE REINFUSION IN VIVO IN OBSTRUCTIVE JAUNDICE RATS

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Background and aims: To study rat liver function, hepatic energy metabolism, regeneration and apoptosis on the obstructive jaundice condition before/after external biliary drainage and bile reinfusion in vivo combined with hepatectomy.

Methods: 126 male SD rats were in research. 6 male SD rats were established as sham operation group and 120 male SD rats which underwent common bile duct ligation for 7 days were randomized into four groups: external biliary drainage 7 days group, external biliary drainage 7 days and bile reinfusion in vivo 7 days group, external biliary drainage 7 days and then reoperation with 70% hepatectomy group, external biliary drainage and bile reinfusion in vivo 7 days before reoperation with 70% hepatectomy group. Levels of TB, ALT, ALB and ALP in serum; HGF, bcl-2 mRNA and protein; ATP, ADP and AMP in hepatic tissues; hepatocyte proliferation/ apoptosis index were dynamic observed after operation (24 h, 72 h and 7d) respectively. Mortality was calculated.

Results: Rats without obstructive jaundice and external biliary drainage and then infusion of bile in vivo combined with/without hepatectomy groups all would have an excellent liver regeneration. Compared with it, the liver function hepatocyte energy metabolism, condition of HGF, bcl-2 mRNA content of liver tissue and the hepatocyte proliferation /apoptosis index in external biliary drainage combined with 70% hepatectomy group were greatly influenced while recovered slowly (p < 0.05).

Conclusions: Under the condition of conspicuous bilirubinemia, the influence of external biliary drainage combined with hepatectomy on liver hepatocyte energy metabolism, liver function, hepatocyte regeneration and apoptosis is severer than that of rats operated external biliary drainage and then infusion of bile in vivo before hepatectomy, while also did the rats recovered slowly in conspicuous bilirubinemia groups. The database suggested that it was more beneficial to operate preoperative external biliary drainage and bile reinfusion in vivo when performing hepatic resection.

INFLOW OCCLUSION DURING LIVER RESECTION

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Background: Significant hemorrhage together with blood transfusion increases postoperative morbidity and mortality of hepatic resection. Various methods of liver transection and vascular occlusion may be used to minimizing bleeding during hepatic resection. However intermittent inflow occlusion could also result in hepatic ischemic- reperfusion (I/R) injury, especially in case of cirrhosis.

Objective: Comparative assessment of clinical efficacy and manifestations of I/R injury during liver resections with inflow vascular exclusion and without it.

Methods: In 2011 we have carried randomized trial of the comparative assessing five methods of liver transaction. The analysis showed that the main disadvantage of the policy clamp crushing (control group, n = 17) is a large blood loss during dissection.
In this connection, all patients which has been applied the technique from 2011 (study group, n = 43), was used the technique of intermittent hepatic inflow vascular occlusion (Pringle maneuver).

During every operation we adhere to certain conditions. Anatomic resection performed by standard methods with preliminary selective devascularization. All resections were performed with the principles of small-volume fluid therapy in low numbers CVP (0–50 mm. H2O). Preoperative examination, technique of surgery, postoperative therapy did not differ between groups.

For optimal mode clamping was chosen technique developed by Japanese surgeons: ischemic preconditioning for 10 minutes, reperfusion - 5 minutes, the duration of follow clamping – 15 min.

To determine the expression of the IRS, we performed a comparative analysis of the level of cytolitic enzymes before surgery, 1 and 3 day study groups.

Results: Key performance indicators of clamp crushing technique with and without vascular exclusion of the liver is shown in Table. 1 and 2.

Conclusions: Thus, the technology the intermittent clamping had no statistically significant increase in traumatic dissection method, but significantly reduces the estimated blood loss on its stage. This increases the number of patients who do not need an erythrocytic mass transfusion.

This fact will recommend a method of dissection clamp crushing together with Pringle maneuver, as an alternative, and the most technically simple method of modern methods of liver dissection. However, when the margin hepatectomies preference is given to the jet or ultrasonic methods of dissection without vascular exclusion that has a minimal injury and preserves maximum amount of the remaining liver parenchyma.

714

SPONTANEOUS RUPTURE OF PRIMARY SPLENIC ANGIOSARCOMA: A CASE REPORT AND LITERATURE REVIEW

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Background: Primary angiosarcoma of the spleen is a rare mesenchymal malignant tumor of vascular origin often with a very poor prognosis, due to its high metastatic potential. This disease often presents with a traumatic rupture and lethal hemorrhage.

Methods: We report a case of a 65-year-old man who presented with abdominal pain, anemia, thrombocytopenia, and palpable abdominal mass with unstable blood pressure. After an extensive review of the literature, we found that less than 200 cases had been reported since 1879 when Langhans described the first case of spleen angiosarcoma.

Results: Laparotomy revealed a huge (weight 1650 g, diameter 19 cm) actively bleeding spleen, so splenectomy was performed. Some liver metastasis foci were also found during the procedure. Histopathology diagnosis of the removed spleen was primary splenic angiosarcoma. The patient was discharged on the tenth day post operation with no complication.

Conclusion: Splenic angiosarcoma, although rare, must be considered as one of the differential diagnoses in patients with spleen parenchymal lesions. Definitive diagnosis requires laparotomy followed by splenectomy. Since in the majority patients with spleen angiosarcoma, metastatic diseases have already occurred at the time of laparotomy, the surgical approach of splenectomy is an approach more for diagnosis rather than treatment purpose.

715

LAPAROSCOPIC HEPATECTOMY AS THE PREFERRED TREATMENT OF PRIMARY HEPATIC CARCINOMA

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Background and aims: With the improvement of the laparoscopic equipment and technique, laparoscopic hepectomy (LH) has proven to be a safe minimal invasive surgery for primary hepatic carcinoma (PHC). But the typical clinical process of the procedure is still noncommittal. This study include a serial of 95 cases of LH for PHC to present the essential characteristics of the procedure.

Methods: From June 2002 to Dec 2008, % 95 consecutive cases of primary hepatic carcinoma, % included 63 males and 32 females, with a mean age of 48.7(28-71) age, underwent LH in our department. All of the operations were performed by the same surgical team.

Results: Laparoscopic hepectomies succeeded in 91 cases and the other 4 cases were converted to open resections included 44 anatomic and 47 un anatomic hepectomies. The operative time was 216 ± 87(range: 75–310)minutes. The median intraoperative blood loss was 250(range: 50–1500) ml. The postoperative hospital stay was 6.1 ± 1.9 days(range: 3–18). Biliary fistula occurred in 6 cases and ascites in 9 cases postoperatively, which were cured for several days. By 6–83 months of follow up, recurrence in liver occurred in 9 cases. There was no peritoneum and port metastasis.

Conclusions: Our experience indicates that LH is a safe and feasible method for the treatment of primary hepatic carcinoma with good short and middle term outcomes but further prospective study are needed to evaluate this procedure.

720

CLINICAL ANALYSIS OF GALL BLADDER CANCER

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Introduction: Gallbladder cancer is a relatively rare tumor with a poor prognosis. Surgery still offers the only chance for cure. The aim of this study was to analyze the clinical aspect of Gallbladder cancer and
compare clinical outcomes according to the pathologic stage.

**Method:** Between 2002 and 2011, 69 patients with Gallbladder cancer underwent surgical treatment at Inha University Hospital. The data included demographics, pre-operative diagnosis, diagnostic tools, type of operation, pathologic stage and survival data. The medical records were reviewed retrospectively. The statistical significance was defined when p < 0.05.

**Results:** Of the 69 patients, 29 men and 40 women, most prevalent age was the 7th decades of 29 patients (42.0%). The mean age was 68.85 ± 10.12. The pre-operative diagnostic tools were ultrasound in 36 patients (52.2%) and computerized tomography in 51 patients (73.9%). According to the pre-operative diagnosis, Gallbladder cancer were 45 patients(65.2%), Gallbladder stone 14 patients(20.3%), and poly 8 patients(11.6%), respectively.

Radical cholecystectomies were performed in 51 patients (73.9%), simple cholecystectomy in 13 patients (18.8%) (10 laparoscopic cholecystectomies were included), pancreatic duodenectomy in 3 patients, and palliative operation in 2 patients, respectively.

According to the pathology, T1a, T1b, T2, T3 and T4 were observed in 5(7.2%), 6(8.7%), 30(43.5%), 26 (37.7%) and 2(2.9%) cases, respectively.

According to the disease progression, Stage I was 11 cases (15.9%), stage II 18 cases (26.1%), stage III A 16 cases (23.2%), stage IIIB 20 cases (29.0%) and stage IV 3 cases (4.3%), respectively.

For the survival rates, T1 was 90.9%, T2 56.7%, T3 20.0% and all patients were 48.5% (p < 0.05).

According to the disease progression, the survival rate for stage I was 90.9%, stage II 63.2%, stage III A 42.9%, stage IIIB 20.0% and stage IV 0%, respectively (p < 0.05).

**Conclusions:** Treatment result of Gallbladder cancer was dependent on disease progression. The early detection of disease was seemed to be need for improved treatment results. Further studies of large number are needed.

**721**

**THE CLINICAL CHARACTERISTICS OF NON-B NON-C HEPATOCELLULAR CARCINOMA IN HAN AND UIGHUR OF XINJIANG**

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**Background and purpose:** The incidence of primary liver cancer in China is high and has a poor prognosis. Non-B non-C hepatocellular carcinoma was seldom discussed, The study was aimed to analyzing the factors that may influence the prognosis of NBC-HCC patients. Methods We retrospectively analyzed the clinical data of 348 cases of NBC-HCC patients. Overall survival for patients were analyzed by Kaplan-Meier method, and the factors that may influence the prognosis and survival of NBC-HCC patients were analyzed using univariate (log-rank test) and multivariate Cox proportional hazard models. The following factors such as general data, clinic biochemistry parameters, TNM staging system were analyzed.

**Results:** 0.5-,1-, 3- and 5-year disease survival rates were 58.30%,24.00%,5.50% and 2.80% for all 348 patients, respectively. Univariate analysis by log-rank test showed that, TNM staging system, smoking, family history and so on, 13 factors in all, were the important factors that impacted on the survival of NBC-HCC patients. Multivariate analysis by Cox model showed that TNM staging system, portal vein tumor thrombus, smoking, both smoking and drinking, serum lactate dehydrogenase family history, the times of therapy were the significant independent prognostic factors. Conclusion TNM staging system, portal vein tumor thrombus, smoking, both smoking and drinking, serum lactate dehydrogenase family history, the times of therapy are significant independent factors influencing, and family history, the times of therapy are protective factors. NBC-HCC in Xinjiang region has certain regional characteristics and features.

**725**

**VOLUMETRIC ANALYSIS FOR SEGMENTAL LIVER RESECTION**

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**Background and aims:** Due to better and more regular follow-up and screening in patients with hepatitis,
many hepatomas are being identified earlier and consequently liver resections are also becoming more frequent. One of the main criteria for consideration of liver resections is that there is sufficient functioning remnant liver. Unfortunately, these patients often have chronic liver disease with resulting impaired liver function. As such liver resection volume needs to be carefully planned and restricted to ensure adequate remnant liver. Compounding this issue is the fact that there are many different formulae that attempt to calculate the liver volume and the associated volume of liver resected.

**Methods:** Over a period of one year, patients who were scheduled to have liver resections had their pre-operative CT scans analysed and the expected volume of liver to be resected (based on the surgical plan) was calculated using computer software. Following liver resection, the volume of the resected specimen was measured using a volume displacement technique. Intra-operative pictures were obtained where possible and the images discussed with the radiologist and any discrepancy with the predicted resection margins prompted a repeat calculation of the liver volume.

**Results:** Over the study period, we identified 13 suitable patients that we included into the study. These patients had surgery for a variety of reasons, ranging from hepatic metastases from colorectal carcinoma to hepatocellular carcinoma. From a racial perspective, 12 of the patients were ethnically Chinese whilst 1 was Indian. The calculated liver volumes tended to correlate well with the measure resected volumes. However, in a couple of cases, the amount of resected liver differed from the initial surgical plan and so required repeat calculation of the liver volume.

**Conclusions:** We successfully implemented a workflow for the measurement of resected liver volumes and in our small sample of patients there was good correlation between the predicted resected liver volumes and the actual specimen. However, the sample size is relatively small and a larger study needs to be conducted. The patients in this study were predominantly Chinese, but in multi-racial Singapore, the accuracy of our results may not be completely applicable and a larger study may be able to address this issue as well.

### 727

**THE THREE-DIMENSIONAL QUALITATIVE EVALUATION OF SPECT/CT?**

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**Background and aims:** As for cirrhosis liver, there is still no effective assessing method of liver function until now. Indexes from dynamic SPECT Tc-GSA scintigraphy including the hepatic uptake rate (GSA-K), the functional liver density (FLD) was calculated to evaluate the equality of functional reserve of intrahepatic anatomic areas.

**Method:** Twenty patients with cirrhosis liver were enrolled in this study and CT scan and SPECT scan were performed in turn using an integrated SPECT/CT machine. After that the multi-modality image fusion technique (IQQA-liver, EDDA) was used to carry out the three-dimension reconstruction, then indexes of the whole liver and intrahepatic anatomic areas were calculated, including GSA-K, the functional volume(FLV), the morphologic volume(MLV) and FLD. The correlation between these indexes and the exited liver function indexes was analyzed. The difference among patients and areas were compared. According to whether there was tumor thrombus in the main branch of the right portal vein or not, the patients were grouped into Y group and N group and the influence of portal vein to the value of GSA-K and FLD was analyzed. Then in the N group the areas were further divided into tumor-bearing areas (T+ group) and tumor-free areas (T- group) and the influence of tumor compression to the value of GSA-K and FLD was analyzed.

**Results:** The value of GSA-K correlated well with the value of GSA-K, CP score and INR, while FLD did not correlate with them. The gap of GSA-K in patients was big. The values of GSA-K in areas were almost the same and not influenced by the portal vein stream and tumor compression. The gap of FLD in patients was also big. The difference of FLD among intrahepatic areas was not significant. The values of FLD of right liver, S6, S7 and RHVD in Y group were far less than the figure of corresponding areas in n group and the value was 0.007, 0.008, 0.003, 0.048 and 0.000 respectively. Comparing with the T- group, the values of FLD of section and segment in T+ group decreased dramatically.

**Conclusion:** The indexes based on the combination of dynamic SPECT scintigraphy and three-dimension reconstruction could assess the regional functional reserve of cirrhosis liver effectively.

### 728

**SMAC MIMETICS SM-164 POTENTIATES APO22/TRAIL AND DOXIRUBICIN-MEDIATED**

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**Background:** The members of inhibitors of apoptosis (IAPs) family are key negative regulator of apoptosis. Targeting IAPs using small molecule second mitochondria-derived activator of caspases (Smac) mimetics currently is being evaluated as a novel anticancer therapy in many human cancer types. Previous studies have shown that IAPs are aberrantly expressed in hepatocellular carcinoma (HCC), and caused HCC cells resistant to apoptosis induction by chemotherapeutic agents. We herein investigated the therapeutic potential of small molecule Smac mimetics as a single agent and in combination with chemotherapy in human HCC and examine the mechanism of anticancer activity of Smac mimetics.
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Concurrent Sessions Poster 155

LAPAROSCOPY ASSISTANT RFA FOR HEPATOCELLULAR CARCINOMA OF SPECIFIC SITE

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Background and aims: To prospectively compare laparoscopy assistant radio frequency ablation (RFA) and percutaneous RFA for hepatocellular carcinoma of specific site, such as tumors that were ≤ 2 cm adjacent to the gallbladder, the stomach, the diaphragm, the flexura hepatica coli, the right kidney.

Methods: 39 cases with tumors of specific location was included, all of the tumors of specific site were ≤ 2 cm adjacent to organs mentioned above. 25 cases received laparoscopic assistant RFA while 14 cases received percutaneous RFA without laparoscopic assist. In the laparoscopic group, 8 of the 25 cases whose tumor adjacent to the gallbladder received laparoscopic cholecystectomy simultaneously. 6 of the 14 cases of percutaneous group received absolute alcohol injection immediately after the ablation intraoperatively because of the incomplete ablative. 39 cases were all with liver cirrhosis, the number of tumors for each case was ≤ 2, and the diameter of each tumor was ≤ 3 cm, ultrasound guided and performed with cool-tip needle technique were used. Laparoscopic ultrasonic probe was applied in laparoscopic group. The incidences of complications were observed, and the residual of tumors were observed 3 days after ablation with contrast-enhanced ultrasonography.

Results: Laparoscopic and percutaneous group were with no significant difference of age and gender of cases (p > 0.05). The location and number of tumors were not significantly different (p > 0.05). There were no mortality in both groups. In percutaneous group, one case complicated with gastric perforation, one case complicated with thermal injury to gallbladder, and two cases complicated with thermal injury to diaphragm, one with diaphragmatic hernia and one with biliary-branch fistula. The incidence of complication of percutaneous group was 28.57%, however, in laparoscopic group, there was no similar complication (p < 0.002). 3 days after ablation, the residual of tumors were observed. 4 of the 14 cases of percutaneous group revealed incomplete ablative and received absolute alcohol injection after contrast-enhanced ultrasonography, while 2 of the 25 cases of laparoscopic group revealed incomplete ablative and received absolute alcohol injection. The incidence of residual of tumor of percutaneous group was higher than laparoscopic group (p = 0.02).

Conclusions: Laparoscopic assistant RFA is safer and more effective than percutaneous RFA without laparoscopic assist for hepatocellular carcinoma of specific site. It can help real-time monitoring and minimize the incidence of complications, so that complete ablation can be achieved to tumors. laparoscopic ultrasonic probe should be applied intraoperatively, which can minimized the affect of pneumoperitoneum.

Surgical Strategy for the Branch Duct IPMN of the Pancreas

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Background: Intraductal papillary mucinous neoplasm (IPMN) of the pancreas is a very distinctive neoplasm which progresses from adenomas to carcinomas slowly. Therefore, surgical indication for the branch duct IPMN is worrisome and controversial. The aim of this study was to evaluate surgical strategy for the branch duct IPMN.

Methods: A total of 194 patients who underwent pancreatocystectomy for the branch duct IPMN between 1981 and 2011 were reviewed retrospectively.
Results: The IPMN lesions were histologically classified based on a pathological evaluation into low-grade dysplasia (101), intermediate-grade dysplasia (29), high-grade dysplasia (40) and associated invasive carcinoma (24). The incidence rates of malignancy were 46% in the patients with mural nodules, and 9% in the patients without mural nodules. The mean tumor size of malignancy was 38 mm in the patients without mural nodules. No lymph node metastasis was observed in patients with high-grade dysplasia, however lymph node metastasis was observed in 38% with an associated invasive carcinoma. Limited pancreatic resection without lymph node dissection was performed in 63 patients. Although the rate of malignancy was 32%, no tumor recurrence was seen in the limited pancreatic resection group. Total pancreatectomy for the multifocal branch duct IPMNs was performed safely in 9 patients, and the rates of malignancy were 22%. However, the malignant lesions were located in the maximum lesions with highest oncological risk.

Conclusions: The indications for surgical resection are the branch duct IPMN with mural nodules or maximum size more than 40 mm. A pancreatectomy with lymph node dissection should be performed if the potential exists for extra pancreatic invasion. A limited pancreatic resection has a role for non-invasive branch duct IPMNs, and the treatment approach to the multifocal branch duct IPMNs should be mirror that of unifocal branch duct IPMN as described in the international consensus guidelines 2012.

738

THE EFFECT OF 5-FLUOROURACIL COMBINED WITH TRIPOTOLIDE ON PANCREATIC CANCER IN VITRO

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Aims: To observe the changes of proliferation and apoptosis in pancreatic cancer cells AsPC-1 after given the triptolide (tripotolid, TPL), and explore the synergy of (5-fluorouracil,5-FU) combined with TPL on AsPC-1 cells, and research which TPL could enhance apoptosis induced by 5-FU in AsPC-1 cells or not.

Methods: AsPC-1 cells were cultured in high glucose DMEM+ 10% fetal calf serum in the culture medium; Inhibited proliferation effect of 5-FU,TPL, IC30 dose of TPL combined with 5-FU and constant proportion of 5-FU combined with TPL on AsPC-1 cells was determined by MTT assay; The expression changes of PARP and caspase-3 were detected by Western Bloting; The differences of cell apoptosis ratios were analyzed by flow cytometer.

Results: AsPC-1 cells were inhibited proliferation by TPL and 5-FU, with dose and time related. After 24 hours, TPL combined with 5-FU on AsPC-1 cells, the differences of expression amount of activated caspase3 had statistically significant when 5-FU alone group compared with other groups (p < 0.01). After 48 hours, the differences of expression amount of activated caspase-3 had statistically significant when combination group compared with other groups (p < 0.01); Single drug group compared with control group, with significant difference (p < 0.01).

Conclusions: TPL had significant effects of inhibiting proliferation and inducing apoptosis on AsPC-1 cells, and no significant inhibitory effect of IC30 concentrations of TPL could significantly enhance 5-FU in proliferation inhibition on AsPC-1 cells. TPL and 5-FU had highly synergistic effects on inhibiting proliferation of AsPC-1 cells. TPL could significantly enhance 5-FU inducing apoptosis on AsPC-1 cells.

739

HEPATITIS B VIRUS (HBV) INDUCES DIFFERENT RESPONSES OF HEPATOCYTES AND OVAL CELLS DURING HBV-RELATED HEPATOCARCINOGENESIS

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Chronic infection with hepatitis B virus (HBV) is a high risk factor for hepatocellular carcinoma (HCC) in humans. Mechanisms of HBV-related HCC are not very well understood. To investigate whether HBV may induce oval cell response in mice and induce different responses of hepatocytes and oval cells, we used Immunohistochemistry to identify oval cell response in HBV transgenic mice. Flow cytometry, immunohistochemistry and microarray were applied to detect different responses of the hepatocytes and oval cells to HBV expression. The data of microarray were validated in human HCC. Our data showed that HBV expression stimulated oval cell responses in mice. HBV induced a significant increase of cell death in HBV hepatocytes,
but had minimal effects on oval cells. We identified the genes and signaling pathways differently expressed in oval cells from hepatocytes, showed that HBV affected them in oval cells to a greater extent than in hepatocytes. In particular, the expressions of oncopogenes in HBV hepatocytes were downregulated and tumor suppressor genes were upregulated. Expression patterns in oval cells were in contrast to those in hepatocytes. Thus, HBV transgenic mice is a useful model for study the biological behaviors of oval cells affected by HBV and stem/progenitor-derived HCC. We identified the genes and pathways, which might be new progenitor markers and play roles in HBV-related stem/progenitor-derived HCC. These results provide new evidences that support the stem cell theory of carcinogenesis, and the methods used serve as a potential platform to facilitate study of the mechanisms underlying HBV-related hepatocarcinogenesis.

741

20 CASES OF DIAGNOSIS AND TREATMENT FOR PREUDOPAPILLARY-SOLID EPITHELIAL NEOPLASM

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Objective: We summarized our experiences on the surgical treatment for pseudopapillary-solid epithelial neoplasm (PSEN) in the body or tail of the pancreas.

Methods: Distal pancreatectom had been operated on 20 cases of pseudopapillary-solid epithelial neoplasm (PSEN) in the body or tail of the pancreas from May 2008 to February 2010.

Results: All of 20 cases were be operated by distal pancreatectom, which were successfully performed. The mean operation time was 3.2h (range: 5–5 h), and the average intraoperative blood loss was 270ml (range: 100–500 ml). 19 cases had pancreatic fistula, death or surgery related infection. After post operative follow-up for 6 to 24 months with an average of 15.5 months, there was no recurrence.

Conclusions: The surgical resection is the best effective treatment for PSEN, which has satisfying prognosis.

743

CURATIVE EFFECTS OF PERMANENT INTERSTITIAL 125I SEEDS BRACHYTHERAPY COMBINED WITH PALLIATIVE OPERATION FOR LARGE HEPATOCELLULAR CARCINOMA

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Background: Large hepatocellular carcinoma is primary malignances of the liver, and current treatment methods are inadequate. We reported 80 cases of large hepatocellular carcinoma successfully managed by custom-designed permanent interstitial 125I seeds brachytherapy combined with palliative operation.

Methods: Between 2009 and 2011, 80 patients with large hepatocellular carcinoma in The Second People’s Hospital of Yunnan Province were enrolled in the study. They all underwent palliative operation plus Permanent interstitial 125I seeds brachytherapy and chemotherapy. All patients were followed up on 6, 12, 24, 36 months postoperatively.

Results: Our study showed that clinical symptom remission rate was 95.3% (61/64). Alanine aminotransferase and aspartate aminotransferase were lowered to a normal level in 80% of the patients (50/60) and 75% of the patients (45/60) respectively, in 80% of the patients (40/50). The value of Alpha fetoprotein decreased by 50% after the therapy. The effective rate of therapy was 80% (76/95) for 95 tumor nodules (diameter <5cm–10cm), and 78.6% (33/42) for 42 tumor nodules (diameter >10cm). The 3-year disease-free survival was 66.6%.

Conclusions: Palliative operation plus Permanent interstitial 125I seeds brachytherapy appears to be a reasonable alternative for treating large hepatocellular carcinoma.

749

LAPAROSCOPIC COMMON BILE DUCT EXPLORATION IN THE PATIENTS WITH PREVIOUS UPPER ABDOMINAL OPERATIONS

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Background and aims: Laparoscopic common bile duct exploration (LCBDE) is technically difficult and challenging in patients who have undergone upper abdominal operations. The purpose of the present study was to investigate the safety and feasibility of LCBDE in patients with upper abdominal surgical histories.

Methods: LCBDE was attempted in 44 patients between Jan 2000 and Mar 2012. Among them, 39 patients were enrolled in the present study excluding 5 patients with previous lower abdominal operation histories. The patients were divided into two groups according to presence of previous upper abdominal operation; Group A: patients without history of abdominal operation (n = 27), Group B: patients with history of upper abdominal operation (n = 12). The two groups were compared with respect to demographic data, operating time, postoperative hospital stay, open conversion rate, postoperative complication, duct clearance rate and mortality.

Results: After common bile duct (CBD) exploration, T-tube was placed in CBD on 38 patients (97.4%) and primary closure was performed on only one patient. Two groups were statistically similar in terms of gender, mean age and presence of comorbidity. Conversion to open surgery was made in 4 cases of Group A (14.8%) and 1 case of Group B (8.3%) (p = 0.312). Mean operating time was 164.48 ± 63.07 min for...
Group A and 134.83 ± 45.23 min for Group B, which was not statistically different (p = 0.18). Duct clearance and complication rates were comparable (p ≥ 0.05) and postoperative stay was also similar (12.59 ± 5.71 days for Group A, 9.83 ± 2.92 days for Group B, p = 0.158) between two groups. There was no Trocar-related complication in both groups.

Conclusions: LCBDE was performed safely and effectively even in the patients with previous upper abdominal operation. Thus, LCBDE by experienced laparoscopic surgeons could be considered as one of the best alternatives to failed ERCP for difficult cholelithiasis.

Key words: Laparoscopic common bile duct exploration, previous upper abdominal operation

750

EXPRESSION OF RKIP AND HPA IN HEPATOCELLULAR CARCINOMA AND THEIR CLINICAL SIGNIFICANCE

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Background: Hepatocellular carcinoma is one of the most common malignant tumors in China, which has high degree of malignancy, insidious onset, recurrence, metastasis. All of these are related to biological characteristic of HCC which is easy invasion and metastasis. But the exact mechanism remains unclear, so the regulatory mechanism of HCC's invasion and metastasis has become a hot topic of the present study.

Objective: To investigate the expression of Raf kinase inhibitor protein (RKIP) and heparanase (HPA) in Human hepatocellular Carcinoma tissues, tumor-surrounding tissues and normal liver tissues. To discuss their correlation with clinical pathological factors and to analysis correlation between RKIP and HPA.

Methods: We collected 42 cases of hepatocellular Carcinoma tissues, 36 cases of tumor surrounding tissues and 23 cases of normal liver tissues which were from surgical resection in our hospital. All cases were confirmed by pathology. Immunohistochemistry was used to detect the expression of RKIP and HPA in all of tissues, and then analysis software SPSS13.0 was determined to access their relationship with clinical pathological factors and the correlation between them. Expression differences of RKIP and HPA among HCC tissues, tumor-surrounding tissues and normal liver tissues use Kruskal-Wallis rank-sum test. Using Spearman's rank correlation test to analysis correlation between RKIP and HPA. Using ? 2 test to analysis correlation between RKIP, HPA and clinical pathological factors.

Results: 1. Positive rates of RKIP in HCC tissues, tumor-surrounding tissue and normal liver tissues were 28.57%, 80.56% and 95.65%, and the difference had statistical significance (?2 = 26.597; p = 0.000).
2. Positive rates of HPA in HCC tissues, tumor-surrounding tissue and normal liver tissues were 83.33%, 72.22% and 8.69%, and the difference also had statistical significance(?2 = 36.722, p = 0.000).
3. Both RKIP and HPA was irrelevant with age, gender, AFP and the size of tumor, while was relevant with having liver inside or the lymph node metastasis and pathological grade. The expression of RKIP in HCCs with intrahepatic or lymph node metastasis was lower than that without intrahepatic or lymph node metastasis, which in well differentiated group was higher than in poorly differentiated group. However, the expression of HPA in HCCs was just the opposite.
4. There was a significantly negative relationship between the expression of RKIP and HPA in HCCs (r = -0.409, p = 0.007).

Conclusions: 1. RKIP was related to the invasion and metastasis of HCC and may inhibit HCC's metastasis. 2. HPA was related to the invasion and metastasis of HCC and may promote HCC's metastasis. 3. RKIP may through the Raf-1- MEK1/2-ERK1/2 or the NF-2B pathway to inhibit expression of HPA.

758

MIR-143 SUPPRESSES PROLIFERATION AND MIGRATION OF HEPATOCELLULAR CARCINOMA BY TARGETING MACC1 SIGNALING PATHWAY

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Background and aims: Studies have been shown that miR-143 plays an important role in carcinogenesis, however, the role of miR-143 in hepatocellular carcinoma (HCC) remains undefined.

Methods: The expression of miR-143 in HCC cell lines and paired HCC tissues was measured by Real time-PCR (qRT-PCR) and in situ hybridization (ISH). Ectopic expression of miR-143 was used to test the influences of miR-143 on proliferation and metastasis of HCC cells in vitro and in vivo. Predicted target genes of miR-143 were determined by dual-luciferase reporting, qRT-PCR, and western blot (WB) analyses. The correlations and prognostic values of miR-143 and its target genes were also investigated.

Results: Decreased miR-143 was observed in both HCC tissues and cell lines, and associated with patients' aggressive pathologic features. Up-regulating miR-143 significantly inhibited the malignant phenotypes by repressing the expression of metastasis associated in colon cancer 1 (MACC1) both in vitro and in vivo. Inhibiting miR-143 could increase MACC1 expression, and RNA interference targeting MACC1 mRNA could rescue the loss of miR-143 functions. MiR-143 inhibits the proliferation and metastasis of HCC by directly targeting MACC1.

Conclusions: MiR-143 exerts tumor suppressive functions by targeting MACC1 signaling pathway.
Up-regulation of miR-143 might be a promising approach and a prognostic marker for HCC.

761

CLINIC COMPARATIVE STUDY ON LEFT SEMI-HEPATECTOMY BY PRINGLE’S MANEUVER AND ANATOMICAL LEFT SEMI-HEPATECTOMY FOR LEFT SEGMENT BILE DUCT STONE

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Background and aims: To explore feasibility and safety of anatomical left semi-hepatectomy in the treatment of left segment bile duct stone.

Methods: 80 patients with left segment bile duct stone undergoing elective semi-hepatectomy were randomly divided into two groups, including 40 cases of treatment group, 40 cases of control group. The treatment group was treated with anatomical left semi-hepatectomy, and the control group was treated with left semi-hepatectomy by pringle’s maneuver. The operation time, blood loss in operation, improvement of liver function after operation and complications after operation were compared.

Results: There were no significant difference on the operation time, blood loss and blood transfusions in operation (p > 0.05), while the stay-in-hospital time after operation in treatment group was significantly shorter than that in control group (p < 0.05). After treatment for 5 days, the level of ALT, AST and TB in treatment group were significantly lower than those in control group (p < 0.05). For 5 days, the PT, APTT in treatment group at 1st and 3rd after treatment were significantly shorter than those in control group (p < 0.05). For 5 days, the PT, APTT in treatment group at 1st and 3rd after treatment were significantly shorter than those in control group (p < 0.05). The incidence of post-operative complications in treatment group was 10.0%, and 25.0% in control group, the difference was significant (p < 0.05).

Conclusions: It is a safe and feasible of anatomical left semi-hepatectomy for treating left segment bile duct stone, it has relative small damage to liver of uninjured sides, and it can contribute to control blood loss in operation, reduce post-operative complications.

762

THE CLINICAL APPLICATION OF INTRAOPERATIVE ENBD TUBE PLACEMENT WITH TRI-SCOPY COMBINED IN CBD EXPLORATION WITH PRIMARY SUTURE

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Background and aims: With the maturity and development of biliary surgery minimally invasive techniques, laparoscopic common bile duct exploration of T-tube drainage in the treatment of common bile duct stones have been gradually replaced laparotomy. Postoperative T-tube drainage exist various disadvantages, especially a long period of T-tube drainage time inconvenience to the patient’s life. To investigate the safety, feasibility and effectiveness of the common bile duct primary suture after tri-scopy (Laparoscope, choledochoscopy and duodenoscopy) combined choledochotomy.

Methods: Retrospective analysis from February 2009 to December 2011, a case-control study was performed on 67 patients undergoing this new procedure and 40 patients receiving laparoscopic choledochotomy T-tube drainage after surgery in a same period of time.

Results: There was no mortality and no convert to open surgery in two groups, the new procedures with a success rate was 97% (65/67). The difference of two groups in operative time, removal tube time, postoperative complications and the hospital costs was not statistically significant (p > 0.05), but the difference in bowel function recovery time (30.6 ± 5.2 /48.3 ± 6.4 h), postoperative hospital stay time (7.2 ± 1.3 /13.7 ± 1.7 d), the bile loss time (6 ± 2.7 d/28 ± 3.9 d) between 2 groups was statistically significant (p < 0.05), the nasobiliary duct group was shorter than T-tube drainage group. Two groups were followed up during 1 to 3 years, average 1.5 years, no retained stones and biliary stricture complications were found in any patient.

On the basis of strictly surgical indications and place the Nasobiliary duct drainage as usual, the primary suture of common bile duct after tri-scopy combined common bile duct exploration is safe, feasible and effective.

763

RE-RESECTION FOR METARCHRONOUS COLORECTAL LIVER METASTASIS: IS IT JUSTIFIED?

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Background and aims: Data on re-resection for colorectal liver metastases is scare and long-term outcome is unclear. The aim of the present study is to investigate whether re-resection is justified in this group of patients.

Methods: Prospectively collected data of all adult patients who diagnosed with colorectal liver metastases at Department of Surgery, the University of Hong Kong, Queen Mary Hospital, Hong Kong SAR, China, in the period between December 1989 and December 2011 were reviewed. 14 patients having re-resection (Group R) with curative intent for metachronous colorectal liver metastases were compared with those of 307 patients having primary resection (Group P) in the same period. There was no overlap of patient and all had gross tumour-free resection margin.

Results: The two groups had comparable demographics. Although not reached statistical significance, more
PATIENTS AND METHODS

We retrospectively reviewed medical records of 39 patients with histologically confirmed HCC and portal vein thrombosis who were treated at our institution from January 1999 to December 2009. The patients were divided into two groups: group P received HAIC with or without resection, and group R received simple resection only. The data were analyzed using SPSS 14.0 (SPSS, Chicago, IL).

RESULTS

The median follow-up time in group P was 30.2 months (range, 0.3-155 months), and that in group R was 84.5 months (range, 12-180 months). The median age was 61 years (range, 19-81 years) in group P and 60 years (range, 26-75 years) in group R. The median number of tumour nodules was 1 (range, 1-4) in group P and 3 (range, 1-9) in group R. The median tumour size was 2.5 cm (range, 1.0-10.0 cm) in group P and 3.0 cm (range, 1.0-11.0 cm) in group R. The median number of tumours was 2 (range, 1-16) in group P and 6 (range, 1-36) in group R. The median number of tumour nodules with portal vein thrombosis was 2 (range, 1-14) in group P and 6 (range, 1-23) in group R. The median number of tumours with portal vein thrombosis was 2 (range, 1-10) in group P and 5 (range, 1-20) in group R.

CONCLUSIONS

In conclusion, partial hepatectomy with concomitant or sequential HAIC is a feasible and effective treatment for patients with advanced HCC and portal vein thrombosis.

770

LAPAROSCOPIC DISTAL PANCREATECTOMY WITH OR WITHOUT SPLENIC PRESERVATION: A RETROSPECTIVE STUDY OF 39 CASES

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Background and aims: Laparoscopic distal pancreatectomy (LDP) has gained large popularity in recent years, although the choices of whether to preserve the spleen has remained inconsistent. Distal pancreatectomy with splenectomy is an effective technique for management of benign or low-grade malignant diseases in the body or tail of the pancreas. However, the spleen participates in various immune functions there is a significantly increased risk of sepsis associated with splenectomy, and a negative influence on long-term survival. The aim of our study was to report our experiences with laparoscopic distal pancreatectomy, to

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provide evidence for the safety of the operative technique and an evaluation index of splenic function.

Methods: We retrospectively evaluated all LDPs performed at our institution between March 2008 and October 2012. Cases were divided into a laparoscopic spleen-preserving distal pancreatectomy (LSPDP) group (n = 17) and an LDP with splenectomy (LDPS) group (n = 22). Perioperative data (blood loss, operative time, length of hospital stay, and blood transfusion), and procedure-specific complications (pancreatic fistula, splenic infarction, and hemorrhage) were compared between the two groups. Parametric and nonparametric statistical analyses were used to compare perioperative and oncologic outcomes.

Results: Demographic characteristics, perioperative data and complication rate were similar between groups. Patients who underwent LDPs tended to have larger masses and lower pancreatic fistulatases, but these differences were not significant. White blood cell (WBC) counts were significantly higher in the LDPS group than in the LSPDP group on postoperative days 1 and 7.

Conclusions: To avoid splenectomy-associated complications, preservation of the spleen and especially the splenic vessels is preferred. Our data suggest that LSPDP can be performed safely and feasibly. Lower postoperative WBC counts may imply better splenic function.

772

RATIONALE AND SURGICAL TECHNIQUE OF LAPAROSCOPIC LEFT LATERAL SECTIONECTOMY WITH ENDOSCOPIC STAPLE

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Background and Aims: Laparoscopic left lateral sectionectomy (LLLS) has been accepted with popularity in its benefits related to minimally invasive surgery. Some surgeons like to isolate glissonian pedicles to segment 2 and 3 and control individual pedicles with surgical clips. But others like to control glissonian pedicles to segment 2 and 3 at once with endoscopic stapler device without isolating each pedicles. The aim of this study is to find rationale (safety, outcomes, learning curve) of LLLS with endoscopic staples.

Methods: We retrospectively analyzed and compared the clinical outcomes (operation time, blood loss, hospital stay, learning curve, complication rate, etc) in 33 patients who underwent LLLS between April 2004 and December, 2011 depending on surgical technique whether isolate each glissonian pedicles (individual group, n = 20) or not (batch group, n = 13). To see the learning curve, we arbitrarily divided first and second half period (before and after December, 2009) depending on case number 17.

Results: There was one open conversion in individual group. Mean operative time was 265.3 ± 21.3 min (Mean ± SE) in the individual group and 170.0 ± 22.9 min in batch group. Operation time in batch group was significantly shorter than individual group (p = 0.007). There was no blood transfusion in batch group, but 4 out of 20 patients in individual group needed blood transfusion during surgery. Mean post-operative hospital stay was 10.7 ± 1.1 and 9.4 ± 0.8 days in individual and batch group (p = 0.46). Mean operative time in the first and second half of individual and batch group were 271.9 ± 28.9/254.3 ± 32.2 min and 209.0 ± 29.1/142.1 ± 30.7 min (first half/second half). In batch group, we could save operation time significantly (p = 0.027) in second half period without morbidity and mortality.

Conclusions: The LLLS with endoscopic staple (batch group) was easy and safe technique with short learning curve and better outcomes without mortality and morbidity. We will show schematic pictures and video to support rationale for LLLS with endoscopic staples (batch group).

773

SELECTIVE PORTAL VEIN EMBOLIZATION IN THE TREATMENT OF LIVER CANCER

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Objective: To evaluate the clinical feasibility and effectiveness of transcatheter portal vein embolization (PVE) and transcatheter arterial chemoembolization (TACE) in the treatment of hepatocellular carcinoma.

Methods: PVE was performed in 22 patients with unresectable advanced hepatocellular carcinoma. Right portal vein were embolized successfully with percutaneous transhepatic approach through the ultrasound guidance. Left hepatic lobe volume was measured with CT scans before and after PVE. Liver function, and coagulation function were also measured before and after PVE.

Results: Right portal vein was embolized successfully in all patients. Right liver resection was performed in 12 patient. The left hepatic lobe volume was (315 ± 101) cm3 before PVE, and (628 ± 121) cm3, (740 ± 103)cm3 and (678 ± 132) cm3, respectively 2 weeks, 4 weeks, and 8 weeks after PVE. Left hepatic lobe volume increased (44.1 ± 21.1)%,(47.1 ± 22.1)% and (49.3 ± 23.1)%, respectively. There was statistical difference in left hepatic lobe volume before and 2 weeks after PVE (p < 0.05). Liver function damage after PVE was minimal. No patient had complication after PVE.

Conclusions: PVE is clinically feasible, safe and effective in inducing the compensatory hypertrophy of the remnant liver. It can increase the resection rate and safety of operation.
LOW EXPRESSION OF ASPARAGINE SYNTHETASE IN HEPATOCELLULAR CARCINOMA IS ASSOCIATED WITH WORSE SURGICAL OUTCOME

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Background and aims: Asparagine synthetase (ASNS) is known to be associated with drug resistance in leukemia and its function is not clear yet, especially in hepatocellular carcinoma (HCC). By proteomics approach, we previously identified ASNS is overexpressed in HCC tumor tissues compared with normal liver specimens. The expression of ASNS and its prognostic value in HCC remains unclear. This study aimed to investigate the relationship between ASNS expression, tumor recurrence, and patient survival after surgery resection.

Methods: A cohort of 269 HCC patients who underwent surgical resection from 2002 to 2006 were retrospectively reviewed. By real-time PCR and immunohistochemistry assay, the expression of ASNS was evaluated. The correlation between ASNS expression and clinicopathological factors were investigated. Potential clinicopathological prognostic factors were examined by univariate and multivariate survival analysis.

Results: The expression of ASNS was significantly correlated with tumor size (p = 0.002), microvascular vascular invasion (p = 0.003), tumor encapsulation (p = 0.007), TNM stage (p = 0.039) and BCLC stage (p = 0.039). Patients with low ASNS expression had a poorer prognosis in survival than those with high ASNS expression (P<0.01). Patients with ASNS high or low expression, the survival rates were statistically different (52.6%, 29.2% and 25.3% versus 37.4%, 20.0% and 13.9% in 1-, 3- and 5-year survival rates). Multivariate survival analysis indicated that the expression of ASNS was an independent factor affecting survival (HR 0.744, 95% CI 0.565–0.979, p = 0.035).

Conclusions: ASNS expression was an independent factor affecting survival. Low ASNS expression in HCC is correlated with worse surgical outcome, and this molecule might be useful in predicting post-surgical outcome in patients with HCC.

SEGMENT IVB AND V HEPATIC RESECTION WITH LYMPHADENECTOMY IN EARLY STAGE GALLBLADDER CANCER

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Introduction: Gallbladder Cancer (GBC) is one of the very poor prognostic cancer. At the symptomatic time, it has usually no longer curable stage. Early stage diagnosis with extensive surgical resection are the appropriate management for selected patients. We here presented one patient from our series which received this approach in our institute.

Methods: A 55 year-old man had no abnormal symptom who was investigated by abdominal ultrasonography for yearly checkup which was reported a infiltrative lesion at neck of gallbladder. Subsequently CT abdomen suspected early stage GBC without lymph node enlargement. Surgical management was advised but patient denied surgery and loss follow up. 4 months later, patient returned to our hospital and MRI abdomen was reported slightly enlarged of lesion at neck of gallbladder and no lymph node involvement or distant metastasis.

Results: Segment IVb and V hepatic resection with lymphadenectomy was performed in this patient. During operation, frozen section of cystic duct margin was reported negative. Pathological report revealed well-differentiated adenocarcinoma which involved muscular layer (T1b), free all resection margin and lymph node positive 1 in 23 nodes. Post-operative course was uneventful. Patient was discharged on 5th post-operative day. Now, he is doing well at 16 months after operation and adjuvant chemotherapy.

Conclusions: Radical resection including cholecystectomy with en-bloc hepatic resection and lymphadenectomy is only potentially curative treatment for early stage GBC.

RISK FACTORS AND COUNTERMEASURES FOR ENDOTRACHEAL REINTUBATION DURING POSTOPERATIVE CARE FOLLOWING LIVER TRANSPLANTATION

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Background and aims: In patients receiving mechanical ventilation, reintubation was associated with increased incidence of nosocomial pneumonia, length of ICU stay...
and mortality. This study is aim to explore risk factors of endotracheal reintubation for patients after liver transplantation.

**Methods:** The data of 237 patients with liver transplantation from January, 2004 to December, 2009 in Eastern Hepatobiliary Surgery Hospital were collected, including clinical data, laboratory results and complications during and after operation. The data were analyzed by SPSS PASW (18.0), and method of Logistic regression analysis was used to investigate the risk factors of endotracheal reintubation of patients after liver transplantation.

**Results:** 30 of 237 patients (12.7%) required one or more episodes of reintubation after liver transplantation. The overall mortality rate in patients with reintubation was 53.3%, comparing with 4.3% in patients without reintubation (p < 0.001). According to Logistic regression analysis, the risk factors for reintubation after liver transplantation include preoperative grade of liver function (Child-pugh C), (OR = 12.597, 95%CI 2.686–41.814, p = 0.001), intraoperative hypotension, (OR = 15.916, 95%CI 2.340–108.229, p = 0.005), postoperative complications such as pulmonary infection (OR = 28.641, 95% CI: 2.561–320.328, p = 0.006) and renal function failure (OR = 8.159, 95% CI: 1.320–50.447, P = 0.024), high volume of sputum in 3 days after operation, (OR = 2.002, 95% CI 1.135–3.532, p = 0.017).

**Conclusions:** To improve the preoperative liver function, to control the intraoperative bleeding, to promote the expectation after extubation and to prevent the postoperative complications such as pulmonary infection and renal failure are helpful to decrease the incidence of tracheal reintubation in patients after liver transplantation.

782

**SPLENECTOMY PRIOR TO ANTIVIRAL THERAPY IN PATIENTS WITH HCV RELATED DECOMPENSATED CIRRHOSIS**

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**Background and Aims:** Patients with hepatitis C virus related decompensated cirrhosis had been reported to benefit from interferon-based therapy. However, the majority of patients cannot receive such treatment due to cytopenia. We aimed to investigate the safety of splenectomy and the efficacy of antiviral therapy after splenectomy in this population.

**Methods:** From January 2008 to January 2011, thirteen HCV decompensated cirrhotic patients underwent splenectomy prior to antiviral therapy was included in this prospective study. All patients (39–62 years, Child–Pugh A 9 and B 4) were interferon naive, one to three months after surgery, received pegylated IFN α-2a/ IFN α-2b or standard IFN α-2b plus ribavirin for 48 weeks.

**Results:** There were no severe operative and postoperative complications except for minor portal vein thrombosis were detected in two patients and 8 patients experienced transient ascites postoperatively. Platelet (48.23 ± 15.92 vs 186.0 ± 70.62×103/μL, p < 0.001) and leukocyte (2.102 ± 0.492 vs 5.695 ± 1.423×103/μL, p < 0.001) counts significantly increased at one month after splenectomy. All patients completed 72 weeks administration. One case required transient IFN interruption for severe intestinal infections, one and two patients required reduction of IFN and ribavirin dose respectively. A sustained viral response was achieved for 4 patients with genotype 2a (4/4, 100%) and 4 with genotype 1b (4/9, 44%). No patients occurred variceal bleeding or encephalopathy during antiviral treatment and follow-up.

**Conclusions:** Splenectomy is safe in the setting of portal hypertension and hypersplenism associated with HCV infection. Splenectomy for severe leukopenia and thrombocytopenia with the intent to apply interferon therapy can be beneficial.

794

**EFFICACY AND SAFETY OF RADIOFREQUENCY ABLATION IN THE MANAGEMENT OF HEMANGIOMAS OF THE LIVER: A SYSTEMATIC REVIEW**

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**Background and aims:** To systematically review the current status of radiofrequency ablation (RFA) in the management of systematic-enlarging hepatic hemangiomas (HCHs).

**Methods:** We conducted a comprehensive review from January 1998 to August 2012 to retrieve all relevant articles.

**Results:** A total of 11 studies with 176 patients undergoing RFA for the management of 228 systematic-enlarging HCHs were reviewed. Diameter of the lesions ranged from 2.2 to 22 cm. A total of 174 patients (98.9%) with 226 lesions were successfully treated by RFA independently or in combination with suture and ligation surgery. Range of ablation time for each lesion and estimated blood loss were 8 to 160 minutes and 50 to 400 ml, respectively. Of the 226 HCHs successfully managed by RFA, 223 lesions (98.7%) were ablated completely, including 188 of 188 (100%) lesions < 10 cm and 35 of 38 (92.1%) lesions ≥ 10 cm. All the 104 patients who had obvious symptoms related to HCHs had a complete disappearance of their symptoms (89.4%) or significantly symptomatic amelioration (10.6%) after RFA. The most frequent complication was fever observed in 53 cases (30.5%; 23.5% [≤ 10 cm] vs 55.3% [≥ 10 cm]), followed by hemoglobinuria (11.5%; 2.9% [≤ 10 cm] vs 42.1% [≥ 10 cm]) and jaundice (8.0%; 2.9% [≤ 10 cm] vs 26.3% [≥ 10 cm]). Two patients with HCHs over 10 cm developed serious complications including lower esophageal fistula and acute respiratory distress.
syndrome. All of these complications were successfully managed by conservative treatment and no patient required reoperation.

**Conclusions:** RFA is a minimally invasive, safe and curative therapy in the management of symptomatic-enlarging HCHs smaller than 10 cm.

795

**QUALITY OF DAY-CARE LAPAROSCOPIC CHOLECYSTECTOMY PATIENTS’ LIFE: THE CHINESE EXPERIENCE**

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**Objective and aims:** To compare of the short term clinical efficacy and quality of life in day-care laparoscopic cholecystectomy (DCLC) group and conventional laparoscopic cholecystectomy (CLC) group. To assess the feasibility of extending DCLC in China.

**Methods:** Retrospectively analyzed the clinical data of this operation in 167 cases between September 2009 and Match 2010, DCLC group 106 cases and CLC group 61 cases. Recorded the quality of life by using SF-36 and GIQLI scale at 1 day before the operation, 2 weeks after the operation and 1 month after the operaion.

**Results:** There two were no statistically difference in age, sex, body mass index, ASA score, operation indication, operation time, bleeding volume and postoperative complications. No conversion admission during this period. No statistic difference in SF-36 and GIQLI of this 2 groups. Hospital stay length of DCLC group was significantly lower than that of CLC group (days, 1.2 ± 0.7 vs. 4.5± 1.2, p = 0.00). DCLC group costs were less than CLC group after deducting the cost of supplies ( , 9045 ± 755.2 vs. 9274.3 ± 557.4, p = 0.03).

**Conclusions:** DCLC is safe and effective, it can reduce the length of hospital stay and reduce hospital charges. No significant difference in terms of quality of life versus CLC. To promote DCLC is feasible in China.

802

**DO WE NEED A BETTER PROGNOSTIC SCORING SYSTEM FOR SEVERE ACUTE PANCREATITIS?**

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**Introduction:** Severe pancreatitis has been associated with significant morbidity and mortality. Initial goals in the management of severe pancreatitis involve aggressive supportive care. Several scoring systems have been used classically to prognosticate the severity of pancreatitis in an attempt at early identification of patients who may require intensive care and high dependency monitoring and support. Two of the most
commonly used scoring systems are the Glasgow and Ranson’s score. The aim of our study is to review the efficacy of the latter two scoring systems in prognosticating the severity of acute pancreatitis. 

**Methods:** A retrospective review of all patients who were admitted for acute pancreatitis from January 2011 to December 2011. Acute pancreatitis was diagnosed based upon characteristic clinical symptoms, serum amylase and/or lipase levels more than three times the upper limit of normal and characteristic findings on imaging. All patients were prognosticated using both the Ranson’s and Glasgow prognostic scoring systems at admission. This data was then correlated with their final severity outcome upon discharge. Atlanta classification was used for evaluation of clinical outcomes at discharge. 

**Results:** From Jan 2011 to Dec 2011 109 patients were admitted with a diagnosis of acute pancreatitis out of which 13 patients had eventual severe pancreatitis. All patients admitted and treated for acute pancreatitis during the study period were taken in the analysis. Severe pancreatitis occurred in 12% patients. Morbidity and mortality of severe pancreatitis in our study is 11% and 2.8% respectively. Glasgow prognostic scoring in our patients had a sensitivity of 53.9%, specificity of 76%, positive predictive value (PPV) of 23.3%, and negative predictive value (NPV) of 92.4%. Ranson’s prognostic scoring showed a sensitivity of 84.6%, specificity of 71.9%, PPV of 29% and a NPV of 97.2% in predicting the final severity outcome. 

**Conclusions:** Both the Ranson’s and Glasgow score have strong NPV in the classification of pancreatitis severity, but their sensitivity and specificity is limited. Ranson’s scoring system is more sensitive than the Glasgow system. We suggest alternate criteria for severity prognostication. We are studying if SOFA score is more accurate in predicting severity.

805

**SYNCHRONOUS DIAPHRAGMATIC EXCISION DURING LIVER RESECTION IS SAFE AND FEASIBLE**

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**Background and Aims:** Diaphragmatic involvement by tumour during liver resection can provide a difficult challenge to the surgeon. We describe a simple technique for closure of the diaphragmatic defect after resection and report a single surgeon’s experience of synchronous excision with hepatic resection.

**Methods:** We retrospectively reviewed our prospectively collected database of 337 liver resections performed by a single surgeon (Haghighi KS) over 6 years for patients undergoing concurrent diaphragmatic excision. We recorded patient characteristics, operative data, histopathology, perioperative complications, transfusion requirement, length of stay and survival.

**Results:** The indications for resection were 7 colorectal liver metastases, 2 hepatocellular carcinoma, a benign liver cyst and 1 renal cell cancer. All resections included en bloc removal of the involved diaphragm with a 1cm macroscopic margin where feasible. There was no inpatient mortality, mean operative time was 188 minutes and mean tumour size was 77mm. There were no pneumothoraces on CXR. Mean ICU stay was 1.3 days. Mean length of hospital stay was 10 days. There was one positive resection margin (non-diaphragmatic). Four patients required blood transfusions (one unit). The only complication was CVA secondary to atrial fibrillation in one patient. There were no bile leaks or collections. Three patients have had recurrence to date. Two of the eleven patients have died of metastatic disease. Two patients required IVC resection concurrently with the diaphragm resection. One patient required a mesh repair to the diaphragm rather than primary repair. Surgical technique: En bloc primary resection with primary closure of the diaphragm. Closure is performed left to right with continuous 2-0 Prolene suture. At the lateral edge a purse string is formed with the final two suture passes around a Yanker sucker placed through this defect into the pleural space. A valsalva is performed and the sucker turned on. The sucker is removed whilst tightening the purse string enabling an airtight closure of the defect with complete evacuation of intrapleural air. There is no requirement for a chest drain.

**Conclusions:** Synchronous diaphragmatic resection during liver surgery can be performed safely with low perioperative morbidity. Diaphragmatic involvement by tumour should not be considered a contraindication to potentially curative liver resection.

807

**PRETRANSPLANT SERUM ALPHA-FETOPROTEIN HAS NO PROGNOSTIC VALUE FOR TUMOR RECURRENCE AFTER LIVER TRANSPLANTATION FOR HEPATOCELULAR CARCINOMA WITHOUT VASCULAR INVASION DETECTED BY PREOPERATIVE IMAGING EXAMINATION**

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**Background and aims:** Alpha-fetoprotein (AFP) has been proposed to correlate with vascular invasion of hepatocellular carcinoma (HCC) and predict tumor recurrence after liver transplantation (LT). However, the prognostic value of AFP in patients with HCC without vascular invasion during the waiting list for LT has not been clearly defined. In this study, we determined the prognostic role of preoperative AFP in patients who underwent LT for HBV-associated HCC without vascular invasion.

**Methods:** We analyzed the outcome of 80 patients who underwent LT for HBV-associated HCC without vascular invasion. Vascular invasion was defined as the presence of tumor emboli within the lobar or segmental branches of the portal or hepatic veins, which was
diagnosed or highly suspected by preoperative imaging examination. Patients were divided into two groups according to different AFP cut-off level (20 ng/ mL, 100 ng/mL, 200 ng/mL, and 400 ng/mL).

**Results:** The 1-, 3- and 5-year disease-free and overall survivals were 97.1%, 89.1%, and 79.9%, and 92.1%, 81.5%, and 72.7%, respectively. Ten patients developed tumor recurrence and 13 patients died during 6 years of follow-up. Univariate analysis revealed that multiple tumor number was the only preoperative predictor of disease-free survival (DFS). Surprisingly, there was no significant difference in DFS with regard to the tumor size, AFP level, preoperative tumor therapy, histologic grade, Milan criteria, and UCSF criteria. All four patients with tumor size greater than 8 cm had no tumor recurrence during 3 years of follow-up. The 3- and 5-year DFS for patients with AFP or > 400 ng/mL were 86.8%, 82.4%, and 86.8%, 72.4%, respectively (P > 0.05). The disease-free and overall survivals were not significantly different among the five AFP classes (< 20 ng/mL; 21–100 ng/mL; 101–200 ng/mL; 201–400 ng/mL; >400 ng/mL).

**Conclusions:** Preoperative serum AFP level has no prognostic role in patients who underwent liver transplantation for HBV-associated HCC without vascular invasion. Although the accuracy and objectivity of the radiological imaging remains a problem, carefully studying the radiologic imaging is still regarded as a first-line test for selecting appropriate candidates for liver transplantation and predicting tumor recurrence following liver transplantation in patients with HCC.

812

**SYNERGISTIC INHIBITING EFFECT OF PARP-1 INHIBITOR PJ34 AND HDAC INHIBITOR SAHA ON HUMAN LIVER CANCER**

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**Background and aims:** Poly (ADP-ribose) polymerase-1 (PARP-1) inhibitor PJ34 and Histone deacetylase (HDAC) inhibitor Suberoylanilide hydroxamic acid (SAHA) were respectively reported to have inhibiting effect on human cancer cells. This study aims to explore whether there exists a synergistic inhibiting effect between PARP-1 inhibitor PJ34 and HDAC inhibitor SAHA on human liver cancer.

**Methods:** PARP-1 expression was confirmed in human liver cancer cell lines HepG2, Hep3B, HCC-LM3 and also the human normal liver cell line L02. These cell lines were administered with different inhibitors or its combination (PJ34, SAHA, PJ34+SAHA), respectively. Cell proliferation assay was employed to investigate cell proliferation of each cell line following drug administration. Flow cytometry was used for cell apoptosis analysis. Moreover, HepG2 cells were inoculated subcutaneously into nude mice. The nude mice bearing subcutaneous tumors were grouped randomly and administered with different inhibitors or its combination (PJ34, SAHA, PJ34+SAHA), respectively. The inhibition rates of the individual inhibitors and its combination on tumor growth were compared.

**Results:** Both PJ34 and SAHA inhibited the proliferation of HepG2 cells in a dose-dependent manner. There was no significant cell cytotoxicity on human normal liver cell line L02 with the concentrations of 8 μmol/L PJ34 and 1 μmol/L SAHA. Furthermore, the combination of PJ34 (8 μmol/L) and SAHA (1 μmol/L) have a synergistic inhibiting effect on the proliferation of HepG2, Hep3B and HCC-LM3, the coefficient of drug interaction (CDI) were 0.67, 0.81 and 0.76, respectively (CDI<1 means synergy). The apoptosis rates of the combined application of PJ34 and SAHA on HepG2 cells were significantly higher than those of separate application of PJ34 or SAHA. In vivo, the tumor inhibition rates of PJ34 alone (10 mg/kg), SAHA alone (25 mg/kg) and PJ34 combined with SAHA (10 mg/kg PJ34+25 mg/kg SAHA) were 53.5%, 61.4% and 82.6%, respectively. The combined application of PJ34 and SAHA had significantly inhibiting effect on xenograft tumor growth comparing to PJ34 or SAHA alone.

**Conclusions:** The combination of PARP-1 inhibitor PJ34 and HDAC inhibitor SAHA have a synergistic inhibiting effect on human liver cancer. This study provides preliminary evidence for combined use of PARP-1 inhibitor PJ34 and HDAC inhibitor SAHA for liver cancer therapy in the future.

**Key words:** Poly (ADP-ribose) polymerase-1; PJ34; Histone deacetylase; SAHA; Liver cancer

814

**THE EFFICACY OF RADIATION THERAPY FOR PATIENTS WITH ADVANCED GALLBLADDER CARCINOMA AND ANALYSIS OF PROGNOSTIC FACTORS**

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**Objective:** To analyze the efficacy and evaluate the security of advanced gallbladder cancer radiation therapy retrospectively, in order to improve the prognosis.

**Methods:** 87 cases of gallbladder carcinoma were taken with three-dimensional conformal radiation therapy. 81 cases can be evaluated. Nevin ’staging for IV was in 23 cases, 58 cases were in V. Male was in 35 cases, 46 cases were of women. Single dose of 1.8 to 2.2Gy, once a day, five times a week, the total dose was 38 to 65 Gy.

**Results:** Cox regression analysis showed that: The serum CA199 value, efficacy and prognosis were with relation. Patients with advanced gallbladder carcinoma was in 81 cases, complete remission rate was 12.3% (10 cases), partial remission rate was 42.0% (34 cases), the efficiency was 54.3%. The survival rate of 3 month was 95.1% (77 cases), survival rate of 6-month period was 69.1% (56 cases), and the survival rates of 1 year, 2 years and 3-year were 24.7%, 3.7%, 1.2%, and the median survival was 8.5 months. The main response of
Outcome for Hilar Cholangiocarcinoma Remains Poor Despite Aggressive Treatment

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Background: Treatment for hilar cholangiocarcinoma is a challenge to surgeons, endoscopists and radiologists. More aggressive approach including liver resection and biliary reconstruction has been advocated in recent decades. Palliative stenting for hilar cancer carries poor quality of life with at least 1 to 2 catheters inserted for relieve of jaundice.

Methods: We review those patients with cholangiocarcinoma within 1 cm from liver hilar, some may extended to 2nd branch intrahepatic ducts or duodenum. Some intrahepatic cholangiocarcinoma within 1 cm from the liver hilar were also included. All patients under these categories with operations done from 1st January 1996 to 30th October 2012 in our hospital are retrospectively studied, particularly the long term outcome and the need for further intervention.

Results: There were 42 patients (24 males) with 43 operations. Mean age at operation was 66.1 years (range 40–79). Ten had excision of extrahepatic bile duct only, and all performed on or before year 2003; 20 had left hepatectomy, 8 right hepatectomy with biliary reconstruction; 1 with right hepatectomy & Whipple operation, 3 with Whipple only. Among those 29 hepatectomy, 16 had concomitant caudal lobe resection and 4 had portal vein (PV) resection. One patient with history of right hepatectomy had margin recurrent and wedge re-resection performed 7 years later. There were 3 operative deaths, 2 before year 2000, and the other was the re-resection patient died of post-operative sepsis in 2010. Twenty-three patients had postoperative complications. Microscopic margin involvement occurred in 11 cases. These patients were follow-up for a mean of 32.2 months (range 1–115). All except those with early T1 tumor died after 10 years. Overall 5 year survival was 38%, significantly worse in those patients with excision of extrahepatic bile duct only. The 5 year survival for those with hepatectomy and without hepatectomy was 43%, and the recurrence did not affect by concomitant caudate lobe or PV resection. The overall disease free survival for those with hepatectomy and without hepatectomy was 42% and 21% respectively. Common sites of recurrence were peritoneum, liver, paraaortic lymphadenopathy. The need for intervention for recurrence was 6 out of 29 post-hepatectomy cases and 8 out of 13 cases for those with excision or Whipple only.

Conclusion: Overall prognosis for hilar cholangiocarcinoma remains gloomy. However, most of them are slow-growing. Aggressive treatment consisting of hepatectomy appears to be justified as it provides better quality of life without requiring much intervention despite its recurrence.
849

IVB-STAGE (T4N2M0) WELL-
DIFFERENTIATED GALLBLADDER
CANCER PATIENT ACCEPTED LIVER
TRANSPLANTATION AND SURVIVED
MORE THAN 5 YEARS

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Background and aims: IV-stage gallbladder carcinoma is considered a contraindication for liver transplantation, but this rule is worth discussing according to IV-stage well differentiated gallbladder carcinoma without distal metastasis patient.

Methods: A severe liver cirrhosis patient (male, 70-year-old) with gallbladder carcinoma without distal metastasis is described.

Results: The patient accepted liver transplantation (LT) and hepatoduodenal ligament lymph node exhaustive dissection. During operation the patient had been given a blood transfusion. The pathological examination indicated well-differentiated gallbladder adenocarcinoma (see picture 1) with liver infringed approximately 4 cm and gallbladder neck lymph node, hepatic artery lymph node metastasis. Postoperative diagnosis was IV-stage (T4N2M0). About three weeks later he suffered a serious acute transfusion-associated graft-versus-host disease (TA-GVHD) but eventually obtained a cure. 22 days after the surgery peripheral blood test indicated leucopenia, 26 days the patient presented with oral ulcers, 29 days the patient’s chest, abdomen and back appeared lots of red rashes (see picture 2.3), and 31 days the patient presented with diarrhea and high fever. The human short tandem repeat sequences-polymerase chain reaction (STR-PCR) test was used to check the patient’s leukocyte extraction which collected from the receptor’s peripheral blood, liver tissue extraction and the donor’s liver tissue extraction. STR-PCR test revealed: comparing with the result of patient’s liver tissue, peripheral blood leukocyte extraction was found to have abnormal allele genes at three loci; further comparing with the test result of donor’s liver extraction, the abnormal alleles did not come from the donor (detailed in table 1). Thus, the acute TA-GVHD was diagnosed. After a comprehensive treatment to stop using the immunosuppressive agents, apply the anti-IL-2 receptor monoclonal antibody, enhance the patient’s immunity and symptomatic treatment, the patient was recovered. The STR-PCR re-test indicated gene chimeric phenomenon disappeared. The patient survived more than 5 years without tumor recrudescence.

Conclusions: The case indicated that the STR-PCR test was very useful for the early diagnosis of the liver transplant recipients’ acute TA-GVHD, and under this basis, early effective treatment conducive to cure acute TA-GVHD. The case also prompted that according to a well-differentiated gallbladder carcinoma without distal metastasis patient, liver transplantation plus hepatoduodenal ligament lymph node dissection might be worth to try

850

RISK FACTORS FOR
PANCREATOGENIC DIABETES AFTER
PANCREATOCODUODENECTOMY

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Background: Postoperative diabetes mellitus (DM) after pancreaticoduodenectomy (PD) may compromise the long-term quality of life in survivors after this operative procedure due to treatment difficulty and its related complications. The aim of this study is to determine the incidence of new-onset pancreaticogenic DM after PD and investigate the risk factors for this complication.

Methods: Among 170 patients who underwent PD between November 2003 and September 2009, 98 patients were selected for this study. The selected patients were non diabetic prior to the operation and had undergone follow-up tests for glucose metabolism and an abdominal computed tomography (CT) scan 1 year after the operation. The clinical data of these patients were retrospectively analyzed by reviewing their medical records, radiologic images, and pathologic reports.

Results: Postoperative pathology confirmed malignant tumors in 91 patients, borderline malignancy in 5, and benign tumor in 2. Tumor locations included the pancreatic head (n = 30), the common bile duct (CBD) (n = 30), ampulla of Vater (n = 30), and the duodenum (n = 8). New-onset diabetes occurred in 17 (17.4%) of the 98 patients during the first year after the operation. The comparative analysis between postoperative DM (+) and DM (-) groups revealed that the atrophy of the remaining pancreas was the only significant risk factor for development of postoperative DM after PD.

Conclusion: This study suggests that the atrophy of the remaining pancreas increases the risk of pancreaticogenic DM after PD, and various efforts to prevent pancreatic atrophy are needed to decrease this complication.

852

RADIOFREQUENCY-ASSISTED VERSUS
CLAMP-CRUSH TECHNIQUE FOR
LIVER PARENCHYMAL TRANSACTION:
A META-ANALYSIS OF RANDOMIZED
CONTROLLED TRIALS

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Background: Radiofrequency-assisted technique and clamp-crush technique has been used widely in liver
parenchymal transaction. We compared radiofrequency-assisted (RF) and clamp-crush (CC) liver resection technique using a meta-analysis.

Methods: Literature on Radiofrequency-assisted versus Clamp-crush technique for liver parenchymal transaction published in public was retrieved.

Results: Five randomized controlled trials with a total of 451 patients were included. 236 treated with RF resection and 215 treated with CC resection. The ineffective complication and bile leakage were greater with the RF than with the CC group. There was no significant difference between the two groups in total blood loss, Blood loss during transaction, Transaction time, Blood loss/transaction area, Transected area/time, Operation time.

Conclusions: The clamp-crush technique is more safe and is associated with lower bile leakage when compared with radiofrequency-assisted of liver parenchymal transaction.

854
SUPPRESSION OF CB1 CANNABINOID RECEPTOR BY LENTIVIRUS MEDIATED SMALL INTERFERING RNA AMELIORATES HEPATIC FIBROSIS IN RATS
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It is recognized that endogenous cannabinoids, which signal through CB1 receptors in hepatic stellate cells (HSCs), exert a profibrotic effect on chronic liver diseases. In this study, we suppressed CB1 expression by lentivirus mediated small interfering RNA (CB1-RNAi-LV) and investigated its effect on hepatic fibrosis in vitro and in vivo. Our results demonstrated that CB1-RNAi-LV significantly inhibited CB1 expression, and suppressed proliferation and extracellular matrix production in HSCs. Furthermore, CB1-RNAi-LV ameliorated dimethylformamide induced hepatic fibrosis markedly, which was associated with the decreased expression of mesenchymal cell markers smooth muscle α-actin, vimentin and snail, and the increased expression of epithelial cell marker E-cadherin. The mechanism lies on the blockage of Smad signaling transduction induced by transforming growth factor β1 and its receptor TGF-β RII. Our study firstly provides the evidence that CB1-RNAi-LV might ameliorate hepatic fibrosis through the reversal of epithelial-to-mesenchymal transition (EMT), while the CB1 antagonists AM251 had no effect on epithelial-mesenchymal transitions of HSCs. This suggests that CB1 is implicated in hepatic fibrosis and selective suppression of CB1 by small interfering RNA may present a powerful tool for hepatic fibrosis treatment.

855
MIR-526B IS INVOLVED IN DOWN-REGULATING KU80 EXPRESSION AND TUMOR PROGRESSION OF HEPATOCELLULAR CARCINOMA
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Objective: Ku80 is a component of the protein complex called DNA-dependent kinase, which is involved in DNA double-strand break repair and multiple other functions. Previous study has revealed that Ku80 is frequently down-regulated in HCC compared with the adjacent liver tissue, suggesting that ku80 functions as tumor suppressor gene in HCC. But the mechanism for the down-regulation of Ku80 is still unknown. MicroRNA (miRNA) is a new class of small, noncoding RNAs that can bind target mRNAs and down-regulate protein expression in many species. What microRNAs are involved in regulation of Ku80 expression is still unknown.

Methods: Based on 5 released databases named miRanda, miRDB, miRWalk, RNA22, Target scan that can be used to predict the relationship between microRNA and target protein, miR-31, miR-340, miR-188, miR-297, miR-520, miR-524, miR-526 and miR-623 were predicted to be involved in the regulation of ku80 expression with highest possibility. All these microRNAs were transfected into HepG2 and PLC cell lines, respectively, and the expression of Ku80 was detected by Western blot. After the stable cell lines were chosen, and the antagonir corresponding to the most effective microRNA was transfected into the cell lines with the higher expression of this microRNA. The cell growth and apoptosis were studied in vivo. And the microRNA expression was further investigated in human HCC and its adjacent liver tissue. The relationship between the microRNA expression and biological features of the tumors were analyzed in 46 different patients with HCC.

Results: miR-526b down-regulated the expression of Ku80 in HepG2 and PLC cell lines. After inhibiting the function of miR-526b by the antagonir, the expression of Ku80 was up-regulated in PLC cells. The down regulation of the expression of miR-526b in PLC cells resulted in growth inhibition and apoptosis. Mir-526b was found up-regulated in HCC with adjacent liver tissue in 41% patients. And the up-regulation of miR-526b was significantly correlated with poor differentiation of the tumor.

Conclusion: miR-526b is involved in down-regulation of Ku80, and increased miR-526b expression is associated with tumor progression of HCC.
MIDDLE-PRESERVING PANCREATECTOMY WITH REVERSED-PANCREATEOGASTROSTOMY

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Background: Middle-preserving pancreatectomy (MPP) is a parenchyma-preserving procedure when the pancreatic body is spared from disease. Variability exists in the method of anastomosis with the remnant pancreas.

Aim: To show the surgical technique for MPP and an alternative method for the pancreatic anastomosis, so-called reverse-pancreatecogastrostomy (RPG).

Methods: A 79-year-old woman was diagnosed for a carcinoma of the lower bile duct and a branched-type IPMN in the tail of the pancreas by CT-scan, MRI/ MRCP, and ERCP. A subtotal stomach preserving pancreaticoduodenectomy was performed followed by a pancreatic tail resection with a splenectomy. Mobilization of the proximal stump of the pancreas was impossible because of an inadequate length of the pancreatic remnant and fixation of the pancreatic remnant to the surrounding vasculature and tissues. The distal (left side) stump with a lost stent was anastomosed to the surrounding vasculature and tissues. The IPG was constructed as follows: An appropriate seromuscular incision was made in the posterior wall of the stomach, which was dissected from the layer of mucomuscular/mucosa for about 1.5 cm in deep. A 2 cm-freed pancreatic stump was implanted into the pouch between two layers of seromuscular and mucomuscular/mucosa by a continual suture using 4–0 Prolene from the left (greater curvature) to the right on the posteriosuperior of the gastric wall and the front capsule of pancreas stump. A hole was made on the mucosa close to the pancreatic duct. The duct to mucosa anastomosis was performed using 5–0 Polydioxanone Suture (PDS) by the maneuvers of one point

Results: The patient developed pancreatic fistula on Grade B at the proximal stump of the pancreatic remnant and fixation of the pancreatic remnant to the surrounding vasculature and tissues. The distal (left side) stump with a lost stent was anastomosed to the stomach by invagination method. After a year of surgery patient had normal endocrine and exocrine functions.

Conclusions: MPP is a useful procedure for resecting multifocal lesions in the head and tail of the pancreas. RPG is a feasible method for pancreatic reconstruction after MPP.

MEASUREMENT OF KL-6 IN BILE: A NEW APPROACH FOR DIAGNOSIS OF BILIARY MALIGNANCIES

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Background and aims: The early diagnosis of malignant biliary strictures can be clinically challenging. Serum Krebs von den Lungen-6 (KL-6), classified as human mucin-1 (MUC1), is used as a marker of some malignancies including biliary tumors. However, there is limited literature on the level of KL-6 in human bile. We hypothesize that measurement of KL-6 in bile could improve diagnosis in patients with indeterminate biliary strictures.

Patients and Methods: A total of 57 patients with biliary obstruction, who received Endoscopic retrograde cholangio-pancreatography (ERCP) between December 2011 and July 2012 in the Eastern Hepatobiliary Hospital were retrospectively reviewed. The etiologies of patients included malignant tumors in 41 cases (cholangiocarcinoma 16, hepatocellular ca. 10, pancreatic ca. 4, papilla ca. 4, gallbladder ca. 3, and metastasis 4) and benign lesions in 16 (bile duct stones 10, strictures 6). Each patient’s bile and serum were obtained and KL-6 levels were measured using ELISA method. The serum KL-6 was also assessed in another 14 healthy adult volunteers for control. Receiver operating characteristics (ROC) was used to calculate the diagnostic accuracy of KL-6.

Results: The mean (SD, ng/ml) of serum KL-6 in malignant, benign and healthy persons were 46.074 ± 9.76, 42.563 ± 13.529 and 23.180 ± 14.604 respectively (p < 0.05). ROC curves showed the optimal diagnostic cutoff of KL-6 in serum was 45.541 ng/ml and the area under curve (AUC) was 0.601 (95% CI 0.415–0.786), with sensitivity of 58.5% and specificity of 62.5%. The level of KL-6 in bile was significantly higher in patients with biliary malignancy (65.841± 15.845) than with benign diseases (51.947 ± 9.624), (p = 0.004). The optimal cutoff of KL-6 in bile was 57.942, with AUC 0.749 (95% CI 0.621–0.878), sensitivity 63.4% and specificity 81.2%.

Conclusions: KL-6 level is much higher in patients with malignant biliary disorders both in serum and bile, which is a promising biomarker for biliary tumors. Measurement of KL-6 in bile showed more sensitive and specifically than in serum and can serve as early diagnostic approach for the biliary malignancies.
suture. A stent tube in duct was remained as inner drainage. The IPG was finished by the continuing suture on the posteriorinferior wall of gastric to the posterior of pancreas. The Clinical data of 75 cases who received IPG from Sep 2009 to May 2012 were recorded prospectively and obtained from Database. The statistical analyses of surgical complications, including pancreatic leakage were performed. **Results:** PD or local resection of pancreas were performed for 81 cases in this period, among them 75 cases received IPG as Pancreateoenteric reconstruction. Operations were consisted of 68 PD and 7 local resection of pancreas due to malignancy for 64 cases and benign disease for others. The mean time for IPG was 25.9 ± 3.3 min, and the median was 26 min (range, 18–35). Hospitalization days after the surgery were 14.3 ± 7.4 d (range, 7–49). Thirty-one complications including pancreatic fistula were occurred in 26 cases indicating an operation morbidity of 34.7% (26/75). Total pancreatic leakage (fistula) occurred in 4 cases (5.3%), but graded B/C was occurred only in one case (1.3%). The operation mortality is zero. **Conclusions:** The results of this initial application for IPG indicate that the technique is simple and feasible, can be performed with very low risk. It may provide a favorable outcome and could be an alternative method of pancreateoenteric reconstruction after PD. However, to determine its superiority over the conventional procedures, this operative technique should be evaluated more comprehensively in the further clinical study with larger series of cases.

**873**

**LAPAROSCOPIC APPROACH FOR RIGHT-SIDED IHD STONES: A COMPARATIVE STUDY OF OPEN VERSUS LAPAROSCOPIC TREATMENT**

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**Background:** The treatment of IHD stones is known to be difficult because of high rate of incomplete elimination and recurrence. Despite several attempts to treat this disease entity by laparoscopy, most of cases have been limited to left-sided IHD stones. There have been few reports on the application of laparoscopy for right-sided IHD stones.

**Methods:** This retrospective comparative study included 34 patients who underwent the laparoscopic (n = 17) and open treatment (n = 17) for right-sided IHD stones from March 2003 to December 2011. Clinical data including operation time, intraoperative blood loss, postoperative hospital stay days, postoperative complication, stone clearance and recurrence rate were retrospectively analyzed and compared between the two groups.

**Results:** The operation time of laparoscopic group was longer than open group (432 ± 38 vs. 335 ± 20 min, p = 0.03). The laparoscopic group showed lower postoperative complication rate than open group (30% vs. 58%, p = 0.04) There are no significant difference in intraoperative blood loss (1294 ± 267 vs. 908 ± 228 mL), postoperative hospital stay (16 ± 3 vs. 22 ± 3 days). There was no perioperative mortality in both groups. The laparoscopic group showed significantly better stone clearance rate than open group (17 vs. 10 patients, p = 0.03). After a median follow-up of 31 months, the recurrence rate of laparoscopic group was lower than that of open group (0 vs. 7 patients, p = 0.03).

**Conclusion:** This study demonstrates that laparoscopic treatment, including liver resection and IHD exploration is can be an effective and safe therapeutic modality in selected patients with right-sided IHD stones.

**880**

**RISK FACTORS FOR LIFE – THREATENING (ISGPF GRADE C) PANCREATIC FISTULA FOLLOWING PANCREATICODUODENECTOMY**


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**Background and aim:** Postoperative pancreatic fistula (POPF) remains a major complication after pancreaticoduodenectomy. The International Study Group on Pancreatic Fistula (ISGPF) in 2005 stratified the impact of POPF on the patient’s hospital course into grades A, B and C. The fact that the less severe forms of fistula can be managed conservatively further highlights the importance of early recognition of patients who are at increased risk of grade C POPF, i.e. those who require percutaneous drainage or reoperation. The risk factors for grade C POPF are not well documented in the literature. This study is to identify any potential preoperative and intraoperative risk factors for the development of grade C POPF following pancreaticoduodenectomy.

**Methods:** A retrospective study of 160 consecutive pancreaticoduodenectomies performed at a single institution between 1 April 2004 and 31 July 2012. Preoperative, intraoperative, and postoperative data of patients who developed grade C POPF were compared with those who had no POPF or who suffered from milder grades of POPF. Their respective perioperative outcomes were analyzed.

**Results:** Adenocarcinoma of the pancreas was the commonest diagnosis with 61 patients (38.1%). 71 patients (44.4%) developed POPF of whom 20 (12.5%) suffered from grade C fistula. 8 patients out of a total of 10 in-hospital deaths in the series suffered from grade C POPF, whereas there were no deaths in patients with fistula grades A or B. Patients with a soft pancreatic consistency had a higher incidence of grade C POPF.
compared with those who had a hard pancreas (18.8% vs. 3.2%, p = 0.006). Pancreaticoduodenectomies carried out for conditions other than adenocarcinoma of the pancreas had significantly higher occurrence of grade C POPF (19.2% vs. 1.6%, p = 0.001). Patients' age, comorbidities, preoperative renal function, serum albumin, bilirubin, preoperative biliary drainage, operative blood loss, pancreatic duct diameter, or the use of an external pancreatic stent showed no significant effect on the incidence of grade C POPF.

**Conclusion:** A soft pancreas found at operation and the diagnosis of a condition other than adenocarcinoma of the pancreas are risk factors for postoperative grade C pancreatic fistula formation following pancreaticoduodenectomy.

883

**THE RELATIONSHIP BETWEEN MAGNETIC FORCE WITH ANASTOMOSIS EFFECT IN INTESTINAL MAGNETIC COMPRESSION ANASTOMOSIS: AN ANIMAL TRIAL**

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**Background & aim:** Magnetic compression anastomosis (MCA) is a kind of novel technology without suture which has been widely used in digestive tract reconstruction. However, at present there is a lack of detailed study on the relationship between magnetic force with anastomosis effect which determines the success or failure of this technology. In this study, we explored the relationship between magnetic force and anastomosis effect.

**Method:** A total 15 mongrel canines underwent side-to-side anastomosis in small intestine using MCA and each animal was subjected to five intestinal anastomoses. Meanwhile the five magnetic anastomats were separated with resin holder to against attracted each other. The maximum magnetic force were 10 N/15 N/20 N/30 N/40 N, respectively. The postoperative complications, gross appearance, tensile testing, pathology and hydroxyproline quantitative were compared between each groups at each time-point (1st day, 3rd day and 7th day).

**Results:** There are 4 cases not forming compression in 10 N group (3 cases in the 1st day, 1 case in the 3rd day), 1 case in 15 N group (in the 1st day). Only 1 animal revealed anastomastic leakage in 40 N group (in the 7th day). Because the greater momentum adhesion, there is no celiac infection. The pathology testing revealed that there was inflammatory reaction and hemorrhage around the anastomotic in the 1st day, especially in the 40 N group. Granulation tissue could be observed in the 3rd day in each groups, and a small amount of new mucosal tissue could be observed in the 7th day. Tensile testing showed that breaking strength enhanced with the time and magnetic force gradually. Hydroxyproline quantitative also revealed significantly more in stronger magnetic groups (p < 0.05).

**Conclusion:** This study revealed that anastomotic cannot be completely against intestinal canal peristalsis in 10 ~ 15 N (73% ~ 93%), and has the risk of intestinal leakage in 40 N (6.7%) because of necrosis too fast. 20 N and 30 N are more safe and effective in mongrel canines' small intestinal magnetic anastomosis. Because the radius of round cake shaped anastomats is 0.5 cm, the most suitable magnetic force range was from 0.256 MPa to 0.382 MPa.

885

**PANCREATICODUODENECTOMY FOR COMMON BILE DUCT CANCER IN A PATIENT WITH MALROTATION AND SITUS AMBIGUOUS**

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**Background:** Situs inversus indicates mirror image location of the internal organ. The incidence of situs inversus is approximately 1 in 10,000. Situs ambiguous is defined as the abnormal location of organs and vessels which are not clearly lateralized. The estimated minimal incidence of situs ambiguous is 1 in 40,000 in live births. We present a case of CBD cancer patient who has malrotation and isolated levocardia with particular disposition of abdominal viscera and lack of a splenic or cardiac anomaly which is a rare form of situs ambiguous.

**Case:** A 59-year-old male patient presented with epigastric pain and jaundice. SGOT/SGPT, total/direct bilirubin, alkaline phosphatase, gamma-glutamyltranspeptidase and CA 19–9 were elevated. CT showed segmental concentric wall thickening in distal CBD with biliary tree dilatation and abnormal disposition of intra-abdominal organs. Liver was located in the middle of upper abdomen. The spleen was in the right upper quadrant. In addition, stomach and pancreas were laid reversely. Chest X-ray showed no specific abnormality. Under the diagnosis of isolated levocardia with situs ambiguous and distal CBD cancer, we decided to explore. In the operative field, right lobe of liver was located in the middle of upper abdominal cavity resting and GB sat just beneath the right lobe of liver as common. Left lobe of liver was located below the left diaphragm but it was as big as right lobe. Stomach and spleen was found in the right upper abdomen under the right lobe of liver. We could find first and second portion of duodenum, but below third portion, duodenum and jejunum were not clearly identified due to the lack of treitz ligament. This causes the third and fourth portion of duodenum and pancreas did not locate in the retroperitoneum, but in the peritoneal space. The uncinate process of pancreas was not developed. Small intestine was totally gathered right side of abdomen. And whole large intestine was on left; especially ascending colon was not fixed with gastrocolic and duodenocolic ligament so it was freely movable. We performed PPPD as usual manner. Total operation...
time was 605 min. And blood loss was about 500 ml. Histopathologic outcome was moderately differentiated adenocarcinoma of common bile duct and the tumor invaded to pancreas and duodenum (T3NOM0). He recovered without any complications and CCRT were started at 15st post operative day.

THE CLINICOPATHOLOGICAL ANALYSIS OF CENTRAL PERIVENULITIS-BASE ACUTE REJECTION AFTER LIVER TRANSPLANTATION

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Background: Clinicopathological staging of complications after liver transplantation (LT) has not been fully described. The aim of the current study was to propose a clinicopathological staging for post-LT complications based on a larger series of liver biopsies.

Materials and Methods: We retrospectively analyzed 1,245 needle liver biopsies after LT in a single center followed by proposing a clinicopathological staging for post-LT complications.

Results: In 444 cases of the liver biopsy pathology diagnosed as acute rejection, the portal-based AR (PB-AR) was identified in 236 (53.15%) cases; while the central perivenulitis-based AR (CP-AR) was 27 (6.08%) cases and portal-based AR (PB-AR) was identified in 236 (53.15%) cases; while the central perivenulitis-based AR (CP-AR) was 27 (6.08%) cases and portal + central perivenulitis-based AR (PB + CP-AR) was 47 (10.59%) cases. In the first liver biopsies, PB-AR occurred mainly in stage I (<1 month) after OLT, accounting for 75.16%; 41.67% of CP-AR and 45.16% of PB + CP-AR occurred in the Stage II and III (>1 month), was much later than PB-AR (p < 0.05). In consecutive liver biopsies, PB-AR in stage I accounted for 61.02%, which is much earlier than CP-AR (25.93%) and PB + CP-AR (38.30%) (p < 0.01). The Interval of two times PB-AR (52 ± 214.24 days) was shorter than CP-AR (353 ± 662.12) and PB + CP-AR (322.04 ± 633.70) (p < 0.05). Evaluation of liver function showed that total bilirubin (TB) was different between non-AR and AR groups (PB-AR, BACR, CP-AR, PB + CP-AR and CR) (p < 0.05), but no difference between no-AR and I/R or biliary lesions (p > 0.05).

Conclusions: The occurrence of PB-AR was most frequently in the early stage after liver transplantation; but CP-ACR which occurred in middle or late stage lasted long time and was not easy to restore. There were no difference in liver function between groups of AR, we cannot divide the type of acute rejection by liver function test, eventually need to clear by pathological diagnosis. Some test was useful to whether rejection was happened, such as TB.

OSTEOPONTIN HAS A CRUCIAL ROLE IN VASCULOGENIC MIMICRY FORMATION BY HEPATOCELLULAR CARCINOMA THROUGH REGULATION OF MMP-2 AND uPA

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Background and aims: Osteopontin (OPN), which is over expressed in a variety of cancers including hepatocellular carcinoma (HCC), is likely involved in vasculo-genetic mimicry (VM) formation by few some tumor cells. We explored whether OPN had a crucial role in VM formation by HCC cells in this study.

Methods: The abilities of highly metastatic MHCC97-H cell line and non-metastatic Hep3B cell line to display VM in vitro were compared. Real-time RT-PCR arrays were used to detect gene expression profiles of the two HCC cells in three-dimensional culture. Small interfering RNA (siRNA) was employed to investigate whether OPN knockdown could inhibit proliferation, invasiveness, migration, VM formation, and the expression of matrix metalloproteinase (MMP)-2, MMP-9 and plasminogen activator (uPA) in MHCC97-H cells. Human HCC tissue samples were studied by immunohistochemistry to analyze the correlations between VM and the expression of OPN, MMP-2 and uPA.

Results: MHCC97-H but not Hep3B cells possessed the ability to form VM. Real-time RT-PCR array analyses revealed increased expression of some genes including OPN in MHCC97-H cells forming VM compared with Hep3B. OPN knock down resulted in a significant decrease in migration, invasion, and VM formation capacity of MHCC97-H cells, which was accompanied by down-regulation of MMP-2 and uPA expression. Furthermore, there existed significant positive correlations between VM and the expression of OPN, MMP-2 and uPA in HCC tissue samples.

Conclusions: These results strongly suggest that OPN acts to regulate VM formation by HCC cells, and its action is associated with alteration of MMP-2 and uPA expression by OPN.
EXPRESSION AND CLINICAL SIGNIFICANCE OF EXTRACELLULAR MATRIX PROTEIN 1 IN HEPATOCELLULAR CARCINOMA

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Background and aims: To elucidate the expression of extracellular matrix protein 1 (ECM1) in hepatocellular carcinoma (HCC) and its association with clinicopathological characteristics and prognosis, including exploring the biological function and mechanism of ECM1 in the process of metastasis and recurrence of HCC.

Methods: (1) RT-PCR and Western blotting was used to evaluate ECM1 expression in HCC and corresponding adjacent tissues, and three HCC cell lines with various metastatic potentials. (2) The peroperative serum ECM1 levels in a hospital-based cohort of patients with HCC by ELISA to elucidate the serum levels of ECM1 in HCC and its association with clinicopathological characteristics and prognosis. (3) In addition, it is also to evaluate the ECM1 and matrix metalloproteinase 9 (MMP-9) expressions in a hospital-based cohort of patients with HCC by immunohistochemistry.

Results: (1) Among the four cell lines, the expression level in HCCLM3, which with the highest metastatic potential, was significantly higher than that with lower; while ECM1 expression was not detected in normal liver cell line L02. Expression level of ECM1 was significantly increased in HCC compared with adjacent and normal liver tissues. (2) ECM1 was detected in all the samples of 117 HCC patients and 53 healthy volunteers. The median serum ECM1 level in HCC patients was significantly higher than that in healthy volunteers. Median serum ECM1 levels were significantly higher in patients with invasive phenotypes. On Cox proportional-hazard model multivariate analysis, high serum ECM1 level (>180 pg/ml) was found to be an independent prognostic factor for overall survival and disease-free survival of HCC patients. (3) The positive rates of ECM1 and MMP-9 expression in HCC tissues immunohistochemically were 73.3% (88/120) and 65.0% (78/120), significantly higher than that in normal liver tissues, respectively. The expression of ECM1 in HCC tissues was significantly correlated with vascular invasion and TNM stage. The patients with both ECM1 and MMP-9 positive have significantly poorer overall and disease-free survival rate. There was a significant positive correlation between ECM1 and MMP-9.

Conclusions: ECM1 level in HCC patients are significantly associated with invasive phenotypes; it may present a diagnostic marker for predicting the prognosis and recurrence of HCC patients after surgery, and may via correlated with MMP-9 to promote the invasion of HCC.

STAT3 ACTIVATION MEDIATES EPITHELIAL-TO-MESENCHYMAL TRANSITION IN HUMAN HEPATOCELLULAR CARCINOMA

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Background and aims: Hepatocellular carcinoma (HCC) is one of the most aggressive malignant tumors highly prevalent in Asia and Africa [1]. The long-term prognosis of HCC patients is dismal even after surgical resection because of a high recurrence rate, which is usually associated with a high propensity for vascular invasion and metastasis [2]. Nevertheless, to date, the molecular mechanisms for HCC invasion and metastasis remains obscure, and the approaches to inhibit invasion and metastasis are still limited. Epithelial-to-mesenchymal transition (EMT) is critical for the development of the invasion and metastasis in human tumors [3]. Recently, signal transducer and activator of transcription 3 (STAT3) activation has been linked to EMT program in cancers. However, the actual association of STAT3 activation with EMT, and its mediated tumor invasion and metastasis remains elusive in HCC. The aim of this study was to investigate the correlation between STAT3 activation and EMT, as well as the underlying mechanism involved in HCC progression.

Methods: We treated SMMC-7721 cells with a known STAT3 activator in the absence or presence of a selective STAT3 inhibitor. The EMT-associated morphologic and molecular changes of cells were analyzed. The EMT-mediated HCC cell invasion, migration and adhesion were evaluated. Moreover, these in vitro findings were further verified in HCC clinical samples.

Results: In this study, we found that STAT3 activation was associated significantly with morphologic changes, cytoskeleton rearrangement and molecular changes consistent with EMT in SMMC-7721 cells; STAT3 activation-mediated EMT may be transcriptionally induced by Twist. STAT3 activation-mediated EMT also promoted HCC cell invasion, migration and adhesion significantly. By analysis of clinical samples, we found that activated STAT3 was significantly correlated with the expression of EMT markers and was positively associated with HCC invasion and metastasis, which was also confirmed by detection of HCC cell lines with different metastatic potentials.

Conclusion: In summary, our study show for the first time that STAT3 activation may induce invasion and metastasis through the mediation of EMT in HCC. Activated STAT3 and EMT markers can serve as molecular targets for clinical HCC treatment.
PREDICTIVE VALUE OF REVISED MELD FOR CLINICAL RESULTS IN THE EARLY STAGE AFTER LIVER TRANSPLANTATION

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Background and aims: To evaluate the prediction of revised model for end-stage liver disease (MELD) for the clinical results in the early stage after liver transplantation.

Methods: The clinical data of 218 patients were retrospectively analyzed. After calculated the MELD score, ReFit MELD score and ReFit MELDNa score before transplantation, we compared the predictive accuracy of MELD, ReFit MELD and ReFit MELDNa by analyzing area under curve (AUC) of the receiver operating characteristic (ROC). Groups were categorized with the cut-off of MELD, ReFit MELD and ReFit MELDNa and the early-stage complications and mortality in different group were analyzed.

Results: The AUC for MELD, ReFit MELD and ReFit MELDNa was 0.737 (95% CI 0.621 – 0.854), 0.727 (95% CI 0.663 – 0.785) and 0.735 (95% CI 0.671 – 0.792). There was no statistical difference of the AUC among MELD, ReFit MELD and ReFit MELDNa. All three elevated scores predicted higher rates of pulmonary infection, abdominal infection and acute renal dysfunction, including higher mortality.

Conclusions: The ReFit MELD score and ReFit MELDNa score are relatively useful predictors of short-term survival rates after liver transplantation, of which predictive accuracy is similar to MELD score. Value of the score above its cutoff value indicates higher rates of complication and poorer prognosis.

DOCOSAHEXAENOIC ACID REDUCES PROLIFERATION AND INHIBITS INVASION OF HUMAN HEPATOCELLULAR CARCINOMA CELL LINES

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Background and aims: To investigate the cellular and molecular mechanism of docosahexaenoic acid (DHA) induces apoptosis and inhibits invasion of hepatoma cells.

Methods: The time- and dose-dependent effect of DHA on the proliferative activity of hepatocellular carcinoma (HCC) cell lines SMMC-7721 and Bel-7402 were assessed by using the MTT staining method and cell viability was estimated using the Trypan blue dye exclusion assay. Quantitation of apoptotic cells under different concentration of DHA-intake conditions was obtained by flow cytometric analysis. The expression of bim gene was selected for qRT-PCR analysis. We detected the level of the antiapoptotic protein Bcl-2 and proapoptotic proteins Bax by Western blotting assays. Measurement of caspase-3 activity was detected. Cell invasion and migration assays were measured by transwell and wound scratch assay. Immunohistochemistry and Gelatin zymography were employed to determine the expression of MMP-9 in HCC cells which pretreated with different concentrations of DHA for 48 h.

Results: 1) The longer exposure and higher concentrations of DHA were more effective than shorter exposure and lower DHA concentrations on cell proliferation and cell viability. 2) DHA activates the mitochondrial pathway of apoptosis and increases caspase-3 activity. 3) DHA inhibits invasion and migration of HCC cell. 4) DHA decreases MMP-9 expression of HCC cell.

Conclusions: DHA induced HCC cells apoptosis through activating the mitochondrial pathway of apoptosis. DHA may reduce the invasion and metastasis of HCC cells via decreasing the expression of MMP-9.

OMEGA-3 POLYUNSATURATED FATTY ACIDS PREVENT PROGRESSION OF LIVER FIBROSIS AND PROMOTE LIVER REGENERATION AFTER PARTIAL HEPATECTOMY IN CIRRHOTIC RATS

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Background: Liver regeneration after the loss of hepatic tissue is a fundamental parameter of liver response to injury. ω-3 PUFA could promote liver regeneration and attenuate the progression of liver cirrhosis in cirrhotic rats.

Aims: To evaluate the effect of omega-3 polysaturated fatty acids (n-3 PUFA) on liver regeneration after hepatectomy and antifibrosis under conditions of liver cirrhosis in rats.

Methods: Omega-3 polysaturated fatty acids were intravenously injected in n-3 PUFA group 3 days before operation to 1 day after partial hepatectomy. Seventy percent hepatectomy was carried out in rats, which were subsequently divided into 4 groups: (1)normal and hepatectomy group(PH), (2) liver cirrhosis and hepatectomy group(LC + PH), (3) liver cirrhosis, n-3 PUFA (1 ml/kg) and hepatectomy group (LC + n-3 PUFA + PH), (4) liver cirrhosis, n-3 PUFA (2 ml/kg) and hepatectomy group (LC + n-3 PUFA* + PH). Body/liver weight ratios, Serum parameters, histopathological examination, immunostaining, inflammatory...
cystic and quantification of mRNA expression were also investigated.

**Results:** Liver regeneration was significantly delayed compared with PH group 7 days after hepatectomy in LC + PH group. On the other hand, liver regeneration of LC + n-3 PUFA* + PH group increased significantly compared with LC + PH group 7 days after hepatectomy. In LC + PH group, liver cirrhosis was significantly higher compared with LC + n-3 PUFA + PH group 7 days after hepatectomy. Meanwhile, liver cirrhosis of LC + n-3 PUFA* + PH group was significantly reduced compared with LC + n-3 PUFA + PH group 7 days after hepatectomy. Anti-inflammatory cytokine IL-10 were increased and pro-inflammatory cytokine IL-6 were decreased in LC + n-3 PUFA* + PH group compared with LC + PH group. N-3 PUFA also suppressed increments in mRNA expression for transforming growth factor-β and matrix metalloproteinase-1, and increased matrix metalloproteinase-9 expression in the liver.

**Conclusion:** These results clearly show n-3 PUFA that reduce liver fibrosis and promote liver regeneration, even under cirrhotic conditions. This could be a potentially useful treatment for liver cirrhosis.

901

**CASE REPORT OF MESENCHYMAL CHONDROSARCOMA ARISING FROM THE PANCREAS**

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**Background:** In worldwide, mesenchymal chondrosarcoma is a very rare and has more aggressive prognosis than other chondrosarcoma. Just 2 cases of metastatic chondrosarcomas in the pancreas have been reported in the literature.

**Methods:** A 41-year-old man presented with a 1-month history of abdominal pain. His previous medical and familial histories were unremarkable. CT scan of the abdomen revealed an ill defined, lobulated mass that measured about 13 × 12 × 7 cm in size and it appeared as a heterogeneously low attenuated mass with numerous areas of coarse calcification. Hemipancreatectomy (involved splenectomy) and T-colectomy were done.

**Results:** The pathological diagnosis was extraskeletal mesenchymal chondrosarcoma arising from the pancreas with invasion to the splenic vein. 6th cycles of Chemotherapy [Adriamycin + Ifosfamide + Mesna] were done. 3 years later, the patient complained back pain, vertebral metastasis and op. site recurrence were confirmed by operative biopsy.

**Conclusions:** Mesenchymal chondrosarcoma almost displays a lethal clinical course, as radical excision of the tumor is the optimal treatment methods.

902

**STRUCTURED TRIGLYCERIDES WERE WELL TOLERATED AND INDUCED AFTER HEPATECTOMY IN PATIENTS WITH HEPATOCARCINOMA**

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**Background and aims:** There is a direct correlation between the progression of the liver disease and the severity of malnutrition. Malnutrition and cirrhosis can cause high rates of morbidity and mortality in patients with resection of hepatocellular carcinoma (HCC). Since structured-lipid emulsion seems to induce less elevation in serum liver function values, have no detrimental effect on the reticuloendothelial system, showed a greater gain in body weight and a greater positive nitrogen balance, we performed a prospective study to investigate whether nutrition support with structured triglycerides could have the effect of STG on liver functions, biochemical variables, postoperative complications, and the overall safety in adult patients with HCC.

**Methods:** 49 consecutive patients with HCC whose HCC was considered to be respectable on the basis of radiologic studies and hepatic-function tests were randomly assigned into 2 groups: STG group (n = 25), receiving peripheral parenteral nutrition support with 1.3 × REE and nitrogen 0.20 (0.19 ~ 0.21) g/kg/d in regular “3 L bag”, and the control group (n = 24) receiving regular fluid supplement, with same amount of nitrogen and glucose. The parenteral nutrition was expected to be required for at least 5 d. Check postoperative liver functions, biochemical variables and postoperative complications. Demographic data were compared with an unpaired Student’s t tests or a Fisher’s exact test. Tolerance and efficacy were tested by a two-way analysis of variance for repeated measures and Tukey in posttest.

**Results:** The two groups of patients were similar in terms of all basal values (age, sex, BMI, Child Grade, and so on), and operative data (operate type, blood loss, the results of the preoperative assessment). As shown in Table 1 and 2, there were significant differences in blood serum values (prealbumin, RBP). Liver function was found to be improved. As shown in Table 3, there were significant differences in blood C-reactive protein.

**Conclusions:** The structured triglycerides was well tolerated and induced, and nutrition therapy with STG is an effective method for postoperative support in patients after hepatectomy with liver cancer.
903
EXPRESSION AND CLINICAL SIGNIFICANCE OF HEPATOCYTE GROWTH FACTOR IN SERUM OF PATIENTS WITH HEPATOCELLULAR CARCINOMA
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Background and aims: To investigate the expression of hepatocyte growth factor (HGF) in patients with hepatocellular carcinoma (HCC) and its clinical significance.

Methods: Enzyme-linked immunosorbent assay was used to determine the circulating serum levels of HGF in HCC patients and normal healthy people. Student’s t-test was taken to compare the levels of HGF between different clinical characteristics of patients with HCC. The Kaplan-Meier method with log-rank test was employed for survival analysis. Univariate and multivariate analyses were performed to identify the prognostic factors in HCC patients.

Results: The median levels of HGF were significantly higher in peripheral blood of patients with HCC than in normal healthy people (1.17 [0.81–1.63] vs. 0.18 [0.12–0.54] ng/ml, p < 0.01). According to the pathological features of HCC compared HGF levels between different groups, we found that the levels of HGF were significantly higher in male, tumor size >5 cm, vascular invasion and with cirrhosis HCC patients than in female, tumor size ≤5 cm, no vascular invasion and without cirrhosis HCC patients (all p < 0.01). The HCC patients were divided into two groups according to the median level of HGF (group A was HGF ≥ 1.17 ng/ml, and group B was HGF < 1.17 ng/ml). The overall survival of group A was significantly lower than group B (14.3%, 73.7%, respectively, p < 0.01). The disease-free survival of group A was also lower than group B (47.6%, 78.9%, respectively, p < 0.05). Univariate and multivariate analyses for the survival rate showed that the HGF and nodules were independent prognostic factors for overall survival.

Conclusion: HGF promote the development of male patients with HCC, play a catalytic role in HCC invasion and metastasis, and serve as a biological factor for prognosis of HCC patients, which is also a dependent prognostic factor for overall survival.

904
CASE REPORT OF MESENCHYMAL CHONDROSARCOMA ARISING FROM THE PANCREAS
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Background: In worldwide, mesenchymal chondrosarcoma is a very rare and has more aggressive prognosis than other chondrosarcoma. Just 2 cases of metastatic chondrosarcomas in the pancreas have been reported in the literature.

Methods: A 41-year-old man presented with a 1-month history of abdominal pain. His previous medical and familial histories were unremarkable. CT scan of the abdomen revealed an ill defined, lobulated mass that measured about 13 × 12 × 7 cm in size and it appeared as a heterogeneously low attenuated mass with numerous areas of coarse calcification. Hemipancreactectomy (involved splenectomy) and T-colectomy was done.

Results: The pathological diagnosis was extraskeletal mesenchymal chondrosarcoma arising from the pancreas with invasion to the splenic vein. 6th cycles of Chemotherapy [Adriamycin + Ifosamide + Mesna] were done. 3 years later, the patient complained back pain, vertebral metastasis and op. site recurrence were confirmed by operative biopsy.

Conclusions: Mesenchymal chondrosarcoma almost displays a lethal clinical course, as radical excision of the tumor is the optimal treatment methods.

905
ESTROGEN MODULATE INFLAMMATORY MICROENVIRONMENT THROUGH IL-6 AND HGF TO SUPPRESS TUMORIGENESIS AND METASTASIS OF HCC
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Background and aims: The gender disparity in morbidity of HCC provides an opportunity to investigate the main etiology and predominant mechanisms leading to HCC. Clinic and epidemiology data as well as animal experiment rightly attaches to that estrogen may involved in the development of HCC, but there is not a definitive conclusion for their relationship and the mechanisms involved in it are not clear. Our aim was to explore the influence of estrogen on HCC and in depth analyzing the mechanism of estrogen suppresses hepatocarcinogenesis in a rat model.

Methods: First, 160 female SD rats were randomly distributed into four groups: ovariectomy (OVX), sham operation (Sham), ovariectomy followed by 30 µg/kg body weight/day 17α-Ethynylestradiol (EE2) supplementation (OVX + EE2), and sexually intact control (Ctrl) groups. All rats were treated intraperitoneally with diethylnitosamine (DEN) at a dose of 100 mg/kg body weight and following N-nitrosomorpholine (NMOR) (100 ppm) in drinking water for 20 weeks to establish SD rat HCC model. Then, in depth analyzing the mechanism of protective role of estrogen in the initiation, development and metastasis of HCC from protein and nucleic acid two aspects by using ELISA, immunohistochemistry (IHC), RT-PCR based on the findings of above.
**Results:** Physiological doses of estrogen, no matter endogenous E2 or exogenous EE2, can strongly reduce the initiation, development and metastasis of HCC and an increase in the survival time of animals dead before the termination of experiment. OVX rats exhibit decreased production of estrogen and a consistent expression of estrogen receptor alpha (ERα) and phosphorylated estrogen receptor alpha (P-ERα); OVX group express higher hepatocyte growth factor (HGF) and interleukin-6 (IL-6) level in circulating and hepatic tissues of rats at the end point of experiment; OVX group exhibited increased expression of HGF and IL-6 than the other three groups in rat’s HCC at the end point of experiment.

**Conclusion:** Our study showed that estrogen can modulating the inflammatory hepatic and tumor microenvironment with one of the main mechanism by suppressing HGF and IL-6 production, and this may be response to gender differences that are detectable in the occurrence of HCC.

**906**

**BENEFICIAL EFFECTS OF S-ADENOSYL-L-METHIONINE ON POST-HEPATECTOMY RESIDUAL LIVER FUNCTION: A PROSPECTIVE, RANDOMIZED, CONTROLLED**

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**Background and aims:** Hepatectomy is associated with high rates of postoperative liver dysfunction in patients with cirrhosis [1]. Since S-adenosyl-L-methionine (SAMe) can be used to treat liver disease [2, 3], we performed a prospective clinical trial to investigate whether it could be used after hepatectomy to benefit residual liver function.

**Methods:** We studied 79 hepatitis related chronic patients who underwent resection of hepatocellular carcinoma. 39 patients were randomly assigned to receive postoperative intravenous SAMe treatment, and 40 were randomly assigned to a control group. The postoperative SAMe treatment consisted of SAMe 1000 mg given intravenously for seven days. The other treatment was standardized.

**Results:** At inclusion into the trial no significant differences were observed between the two groups with respect to sex, age, Child classification, preoperative liver function tests, blood lose, total time of hepatic pedicle occlusion and the extent of liver resection. The overall frequency of postoperative liver insufficiency decreased from 42% in the control group to 31% in the SAMe group, although the difference was not statistically significant (p = 0.121). When the patients who underwent hepatic pedicle occlusion by Pringle’s maneuver over 15 min were analyzed, the frequency of postoperative liver insufficiency (p = 0.028), serum total bilirubin levels on days 5 (p = 0.025) and 7 (p = 0.032) preoperatively and the maximum value of postoperative serum total bilirubin (p = 0.040) were significantly greater in the control group than in the SAMe group.

**Conclusions:** The results indicate that the postoperative SAMe therapy can benefit residual liver function of the patients with cirrhosis, especially in those suffered greater ischemia reperfusion injury.

**908**

**HEPATIC FUNCTIONAL RESERVE ASSESSMENT FOR HEPATECTOMY IN HEPATOCELLULAR CARCINOMA PATIENTS WITH HBV-RELATED CIRRHOSIS**

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**Background and aims:** Hepatocellular carcinoma (HCC) is the third cause of cancer-related death worldwide and the top two in China. Postoperative liver failure is still the major cause of postoperative death, particularly in patients with cirrhosis or underwent major liver resection. In this case, a correct estimation of hepatic functional reserve is essential to prevent it. However, there is no standard hepatic functional reserve assessment method for chronic hepatitis B (HBV) related chronic patients. The aim was to assess the predictive values of four classical hepatic functional reserve assessment methods mainly based on indocyanine green (ICG) test for surgery on HCC patients with HBV-related cirrhosis.

**Methods:** 153 patients with HBV-related cirrhosis who underwent liver resections for HCC were enrolled in this study. Indocyanine green (ICG) retention rate at 15 min (ICGR15) clearance (K) and effective hepatic blood flow (EHBF) were measured by using a pulse spectrophotometry before surgery. The volume of whole liver, tumor and resected liver were measured. The liver resection rate and the remnant ratio were calculated. The predictive of four classical hepatic functional reserve assessment methods were compared including a prediction score by Okamoto et al, a criteria by Van et al, a decision tree by Makuuchi et al and a criteria by Ohwada et al.

**Results:** Twelve patients (7.8%) suffered liver failure and two (1.4%) died in hospital. In a logistic regression model, the remnant liver ratio (p = 0.027) and the remnant K (p = 0.035) were significant predictors of postoperative liver failure. Three of the four classical hepatic functional reserve assessment methods compared in this study showed the predictive value for postoperative liver failure (p = 0.020; p < 0.001; p < 0.001). The sensitivity and specificity of decision tree method were the highest (75%, 92.9%).

**Conclusions:** The decision tree which based on ascites, total bilirubin level and ICGR15 value can be used to guide hepatobiliary surgeons in tailoring the correct
timing and extent of liver resection for HBV-related chronic patients.

910

PRELIMINARY RESEARCH OF BIOLOGICAL CHARACTERISTICS ON SIDE POPULATION CELLS SORTED FROM HEPATOCELLULAR CARCINOMA CELL LINE HEPG2

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Background and aims: Emerging evidence indicate that cancer stem cells (CSCs) are an essential targets for cancer therapy because CSCs drive tumor growth, chemo-resistance, tumor relapse, and metastasis. However, as lack of specific hepatocellular carcinoma stem cell (HCSC) surface markers, HCSCs are very difficult to be separated from hepatocellular carcinoma cells, which becomes the key handicap of functional studies of HCSCs. Side population cells (SP) sorting method lays a solid foundation for in-depth study of HCSCs. To identify the existence of SP in hepatocellular carcinoma cell lines and to sort side population cells from hepatocellular carcinoma cell line HepG2, besides to analysis the biological characteristics different between SP cells and original cell line HepG2.

Methods: Fluorescence-activated cell sorting (FACS) was used to sort side population (SP) cells from HepG2 cell lines. We defined SP cells as experimental group and same generation HepG2 cells which didn’t go through FACS as control group. Soft agar cloning methods were applied to measure the tumor formation ability of SP cell in vitro and Non-obese diabetic/severe combined immunodeficiency (NOD/SCID) xenograft transplant experiments was performed to test the tumorigenicity of the two groups. The two groups tumor cells adhesion ability were detected by cell-matrix adhesion experiment. The distinction between the two groups in proliferation growth curve, migration capability and metastatic potential were compared between the two groups in proliferation growth curve, migration capability and metastatic potential were evaluated by Soft agar cloning assay, Migration assay and Metastatic assay. Suspension sphere formation assay was used to test the ensphere capacity with Seru-free medium.

Results: Soft agar cloning assay showed that SP cells had significantly higher clonogenicity. NOD/SCID xenograft transplant experiments demonstrated that 2 x 10 4 SP cells were sufficient to form tumor as to control group 2 x 10 6 cells couldn’t form tumor. There was no significantly difference in adhesion ability, metastatic potential and cell proliferation growth curve between the two groups. Meanwhile migration assay and sphere formation assay give evidence that SP cells were more capable at migration and ensphere.

Conclusions: SP cells sorted from HepG2 cell lines have cancer stem cell-like property and function, indicating that they may rich in hepatocarcinoma stem cells.

913

HEPARIN-BINDING EPIDERMAL GROWTH FACTOR-LIKE GROWTH FACTOR PROTECTS RAT INTESTINE AFTER PORTAL TRIAD CLAMPING

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Background and aims: Heparin-binding epidermal growth factor-like growth factor (HB-EGF) is a potent mitogen and chemotactic factor. Previous studies have demonstrated that HB-EGF attenuates the intestinal ischemia/reperfusion injury caused by superior mesenteric artery occlusion. The current study examined whether HB-EGF has protective effects in intestinal congestion/reperfusion injury, which is caused by portal triad clamping.

Methods: A total of 30 male Sprague-Dawley rats were divided into three equal-sized groups randomly: I sham-operated; II. portal triad clamping (Pringle maneuver) for 30 min followed by reperfusion for 6 h; III II + intraluminal administration of HB-EGF 15 min after the initiation of portal triad clamping. Intestine injury was evaluated by histopathologic examinations. The expression of serum pro-inflammatory cytokines, such as tumor necrosis factor-α and interleukin-1β was measured by enzyme-linked immunosorbent assay (ELISA). Myeloperoxidase (MPO) activity and malonaldehyde (MDA) levels of intestine samples were spectrophotometrically measured. Apoptotic cells were assessed by terminal deoxynucleotidyl transferase-mediated deoxyuridine triphosphat nick end labeling technique (TUNEL).

Results: Compared with sham-operated rats, all rats subjected to clamping of portal triad for 30 min followed by reperfusion for 6 h had significantly increased intestinal histologic injury, pro-inflammatory cytokine expression, MPO activity, MDA levels and apoptosis indices. Intraluminal administration of HB-EGF in group III significantly reduced these indicators when compared with group II (p < 0.05).

Conclusions: The clamping of portal triad which is followed by reperfusion causes intestinal congestion/reperfusion injury. HB-EGF, given intraluminally, reduces the severity of intestinal congestion/reperfusion injury in rats.

914

SPONTANEOUS RUPTURE OF HEPATOCELLULAR CARCINOMA: A TEACHING HOSPITAL RETROSPECTIVE STUDY OF 87 PATIENTS

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Background: Spontaneous rupture is not rare but a catastrophic complication of hepatocellular carcinoma (HCC) with high in-hospital mortality.
**Objective:** To review the management of ruptured HCC in a single teaching hospital over 13-year period; to determine the prognostic factor of in-hospital mortality and evaluate the safety and efficacy of liver resection.

**Method:** A retrospective collection of medical records of 87 patients with spontaneous ruptured HCC was carried out. All patients were in accordance with fixed treatment strategy.

**Results:** 28 patients underwent emergency intervention including transarterial chemoembolization (TACE) and laparotomy with/without liver resection. Conservative treatment was performed in 59 patients and 16 of which underwent delayed hepectectomy or TACE (Figure 1). The overall in-hospital mortality and median survival time was 54% and 22 days respectively. Albumin level (OR = 0.874, 95% CI: 0.778–0.973, p = 0.024), number of tumors (OR = 5.011, 95% CI: 1.015–24.750, p = 0.048) and laparotomy (OR = 0.069, 95% CI: 0.012–0.406, p = 0.003) were all independent factors affecting overall in-hospital mortality (Table 1), but for patients undergone laparotomy, only total bilirubin level (OR = 1.138, 95% CI: 1.024–1.264, p = 0.016) was (Table 2). Age, total bilirubin level, maximum tumor size, number of tumors, portal vein tumor thrombosis and extra-hepatic metastasis were all significantly different between group with laparotomy and without. There was no significant difference between emergency and delayed liver resection groups in in-hospital mortality (0 vs. 0), median survival time (788 vs. 750 days respectively) as well as 1-year and 3-year survival rates (66.7%, 44.4% vs. 70%, 30%, respectively) (p = 0.763, log-rank test) (Figure 2).

**Conclusions:** Spontaneous rupture is a catastrophic complication of HCC, with in-hospital mortality around 50%. Both underlying chronic liver disease and tumor stage could affect the in-hospital mortality, but for patients undergone laparotomy, only total bilirubin level was independent factor. Surgeons were more prone to choose patients with younger age, better liver function and earlier tumor stage to do surgery, which could achieve better survival. In well selected patients, both emergency and delayed liver resections were safe and could achieve prolonged survival.

**915**

**HEPARIN BINDING EGF-LIKE GROWTH FACTOR ATTENUATES TOTAL HEPATIC ISCHEMIA-REPERFUSION INJURY INDUCED BY LIVER TRANSPLANTATION**

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**Background and aims:** Hepatic ischemia-reperfusion (I/R) injury is associated with both local damage to the liver and systemic inflammatory responses. Heparin binding epidermal growth factor-like growth factor (HB-EGF) is a biologically active protein that acts as an intestinal cytoprotective agent. The current study examined whether intraluminal administration of HB-EGF has protective effects in total hepatic ischemia-reperfusion injury induced by liver transplantation in rats.

**Methods:** Thirty male Sprague-Dawley rats were randomly divided into three equal-sized groups: I. sham-operated; II. orthotopic autologous liver transplantation model with anhepatic phase for 25 min followed by reperfusion for 6 h (I/R); III. I/R with intraluminal administration of HB-EGF 15 min after the initiation of anhepatic phase (I/R + HB-EGF). Blood and liver tissue samples were obtained and compared. Serum level of ALT was measured. Liver was sampled for histopathological examination and TdT-mediated dUTP nick end labeling (TUNEL) assay. Myeloperoxidase (MPO) activity of liver samples was spectrophotometrically measured. The expressions of tumor necrosis factor-alpha and interleukin-1beta in serum and liver tissue were measured respectively. Liver nuclear factor kappa B (NF-kB) p65 was detected by Western blot analysis.

**Results:** Compared with sham-operated rats, all rats subjected to anhepatic phase for 25 min followed by reperfusion for 6 h had significantly increased serum ALT level, hepatic histologic injury, apoptosis index, MPO activity, pro-inflammatory cytokine expression and NF-kB p65 nuclear translocation. Intraluminal administration of HB-EGF in group III significantly reduced these indicators when compared with group II (p < 0.05).

**Conclusions:** HB-EGF, given intraluminally, attenuates the severity of total hepatic ischemia-reperfusion injury in rats. The protective mechanism may be related to its anti-inflammatory function.
magnetic rings and an inverted Y-shaped tube with magnetic rings on its each end. The magnetic ring was made of N52 sintered NdFeB with processing steps of electrode cutting, titanium nitride (TiN) coating and magnetizing. The tube was made of polyvinyl chloride (PVC) and preconditioned with heparin coating on the surface of lumen. The magnetic force of magnetic ring, the tensile strength and pressure intensity of anastomatic stoma was tested respectively. The surface of tube lumen was coated with heparin and low molecular weight heparin (LMWH) with the H-G-PEI coating technique. 2. Eight canines underwent the ex situ liver resection, veno-venous bypass was established by magnetic anastomosis technique with the novel VVB device in the operation. The time for establishing VVB was recorded, and the hemodynamic indexes which include venous flow velocity, carotid pressure, CAP and portal pressure was detected. The change of intestinal canal and kidney was also observed.

Results: 1. The magnetic force of magnetic ring, the tensile strength and pressure intensity of anastomatic stoma was satisfying. 2. It can spend less time to establish VVB by the novel VVB device in the operation, the hemodynamics stability was maintained smoothly during the anhepatic phase. The shunt index of IVC and PV was 76.2% and 75.5%, respectively. The congestion of intestinal canal and kidney was also alleviated during the anhepatic phase.

Conclusions: 1. VVB is a key technique in ex situ liver resection. 2. It can spend less time to establish VVB with magnetic anastomosis technique in ex situ liver resection. The experiment showed utilizing the novel VVB device for intraabdominal venovenous bypass during the anhepatic phase could be helpful to maintain hemodynamics stability.

918

STUDY OF THE RELATIVITY BETWEEN LIVER METABOLISM AND ISCHEMIA-REPERFUSION INJURY.

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Background and aims: Taking GC/MS (gas chromatography-mass spectrometry) as a new method to assess ischemia and reperfusion injury (I/R) after liver surgery. Methods: Through Sprague-Dawley rats to constructed pringle maneuver, use pringle maneuver for 30 min, test its urine for metabolisms, serums for nzymologies and HE.

Results: The routine tests can lead to the same tendency of the variety from injury to recover. Find the typical and common markers as homologous markers from liver metabolism like lipid metabolism, glycometabolism and proteometabolism in testing urine by GC/MS. GC/MS also have higher sensitive.

Conclusions: GC/MS is valuable for the assessments of I/R after surgery on liver, it have not any reports yet. The innovation of this experiment is to assess about I/R anterior-posterior liver surgery, using GC/MS to analysis urine. Although the test result inside the group and interblock has higher disparity and most of the markers have no significant, the typical and common markers are still have higher sensitive. It is also have higher value in clinical exploration of clinical research and practices.
930 IMMUNOLOGIC ANALYSIS AND RISK FACTORS FOR EARLY ACUTE REJECTION IN LIVING DONOR LIVER TRANSPLANTATION
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Background and aims: Orthotopic liver transplantation (OLT) is the therapeutic option for hepatic failures or HCC. Acute rejection is one of the main causes of early graft failure. The purpose of this study is to evaluate the factors associated with acute rejection by examining the various factors.

Methods: From September 2010 to July 2012, we retrospectively analyzed 121 patients who had undergone OLT at Seoul St. Mary’s Hospital of the Catholic University of Korea. Rejection activity index (RAI) 3 points or more, experienced within 12 months after liver transplantation was defined as early acute rejection. We evaluated HLA (A, B, DR) typing, cross matching (T cell, B cell) test, panel reactive antibody (PRA) test, CD4, CD25, interleukin (IL)-2, IL-6, IL-17, interferon-γ and TNF-α to identify factors associated with rejection. We also compared survival according to the presence of acute rejection. The median follow-up was 15 (3~25) months.

Results: 19 patients (15.7%) had experienced at least one acute rejection episode within 12 months after transplantation. Acute rejection occurred within 1, 6 and 12 months was 1 (5.2%), 14 (73.7%) and 4 (21.1%) patients. Acute rejection group revealed more percentage of patients with non-identical HLA-A typing (p = 0.038). But, the incidence of rejection revealed no statistical differences according to HLA-B, -DR typing and cross matching test. PRA class I, PRA class II, CD4 & CD25 did not affect the incidence of acute rejection. In the acute rejection group, but only IL-2 and IL-6 levels showed statistical difference (p = 0.011 and p = 0.006). Preoperative IL-10, IL-12, IL-17, interferon-γ and TNF-α levels showed no statistically significant difference. Overall survival rates were no relationship between acute rejection and no rejection group (p = 0.815).

Conclusions: Our study shows that HLA-A typing, preoperative IL-2 and IL-6 levels are associated with acute rejection occurred within 12 months. Further verification of these findings by a large volume or prospective study is required to determine the risk factor of rejection.

931 AGO1 PROMOTES HEPATOCELLULAR CARCINOMA METASTASIS AND ANGIogenesis THROUGH THE P53 AND VEGF PATHWAYS AND IS CORRELATED TO POOR P
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Background and aims: AGO1 is a major component of RNA-induced silencing complexes and plays a crucial role in solid tumors. The aim of our study was to investigate AGO1 functions in HCC.

Methods: AGO1 expression was measured in HCCLM3, MHCC97L, and HepG2 cell lines. Immunohistochemistry in tissue microarrays consisting of 200 HCC patients was used to analyze the associations between AGO1 expression with prognosis and microvessel density (MVD). Using small interfering RNA, AGO1 functions and its effects on P53 and vascular endothelial growth factor (VEGF) expression were investigated in HCCLM3 and HepG2 cell lines.

Results: AGO1 expression increased in parallel with the metastatic potential of the HCC cell lines. Cell proliferation, invasion, and P53 and VEGF expression were significantly decreased after AGO1 depletion in the HCC cell lines. Intratumoral AGO1 was correlated with younger age (p = 0.039), higher a-fetoprotein (p = 0.002), HBeAg-positive status (p = 0.049), liver cirrhosis (p = 0.045), intrahepatic and extrahepatic recurrence (p < 0.001), higher MVD (p = 0.009), and was an independent risk factor for overall survival (p = 0.008) and recurrence-free survival (p < 0.001).

Conclusions: These findings indicate that AGO1 may promote HCC metastasis and angiogenesis through the P53 and VEGF pathways, and AGO1 may be a reliable prognostic factor in HCC.

933 SURGICAL OUTCOME OF BILIARY TRACT CANCER: SINGLE INSTITUTION EXPERIENCE
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Introduction: Biliary tract cancer is a rare entity and its prognosis varies depending on location of tumor. Surgical resection remains the only potentially curative...
treatment. Aim of this study is to review our surgical experience with biliary tract cancer.

**Patients and Methods:** Between 1992 and 2010, 352 patients with biliary tract cancer who underwent surgical resection at Department of Gastroenterological Surgery, Yokohama City University Hospital, were retrospectively reviewed. Site of cancer was the hilar bile duct in 86 patients, the distal bile duct in 99 patients, the gallbladder in 92 patients, and the papilla of Vater in 75 patients. Hepatectomy was performed in 119 patients, and Pancreaticoduodenectomy was performed in 163 patients. Local resection such as bile duct resection and cholecystectomy was performed in 70 patients.

**Results:** Morbidity and mortality rates were 48.8 and 3.1%, respectively. Curative resection was achieved in 295 patients (83.8%). The overall 5-year survival rate of all patients was 48.5%. The 5-year survival rate was 97.1% for fStage I patients, 77.5% for fStage II patients, 44.8% for fStage III patients, 21.3% for fStage IVa patients and 10.1% for fStage IVb patients. The 5-year survival rate was 37.5% for hilar bile duct cancer, 40.0% for distal bile duct cancer, 50.3% for gallbladder cancer, and 66.9% for cancer of the papilla of Vater. Operative culpability, hospital death and 5-year survival rates were improved significantly during the period from 1992 to 2001 and from 2002 to 2010 from 75.4%, 4.9%, 42.2% to 91.0%, 1.5%, and 54.3%, respectively.

**Conclusions:** Surgical outcome of biliary tract cancer is still poor but have been improved year by year with improved surgical techniques, new chemotherapeutic agents, 3D-CT technology and development of surgical devices.

945

**PANCREATIC ASCITES- A CASE REPORT**

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Pancreatic Ascites is an uncommon complication of Acute Pancreatitis. The development of massive ascites in a patient of Acute Pancreatitis should give rise to suspicion of pancreatic cause. There is a disruption of main pancreatic duct. This leads to rapid feeling of abdominal cavity with ascetic fluid. The rise in intra-abdominal pressure may give rise to difficulty in respiration.

The diagnosis of pancreatic ascites is made by detection of raised Serum Amylase with very high levels of Ascitic fluid amylase and raised ascetic fluid proteins. The treatment of this rare condition must be done energetically. Various options are available depending on patient’s condition and availability of resources at the center.

When the disruption of the duct is suspected to be minor, then only treatment with Injection Octreotide helps some times. In other patients therapeutic Endoscopic Retrograde Cholangio Pancreatography (E. R. C. P.) and selective pancreatic stenting gives dramatic results.

Presenting herewith our experience of managing successfully a case of Pancreatic Ascites at our institute. Patient was managed with therapeutic E. R. C. P. with very good result.

947

**RISK FACTORS OF PORTAL VEIN THROMBOSIS AFTER SPLENECTOMY IN PATIENTS WITH LIVER CIRRHOSIS**

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**Background and aims:** Portal vein thrombosis (PVT) is a potential lethal complication after splenectomy in the context of liver cirrhosis. The independent risk factors of PVT have not been clearly defined yet. And disputaion over the prophylaxis regimen for the PVT formation still exists. Our study aims to investigate risk factors as well as our anti-platelet prophylactic strategy of PVT.

**Methods:** From January 2008 to December 2010, 472 non-neoplastic liver cirrhosis patients underwent splenectomy in our institution. Excluding 28 patients who were diagnosed as PVT before or in the operation, the clinical and surgical characteristics of 80 (80/444, 18%) patients who developed PVT and 364 (364/444, 82%) patients who did not develop PVT were reviewed and analyzed. Prophylactic anti-platelet therapy was administrated when postoperative PLT count exceeded 300 × 109/L. The univariable and multivariable analysis of risk factors were performed. The prognosis of the two groups were later valued.

**Results:** There were no significant differences between PVT group and non-PVT group in terms of hemoglobin, WBC count, bilirubin, albumin, International normalized ratio (INR), fibrinogen, Child-pugh classification, MELD score (p > 0.05, respectively). Operation time, Intraoperative blood transfusion, acquired thrombophilic factors in patients’ history and spleen volume exhibited no significant relationship with PVT formation (p > 0.05 respectively). However, in multivariable analysis, the preoperative portal vein diameter (PVD) and postoperative thrombocytosis (POD5 PLT count- preoperative PLT count) shown significant differences between PVT group and non-PVT group (p < 0.001, p = 0.001, respectively). And patients underwent periesophagogastric devascularization were prone to develop PVT (p < 0.001). Incidence of PVT in patients who took anti-platelet drugs was not lower than that in patients who didn’t in our institution (p = 0.722). Compared with non-PVT group, gastrointestinal bleeding occurred more often in PVT group in the follow up (p = 0.044).

**Conclusions:** PVT may be related with danger of gastrointestinal hemorrhage. Preoperative portal vein diameter (PVD), postoperative thrombocytosis and periesophagogastric devascularization are independent risk factors of PVT. We strongly recommend that preoperative PVD and perioperative PLT count should be mea-
sured in every patient. For patients whose above factors are prominent, close surveillance after the operation is highly suggested. Prophylactic protocol which gains both safety and high efficiency should be further studied.

950

USING NOVEL MAGNETIC COMPRESSIVE TECHNIQUE TO CREATE PORTACAVAL SHUNT IN DOG: AN EXPERIMENTAL STUDY

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Background and aims: The traditional portosystemic shunts are technically complicated, and the incidence of thrombosis and hepatic encephalopathy has remained high. TIPS remain relatively safe procedure, but complications of stenosis and hepatic encephalopathy that may result from it. In order to achieve a minimally invasive surgery with long-term shunting effects, a set of novel magnetic compression technique (MCT) was introduced to the shunting procedure.

Methods: Two Nd-Fe-B permanent magnets which coated polyurethane/heparin/taxol were accepted. The parent magnet was applied to inferior vena cava guided by a cathether through the incision on the femoral vein. The daughter magnet was moved to the anastomosis position on portal vein by the balloon catheter through the incision on the splenic vein. After the daughter magnet reached the target position, the 2 magnets attracted, compressed the vessel wall to hold it in place. 5–7 days later, under X-ray guidance, the magnets were detached from the vessel wall with the needle of RUPS-100 set. One month after that portal venography were performed.

Results: A large number of fibrous connective tissue can be observed around the adventitial of anastomosis position, 5–7 days after the first surgery. During the second surgery, when the magnets were detached, the contrast media can be observed flowing from portal vein into the inferior vena cava. 1 month after the second surgery, portal venography revealed that the portosystemic shunt still exists. H.E. staining revealed a mild intimal hyperplasia in the portal vein and the inferior vena cava, a continuity of the vascular adventitial from the portal vein to the inferior vena cava. Masson staining revealed a large quantity of tidily arranged collagen surrounding the adventitial.

Conclusions: By using a unique magnet device, MCT was successfully used to establish a portacaval shunt in dog, which may be used as a novel surgical therapy without the risk of stenosis in the portosystemic shunts.

955

NOTCH PATHWAY IS ACTIVATED IN MASS-FORMING INTRAHEPATIC CHOLANGIOCARCINOMA POSSIBLY DERIVED FROM HEPATIC PROGENITOR CELLS

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Background/Aims: The Notch2/Jagged1 signaling pathway is implicated in normal biliary development, as well as in neovascularization. We investigated the possibility that Notch2 and Jagged1 are also involved in differentiation into cholangiocellular phenotypes in mass-forming intrahepatic cholangiocarcinoma (ICC), possibly originating from hepatic progenitor cells.

Methods: The expression of Notch2, Jagged1, $\alpha$-fetoprotein, c-Kit and CD44 were examined immunohistochemically in 32 surgically resected cases with mass-forming ICC. Furthermore, tumor vascularity was assessed by intratumoral microvessel density determined by CD31 immunostaining.

Results: Positive Notch2 expression was observed in 18 (56%) of cases and positive Jagged1 in 10 (31%). Notch 2 protein was frequently localized to the cytoplasm and nucleus of cancer cells. C-Kit, $\alpha$-fetoprotein, and CD44 expression was noted in 12 (50%), 1 (3.1%), and 14 (44%), respectively. C-Kit expression was significantly associated with Notch2, but not Jagged1 expression, whereas CD44 expression was inversely correlated with Notch2 expression. As compared with cases with negative Notch2 expression, cases with positive Notch2 expression showed significantly lower levels of preoperative serum carbohydrate antigen 19–9, and a histological cancer-negative resected margin was achieved more frequently. ICC with positive Notch2 expression was related to high intratumoral microvessel density. Survival among patients with positive Notch2 expression was significantly better than that among patients with negative Notch2 expression.

Conclusion: Notch pathway is activated in mass-forming intrahepatic cholangiocarcinoma, which may be important for the development and the maintenance of the cholangiocellular features or phenotype of malignant transformed hepatic progenitor cells. ICC was less aggressive in such cases than in cases with negative Notch2 expression.

958

1 YEAR EXPERIENCE OF PENG’S BINDING PANCREATICOGASTROSTOMY AFTER PPPD

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Background and aims: Pancreatic fistula after PPPD remains a significant cause of morbidity and mortality. The aim of this study was to assess the operative results of a new technique; Peng’s binding pancreatico-gastrostomy (PG) after PPPD, in which the stump of pancreas inserted into the posterior gastric wall with only two purse-string sutures.

Methods: Recently, for 1 year, consecutive 20 cases of PPPD were performed using binding pancreatico-gastrostomy.

Results: Indications for surgery included 16 malignant neoplasms, including 5 cases of multivisceral resections and 4 benign diseases. There was 1 case of grade A, POPF (postoperative pancreatic fistula) according to definition by ISGPS grading system. The overall morbidity was 55% as 11 cases in 7 patients (1 case of pancreatic fistula, 2 cases of DGE, 1 case of wound hematoma, 1 case of wound infection, 1 case of asciates, 1 case of liver abscess, 1 case of UGI bleeding, 1 case of abdominal abscess, 1 case of not removal of drain, 1 case of ICH). But, there were no complications related to POPF. Perioperative mortality was nil.

Conclusion: By early term observation after PPPD, Peng’s binding PG might be superior to the other pancreatic-enteric anastomotic techniques in order to minimize POPF.

959
SYNERGISTIC EFFECT OF 5-FUOROURACIL COMBINED WITH TRIPTOLIDE ON PANCREATIC CANCER IN VITRO BASED ON TWO-DIMENSIONAL ELECTROPHORESIS

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Aims: To investigate the 5-fluorouracil (5-fluorouracil, 5-FU and TPL act on ASPC-1 cells synergistic effect, further explore TPL enhanced 5-FU on pancreatic carcinoma cell apoptosis and human pancreatic cancer cell ASPC-1 drug resistance mechanism.

Methods: Using DMEM high glucose cultured ASPC-1 cells; MTT method for the detection of 5-FU, TPL, IC30dosage and concentration of TPL combined with 5-FU on pancreatic cancer cell proliferation inhibition effect of ASPC-1, Western Bloting method for the detection of apoptosis related protein PARP, flow cytometry analysis in each experimental group the apoptosis ratio difference, extraction of each protein for two-dimensional electrophoresis. ImgeMster image software to analyze the differentially expressed proteins between the groups, the application of MS analysis identified by screening the differentially expressed proteins. PCR validation control group and TPL group and TPL and5-FU combined group of Vimentin mRNA expression difference.

Results: TPL,5-FU to ASPC-1has the obvious inhibitory action, and the dose and time correlation; 5-FU and TPL combination of the two drugs in pancreatic cancer ASPC-1pro-apoptotic have synergistic effects. 48 h after, single-agent TPL,5-FU and IC30TPL doses combined group PARP expression quantity is star TPL difference; treatment of human pancreatic cancer cells Aspc-1, extracting collected after treatment of cellular proteins, for two-dimensional electrophoresis, scanning by ImgeMster image analysis software analysis. IC30TPL combined with 5-FU treatment dosage and concentration of human pancreatic cancer cells Aspc-1, extracting collected after treatment of cellular proteins, for two-dimensional electrophoresis, scanning by ImgeMster image analysis software analysis. Compared with the control group, TPL group and TPL and 5-FU combined group of vimentin (Vimentin) mRNA levels have obvious differences in expression quantity.

Conclusion: TPL, 5-FU single drugs in vitro on human pancreatic cancer cell Aspc-1proliferation inhibition, and inhibition of the effect was dose and time dependent. No significant role on the proliferation of IC30 concentration of TPL can improve 5-FU on human pancreatic cancer cell Aspc-1proliferation inhibition effect. Vimentin (Vimentin) may be one of targets for TPL and 5-FU combination of human pancreatic carcinoma cell apoptosis of Aspc-1.TPL on human pancreatic cancer cell Aspc-1proliferation inhibition targets may be associated with vimentin (Vimentin) or its product related. Human pancreatic carcinoma cells to chemotherapy drugs (such as Aspc-1TPL and5-FU) of resistance may be associated with Annexin A3 related.

960
FEVER AFTER TRANSARTERIAL CHEMOEMBOLIZATION FOR HEPATOCELLULAR CARCINOMA

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Purpose: Transcatheter arterial chemoembolization (TACE) is a procedure to restrict a tumor’s blood supply. Hepatocellular Carcinoma can be treated in many ways and TACE is one of the ways of treating it especially for non-resectable Hepatocellular carcinoma. TACE is an invasive procedure, it has potential complications that would range from being mild fever to mortality. One of its most common complications is fever. Fever is due to tumour necrosis and almost always self resolving with supportive management. We conducted a retrospective study to examine the patients who underwent TACE at our institution with special emphasis on patients experiencing fever after TACE.

Aim: To determine the incidence of fever after TACE and identify secondary causes of post TACE pyrexia.

Methods: A retrospective review the medical records of 39 patients is done. The incidence and possible risk factors associated with post-TACE fever on their first session were analyzed.
Results: Of the 39 patients, nineteen patients experienced fever after TACE. Of these 19 patients, thirteen had a septic work-up done. Five patients were noted to have urinary tract infection and one patient developed hospital acquired pneumonia. Of the nineteen patients who had fever, eleven had a solitary liver lesion. One patient died because of post-TACE renal failure. Of the nineteen pyrexial patients, sixteen patients received therapeutic antibiotic therapy.

Conclusion: Post-TACE fever is one of the most common complications of TACE. Our data suggests that its incidence is 49%. After ruling out other infections, with the aid of a septic work-up, it was noted that the incidence of primary post-TACE pyrexia is only 33% (13 out of 39).

963 REAPPRAISAL OF THE RIGHT ANTERIOR LOBE BASED ON THE INTRAHEPATIC PORTAL VEINS BY USING 3-D IMAGES

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Objective and aims: To evaluate the intrahepatic portal veins and hepatic veins of right anterior lobe of liver, put up a new concept of the classification of hepatic segment for the imaging and liver surgery.

Methods: Using 100 successive sections of the upper abdomen of adult MRI enhanced images of living donor for liver transplantation and transform the 2-dimesional images into 3-dimensional images. By using 3-D images, we investigated the course and division pattern of the intrahepatic portal vein and the hepatic veins, and also the relationship between them.

Results: Among the 100 cases, the branches of segment 8 may be divided into four types: monopodium, two branches, three branches and four branches and the percentage is 16%, 72%, 8% and 4% respectively. About 84% of the intrahepatic portal veins of segment 8 can be mainly divided into ventral branches and dorsal branches and the dorsal branches of P8 supplied the dorsocranial area of the right lobe posterior to the right hepatic vein, which belong to segment 7 according to Couinaud’s classification. About 93% branches of P5 were branching off the portal veins of the right anterior trunk or the ventral branches of P8. And also, we found that the hepatic vein of segment 8 running ventral to P8v joining the middle hepatic vein while the hepatic vein of segment 8 running dorsal to P8d joining the right hepatic vein; most drainage veins of S5 joined to the middle hepatic vein. So, we divided the right anterior lobe into S8v+S5 (ventral segment) and S8d (dorsal segment).

Conclusion: This new concept of hepatic segment division will be helpful not only to the precise allocation of lesion in the liver, but also to the development of new and safer surgical procedures.

964 SUSTAINED METHYLENE BLUE STAINING TO GUIDE ANATOMICALLY PRECISE HEPATECTOMY

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Background and aims: To describe a novel methylene blue staining technique for guiding anatomic resection of hepatocellular carcinoma (HCC). The boundary of the target hepatic segment within the liver parenchyma cannot be marked using a conventional anatomic hepatectomy approach.

Methods: Between February 2009 and June 2010, anatomic hepatectomy was performed in 43 HCC patients using a novel sustained methylene blue staining technique. Sustained staining was achieved by injecting methylene blue into the distal aspect of the portal vein after exposing Glisson’s sheath. The hepatic pedicle was immediately ligated, and the hepatic parenchymal transection was performed along the interface between methylene blue stained tissue and unstained tissue.

Results: Anatomic hepatectomies were subsegmentectomy (n = 7), monosegmentectomy (n = 21), multisegmentectomy (n = 10), and hemihepatectomy (n = 5). The portal vein was successfully injected with methylene blue in 100% of cases, and complete staining of the target hepatic segment was achieved in 41/43 (95.3%) cases. Mean intraoperative bleeding was 300 ± 50 mL, and the postoperative complication rate was 18.6% (8/43). All complications were successfully managed via conservative treatment. Surgical margins were all negative on pathologic examination. Mean duration of postoperative follow-up was 19 mo (range, 12–28 mo). Eleven patients had intrahepatic recurrence, but no local recurrence (around the surgical margin) occurred.

Conclusions: This novel technique of achieving sustained staining by injecting methylene blue then immediately ligating the hepatic pedicle is simple and feasible. It can guide the selection of the surgical margin during hepatic parenchyma transection to improve the accuracy of anatomic hepatectomy for the treatment of HCC.

965 A CASE OF PENG’S BINDING PANCREATICOGASTROSTOMY FOR THE PROXIMAL PancreATIC TRANSECTION

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Various treatment for the proximal pancreatic transection following blunt trauma have been attempted. But, none of these has yet been clearly established. The
proximal pancreatic transection is usually managed by
distal pancreatectomy with or without splenectomy.
However, pancreatic insufficiency and the risk of post-
splenectomy infection remain significant problems. To
avoid these problems in the patient with proximal pan-
creatic transection, pancreaticoenteric anastomosis can
be a treatment option, but pancreatic fistula form pan-
creaticoenteric anastomosis remains a significant cause
of morbidity and mortality. Recently, Dr. Peng pro-
posed the binding pancreaticogastrostomy to minimize
the postoperative pancreatic fistula after pancreatic sur-
gery. So, we report a case of proximal pancreatic tran-
section successfully treated with Peng’s binding pan-
creaticogastrostomy.

966
ISOLATION AND IDENTIFICATION OF
SIDE POPULATION CELLS FROM A
HEPATOCELLULAR CARCINOMA
CELL LINE HEPG2 AND FRESH
TUMOR TISSUES
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Background and aims: The recurrence of Hepatocellular
carcinoma(HCC) limits the outcome to a low level.
Cancer stem cells(CSCs) has been proved contribute to
recurrence. The side population(SP) is thought enriched
with hepatocellular cancer stem cells (HCSCs), howev-
er, it has not been fully explored.

Methods: To study the characters of HCSCs, a Hoe-
chest33342 dye was used to isolate the SP cells from a
HCC cell line Hepg2 and fresh tumor tissues of 21
HCC patients by flow cytometry. Properties of the SP
cells were established by cell proliferation assay, capac-
ty to form spheroids in the serum-free medium, inva-
sion and migration assays, tumorigenicity in NOD/SCID
mice and mRNA microarray analysis.

Results: SP cells were observed in HCC cell line Hepg2
and 18 of the 21 fresh tissues. SP cells showed higher
abilities of forming spheroids, invasion and migration,
and there was no significant difference in cells prolifera-
tion between the two groups. Tumours could generate
from SP but not non-SP(NSP) cells in a low dose of
subcutaneous injection to the NOD/SCID mice
(5x102cells/mouse). The mRNA microarray analysis
revealed that 2057 gene expressions were up-regulated
and 3189 down-regulated.

Conclusions: HCC SP cells have properties of HCSCs
which may be the origin of recurrence. Further investiga-
tions on HCSCs are warranted to provide insights into
our understanding of tumor biology.

967
ASSISTANT INFUSION TECHNIQUE
FOR PERCUTANEOUS
RADIOFREQUENCY ABLATION OF
LIVER CANCER IN SPECIAL POSITION
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Objective: To assess the value of assistant infusion
technique which can separated the liver from the adja-
cent organs or structures for ultrasound-guided percu-
taneous radiofrequency ablation of liver cancer in special
position.

Methods: 27 cases with malignant liver cancer in spe-
cial position received assistant US-guided puncture and
infusion. When the liver was separated from the adja-
cent organs or structures by saline solution, percutan-
eous radiofrequency ablation was performed. Technical
efficacy and complications were evaluated.

Results: Among the 27 cases, the target tumor was
adjacent to the right kidney in 6cases, to the colon in 7
cases, to the stomach in 5 cases, to the pericardium in
4 cases, to the gallbladder in 3 cases, to the right kid-
ney and colon in 1 case and to the stomach, gallbladder
and main branch of the right portal vein trunk in 1
case. 25 patients received US-guided puncture through
the hepatic tissue to the abdominal cavity near the tar-
get tumor, with a 22-G needle, and assistant infusion
with 80~390 mL saline solution created a space(range
0.8~2.5 cm) between the liver and adjacent organs or
structures. 5 cases with tumor adjacent to the stomach
or colon received further infusion during the ablation.
2 cases failed in assistant infusion, because of the post-
operative adhesion, and received palliative radiofre-
cuency ablation. The mean hospital stay post operation
was 4 days. No adjacent organs or structures injury,
hemorrhage or needle track implantation was observed.
Only one case died because of liver function failure. 2-
week of 1-month follow-up CT/MRI showed the tech-
crical success rate was 96.0%(24/25) in the 25 cases who
received complete ablation.

Conclusion: Assistant infusion for percutaneous radio-
frequency ablation creates protective space between the
liver and adjacent organs or structures in patients with
liver cancer in special position. The safe and effective
technique can widen the indication and significantly
increase the cure rate of percutaneous radiofrequency
ablation.

968
INTRA PERITONEAL BUPIVACAINE
WASHING IN LAPAROSCOPIC
CHOLECYSTECTOMY PATIENTS
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Background and aims: Laparoscopic cholecystectomy
has been known and became standard treatment for
gall bladder stone diseases. In many countries, this procedure was carried out as a day surgery case. The main problem of adopting this practice in our country is the remaining post operative pain occurred early in post-surgery that necessitates hospitalization. Intra peritoneal low dose bupivacaine washing is hypothesized to potentially reduce pain after laparoscopic cholecystectomy, so that oral administration of analgesia would be sufficient in the post operative setting. The aim of this pilot study is to determine the feasibility of this method in surgical practice in Indonesia, and its correlation with shorter hospitalization.

**Method:** Medical records from patients receiving laparoscopic cholecystectomy from a single surgeon in a private hospital in Jakarta, Indonesia were collected retrospectively from January 2012 to September 2012. Data on hospital length of stay, frequency of intravenous analgesia, time to early mobilization and side effects were collected retrospectively. Patients who received intraperitoneal bupivacaine washing were compared with patients who did not receive it.

**Results:** In this pilot study, a total of 16 patients were included, male to female ratio is 1:1, and mean age is 55.19 years old, ranging from 28 to 82 years old, with 31.3% of the patients receiving intra peritoneal bupivacaine washing. Although the non bupivacaine group were slightly older than the receiver group (57 to 51 years old), statistically, the use of intravenous analgesia, time to early mobilization and side effects were collected retrospectively. Patients who received intraperitoneal bupivacaine washing were compared with patients who did not receive it.

**Conclusion:** Intra peritoneal bupivacaine washing is safe and feasible to be performed in Indonesian practice of laparoscopic cholecystectomy. The usage of this practice can contribute to the implementation of day surgery laparoscopic cholecystectomy for Indonesian patients.

969

**RBBP4 ACTIVATION RESULTING FROM MIR-199A-5P LOSS ARE ASSOCIATED WITH POOR PROGNOSIS OF HEPATOCELLULAR CARCINOMA BY AKT PATHWAY.**

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**Background:** Retinoblastoma binding protein 4 (RBBP4) was reported to participate in several protein complexes, which had been implicated in chromatin remodeling and transcriptional repression. In our previous study, RBBP4 was found upregulated in hepatocellular carcinoma (HCC) patients with recurrence via proteomics analysis. The aim of the present study is to examine the expression pattern of RBBP4 in HCC and its clinical significance as well as its potential role in tumor progression.

**Methods:** The expression of RBBP4 and was examined in 30 HCC samples using real-time PCR reaction, and further validated by western blotting in 16 of the 30 HCC samples. We next analyzed its correlation with clinical parameters and prognosis in 70 HCC patients that have undergone liver transplantation(LT). RBBP4 overexpression vector and RBBP4 siRNA vector were constructed to examine its role and mechanism in tumor progression. The expression of mir-199a-5p was performed by real time PCR in 30 HCC samples, and luciferase assays was used for target validation. The alteration of pathway proteins was examined by western blot.

**Results:** RBBP4 expression significantly increased in HCC tissues compared with para-cancer tissues. Clinico-pathological analysis showed that RBBP4 expression was significantly correlated with vascular invasion (p = 0.027), tumor size (p = 0.001), pTNM stage (p=0.002) and tumor recurrence (p = 0.000). Patients with high RBBP4 expression had poorer recurrence free survival (p = 0.000) and overall survival (p = 0.003) after LT than those with low RBBP4 expression. Multivariate analysis was showed RBBP4 expression was an independent predictor of recurrence free survival (Hazard ratio 5.425, p = 0.003). Moreover, the overexpression of RBBP4 significantly promoted the malignant phenotypes of HCC cell lines, including cell proliferation, invasion and migration and anti-apoptosis. Above all, our further research showed that RBBP4 was a target of mir-199a-5p and mir-199a-5p/RBBP4/AKT positive loop was a potential mechanism involved in HCC progression.

971

**SHORT-TERM EFFICACY OF PERCUTANEOUS RADIOFREQUENCY ABLATION ON COLORECTAL HEPATIC METASTASES**

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**Background and aims:** Percutaneous radiofrequency ablation is a newly developing technique which has a small wound and exact effect. The NCCI clinic guideline suggests that for the patients with colorectal hepatic metastases should accept radiofrequency ablation in the hepatic metastases,which could be cleared completely. The aim is to discuss the value of ultra-guided percutaneous radiofrequency ablation in colorectal hepatic metastases.

**Methods:** 34 cases of percutaneous radiofrequency ablation in the hepatic metastases between December, 2009 to June, 2012 were retrospective analyzed. All of the patients with 78 liver metastases accepted totally 39
percutaneous radiofrequency ablations. Among them 2 patients accepted three times, 1 patients accepted twice, 23 patients had synchronous liver metastases, while 11 patients had metachronous liver metastases. The effect of the operation was analyzed by Liver contract CT/MRI one month later. Local recurrence rate, entopic relapse rate and One-year survival rate were followed up and concluded.

**Results:** There was no treatment related death. The postoperative complications rate was 10.3%. 38 among 39 cases got the completely ablations, the effective rate was 97.4%. The local recurrence rate, entopic relapse rate and One-year survival rate was 5.12%, 30.7, 90.5% respectively.

**Conclusions:** Percutaneous radiofrequency ablation in colorectal hepatic metastases was worthy of application and dissemination, because of low complication rate and local exact effect.

972

**CLINICAL ANALYSIS OF 15 CASES CATHETER ABLATION OF THE CHOLANGIOCARCINOMA**

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Cholangiocarcinoma is a common malignant tumor of biliary tract. The insidious onset and slow progression of symptoms usually result in delayed diagnosis and treatment. Most of the patients with advanced cancer that usually go to see the doctor because of jaundice have already lost the chance of operation. Conservative treatment to alleviate the symptoms of jaundice is the main choice but has poor prognosis. The catheter ablation of the cholangiocarcinoma is a relatively new therapeutic measure which not only alleviate the jaundice but also partly eradicate the mass. This new measure gained satisfied clinic efficacy in the patients’ survival time and the life quality. By studying some cases of catheter ablation of cholangiocarcinoma patients in our hospital, we conclude some experience and perception of this new therapeutic measure.

977

**SURGICAL TREATMENT OF PRIMARY LIVER CANCER WITH EMBOLUS IN INFERIOR VENA CAVA: OPERATION OR CONSERVATIVE TREATMENT**

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**Background and aims:** Primary liver cancer (PLC) with embolus in Inferior Vena Cava (IVC) is an advanced type of the PLC with poor prognosis. It is a contraindication for operation in traditional idea. But this concept is challenged now because of the progress in surgical skills. The aims of this article is to investigate the surgical treatment of PLC with embolus in IVC. Analyse the prognosis after the operation or other therapies.

**Methods:** Thirteen cases of PLC with embolus in IVC who received therapies in our department during Apr 2009 to Sept 2010 were investigated retrospectively. Nine of the thirteen (9/13) underwent resection of PLC, embolectomy of IVC and/or right atrium. And one patient of the nine (1/9) received cardiac arrest and extracorporeal circulation during the operation. Two of the thirteen (2/13) received transcatheter arterial chemoembolization (TACE). And the other two (2/13) refused all of the treatment and discharged.

**Results:** All of the operated group were successful and without perioperative mortality. The survival time of the operated group was 2–23 months, 13.7 months in average. Five of nine patients (5/9) were still surviving on investigated time, including four disease-free and one survived with recurrent tumor. The survival time of TACE group (2/13) were 6 and 9 months. And the patients who refused treatment were survival with tumors for 2 and 6 months.

**Conclusions:** PLC combined with the IVC tumor emboli isn’t the absolute contraindication of surgical resection. The operation is safe and effective by experienced surgeons. And the survival time of the operation group is longer than the other treatments. So we concluded that the patients of PLC with IVC emboli should receive operation if the patients can tolerate it.

980

**COX-REGRESS ANALYSIS OF PRIMARY LIVER CANCER PROGNOSTIC FACTORS**

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**Objective:** To explore the influence factors of prognosis of primary hepatic carcinoma, including gender, age, nationality, serum AFP, serum ALT, serum HBsAg, liver function classification (Child hierarchical), tumor number, tumor size, pathological types etc, Screening for prognostic factors.

**Method:** According to the first affiliated hospital of Xinjiang medical university from July 2009 to August 2012 consecutive patients for hepatic carcinoma diagnosed by pathological examination and 102 cases of hepatic carcinoma patients were included according to strict inclusion criteria. The patients’ clinical datas were entered with excel and followed up by visiting the patients in hospital or outpatients or calling with telephone and other forms. Combined the results of follow-up with clinical datas to analysis. The Log-rank test and Breslow inspection were used to compare with vary survival rate. A multivariate analysis was performed by Cox regression for variables significant on univariate analysis. Result The nationality, serum AFP, serum ALT and liver function classification (Child hierarchical), tumor size and tumor number identified by survival analysis (P < 0.05). Cox regression analysis confirmed that serum AFP, liver function classification (Child hierar-
chical) and tumor size were the independent prognostic factors.

**Conclusion:** The independent prognostic factors of primary hepatic carcinoma were liver function classification (Child hierarchical), serum AFP and tumor size in turn.

**984**

**REAPPRAISAL OF SEQUENTIAL PREOPERATIVE IPSILATERAL HEPATIC VEIN EMBOLIZATION AFTER PORTAL VEIN EMBOLIZATION**

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**Background and aim:** Portal vein embolization (PVE) induces shrinkage of the embolized lobe and compensatory enlargement of the non-embolized lobe, but it does not always induce sufficient liver regeneration. There was no effective method to accelerate liver regeneration in addition to PVE yet. The preliminary experience of first 12 cases on the effect of ipsilateral hepatic vein embolization (HVE) performed after PVE was presented before, but no large-volume study was presented yet. We herein present our 29 cases of experience regarding on PVE-HVE.

**Methods:** During a 5-year study period, preoperative HVE were performed on 29 patients who had shown limited liver regeneration after PVE awaiting major hepatectomy (right hepatectomy, n = 28; left hepatectomy, n = 1). The right or left hepatic vein was embolized with multiple coils after insertion of vascular plugs.

**Results:** The primary diseases were hilar bile duct cancer in 22, hepatocellular carcinoma in 4, intrahepatic cholangiocarcinoma in 2, and gallbladder cancer in 1. No HVE procedure-related complications occurred, but embolization of the wrong hepatic vein trunk occurred in 2 patients, in whom intended operation was cancelled in 1 and additional right HVE was performed in 1. The increase in blood liver enzymes after HVE was comparable to that after PVE alone. In 24 patients who underwent right hepatectomy, the proportions of future liver remnant volume to total liver volume increased further after HVE. Cirrhotic livers showed lower regeneration rates following HVE after PVE. Preplanned surgery intending curative resection was successfully performed in 25, but 4 patients underwent palliative surgery (n = 1) and no operation (n = 3).

**Conclusions:** This study confirmed that preoperative sequential application of PVE and HVE is safe and effective in facilitating contralateral liver regeneration by inducing more severe liver damage than PVE alone.

**987**

**OUTCOME OF VARIOUS TREATMENTS FOR POST-TRANSPLANT HEPATITIS B VIRUS RECURRENCE**

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**Background and aims:** Currently, no treatment guidelines are available for post-transplant hepatitis B virus (HBV) recurrence. We retrospectively evaluated the rate of clearance of hepatitis B surface antigen (HBsAg) from the sera according to the various types of treatment regimen in two large Korean liver transplantation centers.

**Methods:** Between 1996 and 2008, HBV recurrence occurred in 59 patients among 933 HBV liver recipients (6.3%). Patients with HBV recurrence were divided into four groups according to the type of treatment: Group L (lamivudine based therapy n = 21) and Group N (new nucleos(t)ide analogue (NA) based therapy, n = 38). In detail, intravenous Hepatitis B immunoglobulin (ivHBIG) had been simultaneously administered in 10 patients in Group L and in 26 patients in Group N. The mean post-transplant follow-up duration and time to HBV recurrence was 69 (14-152) and 37 (3-120) months.

**Results:** Overall, 22 patients (37.3%) showed sero-negative conversion of HBsAg for median 8 months after treatment (range 1-15 months). The rate of seroclearance was significantly higher in Group N (n = 20, 52.6%) than in Group L (n = 2, 9.5%) (p < 0.000). The time to seroconversion did not differ between Group L (7 months, range 5-16) and Group N (7 months, range 1-15) (p = 0.428). In subgroup analysis, the rate of HBsAg seroconversion was much higher in combined ivHBIG and new NAs (15 out of 26 patients, 58.0%) than the others (p = 0.006).

**Conclusion:** Sero clearance of HBsAg could be achieved using new NAs in a half of patients after post-transplant HBV recurrence. Combined ivHBIG may add synergistic effect to new NAs for clearing HBsAg.

**989**

**SALVAGE LIVING DONOR LIVER TRANSPLANTATION AFTER PRIOR LIVER RESSECTION FOR HEPATOCELLULAR CARCINOMA**

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Background: Salvage liver transplantation has been performed for recurrent hepatocellular carcinoma (HCC) or deterioration of liver function after primary liver resection. Since prior resections in these patients are usually minor in extent, performing deceased-donor whole liver graft implantation is not regarded as a contraindication. In contrast, prior performance of a major liver resection, such as right lobectomy, makes subsequent recipient hepatectomy technically difficult. Living-donor liver transplantation (LDLT) can also be performed for salvage purpose. To assess the technical feasibility and indication of salvage LDLT for recurrent HCC, we assessed our experience performing these surgical procedures over 15 years.

Methods: From our institutional database of LDLT having more than 3000 cases, we selected 87 cases of salvage LDLT after prior hepatectomy for HCC. Twelve patients underwent LDLT due to progressive hepatic failure without recurrent HCC, thus excluded from this study. The medical records of 75 patients who followed up more than 6 months were retrospectively reviewed.

Results: Male patients were 65. Mean patient age was 53.1 ± 7.4 years. The extents of prior hepatectomy were sectionectomy or less in 58 and hemihepatectomy or bisectionectomy in 17. Graft types were right liver grafts in 64, dual-grafts in 8 and left liver grafts in 3. Mean graft-recipient weight ratio was 1.09 ± 0.24. Perioperative mortality cases within 3 months were 4 (5.3%), in whom hemihepatectomy had been performed in 3. The Milan and Asan criteria were met in 48 (64%) and 60 (80%), respectively. Five-year patient survival rates were 88.1% in within-Milan and 38.7% in beyond-Milan (p < 0.001) as well as 79.8% in within-Asan and 34.4% in beyond-Asan (p = 0.003). Five-year HCC recurrence rates were 7.3% in within-Milan and 81.8% % in beyond-Milan (p < 0.001) as well as 10% in within-Milan and 61.5% (at 3 years) in beyond-Asan (p = 0.000). Preoperative alpha-fetoprotein cutoff at 200 ng/mL and microvascular invasion did not show survival difference (p > 0.7).

Conclusions: Overall patient survival rates following salvage LDLT were similar to those following primary LDLT, especially when the extent of recurrent tumor satisfies the Milan or Asan criteria. Therefore, the results of this study strongly support that every combination of prior hepatectomy and living donor liver graft is feasible for patients undergoing salvage LDLT and the acceptable extent of HCC for salvage LDLT is equivalent to that for primary LDLT.

996

RHUEPO PROTECTS THE LIVER FROM ISCHEMIA-REPERFUSION INJURY

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Background: The exact mechanism by which erythropoietin protects the liver from ischemia/reperfusion (I/R) injury is not yet known. In the present study, we examined the role of Akt and endothelial nitric oxide synthase (eNOS) in the protective effect of recombinant human erythropoietin (rHuEPO) on I/R injury of the liver.

Materials and methods: We employed a liver auto-transplantation model of liver ischemia and reperfusion. One hundred and twenty adult male Sprague-Dawley rats were divided randomly into six groups. rHuEPO and LY294002 were injected in the tail vein before the operation, and its effect was assessed by measuring the serum levels of AST, ALT, LDH, NO, and ET-1 and by histological analysis. The expression of EPOR and eNOS was measured by Q-PCR. Total AKT and eNOS and phosphorylated Akt and eNOS were examined by western blot analysis. We examined the biliary epithelial cells in the hilar bile duct by TUN-EL staining.

Results: rHuEPO dramatically attenuated the functional and morphological injuries. The serum levels of ALT and LDH were significantly decreased, but the amount of NO in the serum was increased in the I+R+rHuEPO group. Accordingly, rHuEPO administration significantly ameliorated the histological damages, including biliary epithelial cell apoptosis in the hilar bile duct at 6 h after reperfusion. rHuEPO significantly stimulated the phosphorylation of Akt and eNOS in the rats after liver auto-transplantation.

Conclusions: The protective effect of rHuEPO in I/R injury following liver auto-transplantation is mediated via the activation of the PI3K/AKT/eNOS signaling pathway, at least in part, by increasing p-Akt and p-eNOS, and leads to the maintenance of an elevated level of NO.

998

ESTROGEN RECEPTOR AND THE ROLE OF THE ESTROGEN RECEPTOR IN THE BILIARY TRACT TUMOR

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Background and aims: Estrogen receptor (ESR), which mediates the effect of estrogen, has a wide range of tissue distribution. Recent studies have found that ESR may be correlated to the carcinogenesis. According to the epidemiology, biliary tract tumor is more prevalent in women than men. Therefore, ESR may play an important role in the biliary tract tumor. This study was to discuss the ESR and role of ESR in the biliary tract tumor.
**Methods:** Search literatures in the pubmed with the key word “estrogen receptor, gallbladder cancer, cholangiocarcinoma”, and review and summary them.

**Result:** 1. ESR has three subtypes, ERα, ERβ and ERγ. Most of present studies about estrogen have mainly focused on ERα and ERβ. ERα may promote the development of the tumor, but the ERβ can inhibit the growth of the tumor. 2. ESR has been detected in a variety of human tumor tissues, including biliary tract tumor. 3. overexpression of ESR in the biliary tract tumor is associated with the differentiation of the tumor and the prognosis of patients. 4. The detection of the ER may guide the endocrine therapy of gallbladder cancer, that is ER-positive gallbladder cancer has a better response to anti-estrogen therapy compared with ER-negative gallbladder cancer. 5. ESR may take part in the formation of biliary tumor through vascular endothelial growth (VEGF), interleukin-6(IL-6).

**Conclusion:** ESR plays an important role in the biliary tract tumor although the mechanism is not clear at present. Detecting the expression of ESR in the biliary tract tumor has clinical significance. ESR may be a potential target to cure the biliary tract tumor.

**999**

**PRESERVING HEPATIC ARTERY FLOW DURING PORTAL TRIAD BLOOD INFLOW OCCLUSION REDUCES THE OUTGROWTH OF HEPATOCARCINOMA IN MICE AFTER LIVER ISCHEMIA REPERFUSION INJURY**

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**Background and aims:** To investigate the effects of different hepatic vascular occlusion maneuvers on the growth of hepatocellular carcinoma after liver ischemia reperfusion injury.

**Methods:** Kunming mice were randomly divided into four groups, including SO (sham operation), group OPT (occlusion of portal triad), group OPV (occlusion of portal vein) and group INT (intermittent clamping). Three days after an hepatocellular carcinoma model was established using portal vein injection, mice underwent either simultaneous clamping of both the portal vein and the hepatic artery or selective clamping of the portal vein to the median and left liver lobules for 60 minutes. Sham-operated mice served as controls. The ischemia-reperfusion (I/R), pathological changes of liver tissue, hepatic replacement area (HRA) and the positive expression rate of the proliferative cell nuclear antigen in hepatocellular carcinoma tissues were measured 5 days after reperfusion.

**Results:** The OPV group showed significantly lower ALT, AST value in the restoration of blood flow after five days than the OPT group and INT group. Hepatocytes in the OPV group were much less injured than in the OPT group and the INT group in histopathology. The levels of hepatic replacement area in occlusion of the hepatic lobule in group sham operation, group occlusion of portal triad, group occlusion of portal vein and group intermittent clamping were 7.658 ± 2.552%, 35.612 ± 4.234%, 9.02 ± 3.006% and 19.946 ± 4.098% respectively (p < 0.01). The positive expression rate of the proliferative cell nuclear angiten in hepatocellular carcinoma tissues was 30% in group SO and 78% in group OPT and 45% in group OPV and 60% in group INT.

**Conclusion:** Preserving hepatic artery flow during portal triad blood inflow occlusion reduces liver ische-
mia-reperfusion injury, while slow down growth and metastasis of liver cancer in mice.

1009

DOWN-REGULATION OF BECLIN 1 IN PANCREATIC CANCER CELLS INHIBITS CELL GROWTH AND ENHANCES CHEMOSensitivity

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Background and aims: Pancreatic cancer (PC) is a kind of malignant tumor which is resistant to current chemotherapies. Autophagy is a catabolic process in cells, which was observed in tumor cells treated with chemotherapy drugs recent years, including in pancreatic cancer cells. Autophagy gene Beclin 1, as a tumor suppressor gene, plays a key role in autophagy, but its role in pancreatic cancer is unclear. In this study, we observed the growth status and reaction to chemotherapy drugs of pancreatic cancer cells by down-regulation of Beclin 1.

Methods: Construct and culture Beclin 1 down-regulated PC cell lines (Bxpc-3, Panc-1) via transfecting ShRNA expression vectors with lentiviral transfection technology. Real time-PCR and Western blot were used for detecting the expression of mRNA and protein of Beclin 1 in PC cells. Cell proliferation and invasion were analyzed by MTT assay and transwell assay respectively.

Results: Beclin 1 expression in PC cells was down-regulated by ShRNA. After treated with chemotherapy drugs (5-FU and/or Gemcitabine) for 48H, expression of Beclin 1 mRNA and LC3 mRNA increased significantly in normal PC cells (Control) (P < 0.01), otherwise, their mRNA expression maintained low levels in Beclin-1 down-regulated PC cells. Western blot showed protein levels of Beclin 1 and LC3 elevated in control PC cells after chemotherapy (P < 0.05), but it could not be found in Beclin-1 down-regulated PC cells. It was showed that autophagy was inhibited in Beclin 1 down-regulated PC cells. The MTT assay showed that the proliferation of Beclin 1 down-regulated PC cells was inhibited in vitro (P < 0.05), compared with the control PC cells. But there was no significant difference on proliferation after chemotherapy. The transwell invasion assay showed that there was no significant difference on the capacity of invasion between Beclin 1 down-regulated and control PC cells. But after treated with chemotherapy drugs, the invasive ability of Beclin 1 down-regulated PC cells was markedly reduced (P < 0.05).

Conclusions: Our data suggest that Beclin 1 plays an important role in autophagy of PC cells. The capacity of proliferation and invasion was inhibited in Beclin 1 down-regulated PC cells and down-regulation of Beclin 1 could enhance chemosensitivity. Beclin 1 maybe a novel target for antitumor therapy of pancreatic cancer.

1011

ATROPHY OF THE LEFT GRAFT SECONDARY TO ARTERIAL INFLOW FAILURE IN DUAL LIVER TRANSPLANTATION

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Background and aims: Adult-to-adult living donor liver transplantation (LDLT) using dual grafts was devised elegantly by Lee et al. with potential benefits. To date, the study about the impact of hepatic arterial inflow on the regeneration and outcome of dual grafts is rare. Furthermore, the mutual relationship (competitive or synergistic) between the two grafts under the metabolic demand stimulus, remains unelucidated.

Methods: A 52-year-old male received a full right liver lobe including middle hepatic vein and a left lobe simultaneously. Hepatic hemodynamic changes especially hepatic arterial inflow and regeneration response in both grafts were assessed with serial ultrasonography (US) and computed tomography (CT), respectively. Liver function was also monitored.

Results: The total graft volume amounted to 830 mL, corresponding to 58.9% of SLV. After reperfusion, intraoperative US showed regular portal, venous and arterial flow in both grafts except the left hepatic artery. As vessel size mismatch, a vein graft procured from the recipient’s great saphenous vein was placed between the left hepatic artery of the graft and the common hepatic artery of the recipient. On postoperative day 14, US revealed left hepatic artery inflow disappeared. Following computed tomography angiography (CTA) confirmed that the left hepatic artery was absent and the density of the left graft was significantly decreased. Meanwhile, the right graft showed normal triangle-shaped regeneration. Liver function did not deteriorated. Follow-up CT demonstrated that the left graft grew atrophy gradually while the right graft became compensatory hypertrophy. The recipient has been well for 4.5 years and laboratory tests including liver function parameters are normal.

Conclusion: The regenerating liver requires an enormous amount of oxygen supply to meet the increased metabolic load and DNA synthesis. Increased hepatic arterial inflow arising from splenectomy or in the setting of heterotopic auxiliary liver transplantation, led to enhanced hepatocyte proliferation and improved liver regeneration. In the case reported herein, left hepatic arterial flow failure resulted in hypoxia response in the left-sided graft and impaired its early regeneration. The right graft regenerated effectively and outcompeted the left one significantly. Furthermore, the coexistence of two separated grafts is likely to induce inter-graft functional inhibition. Thus, we suppose under the metabolic demand stimulus of the reci-
pient the right-sided graft became further hypertrophy while the left one gradually grew atrophy.

1014
SURGICAL OUTCOME OF CAUDATE LOBE RESECTION FOR HEPATOCELLULAR CARCINOMA - SINGLE INSTITUTE EXPERIENCE

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Aim: Hepatocellular carcinoma (HCC) originating in the caudate lobe is rare. We reviewed the clinicopathologic findings and outcomes of liver resection for caudate lobe hepatocellular carcinoma (HCC) in Linkou branch of Chang Gung Memorial Hospital.

Methods: We retrospectively analyzed 35 consecutive patients with HCC, originating from the caudate lobe, who underwent resection between April 2002 and January 2011. Univariate and multivariate analyses were performed to determine the factors affecting the outcome.

Results: The mean age was 56.3 years old and 29 patients were male. Thirty patients were hepatitis B or C carrier. Thirty-four patients were Child A. The clinicopathologic showed tumor characters: mean total bilirubin (T-Bil) 0.9 mg/dL, glutamate oxaloacetate transaminase (AST) 41.3 mg/dL, glutamic pyruvic transaminase (ALT) 56.2 mg/dL, alkaline phosphatase 95.3 mg/dL, albumin 4.2 mg/dL and alpha-fetoprotein (AFP) 1711.3 mg/dL. The mean operative time was 305.6 minutes. The mean blood loss was 825.0 mL. The mean tumor size was 6.7 cm. Twenty-six tumors had capsule invasion. Eighteen tumors had capsule invasion. Two tumors was rupture. Thirteen tumors had vascular invasion. The mean resection weight was 373.1 g. Sixteen, seven and twelve patients were TNM stage I, II and III or IV respectively. The mean disease-free survival rate was 24.9 and 33.2 months respectively. Univariate analysis showed that non-B and non-C hepatitis status, patients with symptoms, positive physical examination findings, T-Bil more than 2 mg/dL, AST more than 68 U/L, albumin less than 4 g/dL, tumor size more than 5 cm, vascular invasion and T staging were related to disease-free survival rate. Vascular invasion, T staging and major resection were related to overall survival. Multivariate analysis showed that non-B and non-C status and tumor size more than 5 cm were elated to disease-free survival rate. Vascular invasion was related to overall survival rate.

Conclusion: The most prognostic factors for surgical treatment for caudate lobe HCC was vascular invasion and tumor size.

1015
GENOME-WIDE REPROGRAMMING OF TREG CELLS AFTER SPONTANEOUSLY LOSS OF FOXP3

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Background and aims: Natural CD4+FOXP3+ regulatory T (Treg) cells constitute a unique T-cell lineage that plays a pivotal role in the maintaining immune homeostasis and inducing transplantation tolerance. However, recent studies provide evidence for functional heterogeneity and lineage plasticity with Treg cells. To extend our understanding of Treg cell instability and analyze the fate of Treg cells that lose FOXP3, we compared the gene expression patterns of expanded FOXP3+ Treg cells and FOXP3-losing cells.

Methods: Natural CD4+CD25highCD127low Treg cells were isolated from peripheral blood mononuclear cells by FACs and expended in vitro with repeated stimulation via CD3 and CD28 in the presence of high-dose interleukin 2. The percentage of FOXP3+ cells was analyzed every week by flow cytometry. The expanded cells were then sorted into FOXP3+ and FOXP3- subpopulations, and RNA was extracted and analyzed using genome-wide mRNA sequencing.

Results: Natural Treg cells rapidly down-regulate expression of their lineage-defining transcription factor FOXP3 during in vitro expansion. Whole-transcriptome analysis showed that 809 genes were down-regulated whereas 1034 genes were up-regulated after loss of FOXP3 expression. What’s more, FOXP3-losing cells lost Treg cell gene expression patterns, such as down-regulated CTLA4, CTLA4, LGALS3 and LRRC32 and up-regulated CD40LG. More strikingly, FOXP3-losing Treg cells started to express a number of Th-specific genes, especially Th2 signature genes, such as GATA3, IL-13 and IL-4.

Conclusions: Our results demonstrated that Treg cells can reprogrammed to effector-like cells upon loss of FOXP3 expression, which elucidate the plasticity of human Treg lineage.

1017
PROSPECTIVE CASE-CONTROL STUDY FOR TABLET-AND LIPOSOME-ALBENDAZOLE IN Treating HEPATIC CYSTIC ECHINOCOCCOSIS

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Echinococcosis is a zoonotic parasitic disease, which is widely distributed all over the world. Surgery is the best choice for the treatment of human echinococcosis, but chemotherapy is absolutely necessary as an auxiliary treatment. At present, benzimidazoles are the primary medical therapy in the treatment of hydatid cystic echinococcosis (HCE), and albendazole is from the benzimidazoles family and is effective medicine acknowledged in the world. Even so that, the evidence-based medical evaluation is still difficult to carry out owing to the lack of randomized controlled trials (RCTs) to evaluate medical effect for treating HCE in the world by now. Liposomal albendazole (L-ABZ) is a new form of albendazole, the clinical effect has been reported as good. Our study tended to investigate the safety and efficacy of the two forms of albendazole which are tablet albendazole (T-ABZ) and liposomal albendazole (L-ABZ) by clinical trial in treating HCE.

**Aims:** Using the non-randomized case-control study, taking albendazole tablet as positive control, We try to evaluate the safety and effect for two forms of albendazol, in treating HCE.

**Methods:** By prospective study, in total of 60 outpatients with HCE including single cyst (CE1) and daughter cyst (CE2) treated with T-ABZ and L-ABZ. Based on including and excluding criteria, all cases were not randomly divided two groups. By continuous chemotherapy, the effect and safety of the two drugs were compared by analyzing the clinical symptoms, imaging examination and serologic test results.

**Results:** In all following cases, Group T-ABZ lost one case in following period, one case choose to treat by operation. Group L-ABZ lost two cases in following period. By blinding statistic analyzing, in short-term effect evaluation (3 months), the total effective rates of L-ABZ group and T-ABZ group were 33.3% (10/30) and 76.7% (23/30). There was significant difference between the two groups in total effective rates ($= 11.38$, $p = 0.001$). In long-term effect evaluation of the two (6 months), the total effective rates of L-ABZ group and T-ABZ group were 66.7% (20/30) and 93.3% (28/30). There was significant difference between the two groups in total effective rates ($= 6.67$, $p = 0.01$). Drug-related adverse effect being same were 10% (3/30), without difference ($= 0.18$, $p = 0.66$).

**Conclusions:** Tablet albendazole and liposomal albendazole are all safe and effective drug for treating HCE, while, it seems that the effect of liposomal albendazole is superior to tablet albendazole.
whether serum GP73 was superior to AFP in differentiating liver cirrhosis from HCC and its correlation between tumor characteristics and liver impairment.

Methods: GP73 (total 249 serum samples) in 80 HCC, 65 liver cirrhosis, 54 chronic hepatitis B and 50 healthy controls were detected using enzyme-linked immunosorbent assay (ELISA) and AFP was also measured by clinical chemiluminescence.

Results: 1. The serum GP73 in HCC group 282.0 (163.6-366.7) μg/L, was significantly higher than that in liver cirrhosis group 211.8 (107.5-295.7) μg/L, chronic hepatitis group 100.3 (61.8-191.3) μg/L and control group 58.3 (43.4-83.6) μg/L (H = 106.6, P < 0.001).
2. The critical values of GP73 and AFP were 318.1 μg/L and 13.4 μg/L respectively determined by ROC curves in differentiating patients with HCC and liver cirrhosis. The sensitivity of GP73 45.0% (36/80) was lower than AFP 65.0% (52/80), \( \chi^2 = 8.02, P < 0.05 \); the specificity of GP73 83.1% (54/65) was either lower than AFP 87.7% (57/65), \( \chi^2 = 0.27, P > 0.05 \), but no significance was found. The area under ROC curves was 0.75 (95%CI 0.67 ~ 0.83) for AFP, 0.65 (95%CI 0.54 ~ 0.72) for GP73 (Z = 1.88, p > 0.05).
3. GP73 was correlated with liver cirrhosis, portal vein thrombus, clinical TNM staging (correlation coefficient r was 0.265, 0.294, 0.267 respectively, all P < 0.05), but was not with sexuality, age, AFP >13.4 μg/L, the diameter of tumor, distant metastasis (correlation coefficient r was 0.130, 0.100, 0.038, 0.175, 0.040, all p > 0.05).
4. The level of GP73 was positively correlated with ALT, AST and negatively correlated with ALB, A/G (correlation coefficient r was 0.368, 0.425, -0.408, -0.360 respectively, all P < 0.05), with no correlation of TBLB, DBLB, IBLB, GGT (correlation coefficient r was 0.043, 0.046, 0.066, 0.049, all p > 0.05).

Conclusion: The diagnostic efficiency of serum GP73 was comparable with AFP, but its sensitivity was inferior to AFP in differentiating liver cirrhosis from HCC patients. The elevation of serum GP73 may be correlated with tumor load, tumor aggression and hepatocytes injury.

1026 THE DIFFERENTIAL DIAGNOSIS AND CLINICAL SIGNIFICANCE OF GOLGI-PROTEIN 73 IN PATIENTS WITH LIVER CIRRHOSIS AND HEPATOCELLULAR CARCINOMA

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Background: Recent data and our previous study have showed Golgi-protein 73 (GP73) as a potential serum marker for diagnosing hepatocellular carcinoma (HCC). However, serum GP73 value in the differential diagnosis between liver cirrhosis and HCC and its clinical significance in patients with HCC remain largely unknown. Thus, it prompted us to further examine whether serum GP73 was superior to AFP in differentiating liver cirrhosis from HCC and its correlation between tumor characteristics and liver impairment.

Methods: GP73 (total 249 serum samples) in 80 HCC, 65 liver cirrhosis, 54 chronic hepatitis B and 50 healthy controls were detected using enzyme-linked immunosorbent assay (ELISA) and AFP was also measured by clinical chemiluminescence.

Results: 1. The serum GP73 in HCC group 282.0 (163.6-366.7) μg/L, was significantly higher than that in liver cirrhosis group 211.8 (107.5-295.7) μg/L, chronic hepatitis group 100.3 (61.8-191.3) μg/L and control group 58.3 (43.4-83.6) μg/L (H = 106.6, P < 0.001).
2. The critical values of GP73 and AFP were 318.1 μg/L and 13.4 μg/L respectively determined by ROC curves in differentiating patients with HCC and liver cirrhosis. The sensitivity of GP73 45.0% (36/80) was lower than AFP 65.0% (52/80), \( \chi^2 = 8.02, P < 0.05 \); the specificity of GP73 83.1% (54/65) was either lower than AFP 87.7% (57/65), \( \chi^2 = 0.27, P > 0.05 \), but no significance was found. The area under ROC curves was 0.75 (95%CI 0.67 ~ 0.83) for AFP, 0.65 (95%CI 0.54 ~ 0.72) for GP73 (Z = 1.88, p > 0.05).
3. GP73 was correlated with liver cirrhosis, portal vein thrombus, clinical TNM staging (correlation coefficient r was 0.265, 0.294, 0.267 respectively, all P < 0.05), but was not with sexuality, age, AFP >13.4 μg/L, the diameter of tumor, distant metastasis (correlation coefficient r was 0.130, 0.100, 0.038, 0.175, 0.040, all p > 0.05).
4. The level of GP73 was positively correlated with ALT, AST and negatively correlated with ALB, A/G (correlation coefficient r was 0.368, 0.425, -0.408, -0.360 respectively, all P < 0.05), with no correlation of TBLB, DBLB, IBLB, GGT (correlation coefficient r was 0.043, 0.046, 0.066, 0.049, all p > 0.05).

Conclusion: The diagnostic efficiency of serum GP73 was comparable with AFP, but its sensitivity was inferior to AFP in differentiating liver cirrhosis from HCC patients. The elevation of serum GP73 may be correlated with tumor load, tumor aggression and hepatocytes injury.

1027 GROOVE PANCREATITIS

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Background: Groove Pancreatitis is a rare form of focal chronic pancreatitis involving the groove between the pancreatic head and the C-loop of the duodenum. It is a rarely reported condition and hence frequently under diagnosed.

Objective: We report a series of 3 cases of groove pancreatitis.

Methods: 3 patients were diagnosed to have groove pancreatitis. The demography, symptomatology, associated co morbidities, history of alcohol abuse, diagnostic workup, treatment options and outcome were reviewed.

Results: 2 of the 3 patients were male. They were of the age 38, 49 and 64 years. 2 of the 3 patients presented with vomiting and loss of weight. Another patient presented with features of mild acute pancreatitis including elevated amylase and lipase. 2 patients...
had associated diabetes. None of the patients consumed alcohol. All the 3 patients had normal liver function tests. All patients had normal Ca 19-9 levels. CT scan in all the 3 patients showed features of inflammation in the groove between the head of the pancreas and the c-loop of the duodenum. None of the patients had bile duct dilatation. Multiple cystic lesions were found in duodenal wall/groove in 2 patients. One patient showed features of atrophic pancreatitis with pancreatic duct dilatation and multiple ductal calculi. 2 patients who had persistent vomiting and weight loss underwent Whipple’s pancreaticoduodenectomy. Both had an uneventful postoperative course. Histopathology revealed in both cases groove fibrosis, Brunner gland’s hyperplasia, ectopic pancreatic acini and cystically dilated ducts in the duodenal wall. Another patient who presented with recurrent acute flare-up of pancreatitis was managed expectantly.

**Conclusion:** Groove Pancreatitis is commonly mistaken for pancreatic head cancer. Awareness of this is necessary to make a correct diagnosis and appropriate management.

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**1028**

**ISOLATED CHOLECYSTO-RIGHT HEPATIC DUCT FISTULA - A VARIANT MIRIZZI SYNDROME ? REPORT OF A CASE**

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**Backgrounds and aims:** Mirizzi syndrome is characterized by obstruction of common hepatic duct and eventually evolving into a cholecystobiliary fistula by impacted gallbladder stone.

Recent classification divided Mirizzi syndrome into four or five types according to the pathophysiology. But even though different types of Mirizzi syndromes had been added, cholecystobiliary fistula between gallbladder and intrahepatic duct was never been mentioned. We experienced a fistula formed between infundibulum of gallbladder and right hepatic duct.

**Methods:** A 39-year-old women with recurrent epigastric discomfort after meal was determined to have symptomatic gallbladder stones underwent laparoscopic cholecystectomy. Preoperative computed tomography revealed diffuse wall thickening of gallbladder with multiple stones and mild right hepatic duct dilatation without demonstrable obstructive lesion. Because laboratory studies including liver function test were totally normal, operation was performed without further studies.

**Results:** While dissecting infundibulum of gallbladder body from the liver, a large stone impacted in the liver parenchyma was found and removed, followed by bile leakage through a small defect of the liver. Intraoperative cholangiography through the defect showed a main branch of right hepatic duct. Operation was converted to open cholecystectomy. Partial cholecystectomy and 10Fr. T-tube insertion through the defect was done. T-tube was removed after 8 weeks later successfully.

**Conclusions:** We insisted that our case was unique and this type of cholecystobiliary fistula might be considered as a variant form of Mirizzi syndrome.

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**1029**

**INHIBITORY EFFECT AND MECHANISM OF THE RAF KINASE INHIBITOR PROTEIN EXPRESSION IN HEPARANASE ON HCCLM3 CELL**

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**Background:** Hepatocellular carcinoma is the 5th commonest malignancy worldwide and is the third most common cause of cancer-related death. The RKIP involved in regulation of multiple signal transduction pathways, including inhibition of Raf-MEK1/2-ERK1/2 and NF-κB signal transduction pathways.

**Objective:** To HCCLM3 liver cancer cells and stable transfection of RKIP gene HCCLM3 liver cancer cells of RKIP in the detection of liver cancer cells Hpa, P-ERK expression to further clarify the RKIP inhibited the expression of liver cancer cells Hpa whether the Raf-MEK1/2-ERK1/2 signal transduction pathway.

**Methods:** 1 HCCLM3 liver cancer cells, RKIP cells extract protein, BCA Protein Assay. Western blotting detection of RKIP, P-ERK and Hpa protein expression observed expression of RKIP inhibition of Hpa and Raf-MEK1/2-ERK1/2 signal transduction pathway. 2 HCCLM3 liver cancer cells, RKIP cells by adding EGF to activate the ERK pathway, cell protein was extracted after 15 minutes, the BCA Protein Assay. Western blotting detection of RKIP, P-ERK and Hpa protein expression, further validate RKIP inhibition of the expression of Hpa and inhibition Raf-MEK1/2-ERK1/2 signal transduction pathway activation.

**Results:** 1 RKIP expression in HCCLM3 cells was significantly higher than the blank control group (P<0.05), while the expression of P-ERK and Hpa was significantly lower than the blank control group (P<0.05); With HCCLM3 cells of RKIP expression increased, the P-ERK and Hpa expression decreased.

2 The EGF (+) control Group HCCLM3 cells, P-ERK expression was significantly higher than that of EGF (+) of RKIP transfected group (P<0.05), EGF (+) control group HCCLM3 cells Hpa expression was significantly higher than that of EGF (+)RKIP transfer dye group (p<0.05); RKIP expression as HCCLM3 cells increased ERK pathway activation, the P-ERK and Hpa expression is still down.

**Conclusions:** 1 In HCCLM3 cells RKIP low expression, while the P-ERK and Hpa high expression, while high expression of RKIP in RKIP transfected HCCLM3 cells, the P-ERK and Hpa low expression. RKIP may be via ERK pathway to inhibit the expression of Hpa.

2 Control of RKIP the group HCCLM3 cells with low expression, the P-ERK and Hpa high expression of EGF (+), and in the EGF (+)RKIP transfected cells high expression of RKIP, the P-ERK and Hpa low expression, indicating that the RKIP expression inhibit
the expression of Hpa and inhibition of ERK signaling pathway activation.

1031
OUTCOMES OF INTRAHEPATIC CHOLANGIOCARCINOMA AFTER LIVER RESECTION
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Background and aims: The optimal surgical management for intrahepatic cholangiocarcinoma (IHC) is controversial especially in regard to the need for radical lymphadenectomy. Evidence to demonstrate oncological significance of radical lymphadenectomy is limited. Radical lymphadenectomy is not a routine practice in our centre. The aim of this study is to evaluate the outcomes of these patients who underwent liver resection without radical lymphadenectomy.

Method: This is a retrospective review of all consecutive patients who underwent hepatectomy for IHC in a university centre in Hong Kong from 1990 to 2011.

Results: Ninety-seven patients underwent surgery during study period. The median age was 61 year old. Around one third of them are hepatitis B or C carrier and 18 patients (18.6%) have background of recurrent pyogenic cholangitis. Most of our patients were Child’s A and the median indocyanine green retention rate at 15mins was 9.85 (0.8-82.5). Seventy-two patients (74.2%) underwent major and 25 patients (25.8%) had minor resection. None had radical lymphadenectomy.

Hospital mortality was 9.3% and complication rate was 33.0%. Forty-four (45.4%) patients were free from recurrence, 14 patients (14.4%) had intrahepatic recurrence, 19 patients (19.6%) had extrahepatic recurrence and 20 patients (20.6%) had both intrahepatic and extrahepatic disease. Among the 39 patients with extrahepatic disease, majority (38.5%) of them suffered from lung metastasis. The overall survival at 3-year and 5-year was 42.7% and 32.7% while the 3- and 5-year disease-free survival was 37.1% and 27.8%. Multivariate analysis showed survival was poorer in those with background of recurrent pyogenic cholangitis (HR = 2.0, p = 0.04), those with multiple primary tumors (HR = 2.9, p = 0.001), tumors with vascular permeation (HR = 2.23, p = 0.007) and patients who had perioperative complications (HR = 2.39, p = 0.001).

Conclusion: Our survival data is comparable to those reported in the literature. The question whether radical lymphadenectomy, besides staging relevance, could improve overall survival of patients with IHC remains unknown. The primary site of metastasis of these patients was in the lung rather than in lymph node and lymphadenectomy itself is not without risk. Routine radical lymphadenectomy might not lead to additional survival advantage.

1038
SIMPLE TECHNIQUE OF LAPAROSCOPIC PANCREATEICOJEUNO ANASTOMOSIS DURING LAPAROSCOPIC PANCREATEICODUODENECTOMY FOR PANCREATIC CANCER
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Pancreateicojejunostomy anastomosis is the most difficult and important stage during totally laparoscopic pancreaticoduodenectomy (TLPDE). The insufficiency of pancreateicojejunal anastomosis may lead to serious postoperative morbidity and mortality. For today technique of pancreateicojejunal anastomosis is not standardized in different hospitals. Standardize the technical details of performing TLPDE to improve long-term outcomes and quality of life after such surgeries.

Objectives: To create the most safe technique of pancreateicojejunal anastomosis during TLPDE.

Methods: From January 2007 to August 2009 20 pancreaticoduodenectomy were performed by totally laparoscopic approach. In all patients we use nonabsorbable Prolen sutures and for formation end-to-sight pancreateicojejunal anastomosis. In 13 patients (65%) two-roll duct-to-mucosa pancreateicojejuno anastomosis with 3.0 internal running sutures and 5.0 interrupted sutures for the pancreatic duct. In 7 patients (35%) one-roll 3.0 interrupted sutures invagination pancreateicojejunal anastomosis without separate suture of the pancreatic duct. We did not use any tubes when performing the pancreateicojejunosomy.

Results: From January 2007 to August 2009 24 patients were taken for laparoscopic pancreaticoduodenectomy at the single center among them 20 patients by totally laparoscopic approach. Insufficiency of ducto-mucosa pancreateicojejunal anastomosis was observed in 2 patients (10%). Insufficiency of invagination pancreateicojejunal anastomosis was observed in 1 patient (5%). The mean time of performing ducto-mucosa pancreateicojejunal anastomosis was 55.8 min (34–75 min). The mean time of performing invagination pancreateicojejunal anastomosis was 45.5 min (31–68 min).

Conclusion: TLPDE is a safe procedure. The invagination pancreateicojejunal anastomosis provides more safety and less time for performing.
APPLICATION OF GASTRODEUDENAL ARTERY GRAFT IN RECONSTRUCTION OF TUMOR INVASIVE HEPATIC ARTERY IN HILAR CCA

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Abstract: Hilar cholangiocarcinoma (CCA) have in recent decades been managed with a more aggressive surgical approach to achieve R0 resection and satisfactory results of 5-year survival. However, artery invasion in hilar cholangiocarcinoma is still the contraindication for numbers of the surgeries. Whether the invasive hepatic artery be reconstructed or not after resection is also controversial. This study is designed to use gastrodeudenal artery grafts to reconstruct the resected hepatic arteries, which were involved in hilar CCA. From June 2008 to October 2011 total 6 cases of hilar CCA (Type Bithmuth IIIa) were conducted hemihepatic resection plus hepatic artery reconstruction using gastrodeudenal artery grafts and none of them were found to araise artery thrombosis or stenosis. Neither of them appeared problems of gastrointestinal or liver dysfunction. We concluded that gastrodeudenal artery graft might be the perfect candidate for reconstruct the resected hepatic artery that involved by hilar CCA.

Keywords: Hilar cholangiocarcinoma; Hepatic artery, Artery graft; Reconstruction

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1041

SERUM PEPTIDOME PROFILING FOR PANCREATIC CANCER

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Background and aims: Considering the early diagnosis of pancreatic cancer will significantly improve the prognosis of patients. It’s urgent to find a minimally invasive and efficient method of detecting early pancreatic cancer. Seeking a biomarker in serum by the mass spectrometry (MS)-based screening methods such as matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) MS has become a mature technology.

Methods: 40 serum samples of pancreatic cancer patients (preoperative and postoperative) and healthy controls were collected from the First Affiliated Hospital of Xi’an Jiaotong University from 09/2010 to 03/2012. Magnetic bead-based weak cation-exchange chromatography(MB-WCX) was used for peptide separation of samples. Air-dried targets were measured immediately using a calibrated Autoflex III MALDI-TOF MS (Bruker), FlexControl software (version 3.0; Bruker). The Flex analysis soft-ware (version 3.0; Bruker) was applied for data analysis. Clinprotools software (version 2.2; Bruker) was used for the recognition of peptide patterns.

Results: MB-WCX magnetic beads were used on serum samples and MALDI-TOF MS revealed 49 peaks, of which 33 significant m/z peaks with a P value for the Wilcoxon rank sum test of< 0.001 were detected between the preoperative pancreatic cancer patients and the healthy controls (Table 1). The preoperative patients (red), postoperative patients (blue) and healthy controls (green) demonstrated protein profiles from 1 to 10 kDa (Fig. 1). The two proteins (m/z = 1866.83 and 4055.17) were both down-regulation in pancreatic cancer which screen out by software can distinguish the preoperative or postoperative pancreatic cancer patients and the healthy controls (Fig. 2).

Conclusions: We made a preliminary exploration for the pancreatic cancer patients and normal controls’ serum proteomics and found that there are differences among the three groups. The two proteins (m/z = 1866.83 and 4055.17) from the 33 significant m/z peaks almost have little sample distribution overlap region which confirm the two proteins can distinguish the preoperative patients group and normal control group wonderful, and may be a new biomarker in diagnosis of pancreatic cancer. Clarifying the proteomics characteristics of pancreatic cancer serum is crucial for a better understanding of the tumor biology in order to develop novel diagnostic strategy. Their potential involvement and biological significance in pancreatic cancer may open up a new horizon to the molecular mechanisms underlying pancreatic cancer.

1044

EXPRESSION OF SPECIAL AT-RICH SEQUENCE-BINDING PROTEIN AND ITS CLINIC SIGNIFICANCE IN HEPATOCELLULAR CARCINOMA

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To investigate the expressions of Special AT-rich Sequence-binding Protein(SATB1) and its significance in hepatocellular carcinoma (HCC).

Methods: The mRNA and protein expression of Special AT-rich Sequence-binding Protein(SATB1) in hepatocellular carcinoma(HCC) and adjacent tissues were detected with real-time fluorescence quantitative PCR(qRT-PCR), western blotting methods and immuno-histochemical method. The relationships between SATB1 expression and the clinical pathological parameters, recurrence or metastasis, the survival time were analyzed.

Results: The expression of SATB1 mRNA in HCC tissues was 3.27-fold higher than its adjacent tissues (p < 0.001) y real-time fluorescence quantitative PCR. The positive rate of SATB1 protein in HCC tissues (75%) was higher than its adjacent tissues (12.5%) (p < 0.001) immunohistochemistry. Western blotting showed that the expression of SATB1 in HCC tissues
was higher than its adjacent tissues ($p < 0.001$). The expression of SATB1 in HCC tissues is associated with AFP, tumor size, tumor thrombus, histological differentiation, TNM classification, recurrence and metastasis after surgical resection ($p < 0.05$). There is no relationship between the expression of SATB1 and gender, age, HBsAg positive, tumor number, liver cirrhosis, envelope ($p > 0.05$). The recurrence rate of HCC patients with high expression of SATB1 was higher than that with low expression of SATB1, and the survival time of HCC patients with high expression of SATB1 was shorter than that with low expression of SATB1.

**Conclusion:** The expression of SATB1 may be associated with the degree of malignancy and prognosis of hepatocellular carcinoma (HCC).

**Key words:** Hepatocellular carcinoma (HCC); SATB1; Real-time fluorescent quantitative RT-PCR; mRNA; Protein; Western blotting; Immunohistochemistry

### 1045 SIROLIMUS (SRL) MONOTHERAPY VERSUS CONTINUED FK506 IN LIVER ALLOGRAFT RECIPIENTS: A RETROSPECTIVE ANALYSIS

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To assess the feasibility, safety and adverse events of sirolimus (SRL) monotherapy in long-term follow-up in the early postoperative period after liver transplantation (LT), and the affect sirolimus (SRL) monotherapy on the patient survival with hepatocellular carcinoma (HCC) post transplantation.

**Methods:** A retrospective analysis of 118 consecutive patients, who had undergone LT for late-stage hepatitis B virus (HBV) cirrhosis or HCC was conducted. 119 patients were divided into two groups: SRL group ($n = 61, 15$ HBV cirrhosis, 46 HCC) who received sirolimus (SRL) monotherapy in the early postoperative period after liver transplantation (LT), FK506 group ($n = 57, 14$ HBV cirrhosis, 43 HCC) who received FK506-based immunosuppression post transplantation. The acute rejection rates and adverse events of sirolimus (SRL), were used in the assessment. The survival time and recurrence of HCC in two group patients with HCC were analysed.

**Results:** The incidence of acute rejection was not significantly different for patients treated with SRL ($p > 0.5$). The level of Creanine (Cr) and CCR in SRL group was significantly higher than that in FK506 group ($p < 0.5$). Compared with FK506 group, there was significantly difference found for time to recurrence, survival time for patients with HCC treated with SRL ($p < 0.01$). The common adverse events of sirolimus included mouth ulceration, rash, hyperlipidemia, bone marrow suppression, and there was not found for hepatic artery thrombosis (HAT), proteinuria, pneumonia and incision disorders in SRL group.

**Conclusion:** The present study shows that sirolimus (SRL) monotherapy can be safely used in patients undergoing LT for late-stage hepatitis B virus (HBV) cirrhosis or HCC; furthermore, SRL did significantly affect the timing of post-transplant HCC recurrence and patients survival.

**Key words:** Liver transplantation; Sirolimus; Cirrhosis or HCC; FK506

### 1054 IMAGING DIAGNOSIS OF HEPATIC VASCULAR MALIGNANCY TUMOR

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To investigate the imaging appearance of hepatic vascular malignancy tumor.

**Material and Method:** Thirteen cases (eight females and five male, age from 5 years to 80 years) of hepatic vascular malignancy tumor confirmed by pathologically were retrospectively analyzed between 2009–2010 in our hospital. Six cases were diagnosis of hepatic epithelioid hemangioendothelioma (EHE), four case of hepatic angiosarcoma (AS), three cases of hepatic Hemangiopericytoma (HPC). Tumor markers including Ca 19-9, alfa feto protein and CEA levels were within normal limits in twelve patients. These patients were scanned by 1.5 T MR (GE) or CT(GE). Single breath-hold FSPGR sequence was used for the T1WI in axial orientation. FSE with fat suppression sequences was used for the T2WI in axial orientation. Both un-enhancement and enhancement scan were also used for CT exam procedure. The contrast medium was intravenous injected. Three phases dynamic exam was scanned at 20–25 s, 55–65 s and 120–140 s after injected the contrast medium.

**Result:** Hepatic epithelioid hemangioendothelioma appeared as single nodule and multiple nodules, lesions likely located at subcapsular with clearer boundary, multiple nodules usually tend to fusion. Typical appearance of hepatic epithelioid hemangioendothelioma showed “halo” sign, “capsular retraction” sign. Hepatic epithelioid hemangioendothelioma may show intra-tumor necrosis and coexistence with hemorrhage. After contrast medium injected, tumor edge appeared mild enhanced on arterial phase and slightly expanded enhancement without tumor center filling on delay phase. Typical imaging appearance of hepatic Hemangiopericytoma present with “fried-egg” sign, which the center of the tumor were haemorrhage surrounded by peritumoral rich vascular tissue. After contrast medium administration, rich vascular tissue located at the edge of the lesion showed heterogeneous enhancement on arterial phase and still appeared enhancement on delay phase, haemorrhage located at the center of the lesion appeared no enhancement. Hepatic angiosarcoma may also appear as single nodule and multiple nodules, lesions located at subcapsular tend to broken. Typical imaging appearance of hepatic angiosarcoma present with isolated huge nodular or diffuse invasion with rapid progression and also prone to metastasis.
Conclusion: Imaging technique such as CT and MR are important technique for the diagnosis of these hepatic vascular malignancy tumor. Although these hepatic vascular malignancy tumors are rare, we also found that each hepatic vascular malignancy tumor has its own typical imaging appearance which would be helpful for pre-operation diagnosis.

1055
CASE REPORT: ONCOCYTOMA AT ECTOPIC ADRENAL GLAND IN LIVER
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Adrenal oncocytomas are very rare tumors. Most of them are benign and nonfunctioning. Oncocytic cells were marked by the increased number of hypertrophied mitochondria. The etiology remained unknown. We report a case of an ectopic adrenal gland located at liver(S6) in a 57 year old woman. The patient was tested because of dyspepsia and found hepatic mass by CT examination. Before surgery, the reading was hepatocellular carcinoma, and laparotomy was done for liver resection. After surgery, the pathology report confirmed oncocytoma at ectopic adrenal gland in liver. The patient is still alive after 1 year without recurrence or metastasis. Adrenal oncocytoma, although extremely rare, should be considered in the differential diagnosis of indeterminate tumors.

1056
ENDOSCOPIC TREATMENT FOR SPHINCTER OF ODDI DYSFUNCTION (SOD): A RESULT OF LONG TERM FOLLOW UP OVER 12 YEARS
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Background: SOD is a benign disease caused by a sphincter of Oddi dysfunction. Important causes of acute recurrent pancreatitis, common female and gallbladder resection patients, but the efficacy of endoscopic treatment is not exact.
Objective: To understand the long-term efficacy of endoscopic treatment of SOD.
Method: Select SOD patients in our hospital 2000.1.1-2012.3.31 with ERCP procedure. A total of 131 people attending this research. Including criteria: pancreaticobiliary type pain, AST and ALT and ALP were elevated. Exclusion criteria: acute or chronic pancreatitis, gallbladder resection patients who died. The patient’s age, gender, SOD typing, preoperative and postoperative laboratory data, common bile duct diameter, ERCP treatment, preoperative and postoperative VAS pain scores. The chisquare test statistic is used.
Results: ERCP pancreatitis and 36 patients(27%), no ERCP related complications patients who died. The pain 56 people complete remission, partial remission in 65, and 9 lost. Endoscopic treatment efficiency is 92.4%. EST was accounted for 57.1% in patients with pain relief, columnar balloon dilatation accounted for 10.7%, 7.1% did not undergo endoscopic therapy, endoscopic therapy for SOD can release symptoms effectively than did not undergo endoscopic therapy, (p < 0.05), EST best effect (p < .05).
Conclusion: Long-term follow-up endoscopic treatment of SOD can effectively alleviate the patient’s symptoms, and to reduce the incidence of postoperative complications and mortality.

1062
THE MECHANISM OF EPITHELIAL TO MESENCHYMAL TRANSITION IN HEPATOCELLULAR CARCINOMA
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Metastasis is the main cause of hepatocellular carcinoma-related death. The epithelial mesenchymal transition (EMT) plays a key role in the embryonic development, tissue regeneration, cancer progression and metastasis. During the past decade, EMT has been increasingly concerned during the progression of various carcinoma such as hepatocellular carcinoma (HCC). Recent study revealed that EMT is associated with both tumor invasiveness and metastasis in HCC. To study the mechanism of EMT in HCC is extremely important which leads to more accurate pathological assessments and therapeutic concepts for individuals to efficiently combat HCC progression. Here we reviewed the relevant study for EMT in HCC, discussed the relevance to the diagnosis and treatment of HCC, and analyzed the research area in the future.

1068
NEUROENDOCRINE TUMORS OF THE AMPULLA OF VATER
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Background: Neuroendocrine tumors of the ampulla of Vater account for less than 0.3% of all gastrointestinal neuroendocrine tumors (NET) and have been mostly reported as isolated case reports. The purpose of this article was to report our experience in managing these rare neoplasms.
Patients and Methods: A retrospective analysis of periampullary tumor database between January 2006 and July 2012. Patients with NET arising from the Ampulla formed the study group and were assessed for clinicopathological variables and tumor biology.
Results: During the study period, 154 periampullary tumors were surgically resected by classical or pylorus preserving pancreaticoduodenectomy. Of these, 6 patients had NET arising from the ampulla of Vater and formed the study group. The mean age of the patients was 43 years with 3 males and 3 females. Jaundice was the commonest presenting symptom (in all patients) followed by abdominal pain (3/6). All patients...
were resectable and underwent a Whipple’s pancreaticoduodenectomy. The majority of the tumors were well differentiated NET (4/6); one was poorly differentiated neuroendocrine carcinoma and one was mixed endocrine-exocrine tumor. One tumor was associated with multiple GISTs and another had a synchronous duodenal NET. All the tumors were chromogranin and synaptophysin +ve and all were T3 lesions. Lymph node metastases was present in 4 of the 6 patients. At a median follow up of 24 (12–36) months all patients are alive and free from disease.

**Conclusion:** The ampullary NETs are rare tumors. They present with jaundice and therefore present early and are usually non-functional. Most patients are resectable with reasonable outcomes after surgical resection.

### 1069 PERIAMPUTLLARY CARCINOMA - ARE HISTOLOGIC SUBTYPES IMPORTANT?

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**Aims:** The term periampullary carcinoma is used for heterogeneous group of tumors that are often difficult to classify with certainty. Pathologists have classified periampullary tumors, based on morphologic criteria and immunohistochemical markers on histology, into intestinal (I) or pancreatobiliary (PB) types. I type tumors have been shown to have favorable prognosis compared to PB type. We aimed to study these histologic subtypes (I and PB) and their clinicopathological correlation.

**Methods:** All patients with periampullary carcinoma who underwent pancreaticoduodenectomy over a 3 year period were the subjects of the study. These were histologically classified into I, PB and other types initially based on microscopic morphological criteria only. Then the same patients were reclassified based on combination of microscopic morphology and immunohistochemical markers. These groups were correlated with various clinicopathological factors to ascertain the value of each classification using Chi square & Kaplan Meir tests.

**Results:** There were 109 patients who underwent pancreaticoduodenectomy for periampullary adenocarcinoma. Using microscopic morphologic criteria only, 42 cases were classified as I type and 54 cases as PB type. Upon reclassification using a combination of IHC and microscopic morphological criteria, 48 cases were classified as I type and 50 cases as PB type. Using morphologic classification, I type adenocarcinoma were of a lower grade (81%), lower stage (90% stage I & II), had a lower incidence of perineural invasion (19%) and lymphovascular invasion (4.7%). Lymph node metastasis was seen in 50% of PB type cases and 30.9% in I type cases. Reclassification of cases did not make any difference to the correlation to these factors. However, classification without using IHC showed a better difference in median survival (I and PB type–30 and 13 months, p = 0.03) than reclassification using IHC (I and PB types – 28 and 16 mths, p = 0.15).

**Conclusions:** Periampullary carcinoma can be classified into I and PB types using microscopic morphologic criteria. Intestinal type cases have a better prognosis and survival. In the present study, immunohistochemical staining did not add much to the classification and its role needs to be studied further.

### 1070 LAPAROSCOPIC RADICAL RESECTION FOR HEPATIC HYDATID DISEASE

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**Introduction & Aim:** Radical surgery (cystopericystectomy or formal resection) is the treatment of choice as it reduces the incidence of recurrence and also decreases the incidence of cavity related complications. This is often performed by conventional open surgery. To analyze our experience of radical resectional surgery for hydatid disease of the liver performed laparoscopically.

**Method:** We analyzed the prospectively collected data on hydatid cyst of the liver who were managed at our centre with laparoscopic radical surgery (cystopericystectomy, formal liver resection). Results- Fourteen patients were planned for laparoscopic radical resection. There were 11 females. Mean age was 34.14 years (19–56 years). In 5 patients, the cysts were located in the right lobe, in 6 patients, the cysts were located in the left lobe and in 3 patients, the cyst was involving both the lobes. Four patients had Gharbi type I cysts, 4 patients had type II cysts and 6 patients had type III cysts. Average size of the cysts was 6.96 cm x 6.85 cm. Nine patients underwent successful radical resection (4 left lateral hepatectomy and 5 cystopericystectomy) and 5 patients were converted to open surgery. Mean intra-operative blood loss was 111.11 mL (50–250 mL) and mean operating time was 243.33 min (180–300 min). Bile leak did not occur in any of the patients. There were no wound infections or post operative cavity related complications. Four out of five patients who were converted had cysts located in the posterior segments of liver. Anteriorly placed cysts had higher chances of being completed laparoscopically compared to posteriorly placed cysts (66.6% vs. 12.5%). There has been no recurrence till date.

**Conclusion:** Laparoscopic radical resection is a feasible option with excellent post operative outcomes for selected cases of hydatid cyst of liver. Anteriorly placed cysts are better suited for laparoscopic radical surgery.
Tumor Existence and Tumor Size as Prognostic Factors in HBV-Related Cirrhosis Underwent Liver Transplantation

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Background and Aims: HBV-related chronic liver disease is one of the most common indications for liver transplantation (LT). Patient data in our unit was used to evaluate the impact of liver tumor on outcomes in HBV-related cirrhosis who underwent liver transplantation.

Methods: HBV transplanted patients in our hospital from August 2002 to March 2012 were analysed and compared according to indication for LT: decompensated cirrhosis (DEC) or hepatocellular carcinoma (HCC). As for HCC patients, receiver-operating characteristic (ROC) curve analysis was used to determine the appropriate cutoff value for tumor size, which was measured as maximum tumor diameter. According to the cutoff value, patients were divided into two groups: large size tumors (LST) and small size tumors (SST). The correlations between other clinicopathologic factors and tumor size were investigated. Potential prognostic factors were evaluated by Cox’s proportional hazard model analysis.

Results: The 1-, 3-, 5-year OS rate in the 111 HBV-related patients was 76.2%, 43.2%, 32.9%, respectively, with the background patient data shown in table 1. Patients with liver tumors had a significantly poorer overall survival than those with only decompensated cirrhosis (p < 0.05) (Figure 1). The mean tumor size was 5.97 cm, and ROC analysis indicated that the appropriate tumor size cutoff point for prognosis was 4.25 cm, with the sensitivity and specificity of 62.8% and 81.0%, respectively (AUC = 0.760, 95% CI: 0.644-0.877, p = 0.000) (Figure 2). Using this cutoff point, 31 patients had large tumor size (≥ 4.25 cm) and 33 had small tumor size (< 4.25 cm). Patients with small tumor size had a significantly better overall survival than those with large tumor size (p < 0.05) (Figure 3). Univariate analysis showed that only the tumor size (RR = 1.14, P < 0.001) was significantly associated with the overall survival.

Conclusions: Tumor existence and tumor size are prognostic factors in HBV-related cirrhosis. Using a tumor size cutoff value of 4.25 cm, patients with large size tumors have significantly poorer overall survival than those with small size tumors.

Key words: HBV; transplantation; cirrhosis; cancer; size

Significance of Combined Resection of the Portal Vein and/or the Inferior Vena Cava in Patients with Locally Advanced Intrahepatic Cholangiocarcinoma

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Background/Aims: Recently, there has been a worldwide increase in the incidence and mortality from intrahepatic cholangiocarcinoma (ICC). Although aggressive surgical treatment seems to afford hope for long-term survival, ICC remains difficult to resect with curative intent because of advanced loco regional extension, such as the extension to the portal vein and the inferior vena cava, at the time of diagnosis. In order to achieve complete surgical resection in such cases, hepatic resection with combined resection of the portal vein and/or the inferior vena cava is required, but the significance of these procedures is not clarified. The aim of this study is to evaluate the outcome of aggressive surgical treatment with combined resection of the portal vein and/or the inferior vena cava for ICC patients.

Patients: December 1984 and April 2011, 114 patients with ICC underwent surgical resection. Among these 114 patients, 32 (28%) underwent combined resection of the portal vein and/or the inferior vena cava. Ten patients had portal vein resection alone, 8 patients had the resection of both portal vein and inferior vena cava, and 14 patients had the resection of the inferior vena cava only.

Results: Positive cancer invasion to the portal vein beyond the adventitia was present in 72% of 18 patients undergoing combined portal vein resection, while invasion to the inferior vena cava beyond the adventitia was pathologically evidenced in 73% of 22 patients undergoing the resection of the inferior vena cava. Although one patient with combined resection of the inferior vena cava had the stenosis at the site of anastomosis with thrombosis, no operative mortality was encountered. The 1-, 3-, and 5-year survival rates for patients with portal vein resection alone, the resection of both portal vein and inferior vena cava, and the resection of the inferior vena cava only were 47, 31, and 16%, 58, 22, and 22%, and 70, 31, and 23%, respectively. These survival outcomes were not significantly different from the survival in ICC patients without any vascular resection.

Conclusion: Hepatic resection with combined resection of the portal vein and/or the inferior vena cava might have some beneficial effects on the prognosis without leading to an increase of surgical risk for patients with locally advanced ICC.
INTRADUCTAL PAPILLARY MUCINOUS NEOPLASM OF THE BILE DUCT: REPORT OF FIVE CASES
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Purpose: To evaluate the clinical, radiological, and histopathological characteristics of intraductal papillary mucinous neoplasm of the bile duct (IPMN-B) that has the histopathological similarity to intraductal papillary mucinous neoplasm of the pancreas (IPMN).

Methods: The medical records of five patients with IPMN-B, who underwent surgical resection of the lesions, were retrospectively reviewed. The clinical, radiological, surgical, endoscopic and histopathological findings were analyzed. All patients were followed up for 5 to 9 months.

Results: Four of the five cases of IPMN-B in this paper were associated with intrahepatic lithiasis. Recurrent episodes of fever and jaundice are the most common clinical manifestations. The diffused or localized dilatation of intra or extrahepatic duct and intrahepatic lesions were found radiologically in all patients. Abundant mucin and myriad frond-like papillary or villous projections in the bile duct that was confirmed by choledochoscope during the surgeries. All patients underwent a partial liver resection with or without an Roux-en-Y hepaticojejunostomy and discharged uneventfully. One patient was found recurrence three months after the surgery during the follow-up and confirmed cholecystectomy and transplantation.

Conclusions: Preoperatively identifying the location of intraductal lesions that is the resource of excessive mucin in biliary duct is the key point to cure the condition. Radical resection of the involved biliary ducts with tumor-free histologic margins is the first option for patients with IPMN-Bs. The prognosis and survival rates for patients with IPMN-Bs are significantly favorable than those for patients with other biliary tumors.

MITOFUSIN-2 RESTRAIN INTIMAL HYPERPLASIA AND RESTENOSIS OF ABDOMINAL AORTA BY PROMOTING APOPTOSIS IN RAT CHRONIC REJECTION
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Background: Mitofusin-2(Mfn2) is a novel suppressor of cell proliferation. It has been demonstrated that expression of Mfn2 is obviously reduced in hyper-proliferative vascular smooth muscle cells(VSMCs) from spontaneously hypertensive rat arteries. Angiostenosis is an important performance of chronic rejection, which will influence graft survival.

Methods: In this study, we evaluated the effect of Mfn2 in prevention of chronic rejection through the model of rat abdominal aorta transplantation from Lewis to BN. The aortae got from Lewis rats were transplanted in vitro with Mfn2-GFP or GFP by soaking in the mixed liquor(volume ratio 1:1) of (Mfn2-GFP or GFP)lentivirus(1*10E8 TU/ml) and UW organ preservation fluid for four days at 4°C. Then we transplanted the aortae to BN rats. Recipient rats were killed on day 30, day 60 and day 90 after transplantation to get the graft aortae.

Results: With hematoxylin-eosin staining, we found that the intima ratios of aortae(day 60 and day 90) transplanted with Mfn2-GFP were much smaller than the ones transplanted with GFP. While the intima ratios of aortae (day 30) had no significant difference. Through immunohistochemistry and RT-PCR, we also found aortae(day 60 and day 90) transplanted with Mfn2-GFP had a low expression of apoptotic factor bcl-2,Vascular Endothelial Growth Factor(VEGF) and proliferation marker ki67. But expressions of bcl-2, VEGF and ki67 of aortae(day 30) did not change obviously.

Conclusion: These results indicate that overexpression of Mfn2 will restrain intimal hyperplasia and restenosis of abdominal aorta, which will subsequently improve graft survival. Mfn2 may play an important role as an apoptotic factor by interaction with bcl-2, ki67, VEGF in the process of chronic rejection, which provides valuable information for further studies on organ transplantation.
CAN COMMON BILE DUCT RESECTION INCREASE THE SURVIVAL OF ADVANCED GALLBLADDER CANCER?

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Introduction: In advanced gall bladder cancer, the surgical resection is the only treatment for cure. However, there is no consensus for common bile duct resection during radical surgery. The aims of this study were to identify predictors of survival and assess the necessity of common bile duct (CBD) resection in advanced gallbladder cancer.

Methods: We reviewed the medical records of 131 patients with advanced gallbladder cancer who underwent cholecystectomy except R2 resection and D0 lymph node dissection from March 2000 through Dec 2011 at Severance hospital, Yonsei University College of Medicine, Seoul, Korea. The survival outcomes and clinicopathological characteristics were reviewed between the CBD resection group and the non-CBD resection group.

Results: Of the 131 patients, 52 patients (39.7%) underwent common bile duct resection. Overall survival rates of non-CBD resection group was longer than CBD resection group. (at 1 year: 74.6% vs. 67.3%, at 3 years: 63% vs. 52.8% and at 5 years: 53% vs. 33.5% respectively; p = 0.05). The numbers of acquired lymph nodes, tumor invaded lymph nodes and Lymph nodes around hepatoduodenal ligament were more in CBD resection group. Because the pathological staging was higher (p = < 0.01), the survival was poorer in CBD resection group.

Conclusion: Although CBD resection didn’t increase the survival, CBD resection may be needed for more accurate nodal status evaluation

SURGICAL MANAGEMENT ACCORDING TO PREOPERATIVE IMAGING STUDY IN PATIENTS WITH GALLBLADDER CANCER.

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Introduction: Incidentally found gallbladder cancer (GBC) has been dramatically increased because of advancement of imaging technology. The curative aimed treatment for GBC is a complete surgical resection. But optimal surgical managements were dependent on tumor stage. This study was undertaken to investigate relationship between preoperative imaging study and tumor stage in patients with GBC.

Methods: From Jan. 2000 to Dec. 2011, 121 patients underwent R0 resection of GBC. The clinicopathological characteristics and survival outcomes were reviewed retrospectively. Preoperative Imaging studies were reviewed by well experienced radiologists.

Results: Tumor locations were classified as fundus, body, neck and wide lesion (n = 46, 35, 16, 21 respectively). Tumor sides of location were classified as peritoneum, liver bed and encircling (n = 37, 37, 47 respectively). Gross types were classified as infiltrative, polypoid and mass replacing GB fossa (n = 69, 46, 5 respectively). Except wide lesion, tumor location did not have relation with tumor stage. (p = 0.360). However, more advanced tumor stage was confirmed at patients with liver bed side located GBC or infiltrative gross type. (p = 0.047, 0.001 respectively). Especially, all patients with tumor replacing GB fossa had advanced tumor stage. Lymph node metastases were more observed in infiltrating gross type (p = 0.007). However, the rate of lymph node metastases had no difference in tumor location or side (p = 0.100, 0.194, respectively). Except wide lesion, overall survival and disease free survival also did not show difference in tumor location or side. Polypoid gross type show better overall survival and disease free survival than other gross types.

Conclusion: Although tumor location did not have relation with tumor stage, in patients with liver bed side located GBC, combined hepatic resection was considered for achievement of R0 resection. A aggressive lymph node dissection was also needed in patients with infiltrative gross type.

HEMORRAGIC SHOCK CAUSED BY RUPTURE OF CYSTIC ARTERY PSEUDOANEURYSM SECONDARY TO CALCULUS CHOLECYSTITIS: A CASE REPORT AND REVIEW

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Cholecystitis is a kind of common diseases in the East Asia. Some of these patients will have Cystic artery pseudoaneurysm as a rare complication following cholecystitis. No more than 20 patients with cystic artery pseudoaneurysm have been reported in the English literature, but only 3 of them presented with gallbladder perforation which lead to hemorrhagic shock. We report a 88-year-old woman who developed a cystic artery pseudoaneurysm following an episode of acute cholecystitis. And the cystic artery pseudoaneurysm ruptured quickly after its formation. She presented with severe abdominal pain and hemorrhagic shock, abdominal ultrasonography (US) showed echogenic material
A 67-year-old male presented with progressive left hemiparesis from 1 month ago. A contrast enhanced computed tomography scan (CECT scan) reveals high-density material in the lumen of the gallbladder and small volume ascites within the upper abdomen. Finally cholecystectomy with common bile duct exploration was done in an emergency surgical exploration. Finally we get a conclusion that cystic artery pseudoaneurysm is a rare complication of cholecystitis. Cystic artery pseudoaneurysm has prone to rupture which has an association with a high incidence of hypovolaemic shock and can be fatal. We should be aware of this relatively rare cause of hypovolaemic shock. CT and Angiography are helpful in both diagnose and treatment of these patients.

1086 PRIMARY HEPATIC NEUROENDOCRINE CARCINOMA WITH BRAIN METASTASIS
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A 67-year-old male presented with progressive left hemiparesis from 1 month ago. A contrast-enhanced magnetic resonance image of the brain revealed measuring about 4.5 x 3.5 x 5.0 cm sized rim enhancing mass with central necrosis and associated edema located in left occipital lobe. A craniotomy was performed to remove tumor and confirm of the pathology. The histological features and immunohistochemical staining showed metastatic neuroendocrine carcinoma. The Positron emission tomography (PET) and abdominal computed tomography (CT) were checked for metastatic origin evaluation. CT revealed about 9 cm sized mass with poor enhancement in right hepatic lobe. Hepatitis B antigen was positive and hepatitis B antibody was negative. Tumor markers such as AFP and CEA were within normal range. Serum CA19-9 was elevated at 74.82 u/ml. Serum 5-HT, serum and urine level of 5-HIAA were normal. The levels of serum Gastrin, Glucagon, C-peptide were within normal limits. Right hepatectomy with cholecystectomy was performed 1 month after craniotomy. The specimen showed same pathologic findings with brain lesion. Immunohistochemical stains with CD56a, Snaptophysin and Cytokeratin were positive. There was tumor necrosis with 60% of Ki-67 labeling index.

Four months later, tumor recurred at brain and liver. Re-operation underwent to reduce mass effect in the brain and followed radiation therapy and chemotherapy with etoposide and cisplatin. However, two month later after re-operation, PET showed spinal cord and liver metastasis.

Bone metastasis, lymph node metastases and lung metastases were reported. This brain metastases of neuroendocrine tumor from liver is the first case. This case is an aggressive primary hepatic neuroendocrine carcinoma with brain metastasis.

1087 APPROPRIATE TRAINING MODULE OF SINGLE INCISION LAPAROSCOPIC CHOLECYSTECTOMY FOR SURGICAL TRAINEE
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Purpose: Laparoscopic cholecystectomy is the gold-standard procedure for gallbladder removal. The advantages of this procedure over the open approach include better cosmetic result, less postoperative pain, and shorter recovery time. Recently, in order to reduce operative trauma and improve cosmetic result following laparoscopic cholecystectomy, new operative techniques have been developed. Single-incision laparoscopic surgery (SILS) was developed with the aim of reducing the invasiveness of traditional laparoscopy. But, Limited retraction has been an obstacle in the advancement of pure single incision cholecystectomy. Adequate retraction is necessary to perform a safe cholecystectomy. We reviewed the results of a single institution with respect of single incision cholecystectomy with a single 2 mm needlescopic instrument and snake retractor to aid in obtaining a critical view of safety to identify the ideal surgical strategy of single incision laparoscopic cholecystectomy in disease of biliary tree.

Methods: Between October 2010 and October 2012, 291 patients underwent single incision laparoscopic cholecystectomy with needle scopic infundibular retraction for gallbladder disease in single institute by one surgeon, Uijeongbu St. Mary’s hospital. 291 patients with a mean age 48.8 ± 14.6 years (range 12 to 82) were identified. We used a hand-made Glove port or SILSTM (Covidien, Tyco health Medical) single-port device for operation. Single port device was placed through umbilicus. A(2 mm) needlescopic retractor (Stryker, San Jose, CA) was placed in the right flank region directly through the abdominal wall for retraction of the gallbladder infundibulum in an anterior and cephalad direction. And snake retractor was used for liver retraction.

Results: Patient all had a pathologic diagnosis of acute and chronic cholecystitis. ASA class averaged 1.62 (range 1 to 2). Operative times (skin to skin) averaged 62.9 ± 49.6 min (range 25 to 313 min): in simple cholecystectomy averaged 53.2 ± 21.7 min and in difficult cholecystectomy 92.3 ± 51.4 min (range 28 to 313 min). Postoperative hospital stays averaged 2.5 days. There were three open conversion cases: one bile duct injury, one uncontrolled bleeding and one difficult dissection. No major morbidity and mortality cases

Conclusions: Single incision cholecystectomy with a single needlescopic instrument is safe for acute and chronic cholecystitis even in gallbladder empyema. Liver retraction using a snake retractor is very useful module during single incision laparoscopic cholecystectomy in easy and difficult gallbladder disease.
1088

T TUBE SINUS TRACT DUODENAL FISTULA: A RARE COMPLICATION OF POSTOPERATIVE CHOLEDOCHOSCOPY FOR TREATING HEPATOLITHIASIS

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Backgrounds: Postoperative percutaneous choledochoscopy via T tube sinus tract is a common modality for treating retained intrahepatic stones in China. We report a rare complication of postoperative choledochoscopy for treating retained hepatolithiasis: T tube sinus tract duodenal fistula.

Methods: From January 2003 to December 2011, 2583 postoperative percutaneous choledochoscopy sessions were performed in 847 patients with T tubes in situ. Intrahepatic duct stones with or without common bile duct (CBD) stones were detected in 526 patients. Eight of the 526 patients with intrahepatic stones developed a T tube sinus tract duodenal fistula that was diagnosed by cholangiography and choledochoscopy. The causes, manifestations, diagnosis, treatment and methods of prevention were retrospectively analyzed.

Results: The incidence of T tube sinus tract duodenal fistula in patients with retained intrahepatic stones being treated by postoperative choledochoscopy is 1.52% (8/526) in this series. After a mean duration of 2.2 weeks, occlusions of the distal channel of T Tube were developed in five patients and resulted in failure to get access to CBD for further stones extraction choledochoscopically. The fistula accounted for 20% (5/25) of all causes of residual stones after being treated by postoperative choledochoscopy in this series. All cutaneous fistulas healed in a mean time of 4.9 days after removal of the T tubes. Two patients underwent reoperations for recurrent cholangitis.

Conclusions: Long time placement of T tube in situ is probably the main cause of the T tube sinus tract duodenal fistula. Placement of T tube in correct way and finishing the whole choledochoscopic stones extraction procedure in short time are the key points to prevent T tube sinus tract duodenal fistula formation.

1089

MFN2 TRIGGERS APOPTOSIS OF HEPATOCELLULAR CARCINOMA CELLS MEDIATED BY ACTIVATION OF THE MITOCHONDRIAL APOPTOTIC PATHWAY

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Background and aim: The mitochondrial GTPase mitofusin-2 gene, which has the function of hyperplasia suppressor, was first found in vascular smooth muscle cells of spontaneously hypertensive rats. The mechanism of apoptosis of hepatocellular carcinoma(HCC) cells triggered by Mfn2 remains unknown. We attempt to investigate the effect of Mfn2 on HCC cells apoptosis and the mechanism.

Methods: Adenovirus carrying Mfn2 (Ad-mfn2) infected HCC cells used as experimental group and zero load adenovirus as controls. The post infection expression of Mfn2 was observed by Western blot. The effect of Mfn2 on the apoptosis of HCC cells was investigated by using flow cytometry (FCM). The expression of Bcl-2, Bax, cytochrome-c, caspase-8, caspase-3, caspase-9 and AIF was detected by using Western blot. The mitochondrial transmembrane potential and reactive oxygen species (ROS), labeled by fluorescent probe of JC-1 and DCFH-DA, respectively, were measured by using FCM.

Results: Overexpression of Mfn2 gene promoted the apoptosis of HCC cells, the remarkably decreased expression of mitochondrial Bcl-2 protein and the increased expression of mitochondrial Bax protein. Overexpression of Mfn2 gene also induced cytochrome c, active caspase-3, caspase-9 and AIF to release to cytoplasm, however the level of active caspase-8 was no different. There are also reduction of mitochondrial transmembrane potential and augmentation of ROS in experimental group.

Conclusions: Mfn2 triggers apoptosis of HCC cells mediated by activation of the mitochondrial apoptotic pathway.

1094

EXPERIENCES OF LAPAROSCOPIC LIVER RESSECTION IN VARIABLE LIVER DISEASE

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Purpose: To review and investigate the experiences of laparoscopic liver resection in variable liver disease.

Method: From April 2008 to December 2010 in Chungnam national university, 49 cases of laparoscopic
liver resection were performed among 157 liver resections. During formal one year, mainly laparoscopy assisted liver resections were performed and during later two years totally laparoscopic liver resections were main operative type. Surgery type is decided preoperatively by intensity to treatment. Clinical data were collected retrospectively and comparatively analyzed by surgery type.

**Result:** Mean age was 60.0 (35–85), sex ratio (M:F) was 1:1.3. Preoperatively 28 patients were diagnosed intrahepatic duct stone with recurrent pyogenic cholangitis, 9 patients were hepatocellular carcinoma, 5 patients were colorectal cancer with liver metastasis and 7 patients were benign hepatic tumors. Laparoscopy assisted liver resection was 16 cases (32.7%) and totally laparoscopic liver resection was 33 cases (67.3%). Anatomical major liver resection was 40 cases (81.6%) and 9 cases (18.4%) were nonanatomical resection. Mean operation time was 264.3 min (75–570 min) and intraoperative transfusion was done in 7 patients (14.3%). Mean postoperative hospital stay was 10.2 days (4–32 days). Except preoperative planned laparoscopy assisted liver resection, open conversion was happened in two cases. Complications were happened in 4 cases, two cases were bile leakage. Pulmonary atelectasis and indigestion were happened in one case each. All of them were solved by conservative managements. Mean malignant tumor size was 2.4 cm (1.8–5.0 cm) and mean tumor free margin was 1.9 cm (0.7–5.0 cm). But tumor recurrence was happened in 5 cases (35.7%). Two cases (22.2%) were hepatocellular carcinoma and three cases (60%) were colorectal cancer liver metastasis.

**Conclusion:** In this study, we conclude laparoscopic liver resection is feasible operation but it needs to be carefully conducted when it comes to malignant tumors.

1095

CIRCULATING TUMOR CELLS IN HEPATOCELLULAR CARCINOMA: DETECTION TECHNIQUES, CLINICAL IMPLICATIONS, AND FUTURE PERSPECTIVES

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Hepatocellular carcinoma (HCC) is a primary liver cancer with a huge challenge in terms of its complex etiology and its management. The fact that the most common site of early tumor recurrence in liver transplantation for HCC is the transplanted allograft strongly suggests that circulating tumor cells (CTCs) are really an active source of HCC metastasis or recurrence. In the past decade, with the tremendous progress in the technology of CTC detection, there is convincing evidence that CTCs have great potential as a marker for metastatic disease and poor prognosis in patients with a malignancy. Currently some interesting and encouraging results have been achieved in HCC CTC detection, although the knowledge about its clinical relevance in HCC is lagging behind other major tumor types. Here we will review existing and developing methodologies for CTC detection, discuss future perspectives, and describe the potential clinical impact of the identification and molecular characterization of CTC subset or circulating cancer stem cells in HCC patients. Particular attention is given to the results based on the HCC CTC study.

1097

OUTCOMES OF VASCULAR RECONSTRUCTION WITH CRYO-PRESERVED VEIN GRAFT IN HEPATO-BILIARY AND PANCREATIC SURGERY

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**Background and aims:** Resectability of malignant tumor is a significant factor affecting outcomes in hepato-biliary and pancreatic surgery. However, the procedure may become faced with difficulties due to its anatomical location, especially in those adhering to major vessels. We have aggressively applied the use of cryopreserved vein [CP-v] grafts for various types of abdominal surgery including liver transplantation and extensive hepato-biliary and pancreatic surgery. CP-v grafts do not require anticoagulation, is resistant to infection, possess superior flexibility with variety of size and length available, and therefore considered valuable in major hepato-biliary and pancreatic surgery at our institution. Studying the outcomes of cases with CP-v graft usage may suggest useful approach in the coming era of advanced adjuvant therapy.

**Method:** Outcomes of major hepato-biliary and pancreatic surgery performed between 2001 and 2011 at the Tokyo University Hospital requiring vascular reconstruction were studied. Data were collected retrospectively. Patency rates of the reconstructed vessels, assessed by CT/US were compared between cases reconstructed with auto-grafts and with CP-v grafts.

**Results:** During the studied period, hepatic vein and portal vein reconstruction with CP-v grafts were performed in 18 and in 20 cases, and reconstruction with auto grafts were performed in 11 and in 10 cases respectively. Patency rates at 6 months, one-year, and two-year post operation were, 44%, 29% and 29% for cases with CP-v grafts and 72%, 60%, and 32% for cases with auto grafts hepatic vein reconstruction. Likewise, patency rates were, 89%, 79%, and 79% with CP-v grafts and 100%, 100%, and 86% with auto grafts in cases requiring portal vein reconstruction, respectively. There were no statistical differences between the outcomes of CP-v grafts and auto grafts.

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Conclusion: Use of CP-v graft for vascular reconstruction in hepato-biliary and pancreatic surgery is feasible and may enhance the numbers of surgically resectable cases.

1103
END-TO-END SUTURELESS VASCULAR ANASTOMOSIS WITH MAGNETIC RINGS

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Objective: The present study was to investigate the new type magnetic vascular anastomosis device for non-suture vascular anastomosis.

Material and methods: This device consists of paired Nd-Fe-B magnetic rings and alternately spaced holes and titanium pins, which are coated by titanium oxide coating with PCVD technique and are embedded in photosensitive resin shell that was made by rapid prototyping technology. Sixteen mongrel dogs underwent the vascular anastomoses with a novel magnetic pinned-ring device and traditional hand-sewing, respectively. In situ end-to-end anastomoses were performed in femoral artery and inferior vena cava. Patency was confirmed with ultrasound scans and angiographic images at different time-points 4 weeks, 12 weeks and 24 weeks postoperatively. Gross observation, histological staining and scanning electron microscopy were performed at 24 weeks postoperatively.

Results: The operation time required for vascular anastomosis was significantly shorter in magnetic device than in hand-sewing. A continuity of re-endothelialization was confirmed in all anastomotic stomas after 4 weeks, 12 weeks and 24 weeks, neither formation of aneurysms and thickening of vascular wall was noted. The re-endothelialization was smooth at the anastomotic site of magnetic device after 4 weeks, whereas suture was observed under rough and uneven re-endothelialization after hand-sewing. The endothelial cells were regularly arranged at the anastomotic site of magnetic device; nevertheless, there were different-sized and irregularly aligned endothelial cells at the anastomotic site of hand-sewing. Magnetic device was associated with the significantly decreased deposition of fibrotic collagen and depressed infiltration of inflammatory cells as compared with hand-sewing.

Conclusions: All anastomoses stomas were patent under direct observation and palpation or duplex ultrasound scanning. 8 IVC and 9 of 10 femoral artery anastomoses stomas were clearly patent on duplex scans, and patency of 1 artery anastomosis stoma was questionable. The magnetic vascular anastomosis device offers a simple, faster, reliable and efficacious technique for non-suture vascular anastomosis. This technique shortens operation time, maintains the high patency rate, and improves the healing of vascular tissue.

1104
THE CURATIVE RESECTION ON THE INTRAHEPATIC BILIARY PAPILLOMATOSIS AFTER PHOTODYNAMIC THERAPY

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A healthy 56-year-old man was diagnosed CBD stenosis by CT study during his lifelong checkup on April 2012. An ERCP revealed a suspicious papillomatosis involving CHD in both proximal intrahepatic bile duct and Rt. posterior intrahepatic bile duct. A papillary dysplasia of common hepatic duct was confirmed. An endoscopic nasobiliary drainage was performed for biliary decompression. Then, the patient was transferred to Severance Hospital for a surgery.

Before the surgery, a photodynamic therapy was applied to avoid extensive liver resection and recurrence. The point of hilum to mid CBD, Lt. intrahepatic duct and Rt. intrahepatic duct were initially treated at 180 J for 450 sec. The second photodynamic therapy was only performed at the point of hilum to mid CBD site, because Lt. and Rt. intrahepatic duct sites had shown improvements.

During the follow-up, jaundice was developed. On the PTCS, there was no obstruction or severe stricture on CBD and IHD. The entire sites of previously mentioned papillomatosis lesions had improved.

After two months, the patient underwent extensive Rt. Hemihepatectomy. A total necrotic change of intrahepatic bile duct with chronic cholangitis, hepatolithiasis and foreign body reaction were reported, and there were no lymphatic metastasis (0/8).

After four months of operation, there were no other complications, local recurrences and distant metastases.

1105
THE EFFECTIVENESS OF BIOIMPEDANCE ANALYSIS IN PERIOPERATIVE BODY FLUID VOLUME ESTIMATION

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Different body fluid monitoring methods for postoperative patients include physical examination, laboratory tests and hemodynamic parameters. However, these techniques are not direct markers of volume status and do not provide sufficient evidence.

Bioimpedance Analysis (BIA) is a useful method for assessing the change in body fluid in hemodialysis patient. The objective of this study is to examine the
effectiveness of BIA in estimating volume status in postoperative patients.

Forty patients with history of hepatopancreatobiliary disease from a single center were enrolled. Body fluid composition was measured with BIA, and laboratory tests for lymphocyte, albumin, cholesterol, creatine, CRP were conducted on the day before, immediately after and the day after the operation.

There were 25 male and 15 female participants. Their median age was 60.5 years, and their age ranged from 28 to 78. Patients received different treatments. Nineteen patients underwent major heptectomy. Seven patients underwent minor heptectomy. Five patients underwent PPPD. Three patients underwent segmental resection of bine duct, and there were six patients who received other treatments.

The mean operation time was 247.85 min, and it ranged from 89 to 527 min. For the preoperative patients, the mean lymphocyte count, albumin, cholesterol, creatine, crp were 1470 ul, 3.96 mg/dl, 178.1 mg/dl, 0.81 mg/dl, 6.80 mg/dl respectively. Preoperative intracellular water (ICW), extracellular water (ECW), total body water(TBW), fat free mass(FFM) and body cell mass(BCM) were 22.53 L, 13.6 L, 36.15 L, 49.31 L and 32.28 L respectively.

For immediate postoperative patients, the mean lymphocyte count, albumin, cholesterol, creatine, crp were 930 ul, 2.91 mg/dl, 132.8 mg/dl, 0.76 mg/dl, 2.97 mg/dl respectively. Immediate postoperative ICW, ECW, TBW, FFM and BCM were 22.73 L, 13.92 L, 36.65 L, 49.89 L and 32.54 L respectively.

For postoperative day 1, the mean lymphocyte count, albumin, cholesterol, creatine, crp were 910 ul, 3.26 mg/dl, 121.6 mg/dl, 0.86 mg/dl and 47.21 mg/dl. Postoperative day 1 ICW, ECW, TBW, FFM and BCM were 23.18 L, 14.07 L, 37.25 L, 50.81 L and 33.21 L respectively.

Preoperative and postoperative change pattern analysis revealed an L-shaped alteration of lymphocyte and cholesterol; however, the data was not statistically significant. Albumin and creatine both showed a decreasing V-type alteration with only albumin only being statistically significant. CRP data showed an increasing trend and was statistically significant.

CRP were conducted on the day before, immediately after and the day after the operation.

No statistical significance was found for different body fluids. It is speculated that patients have generalized edema. In this study, BIA was found to be an effective method for assessing the change in perioperative body composition. Further replicated studies will confirm its effectiveness on body fluid estimation.

1107

COMPREHENSIVE MANAGEMENT OF VASCULOBILIARY INJURY AFTER LAPAROSCOPIC CHOLECYSTECTOMY: A CASE REPORT AND REVIEW OF LITERATURE

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Introduction: Biliary injury is the most common severe complication of cholecystectomy, and the introduction of laparoscopic approach has led to a sharp rise in its incidence. It is commonly associated with vascular injuries, especially arterial injuries.

Case Illustration: We report a case of a 48 years old female patient who recently had laparoscopic cholecystectomy, which was converted to open surgery due to bleeding. The initial surgeon reported a bleeding from the liver bed without subsequent bile leak. A drain was placed at subhepatic region. Patient came with sepsis, jaundice and shock, with bile came out from the drain.

An emergency arteriography revealed an extravasation of contrast material at the proper hepatic artery, which was treated by coil embolization. The drain production continued to show bile leaking with a trend toward minimization, even when the patient was still jaundiced. ERCP failed to be done because of difficult cannulation. MRCP showed a Strasberg type E3 bile duct injury. Because of a prolonged sepsis and a subsequent organ failures, a re-laparotomy was done only to find a massive adhesion near the hepatic hilum. Abdominal lavage was done and two drains were left intra-abdominally. After surviving from lung infection, acute renal failure and septic shock in Intensive care unit, this patient gradually improved. The jaundice disappear 3 weeks after the second laparotomy with minimal drain production and good abdomen condition. The patient went home 1 month after surgery in good condition.

Discussion and Summary: A vasculobiliary injury is an injury to both a bile duct and a hepatic artery and/or portal vein. Patient with vasculobiliary injury often gone into life threatening septic condition early after the initial surgery. This condition is devastating, both to the initial surgeon and the consultant surgeon who dealt with the management of the injury. A good diagnosis, prompt treatment and a optimal critical care are the key concepts in the management.

1108

DIAGNOSTIC AND PROGNOSTIC VALUES OF AMINOACYLASE-1, SEQUESTOSOME-1, AND GLYPICAN-3 IN HEPATOCELLULAR CARCINOMA

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Background: To investigate diagnostic values of Aminocaylase-1 (ACY1), Sequestosome-1 (SQSTM1) and Glicypan-3 (GPC3) in distinction of small well-differentiated hepatocellular carcinoma (WDHCC) from dysplastic nodules (DN) and their prognostic values.

Methods: The expression profiling of ACY1, SQSTM1 and GPC3 in low grade DN (LGDN), high grade DN (HGDN) and small WDHCC were assessed by immunohistochemistry. The differential diagnostic performances of 3 markers or their combinations in HGDN and WDHCC were investigated by using logistic regression models (HGDN = 21, WDHCC = 32) and vali-
dated in an independent testing set (HGDN = 21, WDHCC = 24). Postoperative overall survival and time to recurrence were evaluated by univariate and multivariate analyses in an independent set of 500 patients.

Results: ACY1, SQSTM1 and GPC3 were expressed differentially in each group. For differential diagnosis of WDHCC from HGDN, the sensitivity and specificity of ACY1 + SQSTM1 + GPC3 combination for WDHCC detection was 93.8% and 95.2% in the training set, respectively, which was much higher than 3 kind of 2 marker-combinations. The validity of 4 diagnostic models was further confirmed in an independent testing set and the corresponding good sensitivity and specificity were observed. Interestingly, GPC3 expression in HCC tissues combined with serum AFP was found to be an independent predictors for overall survival and time to recurrence.

Conclusions: ACY1 + SQSTM1 + GPC3 combination could make substantial contributions to distinguish between WDHCC and HGDN using immunohistochemistry. Meanwhile, low GPC3 staining combined with positive serum AFP may play a practical role in predicting poor postoperative outcome and high tumor recurrence risk.


1110 INITIAL EXPERIENCE WITH LAPAROSCOPIC COMMON BILE DUCT EXPLORATION FOR CHOLEDOCHO-CHOLECYSTOLITHIASIS

MANAGEMENT IN GOVERNMENT HO

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Introduction: The management of choledocho-cholecystolithiasis has evolved in recent years. A laparoscopic approach has gained acceptance worldwide. The aim of our study was to evaluate the use of LC/LCBDE as one of the treatment option for bile duct stones in our center.

Methods: A retrospective study of patients with choledocho-cholecystolithiasis who had undergone Laparoscopic Cholecystectomy (LC) with subsequent Laparoscopic Common Bile Duct Exploration (LCBDE) between 2011–2012 in Cipto Mangunkusumo, a government hospital. Data regarding the demographics, type of procedure, duration of operation, length of stay, conversion rate as well as difficulties that were commonly found during procedure was describe.

Result: A total of 25 LC/LCBDE was done in two years period, the median age was 35 (Range 24–50) with a relatively same sex distribution (M:F = 13:12). The median operating time was 183 min (Range 120–240 min). Twenty patients undergone transcholedochal approach while 5 had transcutaneous exploration. The exploration was carried out with the help of choledoscope and intra operative cholangiogram. T-tube was placed in 17 patients. Conversion rate in our series were 0.28%, mostly due to large and multiple stone which was difficult to be extracted.

Discussion: LC/LCBDE is an excellent choice for the treatment of choledocho-cholecystolithiasis, but its use should be accompanied by proper armamentarium to
cially hepatic or biliary tract surgery, can cause a very difficult operation and increase complications.
crush and take out the stone. In the case where it is unavailable, one should adopt this technique only with a good patient’s selection, in order to gain an added value to this procedure over more established procedures such as CBD exploration or ERCP.

Conclusion: A good patient’s selection is very important in the management of choledocho-cholecystolithiasis in center with limited options for LC/LCBDE.

1111
AUTOGRAPHY IS INDUCED BY SITU OR REMOTE ISCHEMIC PRECONDITIONING AND PROTECT AGAINST LIVER IR INJURY IN A MICE MODEL
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Background and aims: Ischemic preconditioning, induced by pre-exposure to one or more brief periods of hypoxia followed by reoxygenation, triggers an endogenous protective mechanism towards subsequent ischemia-reperfusion injury. However, the accurate mechanism that how IP works during the ischemia reperfusion injury was not clear. Autophagy is an evolutionarily conserved mechanism of cellular self-digestion that maintains intracellular homeostasis by degrading and removing the damaged organelles and protein aggregates. We hypothesize that autophagy may play a critical role in the protective mechanism of ischemic preconditioning of liver ischemia reperfusion injury.

Materials and methods: We examined autophagy in two types of preconditioning in C57BL6 mice. After a midline laparotomy, the portal triad to the left and median lobes of the liver were occluded with an atraumatic microaneurysm vascular clamp for 60 min. Reperfusion was initiated by removal of the clamp. For situ ischemic preconditioning model, Ischemic preconditioning (IPC) group received 10 min of ischemia and 10 min of reperfusion prior to the prolonged ischemic insult. While the remote ischemic preconditioning (RIPC) group involved 5 min of ischemia followed by 5 min of reperfusion of hind limb; this process was repeated for four cycles before prolonged liver ischemia.

Results: In animals subjected to 60 min of hepatic ischemia, ALT levels were significantly lower in the IPC and RIPC group when compared with the control group. Meanwhile, Hepatocytes oncosis was less frequent in livers in IPC and RIPC groups than controls. The increased expression of light chain 3 type II (LC3-II) was observed in preconditioned livers by Western Blot. The increased number of autophagic vacuoles detected by transmission electron microscopy also confirmed an association of autophagy in livers pretreated with IPC or RIPC. The induction of autophagy was correlated with enhanced cell survival and decreased serum ALT levels.

Conclusions: In conclusion, the results of this study indicate that autophagy is essential for the protective effects of ischemia preconditioning on liver IR injury.

1113
COMMON HEPATIC ARTERY ARISING FROM THE LEFT GASTRIC ARTERY DETECTED DURING LEFT HEPATECT
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Anatomical variations of the hepatic artery supply are common. However, the common hepatic artery arising from the left gastric artery is far less common. We present a rare case in which the common hepatic artery arose from left gastric artery, detected during left hepatectomy. This case admitted for treatment of liver invasion by periporal node metastasis from ovarian cancer. The usual common hepatic artery along the portal vein was not identified during operation. The left, middle and right hepatic arteries were derived sequentially from left gastric artery. Postoperatively, this anatomical variation was confirmed by preoperatively checked computed tomography.

In conclusion, early recognition and knowledge of this anatomical variation can prevent a hepatic injury by vascular damage during hepatectomy or liver transplantation.

1114
COMPOSITE PARAGANGLIOMA WITH NEUROBLASTOMA IN RETROHEPATIC RETROPERITONEUM MIMICKING HEPATOCELLULAR CARCINOMA DEVELOPED IN THE ADULT
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Background and Aims: Pheochromocytoma arising from outside the adrenal glands is called paraganglioma. Paraganglioma is more common in the head and neck region than in the retroperitoneum. Neuroblastoma is one of the most common tumors derived from the embryonal sympathetic nervous system usually developed in children. Composite paraganglioma with neuroblastoma consists of a neuroendocrine component mixed with a neural component. The composite paraganglioma with neuroblastoma has been reported in the children, but in the adult the tumor developed extremely rarely.

Methods: A 62-year-old man visited outpatient department with a complaint of right upper quadrant pain. Abdominal CT and MRI demonstrated a 11 x 11 x 16 cm sized multisepated cystic mass that
contained hemorrhagic fluid in right hepatic lobe. All routine laboratory finding with tumor markers including CA 19-9, CEA and AFP were within normal range. His past clinical history was non-specific except medication for hypertension with well controlled state. The elective operation was planned under the impression of hepatocellular carcinoma in right lobe of liver with questionable retroperitoneal invasion. In operation finding, about 20 x 15 cm sized huge mass was detected in the area between posterior portion of right hepatic lobe and retrohepatic retroperitoneum with invasion of right adrenal gland. Right hepatectomy and right adrenalectomy with resection of retroperitoneal tissue was performed.

Results: The tumor was tightly adhered to the posterior portion of liver and right adrenal gland. On sectioning, the tumor was composed with both cystic and solid component, and the tumor was well marginated and demarcated from the liver. Pathological result of cystic lesion was paraganglioma with CD56(+), synaptophysin(+ ) and Ki-67(+ , 2–3%) on immunohistochemical stain. On the other hand, the result of solid component was anaplastic neuroblastoma with CD56 (+), synaptophysin(–), Ki-67(+ , 10–15%). The final pathological diagnosis was confirmed by composite paraganglioma and anaplastic neuroblastoma in retroperitoneum.

Conclusions: Composite paraganglioma with neuroblastoma of the retroperitoneum is rare and especially extremely rarely developed in the adult. Here in, we report a case of retroperitoneal composite paraganglioma with anaplastic neuroblastoma mimicking hepatocellular carcinoma developed in the adult.

1115 SURVIVAL OF PERIAMPULLARY MALIGNANCY: SINGLE TEAM EXPERIENCE

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Background: Simple prognostic criteria for pancreaticoduodenectomy would be helpful in assessing prognosis and evaluating the need for adjuvant treatment. This study analysed the clinical and surgical factors influencing outcome following pancreaticoduodenectomy for periampullary malignancy.

Methods: A total of 127 pancreaticoduodenectomies for periampullary cancers were performed from 1995 to 2012. The median age of patients was 50 years (range 17–73 years). The median follow-up was 2 years. Of the location, 50 were pancreatic adenocarcinoma and the rest were ampullary (54), duodenal (20) and others. Statistical analysis was performed using log-rank and Cox regression multivariate analyses.

Results: Patients who underwent resection had 1-, 3- and 5-year survival rates of 95%, 38% and 25%, respectively. The 1-, 3- and 5-year survival rates for periampullary are better than pancreatic adenocarcinoma, but not statistically significant Surgery done after 2005 has a better survival than those done before 2005, reflecting an earlier diagnostic effort, better perioperative care and a more experience team.

Conclusion: A solid and experienced team with a reasonably high case load is needed for the management of patients with periampullary malignancy.

1116 FATTY LIVER DISEASE IN SINGAPORE – A HEAVY BURDEN TO BEAR

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Background and Aims: The burden of fatty liver disease (FLD) has increased with greater affluence and modern day lifestyles. Yet very often, because patients are asymptomatic, this is picked up incidentally during investigations for other problems. The silent FLD can develop into steatohepatitis and eventually cirrhosis, unless it is managed appropriately. This study aims to find out the prevalence of FLD, identify demographic and other risk factors associated with FLD, as well as determine the proportion of patients with FLD who are managed and followed up for it.

Methods: Retrospective review was performed on 553 Singaporean patients (aged between 58 and 100) without any pre-existing liver parenchymal pathologies who underwent ultrasonography (U/S) of the liver in 2010. The participants’ medical records were then used to determine the fatty liver status, demographics, presence of risk factors for FLD, as well as whether they were followed up for it.

Results: 34.4% of the participants were found to have a fatty liver on U/S. Of the various associated co-morbidities investigated, fatty liver was more prevalent in patients with pre-existing DM (PR 1.99, 95% CI 1.30–3.06). The prevalence of FLD in patients also increased as their BMI increased, with a prevalence ratio of 9.39 [2.52, 38.09] in patients with BMI > 30 compared to a BMI < 23.0. On bivariate analysis, BMI and DM were shown to be an independent predictors of fatty liver disease (p < 0.001 and p = 0.04 respectively). Only 33.2% of the patients with FLD are currently being followed up. Among these patients, 2 of them who underwent follow-up scans were shown to have developed liver cirrhosis.

Conclusions: Fatty liver disease is extremely common in Singapore nowadays, especially in overweight patients and those with DM. These patients are at risk of liver failure and cancer, and do require regular follow ups for early detection, which is not currently done in many patients.
1118 REEXAMINING THE ROLE OF PANCREATIC COMPOSITION IN SHORT TERM OUTCOMES AFTER PANCREATICODUODENECTOMY FOR MALIGNANCY

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Aim: To assess the influence of pancreatic histology on early outcomes (pancreatic anastomotic leakage) after pancreaticoduodenectomy for malignancy and its relation with texture.

Materials & methods: Prospective study enrolling patients who underwent Whipple’s pancreaticoduodenectomy for malignant lesions of the periampullary and pancreatic head region from March 2009 to March 2011. 68 patients had undergone Whipple’s PD as curative procedure for malignancy in two years and 54 were included in the study. There were 42 men and 12 women. The median age of the sample population was 57 (36–83). Of the 54 patients, surgical indications were ampullary carcinoma in 33, pancreatic cancer in 15, Distal common duct tumour in 4. The median BMI of the study population was 21.16 (range 15.1–27.51). Representative slices of nontumorous pancreatic tissue located at pancreatic neck margin and uncinate margin were sampled for each patient. These specimens were analyzed independently by two blinded pathologists. Pancreatic fistula was graded as per ISGPF criteria and post operative complications were graded according to the Clavien Dindo system.

Results: There were 19 post operative pancreatic fistulae. Univariate analysis of factors affecting pancreatic fistula showed significant difference between mean fibrosis score (3.0 vs. 0.42, p = 0.0001) and mean inflammation score (0.69 vs. 0.21, p = 0.012) between fistula and no fistula group. Fat score has no implication on post operative complications.

Conclusion: Firmness of pancreatic neck is a good indicator of histological fibrosis and inflammation. Steatosis correlates poorly with softness and also does not seem to have a strong relationship with fistula and is probably a poor indicator due to the low BMI in the sample population.

1120 THE EFFECT OF A NEW BIODEGRADABLE STENT ON WOUND HEALING OF BILIARY-ENTERIC ANASTOMOSIS

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Background and Aim: Benign biliary stricture of anastomotic stoma is frequent after biliary reconstruction. In order to prevent such a complication, a new paclitaxel coated Poly-L-Lactide acid (PLLA) biodegradable biopolymer stent was designed. This original device was intended both to exert adequate mechanical support properties and to allow controlled drug delivery from the coating, with the goal of favoring wound healing after biliary reconstruction.

Methods: PLLA stents coated with three different paclitaxel concentrations were implanted in the biliary anastomosis of mongrel dogs (defining groups A, B and C, respectively). Liver function tests and residual dosage of paclitaxel from each stent were measured. Histological and z-smooth muscle actin immunohistochemical staining of biliary-enteric anastomosis were examined.

Results: There were no significant differences in liver function all along the study between the 3 groups and no bile leakage was observed. Stents were fixed from the eight week after stent placement. The paclitaxel-coated stents were able to slowly release the paclitaxel for 9 weeks. In groups B and C, histological examinations showed less granulation tissue and glandular hyperplasia in biliary-enteric anastomosis than in group A. Submucosal collagen deposition was reduced and z-smooth muscle actin positive cells decreased significantly, reflecting the inhibition of myofibroblast proliferation in groups B and C.

Conclusions: PLLA paclitaxel coated stents reduced the proliferation of granulation tissue and glandular hyperplasia, and inhibited the myofibroblast proliferation and extracellular matrix over deposition during the healing process of biliary-enteric anastomotic stoma. This original device may offer a new way for preventing benign biliary structure.

1121 POSITIVE CONTRIBUTION OF PD WITH PV/SMV RESECTION IN THE TREATMENT OF PANCREATIC CANCER WITH VENOUS INVASION

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Background and aims: Vascular invasion has been a conventional contraindication to operation of pancreatic cancer (PC). In 1970’s to 1990’s, the resection and reconstruction of SMV and portal vein(PV) were associated with poor results in advanced PC. But this concept is challenged in recent decades because of the
progress in surgical skills. The aims of this article is to investigate the effect of pancreatectoduodenectomy (PD) with PV/SMV resection and reconstruction in the treatment of pancreatic cancer with venous invasion. Compare the prognosis between the PD with PV/SMV resection(PD + PV) and simple PD.

**Methods:** A consecutive series of 322 patients with pathological diagnosis of pancreatic cancer undergoing PD/PD + PV between March 2010 and May 2012 in our department were investigated retrospectively in this research. 265 patients underwent simple PD and the other 57 patients underwent PD + PV because of venous invasion. In the PD group, 239 cases were R0 resection and 26 cases were R1 resection. In the PD + PV group, 29 cases were R0 resection and 28 cases were R1 resection. The postoperative morbidity, mortality, 1 and 2 year survival rate were examined.

**Results:** All of the operated group were successful and without perioperative mortality. There were no statistical differences in the postoperative morbidity such as pancreatic leakage, bile leakage, intraabdominal bleeding between the two groups. In R0 resection series: the 1 year survival rate of PD and PD + PV groups were 70.2% versus 72.4% (p > 0.05) and the 2 year survival rate of PD and PD + PV groups were 61.1% versus 51.7% (p > 0.05). In R1 resection series: the 1 year survival rate of PD and PD + PV groups were 35.5% versus 42.8% (p > 0.05) and the 2 year survival rate of PD and PD + PV groups were 23.1% versus 35.7% (p > 0.05). There were no Statistics difference between the survival rate of PD and PD + PV groups of 1 and 2 year survival rate.

**Conclusions:** The resection and reconstruction of SMV and PV is safe and effective. This operation will not increase the morbidity and mortality of PD. And the survival rate of 1 and 2 years is just like the simple PD for pancreatic cancer. So PD + PV is a beneficial operation when the case has the PV/SMV invasion.

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**1126**

**LAPAROSCOPIC RADICAL CHOLECYSTECTOMY FOR T2 Gallbladder CANCER**

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**Background and aims:** Minimally approach to gallbladder cancer is controversial. But recently laparoscopic surgery was done in patients with early-stage gallbladder cancer by the increasing of experience in laparoscopic surgery.

Patients found to have a T1a gallbladder cancer in laparoscopic cholecystectomy, no further surgery is needed. But the patients with T1b and T2 tumors should be treated by simple cholecystectomy or by the radical surgery remains under debate.

**Methods:** From December 2009 to July 2012, 6 patients diagnosed T2 gallbladder cancer underwent totally laparoscopic cholecystectomy with hepatoduodenal lymphnode dissection or laparoscopic radical cholecystectomy at the Department of Surgery, Gyeongsang National University Hospital. Clinicopathological characteristics were retrospectively reviewed in this study.

**Results:** Three of the six patients have undergone laparoscopic cholecystectomy with hepatoduodenal lymphode dissection and 3 patients have undergone laparoscopic radical cholecystectomy with hepatoduodenal lymphnode dissection. One of six patients with T2 gallbladder cancer had lymph node metastasis. The average operative time was 293 min (range, 170–375 min), average estimated blood loss was 625 ml (range, 200–1100 ml), and average hospital stay was 9 days (range, 4–15 days). The average number of lymph nodes was 9 (range, 2–26) and median follow up was 8.8 months (range, 1–23 months). No locoregional recurrence, morbidity or mortality was observed.

**Conclusions:** The role of laparoscopic surgery of gallbladder cancer is remain controversy. But in our study, laparoscopic radical cholecystectomy is useful in T2 gallbladder cancer. More large, randomized controlled studies about oncologic result are needed.

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**1134**

**RUPTURE OF HEPATOCELLULAR CARCINOMA FOLLOWING TRANSARTERIAL EMBOLIZATION/ CHEMOEMBOLIZATION: TWO CASES REPORT AND SYSTEMATIC REVIEW**

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**Abstract: Background:** Rupture of hepatocellular carcinoma (HCC) following transarterial embolization/ chemoembolization (TAE/TACE) is a rare but life-threatening complication.

**Objective:** To review information available on the incidence, risk factors, clinical characteristics, treatment, and outcomes of this complication.

**Methods:** We described two cases and reviewed all cases of ruptured HCC after TAE/TACE reported in the literature.

**Results:** Our search yielded 32 cases of ruptured HCC after TAE/TACE. The overall incidence was 0.45% per patient and 0.21% per session. The mean age was 57.4 years (range 28–90 years, N = 26, No. of cases with available information). Males accounted for 81% of cases (21/26). 50% of the cases had histories of primary hypertension, diabetes or peripheral artery disease (6/12). Mean diameter of the tumor was 11.4 cm (range 3–20 cm, N = 27). 100% of cases had superficial or exophytic tumors (23/23). Portal vein thrombosis was presented in 61.5% of patients (8/13). The median interval between TAE/TACE and rupture was 2 days (range 0 h–30 days, N = 31). Management choice included emergency TAE, surgery, or conservative treatment. The overall median survival time was 7 days (N = 19).
Conclusion: Rupture of HCC following TAE/TACE is relatively rare but potentially life-threatening. The management is difficult and prognosis is poor. Large tumor size, superficial or exophytic tumors as well as portal vein thrombosis and comorbidities such as primary hypertension, diabetes or peripheral artery disease may be predisposing factors for rupture. This complication may happen during or immediately after the procedure as well as several weeks later. Doctors should be aware of such an extraordinary and fatal complication of TAE/TACE to provide effective management.

1136

LIVER AUTOTRANSPLANTATION FOR THE TREATMENT OF HEPATIC ALVEOLAR ECHINOCOCCOSIS: FOUR CASES REPORT

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Objective: To summarize the clinical experience of liver autotransplantation (LA) for the treatment of advanced hepatic alveolar echinococcosis (HAE).

Methods: Four patients with advanced HAE underwent LT in the First Affiliated Hospital, Xinjiang Medical University from August 2010 to October 2012 were retrospectively analyzed.

Results: Four LA were successfully performed for advanced HAE. The overall medium time of the four LA procedures and unhepatic phrase were 700.0 min (range, 580–1080 min) and 245.0 min (range, 135–344 min), respectively. The medium transfusion requirement was 8.0 u (range, 4–15 u). The medium follow-up was 12 months (range, 1–18 min). Bile leakage appeared early in all the cases and was recovered spontaneity within six months with extraperitoneal drainage. Three patients were recovering well except for one died of severe fever of unknown origin six months postoperatively.

Conclusion: LA is the optimal method of treating advanced HAE. Strict compliance with the LA indications, deliberate operative skill and careful postoperative management are key factors for radical treatment of advanced HAE. Systemic administrations of L-ABZ are necessary to prevent from the recurrence of alveolar echinococcosis and ensure a long-term survival.

Keys: Liver autotransplantation; Hepatic alveolar echinococcosis; Liver three-dimensional image reconstruction

1137

CLINICOPATHOLOGICAL CHARACTERISTICS IN COMBINED HEPATOCELULAR-CHOLANGIOCARCINOMA: A SINGLE CENTER STUDY

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Backgrounds: Combined hepatocellular carcinoma and cholangiocarcinoma (cHCC-CC) is an uncommon subtype of primary liver cancer that has rarely been reported in detail. This study was done to evaluate the clinicopathological characteristics and prognostic factors of cHCC-CC.

Methods: The clinicopathological features of patients diagnosed and operated with cHCC-CC at Chonbuk National Hospital between January 1998 and December 2007 were retrospectively studied by comparing them with patients with hepatocellular carcinoma (HCC) alone who had undergone a hepatic resection during the same period.

Results: Ten of the 152 patients who were undergone a hepatic resection were diagnosed with cHCC-CC and included in this study (M: F = 8: 2, median age: 51.9 ± 11.1 years). According to the parameters of the 7th American Joint Committee on Cancer T staging, there were 76 (50.0%), 44 (28.9%), 9 (5.9%), 18 (11.8%) and 5 (3.3%) patients with T stages I, II, IIIa, IIIb and IV cancer, respectively. Overall survival period was better in the HCC only group (67.9 ± 40.4 months) than in the combined cHCC-CC group (22.7 ± 40.1 months). 5-year survival rate was 20% in the eHCC-CC group and 60% in the HCC group. The disease free survival for patients with cHCC-HCC and HCC were 16.3 and 50.9 months, respectively. The only significant clinicopathological factor identified by multivariate analysis was T staging. (p = 0.05).

Conclusion: Even after curative hepatic resection, the presence of a cholangiocellular component appeared to be a poor prognostic indicator in patients with primary liver cancer.

T stage is the only independent significant prognostic factor associated with patient survival in our study.
TOTALLY LAPAROSCOPIC PANCREATODUODENECTOMY IN TREATMENT FOR PERIAMPULLARY CARCINOMA: EXPERIENCE WITH 16 CASES

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Aims: To evaluate the efficacy and feasibility of totally laparoscopic pancreatoduodenectomy (TLPD) in management of periampullary carcinoma.

Methods: We retrospectively analyzed 16 cases that underwent TLPD between Apr. 2004 and Sep. 2012 in our hospital. Clinical records of intraoperative data and postoperative complications were studied, with surgical skills summarized.

Results: TLPDs were successfully performed in all 16 patients, with no conversion to open surgery. Mean operation time was 543 ± 49.9 min, and mean intraoperative blood loss was 444 ± 352.02 mL. Pancreatic fistula occurred in five patients, four of which were treated successfully with conservative therapy, except one underwent reoperation for subsequent intra-abdominal abscess. Chyle leakage occurred in one patient and healed after drainage and medical treatment. Post-operative pathology confirmed 8 cases of biliary carcinoma, 5-duodenal carcinoma, 1 duodenal endocrine carcinoma, 1 periampullary adenocarcinoma and 1 gastric cancer. The 3-year overall survival rate for this group of patients is 81.2%.

Conclusions: In our case series, we performed TLPD with uncinate process completely resected which we think is vitally important in the treatment for periampullary carcinoma. It is our conclusion that, in managing of early-stage periampullary carcinoma, TLPD performed by senior surgeons with advanced laparoscopic skills and profound experience in open pancreatic surgery is a feasible and minimally invasive approach, which is expected to have wider clinical application.

THE PROXIMAL LEINOrenal SHUNT AS A ONE TIME TREATMENT OPTION FOR SELECTED PATIENTS WITH PORTAL HYPERTENSION

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Background: Portal hypertension (PHT) and its manifestations present a management challenge. Surgery has traditionally been considered as an option only in patients who are beyond endoscopic therapy such as in those with persisting GI bleed from gastric or ectopic varices and congestive enteropathy or those complicated with primary or secondary portal biliopathy. Surgical porto systemic shunts are effective in lowering portal pressures, and in patients of PHT with good liver function e.g. Extra Hepatic Porto Venous Obstruction (EHPVO) and Non Cirrhotic Portal Fibrosis (NCPF) post shunt hepatic encephalopathy is not a significant problem. Indian experience has suggested that patients of PHT with good liver function are more likely to die of bleeding than encephalopathy and shunts may be a good option in patients who have limited access to facilities for blood transfusion for managing variceal bleeds. Developments during the last two decades have prompted a reassessment of the role of surgery in PHT.

Better facilities for blood transfusion has led to a greater awareness of the problems of blood transfusion. Transfusion associated infection, immunosuppression and concerns over costs of repeated transfusion .Also the popularity of the Rex Mesenterico Portal Shunt in transplant units is bringing shunt surgery back into perspective. Finally insurance companies and health care funding agencies are increasingly inclined to support one time definitive treatment options in preference to prolonged endoscopic treatment programs.

Aim: To place in perspective the proximal leino renal shunt as a onetime treatment option in the management of PHT in patients with good liver function.

Patient methods: From 1993 to 2012, 91 patients underwent surgical shunting for PHT. The commonest causes of PHT were EHPVO and NCPF in 72/91 cases and the commonest indication for surgery was GI bleeding in 66/91 patients. The preferred procedure was splenectomy with a Proximal Leino Renal Shunt. No routine post shunt anticoagulation was used. No post shunt hepatic encephalopathy was encountered in this group. Shunt patency rate was 86% at one year follow up.

Conclusion: The Proximal Leino Renal Shunt is a non selective shunt which is relatively easy to learn and perform with no post shunt encephalopathy when performed for patient with good liver function. It may infact be a more rational alternative to the complex Rex Shunt and in selected patients it offers a onetime treatment option and relief from the need of repeated hospital admission, endotherapy and recurring treatment costs of GI bleeding due to PHT.
THE DEVELOPMENT OF BIODEGRADABLE MAGNETIC COMPRESSION ANASTOMOSIS DEVICES WITH NANO-NdFeB COMPOSITE MATERIALS TO HEPATIC VASCULAR SUTURELESS

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Correspondence to: Yi Lv, Professor, Doctoral supervisor, Department of Hepatobiliary Surgery, First Affiliated Hospital, Medical School of Xi’an Jiaotong University, Xi’an, China

Background and aims: Magnetic compression anastomosis (MCA) caused surgeons’ attention recently for its manipulate easily, anastomosis quickly, better consistent quality and a wide range of applications. In this study we developed a new biodegradable MCA devices which bonded with nano-NdFeB magnetic particles and biodegradable polymer material PLGA (poly-L-lactide-co-glycolide). This new biodegradable MCA devices can be used in the anastomosis of hepatic vascular. It can provide enough magnetic force to make sure it is safe while anastomosis. With the degradation of degradable polymer biomaterials, nano-magnetic materials can be gradually excreted to invitro when anastomotic stoma healed. Then we can achieve the aim of sutureless anastomosis by MCA in hepatobiliary system.

Methods: 1. To product nano-NdFeB magnetic particles with high energy ball milling and modifying it surface with silica gel.
2. The nano-SiO₂-NdFeB magnetic particles were bonded with biodegradable polymer material PLGA by solvent evaporation method.
3. Biodegradable nano-NdFeB composite materials fabrication by warm compaction process.
4. New biodegradable MCA rings were developed and the portal vine end-to-end sutureless reconstruction in canine.

Results: 1. The diameter of nano-NdFeB magnetic particles is about 20-150 nm and the silica surface is 7 nm. MTT test indicated that the cytotoxicity degree of nano-particles was 1. TEM show that the nanoparticles could be observed intra-cellular and distribution in the cytoplasm without nucleus. The acute toxicology research show that the liver and kidney functions are stable and the histological sections of liver, kidney there no significant pathological changes.
2. The best temperature and pressure of warm compaction process is 120°C and 12 MPa. The best composition is 95% nano-NdFeB particles with 5% PLGA. The maximum magnetic energy product is 45 kJ/m3.
3. The degradation time of biodegradable MCA rings is closely related to molar ratios of PLGA. The degradation peak of molar ratios of PLGA (90 L /10 G), (70 L /20 G), (50 L /50 G) is at the 8th, 6th, 4th week.
4. The portal vine end-to-end sutureless reconstruction in canine show that the operation time were significantly shortened. TEM show that MCA anastomotic intimal was smoothly, with endothelial cells arranged regularly.

Conclusions: Developed a new type of biodegradable MCA devices with nano-NdFeB composite materials. The MCA devices have good magnetic energy product, degradation property, biocompatibility, and low cytotoxicity. It can offer a fast, convenient, and safety approach sutureless anastomosis of hepatic vascular anastomosis. Also it can reduce the influence of human factors and the difficulty of surgical operation and complications.

INFLUENCE OF RESECTION MARGIN WIDTHS ON OUTCOMES OF HEPATIC RESECTIONS FOR COLORECTAL LIVER METASTASES

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Purpose: Hepatic resection is the most effective therapy for patients with colorectal liver metastases (CLM) with 5 year survival of up to 58%. Traditionally, clear margins of at least 1 cm were considered a prerequisite for better survival. However, recent studies have questioned the prognostic importance of the 1 cm rule. This study’s aim is to evaluate the effect of the resection margin width on patients’ outcomes.

Methods: From 2001 to 2011, all patients who underwent liver resection for CLM were selected from the Singapore General Hospital. Patients with extrahepatic metastases prior to resection of CLM were excluded.

Results: Overall median survival, recurrence free survival (i.e. intra and extrahepatic recurrence) and intra-hepatic recurrence free survival were 25, 10 and 14 months respectively. 165 (85.1%) and 36 (17.9%) went liver resection for CLM were selected from the study’s aim is to evaluate the effect of the resection margin width on patients’ outcomes.

Methods: From 2001 to 2011, all patients who underwent liver resection for CLM were selected from the Singapore General Hospital. Patients with extrahepatic metastases prior to resection of CLM were excluded.

Results: Overall median survival, recurrence free survival (i.e. intra and extrahepatic recurrence) and intra-hepatic recurrence free survival were 25, 10 and 14 months respectively. 165 (85.1%) and 36 (17.9%) underwent R0 and R1/2 resection respectively. Kaplan–Meier (KM) univariate survival analysis suggests patients with R0 resection had better survival as compared to R1/2 resection (HR = 0.635, 95% CI = 0.39–1.04, p = 0.067). Among the R0 resections, 48 (29.1%), 48 (29.1%) and 69 (41.8%) had margin width of ≤ 1, 1 to 5 mm respectively. On univariate analysis, multiple liver metastases, bilobar distribution and ≥ 3 segments resected were associated with narrower margin width. Multivariate analysis showed ≥ 3 segments resected was independently associated with ≤ 1 as compared to > 5 mm resection margin (OR = 2.85, 95% CI = 1.26–6.43, p = 0.012).

Wider margins of > 5 as compared to ≤ 1 mm were associated with better intrahepatic recurrence free survival (HR = 0.544, 95% CI = 0.32–0.93, p = 0.027). However, margin width effect on overall survival and
recurrence free survival was not statistically significant with p values of 0.298 and 0.484 respectively.

**Conclusion:** Wider resection margins are associated with lower intrahepatic recurrence. However, it has no influence on overall survival and recurrence free survival. Achieving a 1.0 cm margin is not necessary when resecting CLMs.

1150
**NF-KB REGULATES PHAGOCYTOSIS IN SPLENIC MACROPHAGE IN HYPERSPLENISM DUE TO LIVER CIRRHOSIS**

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**Background:** Nuclear factor-kappaB (NF-κB) transcription factors have a key role in various biological processes. In this study, we explore the role of NF-κB in dysfunction of splenic macrophage in hypersplenism due to liver cirrhosis.

**Methods:** NF-κB activation was examined in hypersplenism splenic macrophage. To inhibit NF-κB activation, we used NF-κB p65 activation inhibitor JSH-23, p65 siRNA and c-Rel siRNA to treat normal and hypersplenism splenic macrophage. Phagocytosis and secretion were evaluated in untreated and treated cells. NF-κB p65 and c-Rel downstream target genes were evaluated by quantitative real-time polymerase chain reaction (qRT-PCR).

**Results:** NF-κB p65, p52 and c-Rel are constitutively activated in hypersplenism splenic macrophage. NF-κB activation inhibitor JSH-23 and siRNA-mediated p65 and c-Rel gene silencing significantly suppressed phagocytosis and secretion in hypersplenism splenic macrophage. We identified phagocytosis regulators interferon-γ (IFN-γ) was regulated by NF-κB in hypersplenism splenic macrophages.

**Conclusions:** These results demonstrate that NF-κB p65 and c-Rel may be critical factors in phagocytosis in hypersplenism splenic macrophage. Selective targeting of different NF-κB dimers may become potential therapeutic targets for treatment of hypersplenism and liver cirrhosis.

1151
**COMPARATIVE LIVER UTILIZATION RATE IN CADAVERIC LIVER TRANSPLANTATION- PRE AND POST-UTILIZATION OF MARGINAL DONORS IN SINGAPORE**

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**Introduction:** Liver transplantation is becoming standard of care for selected patients with HCC and cirrhosis. Scarcity of donor pool remained limiting factor as a routine treatment. We show the significant increase in liver utilization rate after using marginal liver donors.

**Materials and Methods:** All donor referrals between 2004 and 2012 were studied. Reasons for rejection as potential donors were documented. We compare donor referrals utilization rate in the era of pre- and post-utilization of marginal donors.

**Results:** From 2004 to 2007, liver utilization rate remained very low (mean: 15%). This is because there are strict criteria in prevention of primary non-functioning liver post transplantation. However, starting from 2008, marginal donors are used to increase the donor pool utilization to overcome the demands (mean: 65%). Marginal donors such as Hep BcAb +ve, history alcohol use, macrovesicular steatosis >40%, transient hypotension, transient abnormal liver function test, donor requirement of >2 inotropes, possible sepsis, and ICU stays >5 days. There are significant increase 330% rate of liver utilization and no significant survival outcomes of patients who received marginal donor grafts.

**Conclusion:** Acceptance of marginal donor has successfully increased the liver transplant rate in Singapore for the past 5 years. More studies need to be following up to include more potential donor referrals in future.

1155
**REVERSAL EFFECTION OF BAICALEIN ON MULTIDRUG RESISTANCE IS ASSOCIATED WITH SUPPRESSING THE EXPRESSION OF P-GP AND BCL-XL**

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**Background and objective:** Multidrug resistance (MDR) led a major cause to failure of chemotherapy. To date, few MDR reversal agents illustrated satisfied effect. This investigation aimed to observe the reversal effect and the potential mechanism of Baicalein on multidrug resistance in human hepatocarcinoma MDR cell line in vitro.
Methods: Human hepatocarcinoma MDR cell line BEL-7402/5-FU was cultured in vitro. There are five groups including 5-FU, Epirubicin, Baicalein, 5-FU + Baicalein and Epirubicin + Baicalein. The inhibition rate and resistance fold of 5-FU and EPI, the reversal effect of Baicalein were determined by MTT assay. The intracellular concentration of Rho 123 and EPI were detected by FACS. The expression pattern of P-gp and Bcl-xl were observed via Realtime-PCR, immunohistochemistry assay and FACS.

Results: Combined with Baicalein, the IC50 of 5-FU were significant lower than that of 5-FU single usage. Epirubicin added with Baicalein illustrated the same result; The intracellular average fluorescence intensity of Rho 123 in treatment group were significantly enhanced versus the control group, the EPI demonstrated the same phenomenon; The mRNA and protein of P-gp and Bcl-xl were reduced than that of the control group after the treatment of baicalein. FACS showed the positive rate of P-gp reduced 1.23 and 1.63 fold and the average fluorescence intensity of Bcl-xl reduced 1.44 and 2.08 fold than that of the control group.

Conclusions: Baicalein can reverse the MDR of BEL-7402/5-FU partly in vitro, the reversal effect of Baicalein on the MDR of BEL-7402/5-FU is associated with suppressing the expression of P-gp and Bcl-xl in vitro.

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1156

TH17 DYNAMIC CHANGES EFFECTS IN THE DEVELOPMENT OF HCC WITH PVTT

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Aim: To observe dynamic changes of Th17 cell cytokines and IL-17mRNA among healthy volunteers, primary hepatocellular carcinoma (HCC) patients and HCC patients with portal venous tumor thrombus (PVTT) in peripheral venous blood and/or portal venous blood, to further clarify role of portal vein microenvironment Th17 dynamic changes during PVTT formation and provide a new target for clinical diagnosis, treatment.

Method: Control group, HCC group and PVTT group, 30 male cases in each group, liver function was in the range as Child-Pugh grade A or B, patients in HCC group and PVTT group were confirmed by B ultrasound and CT or MRI, paralleled with liver pathology testing. Liver pathology, biochemical were performed respectively, AFP, flow cytometry and RT-PCR detection were performed respectively.

Result: Serum GGT level, HCC group was significantly higher than control group (p < 0.01), and there was a significantly higher level in PVTT group than control group too (p < 0.01), PVTT group in comparison with HCC group, Level of Serum GGT was significantly higher (p < 0.05); Th17: In HCC group and PVTT group, ratio of patients peripheral blood CD4 + IL-17 + cells and CD4 + T cells was much higher than control group (p < 0.01), and the same result in portal venous blood (p < 0.01), and higher in PVTT group than which in HCC group in portal venous blood (p < 0.01); Serum IL-17 mRNA detection: whether in HCC group, or PVTT group, expression level of peripheral monocyte blood cells IL-17mRNA was significantly higher than that in control group (p < 0.01), whether in peripheral blood or portal venous blood, in PVTT group was higher level than which in HCC group, and the difference was different (p < 0.01); IL-17Mrna level in PVTT group was higher in portal venous monocyte blood cells than that in peripheral venous monocyte blood cells, and the difference was significantly (p < 0.05); correlation of Serum GGT content and portal venous Th17 cytokine expression level: It was obviously positive correlation between them.

Conclusion: In peripheral venous blood/portal vein microenvironment, expression levels of Th17 cytokine was rise in line with genesis of liver tumors and formation of portal venous tumor thrombus. There was significantly positive correlation between GGT content and expression of Th17: Peripheral venous blood/portal venous blood Th17 cell levels may be able to be used as a new target in the prognosis of HCC patients’ development in the near future.

1158

NANOSECOND PULSED ELECTRIC FIELD (NSPEF) INHIBITS TUMOR GROWTH VIA INHIBITING THE MAIN HALLMARKS OF CANCERS IN VITRO AND IN VIVO

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Objective: Cancer was a leading cause of death and deaths from cancer worldwide are projected to rise to over 11 million in 2030. Nanosecond pulsed electric field (nsPEF) as a new technology has emerged from military into biomedicine. In this study, we want to explore whether nsPEF could inhibit cancer and how it functions in vitro and in vivo.

Materials and Methods: PANC-1 cells were prepared for in vitro experiment, and treated by nsPEF in different intensities. After incubation for different hours, cell viability was determined and cell proliferation was measured by CCK-8 assay. Cell apoptosis was identified by DNA ladder assay, cell TUNEL, TEM and flow cytometry. Cell cycle was analyzed by flow cytometry.
Cell migration and invasion were detected by Tran-swell. Apoptosis relative Bcl-2 family proteins, NF-KB pathway proteins, Wnt pathway proteins and MMPs proteins were ascertainment by Western-blot. In addition, HepG2 cells were injected into nude mice to perform in vivo experiment. Tumor growth was observed per week. MRI of tumor-bearing mouse was performed to observe in vivo tumor size. All mice were sacrificed to compare tumor volume. Tumor H&E, TUNEL and TEM were performed to explore the possible mechanisms of tumor shrinkage.

Results: NsPEF could significantly decrease cancer cells number and viability in vitro. It induced cell apoptosis, expressed by forming DNA fragmentation, increasing TUNEL positive cells, presenting mitochondria degeneration and apoptotic body. With increased intensity of nsPEF, cells presented from early apoptosis to late apoptosis and necrosis, with high expressions of pro-apoptotic proteins such as Bax, Bak, Bim etc, cytochrome C, and caspase-3, and low expressions of anti-apoptotic proteins Mc-I, Bel-2. NsPEF could inhibit cell proliferation and stop cell cycle at G1 phase, which might be through inhibiting NF-KB pathway to reduce protein expressions of Cyclin-A and Cyclin-D1. It also decreased migration and invasion ability of cancer cells via suppressing Wnt pathway including beta-Catenin and c-Myc proteins to reduce MMPs family proteins and VEGF expressions. In addition, In vivo experiments via tumor MRI and visual comparison provided vigorous evidences that nsPEF significantly inhibited tumor growth. Tumor cell shrinkage, vessels damage, and leukocytes infiltration were observed by H&E stain. Tumor cell apoptosis was found by tumor TUNEL and TEM.

Conclusion: nsPEF could inhibit cancer growth in vitro and in vivo via inducing apoptosis, inhibiting proliferation, inactivating invasion and metastasis, and destroying tumor microenvironment, which will provide a novel and effective therapeutic strategy for cancers.

1159

THE CO-CULTURE OF KUPFFER CELL AND HEPATIC STELLATE CELLS UNDER THE DIFFERENT STIMULATING FACTORS

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Background: The relation of hypersplenism due to portal hypertension and hepatic fibrosis become a hot spot. In this study, we simulate the environment of portal hypertension in vivo by co-culture to investigate molecular mechanism and effect of spleen affecting the formation of hepatic fibrosis.

Methods: Isolate hepatic kupffer cell (KC) and splenic macrophage (MΦ) from SD rats. Culture HSC-T6 cell lines. Prepare culture fluid of kuffer cell and splenic macrophage with LPS stimulating or not. According to the different stimulant conditions and cultural methods, we can divide culturing HSC into six groups: A1 (HSC), A2 (HSC + LPS), B1 (HSC + KCCM), B2 (HSC + KCCM-L), C1 (HSC + MΦCM), C2 (HSC + MΦCM-L). We can divide co-culturing HSC and into four groups: a1 (HSC + KC), a2 (HSC + KC + LPS), c1 (HSC + KC + MΦCM), c2 (HSC + KC + MΦCM-L). The expression of HSC TGF-β, PDGF-R and CD38 is detected by laser scanning confocal microscope and flow cytometry. And the expression of IL-6 is detected by ELISA.

Results: After adding LPS, the expression of HSC TGF-β, PDGF-R, CD38 and culture liquid IL-6 in co-culture group(a1, a2, c1, c2) are significantly higher than in control group(A1, A2, C1, C2). The expression in the stimulant liquid of splenic macrophage group is highest in all. The changing trend of various index is c2 > a2 > B2 > C2.

Conclusion: MΦCM-L could activate the HSC by its direct or indirect stimulation. And the indirect action which is realized with the stimulation of KC has the dominant position. When the MΦCM-L is present, it is more activated. Spleen could promote the formation of hepatic fibrosis.

1164

COMPARISON OF RADIOFREQUENCY ABLATION AND SURGICAL RESECTION IN PATIENTS WITH SOLITARY HEPATOCELLULAR CARCINOMA WITHIN 5 CM: A META-

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Background and aims: Tumor size, tumor number and liver function were important prognostic factors in patients with hepatocellular carcinoma (HCC). It is widely accepted that for HCC ≤ 3 cm, radiofrequency ablation (RFA) is equivalent to surgical resection (SR), in spite of tumor number and liver function. And it remains controversial for HCC ≤ 5 cm.

Methods: Databases were searched for comparative studies on RFA versus SR published from 2005 to 2012. A Meta-analysis was performed using a random-ized or fixed effect model to compare the treatment efficacy between RFA and SR.

Results: 5 studies fulfilled our criteria and were included. For patients with solitary HCC ≤ 5 cm, RFA was equivalent to SR for 1-, 3- and 5-year overall survivals (OS) (p > 0.05). However, SR was superior to RFA for 1-, 3- and 5-year disease-free survivals (DFS) (p < 0.05). Higher local recurrence rate was associated with RFA than SR.

Conclusions: For solitary HCC ≤ 5 cm, RFA can achieve comparable overall survival as SR, though with higher recurrence rate and lower disease-free survival.
HEPATOCELLULAR CARCINOMA PRESENTED AS SPONTANEOUS RETROPERITONEAL BLEEDING-IMAGING

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Introduction: HCC can have various clinical presentations. We present one case of locally advanced segment VI HCC which caused right retroperitoneal bleed.

History: 52 year old gentleman who presented with non specific right sided abdomen pain and progressive drop of haemoglobin found to have right sided large retroperitoneal hematoma. CT scan showed large retroperitoneal hematoma 5 x 6 x 7 cm with bleeding. Further angiogram showed multiple blood supply of the hematoma region with no active bleeding hence angiobeslisation withheld. Initial impression was ruptured retroperitoneal tumor such as adrenal. Patient was treated conservatively as his Hb and haemodynamic stable. Patient subsequently underwent staged elective surgery to remove the ruptured tumour and final histology showed poorly differentiated HCC.

Imaging: Figure 1 and 2: Large right retroperitoneal haematoma

THE ALTERATION OF SPLEEN IN MURINE TRANSPLANTABLE LIVER CANCER

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Background/Aims: Splenectomy can either promote or inhibit tumor growth; the role and the mechanism of spleen in tumor immunology are still unclear. In the present study, we aimed to describe the alteration of spleen and discuss the significance of alteration during tumor growth.

Methods: H22 transplantable liver cancer was established in BALB/c mice. Spleen weight and index as well as the histology were observed, and the percentage of myeloid-derived suppressor cell (MDSC) in spleen was also detected by flow cytometry in 1 week, 2 weeks and 3 weeks after tumor challenge.

Results: The mean survival time of tumor-bearing mice was 21 day. Spleen weight and index increased 1 week after tumor challenge, then declined in 2 weeks later, and were significantly lower than that in the control group after 3 weeks (p < 0.05). The hematoxylin and eosin (H&E)-stained spleen sections from tumor-bearing mice also revealed an abnormal splenic architecture including red pulp hyperplasia and no boundary between white pulp and red pulp. The percentage of splenic MDSC was elevated in the course of tumor growth. It reached to 16.0, 3.58% after 3 weeks of tumor challenging compared to 2.55, and 0.07% in the control group (p < 0.05).

Conclusions: Our data demonstrated spleen weight and index were decreased and the percentage of immune inhibitory cell MDSC increased in the late stage of tumor, indicating spleen may play a negative immune function and promote tumor progression.

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BAICALEIN-INDUCED ENHANCEMENT ON MMC-RELATED CYTOTOXICITY IN HEPATOMA CANCER CELLS VIA DNA DAMAGE REPAIR PATHWAY

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Background/Aims: Causing DNA damage in the form of DNA cross-links as well as a variety of DNA mono-adducts, which is a serious damage to chromosomal DNA that blocks key DNA metabolisms including DNA replication and transcription is the major mechanism of mitomycin (MMC)-induced cytotoxicity. Activation of DNA damage repair (DDR) signaling is a common consequence in cancer cells underwent MMC treatment.

Hence, inhibiting key proceeds in DNA repair-related cell cycle checkpoint could enhance DNA damage-related chemotherapy. Baicalein is a flavonoid derived from the root of Scutellaria baicalensis. Our previous investigation suggested that Baicalein could enhance the cytotoxicity effect induced by MMC, leaving the mechanism unclear. This study was aimed to investigate the mechanism of Baicalein-induced chemo-sensitising effect.

Methods: HepG2 cells were treated with MMC along or combine Baicalein, MTT assay and Annexin V/PI staining was executed to detect Baicalein-induced chemo-sensitise effect in MMC treatment. Western-Blot was performed to investigate the alteration of key molecules in DDR pathway caused by Baicalein.

Result: The combined treatment of Baicalein and MMC inhibits proliferation of HepG2 cells in a synergistic manner. MMC could increase Rad51 protein level in HepG2 cells while Baicalein could decline the expression of Rad51 in a dose-dependent way. Moreover, Baicalein suppresses MMC-elicited phosphorylated ATR and Rad50 protein levels.
Conclusions: Our study reported that Baicalein enhanced MMC-induced cytotoxicity on HCC cancer cells. Furthermore, our data indicated that the mechanism of Baicalein-induced chemo-sensitise effect was based on suppressing DDR activity in HCC cancer cells.

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1172
THE PREVENTION AND TREATMENT OF INTRA-ABDOMINAL HEMORRHAGE POST SPLENECTOMY AND LINEAR STAPLER PERICARDIAL DISCONNECTION ON PORTAL HYPERTENSION

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Aim: To introduce a self-designed method, the linear stapler pericardial disconnection in treating portal hypertension, and to evaluate the prevention and treatment of intra-abdominal hemorrhage post operation.

Method: The clinical data from 142 patients with portal hypertension undergoing linear stapler pericardial disconnection from Nov 1998 to Oct 2012 were analyzed retrospectively.

Results: All the patients had liver cirrhosis due to viral hepatitis; 27 patients belonged to Child’s classification degree A (19.0%), 94 to degree B (66.2%), and 21 to degree C (14.8). Emergency operation was performed in 9 cases, 36 cases were submitted to prophylactic surgery, and the rest to selective operation. The operations were performed smoothly, without operative mortality. There were 7 cases suffer Intra-abdominal Hemorrhage post the operation. 3 cases suffer erthesis from drainage tube, 3 cases have a hematocoele in abdominal cavity, 1 case haemorrhage from drainage tube incision. 1 case expired because of hepatic failure; other cases were cured (4 cases conservative treatment, 2 cases operation).

Conclusions: The “linear stapler pericardial disconnection” is a convenient and effective procedure for the treatment of portal hypertension. It deserves further study in order to be popularized in clinical practice. The main reasons of Intra-abdominal Hemorrhage post the operation were the patients have thrombocytopenia, lesser clotting factors and higher portal vein pressure. The main prevention method was correct hypercoagula-
ble state according thrombelastography before operation; exact hemostatic at easy bleeding site (spleen pedicle, gastric short blood vessels, gastric coronary veins and splenorenal ligament). Conservative treatment was available to intra-abdominal erthesis (<50 ml/h) and operation should be performed in intra-abdominal hemorrage (>50 ml/h). Vascular embolization or laparotomy hemostatic should be selected, and individualized treatment was advocated.

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1175
RETRIEVING A LARGE HCC LAPAROSCOPIC LIVER RESECTION SPECIMEN THROUGH A SMALL PERIUMBILICAL INCISION: HOW WE DID IT!

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Video Abstract: Traditionally hepatectomy specimen needs an incision congruous with the resected specimen to retrieve the specimen without mutilating and compromising on the pathological examination. The video depicts a large 8–10 cm lesion in the segment III of the Liver in an elderly gentleman. The tumor was resected with an adequate margin. The specimen was then put in a bag and retrieved through a small periumbilical incision without mutilation and compromising on the resected edge for histopathological examination.

1176
SURGICAL TREATMENT FOR CHRONIC RELAPSING PANCREATITIS

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Background: Chronic relapsing pancreatitis often needs surgical treatment. We report the series of patients need surgery for chronic pancreatitis especially focused on patients needed repeated surgical treatment.

Patients: Ninety-four patients diagnosed as chronic pancreatitis and underwent pancreatic surgery from 1992 to 2010 were included.

Results: Thirty four decompression surgery were performed including 34 pancreato-jejunostomies and 17 cysto-enterostomies. As a pancreatic resection, 17 pancreatic head resections and 22 distal pancreatectomies were chosen. Most of the cases had scheduled operation for chronic pain; however, We had 3 emergent operation for hemorrhagic shock, and 7 quasi-emergent case for enlarged pseudocyst or pseudoaneurysm. As a less invasive surgery, duodenum preserving pancreatic head resection or pancreas head resection with second portion duodenectomy were performed. 3 distal pancreatectomies and 4 cysto-enterostomies were laparoscopically operated. Among 34 patients had pancreatojejunostomy, 4 cases needed additional treatment including 3 reoperative surgery.

Conclusions: Patients with chronic pancreatitis have various etiology or clinical course and need careful evaluation to be operated.
SUCCESSFUL EN-BLOC RESECTION OF METASTATIC HCC WITH IVC REPLACEMENT AND LEFT RENAL VEIN RE-IMPLANTATION

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Background: Surgical resection of metastatic HCC can be indicated in selective patients. The most important life threatening cause in HCC patient is not the extrahepatic metastasis but the status of liver tumor or liver function. Hence, regardless of extensive extrahepatic metastasis, better outcome can be expected after surgical resection if complete resection is secured under well-controlled liver tumor and well-preserved liver function. Herein we report successful en-bloc resection of metastatic HCC involving right adrenal gland and kidney, IVC and massive adjacent para-aortic lymph node with IVC replacement and left renal vein re-implantation.

Patient and method: The patient was 54 year-old male patient with HBV-related chronic hepatitis. 21 months before admission, HCC occurred in the liver and successfully treated with radiofrequency ablation. 11 months before admission, metastasis of HCC was suspected at right adrenal gland and adjacent para-aortic lymph node, but HCC was absent in the liver. Radiotherapy was performed, but the tumor enlarged and invaded right kidney and renal vein. Additionally IVC thrombus and conglomerated para-aortic lymph nodes enlargement was noted on admission. AFP and PIVKA II level and liver function were normal range. For en-bloc removal of the metastatic tumor, Kocherization was performed first, and then IVC was isolated at supra- and infra-renal side, and left renal vein was also isolated. Right adrenal vein was divided after right-side mobilization of the liver. Under veno-venous bypass, en-bloc removal of the conglomerated metastatic tumors were possible and resected IVC was replaced with 25 mm diameter. Dacron graft and left renal vein was re-implanted to the replaced IVC.

Result: The operation time was 13 h 40 min and the 3 units of packed RBC was transfused. Urine output and serum creatinine level were maintained well during operation and postoperative recovery. Pathology of the resected specimen revealed metastatic HCC. He was discharged without complication on postoperative 20 days. Follow-up CT scan on postoperative 4 months showed patent vasculature and absence of tumor.

Conclusion: Favorable outcome could be expected after en-bloc resection of metastatic HCC when the patient had well controlled HCC in the liver and preserved liver function.

APPLICATION OF TOTALLY LAPAROSCOPIC ROUX-EN-Y ANASTOMOSIS FOR THE TREATMENT OF BILIARY TRACT OR PANCREATIC DISEASES

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Objective: To explore the application of totally laparoscopic Roux-en-Y anastomosis for the treatment of biliary tract or pancreatic diseases.

Method: 50 cases with choledochal cyst and 6 cases with pancreatic pseudocyst were analyzed retrospectively, who underwent laparoscopic total cyst excision with Roux-en-Y hepatojunostomy and Roux-en-Y anastomosis of pancreatic pseudocyst with jejunal stoma between May. 2004 and Feb. 2012 in our hospital.

Results
All operations were completed successfully with totally laparoscopic surgery. Mean duration of operation was 110 min, and average intraoperative bleeding was 45 ml. All cases were recovered smoothly without stenosis of anastomotic stoma, biliary fistula or pancreatic fistula. Average stay was 9 days. Fever, jaundice, pancreatitis, ankylehron and other complications were never occurred in patients in postoperative follow-up. There was no intra-or postoperative complication.

Conclusion: Totally laparoscopic Roux-en-Y anastomosis was effective, practical, safe and minimally invasive procedure. Familiarity of intro-operative anatomical structure, exposure of operative field and perfect technique of suture are the key points to operational success.

THE COMMON CAUSES OF HYPERSPLENISM AND PERIOPERATIVE MANAGEMENT OF SPLENECTOMY

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Abstract: According to the causes of hypersplenism, it can be divided into primary and secondary categories. The primary hypersplenism are found in some hemoplasia (congenital hemolytic anemia, thrombocytopenic purpura, primary splenic granulocytopenia, et al). Most of hypersplenism was secondary hypersplenism, for example: the infectious diseases (typhia, rubella, septicaemia, virus hepatitis, et al), silting hemorrhagic disease (portal hypertension, hemosiderosis, congestive heart failure, et al), metabolic disease (Gaucher’s disease, Niemann-Pick disease, et al), malignant tumor diseases.
PRELIMINARY QUANTITATIVE STUDY ON OBSTRUCTIVE JAUNDICE BY REAL-TIME ULTRASOUND ELASTOGRAPHY

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Background: Obstructive jaundice can cause the change of liver stiffness, and real-time ultrasound elastography with Strain Histogram Measurement Function is a promising quantitative method for detecting liver diffuse disease.

Objective: To investigate the preliminary quantitative application value of obstructive jaundice by real-time ultrasound elastography with Strain Histogram Measurement Function.

Methods: 86 patients with obstructive jaundice were enrolled and divided into mild, moderate, high levels of jaundice according to the clinical total bilirubin (TB) index, besides, 35 patients without jaundice or with invisible jaundice as control group. ALL of them were underwent real-time ultrasound elastography and the liver MEAN and blue area percentage (% AREA) were measured by Strain Histogram Measurement Function.

Results: The liver MEAN and %AREA had statistical differences among the control group, the research group and all levels of jaundice; a negative correlation between the MEAN and the jaundice levels (Spearman, s correlation coefficient $r = -0.5$, $p < 0.000$) and a positive correlation between the %AREA and the jaundice levels (Spearman, s correlation coefficient $r = 0.5$, $p < 0.000$) were detected.

Conclusion: Real-time ultrasound elastography with Strain Histogram Measurement Function could reflect the degree of obstructive jaundice, the MEAN and %AREA can be used as quantitative reference index of evaluating obstructive jaundice degree.

Key words: Real-time ultrasound elastography; Obstructive jaundice; MEAN; %AREA

THE DIAGNOSTIC VALUE OF PET/CT IMAGING IN HEPATIC ALVEOLAR ECHINOCOCCOSIS AND ITS BIOLOGY BOUNDARY

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Abstract: Objective: To analysis the biology boundary of the hepatic alveolar echinococcosis with PET/CT and improve the diagnostic value of PET/CT compared with pathology.

Methods: The patients who were certified hepatic alveolar echinococcosis, 13 cases in our hospital (male: 5 cases, female: 8 cases, the age is between 41 ± 24 years old) 17 lesions in total have taken the PET/CT examinations. All the patients underwent surgical treatment. Makes the analysis to the performance of PET/CT imaging, and then compared with the pathology.

Results: The distribution of radiotracer is Non-uniform in the liver, and sometimes, there is no uptake of radiotracer in the lesion, but around the lesion, the uptake is obvious, so, 18F-FDG can draw the biology boundary of the lesion, and then to show the characteristics of radiopharmaceuticals uptake in the boundary. SUVmax values between 3.5 ± 1.1, showing the characteristics of biological activity. 2 h later, the delayed phase showed that the up-taking of radiopharmaceuticals is increased, SUVmax values between 4.6 ± 0.9, the SUV values of every lesion increase than initial phase. Do the Statistical analysis between the biology boundary of hepatic alveolar echinococcosis and the Pathology, Sensitivity: 83.33% (10/12) specificity: 60% (3/5) accuracy: 76.47% (13/17), because of the disease had a postoperative complications. Surgical procedures should be selected based on portal venous pressure and some pathologic change. The most common postoperative complications include: intransperitoneal hemorrhage, humoral imbalance, portal vein thrombosis, refractory thrombopenia, upper gastrointestinal hemorrhage et al. In brief, strict preoperative assessment, careful preoperative preparation, skillful surgery operation, timely postoperative treatment, and individual treatment are the keys to get the best efficacy in patients with hypersplenism.

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ROLE OF TRYSPIN-PROTEASE ACTIVATED RECEPTOR-2 PATHWAY IN PANCREATIC CANCER PAIN

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Background and aims: Rapid and effective treatment of pain in pancreatic cancer remains a clinical challenge. The protease activated receptor-2 (PAR-2) plays a critical role in many aspects of nociceptor function. Therefore, we investigated the potential role of tryspin-PAR-2 pathway in pancreatic cancer pain.

Methods: Pancreatic carcinoma specimens (n = 22) and matched control samples (n = 28) were obtained from patients with pain who underwent surgery at Eastern Hepatobiliary Surgery Hospital. Supernatants from pancreatic carcinoma specimens were used for activation of cultured DRG neurons and for evocation of peripheral nociception in rats after intra-paw injection. The animal model by orthotopic injection of SW1990 cells in nude mice was used for determination of the role of tryspin-PAR-2 in pancreatic cancer pain.

Results: Pancreatic carcinoma specimens from release increased levels of tryspin compared to normal controls. Specimens from pancreatic cancer patients (but not controls) released mediators that sensitized rat sensory neurons in culture. Sensitization was prevented by a serine protease inhibitor FUT-175 and PAR-2 antagonist peptide. Specimens from pancreatic cancer patients, but not controls, also caused somatic hyperalgesia and allodynia in mice, when administered into the paw. These prionociceptive effects were inhibited by FUT-175 and a PAR-2 antagonist. Pain behaviors in pancreatic cancer pain mice induced by SW1990 cells were alleviated by PAR-2 antagonist peptide.

Conclusions: These findings suggest that tryspin-PAR-2 pathway plays a role in the development and maintenance of pancreatic cancer pain.

DECREASED EXPRESSION OF TH17 TYPE CYTOKINES CONTRIBUTES TO SUPPRESSION OF ACUTE REJECTION FOLLOWING ORTHOTOPIC LIVER TRANSPLANTATION IN A SUBCUTANEOUS ALVEOLAR ECHINOCCOSIS RAT MODEL

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Background: For end-stage hepatic alveolar echinococcosis (HAE) patients, orthotopic liver transplantation (OLT) is the best scheme to save lives. Rejection of allograft for HAE patients have been found to be different from general allograft after liver transplantation (LT). Th17 cytokines have been associated with immune rejection in the study of LT.

Methods: The recipient BN rats were divided into two groups (for E.m + ROLT group and E.m – ROLT group). Half rats (30 rats) were injected subcutaneously with protoscoleces, and underwent injecting 3 months later. Six recipient rats of each group were euthanized randomly at the 1st, 3rd, 5th and 7th days post-transplant. Interleukin-17 (IL-17) mRNA of liver allografts was measured by SYBR Green I real-time RT-PCR, IL-17 positive cell ratio of liver by immunohistochemistry, IL-17 expression in serum by ELISA. Serum interleukin-23 (IL-23) and transforming growth factor beta (TGF-β) also were detecting.

Results: Allograft rejection, as evaluated by liver function, survival time of liver allograft and RAI score of histology, proved that the model of ROLT was successful and E.m + ROLT recipients prolonged the survival of liver allograft, compared with E.m – ROLT group. Real-time RT-PCR, immunohistochemical staining and serumenal detecting showed that the expression of IL-17 was lower in E.m + ROLT group, and escalate more tardily compared with E.m – ROLT group. Experimental results of serumal IL-23 level which was similar to IL-17 have been detected by ELISA. Relational serumal TGF-β deficiently showed promotional role in facilitating IL-17 expression.

Conclusions: The present study data showed Echinococcus multilocularis (E.m) prolongs the survival of liver allograft. Explanation of this scientific phenomena is probably due to the minor expression of IL-17 and IL-23, and insufficient promotion of IL-17 expression by TGF-β may be implicated in the mechanism.
EMERGENCY PROXIMAL LIENORENAL SHUNT (LRS) FOR VARICEAL BLEEDING IN PATIENTS WITH EXTRAPORTAL PORTAL VEINOUS OBSTRUCTION (EHPVO)

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Background: We have previously shown that that LRS is a safe and effective (95% 15-year survival) one-time procedure for variceal bleeding in patients with EHPVO. While endotherapy is preferred for the management of acute variceal bleeding, patients who fail to respond to endotherapy need emergency surgical intervention. We analyzed our results of emergency LRS in this cohort.

Methods: All patients with EHPVO who had undergone emergency LRS for acute variceal bleed not responding to conservative measures including endotherapy were included.

Results: Between 1975 and 2010 we operated upon 965 patients with EHPVO of whom 55 underwent emergency surgery. Fifty of these patients had an LRS done, 32 were males and their mean (SD) age was 17.3 (8.9) years (range 3–42). They had been symptomatic for 3 months to 25 years and had had a mean of 3.9 episodes of bleeding (range 1–18) requiring a mean of 9.5 units of blood transfusion (range 2–30 units). 3 (6%) patients had associated gastropathy and 3 (6%) had biliopathy. Preoperative endotherapy was done in 19 of them while 31 were taken up for surgery without any endoscopic intervention. Three patients died (6%), 4 had an early re-bleed (8%) and 1 a late re-bleed (2%). Five patients were re-explored, one for an early re-bleed and the four others for other surgical complications. The mean postoperative hospital stay was 12 days and none of the patients developed encephalopathy over a mean follow up period of 109 months (range 24–364). The liver function was normal. In comparison to elective setting the emergency rescue procedure carried higher mortality (1.1 vs. 6%), re-bleed rate (7.6% vs. 10%), need for transfusion (6.5 vs. 18.96%) and need for further endotherapy (8.4 vs. 10%). The reduction in varices was similar to the outcome of elective procedure.

Conclusion: Compared with our published experience with elective LRS, the emergency LRS for control of acute variceal bleeding has a higher operative mortality, an almost similar re-bleed rate. Hence, the LRS is a safe and effective therapeutic option for control of acute variceal bleeding in patients with EHPVO.

TREATMENT EXPERIENCE OF ASYMPTOMATIC COMMON BILE DUCT STONE IN LAPAROSCOPIC CHOLECYSTECTOMY

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Objective: To summarize and discuss the experience of asymptomatic common bile duct stone in laparoscopic cholecystectomy.

Methods: The clinical data of 26 patients who were found asymptomatic common bile duct stone in laparoscopic cholecystectomy were retrospective analyzed.

Results: Laparoscope operation was successfully completed in 24 cases (92.3%), whereas a conversion to open surgery was required in 2 cases (7.7%). There was no significant postoperative complication such as bile leakage, bleeding or infection.

Conclusions: Good command of operative technique, combined with endoscope and intraoperative cholangiography, laparoscope operation for treating asymptomatic common bile duct stone in laparoscopic cholecystectomy is safe and feasibility.

CDKN1A AND CDKN1B POLYMORPHISMS AND HEPATOCELLULAR CANCER RISK IN A CHINESE HAN POPULATION

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Background: CDKN1A and CDKN1B are members of the Cip/Kip family of cyclin-dependent kinase inhibitors, which can arrest cell proliferation and serve as tumor suppressors. We hypothesized that genetic variants in CDKN1A and CDKN1B may modify individual susceptibility to hepatocellular carcinoma (HCC). Methods: To test this hypothesis, we evaluated the associations of the polymorphisms of Ser31Arg and C+20T in CDKN1A and C-79T and Gly109Val in CDKN1B, as well as their combinations, with HCC risk in a case-control study of 476 HCC cases and 526 cancer-free controls in a Chinese population. The matrix-assisted laser desorption ionization time-of-flight (MALDI-TOF) mass spectrometry method was performed to detect these polymorphisms.

Results: We found that the variant genotypes of CDKN1A Ser31Arg and CDKN1B C-79T were individually associated with a significantly increased risk of HCC, but no associations were observed for other variant genotypes. Moreover, the combined variant genotypes of the four loci were associated with a significantly increased HCC risk (adjusted OR = 2.24, 95% CI = 1.72, 2.91 among subjects carrying three or
more variant alleles), especially among HbsAg-positive individuals (adjusted OR = 3.09, 95% CI = 1.86, 5.14). Furthermore, the combined variant genotypes of the four loci (carrying three or more variant alleles) increased a 1.93-fold (95% CI = 1.20, 3.09) and 1.76-fold (95% CI = 1.17, 2.64) risk of HCC among smokers and nonsmokers. The variant genotypes of the two genes in this study have negative correlation with the clinicopathologicals observed.

**Conclusion:** These results suggest that CDKN1A polymorphisms individually or in combination with CDKN1B polymorphisms increases risk of HCC, particularly among HbsAg-positive individuals.

### 1223

**EFFECT OF REPRESSOR EXPRESSION OF MIR-155 ON APOPTOSIS AND PROLIFERATION OF HUMAN PANCREATIC CANCER CELL LINE SW-1990**

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**Background and aims:** To detect and analyze the impact on proliferation and apoptosis of SW-1990 cells in vitro by inhibiting the expression of the miR-155, and the effect of the expression of predict target proteins TP53NP1 to this cell lines on proliferation and apoptosis.

**Methods:** (1) To detect the expression of miR-155 in four pancreatic cancer cell lines PANC-1, SW-1990, BxPc3, Patu8988 by use of stem-loop primers SYBR-GREE I real-time quantitative PCR. The lipofectamine™ 2000 and FAM-NC-inhibitor were mixed in different proportions then transfected into SW-1990 cells. Transfection efficiency was detected by flow cytometry. (2) The inhibition of miR-155 expression was measured by stem-loop primers SYBR-GREE I real-time quantitative PCR. The expression of predict target proteins TP53NP1 was measured by Western blot. (4) Cell viability in different time was assayed by CCK-8. The apoptosis and cell cycle of SW-1990 cells on each group was measured by flow cytometry in 48 h after transfection.

**Results:** (1) Among pancreatic cancer cell line PANC-1, SW-1990, BxPc3, Patu8988, the expression of miR-155 in SW-1990 is relatively high. (2) After experimental exploration, the best transfection efficiency was 87.5%. (3) Compared with the control group, NC-siRNA group most stranded in G0/G1 phase by the cell cycle detection with the cell flow cytometric.

**Conclusions:** The proliferation of SW-1990 cell decreased and the apoptosis of SW-1990 cell increased after downregulation of miR-155. The expression of predicted target protein TP53NP1 upregulation and the cell cycle most stranded in G0/G1 phase after downregulation of miR-155. The inhibition of targeting miR-155 can be seen a potential measure in pancreatic cancer.

### 1225

**EFFECT OF RNAI-MEDIATED GENE SILENCING OF MCL-1 ON APOPTOSIS OF HUMAN PANCREATIC CANCER CELL LINE PANC-1**

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**Background and aims:** By RNAi technology Mcl-1 in human pancreatic cancer cell line PANC-1 was specifically knocked down with siRNA, then detect and analyze the impact on proliferation and apoptosis of PACN-1 cells in vitro. From this research we hope to provide the experimental foundation for gene treatment of the pancreatic cancer.

**Methods:** 1 The lipofectamine™ 2000 and FAM-NC-siRNA were mixed in different proportions then transfected into PACN-1 cells. Transfection efficiency was measured by flow cytometry, and then select the best transfection conditions. 2 The inhibition of Mcl-1 expression was measured by reverse transcription PCR (RT-PCR) and Western blot after transfecting siRNA (Mcl-1). 3 Cell viability in different time after transfection was assayed by MTT and then drew the growth curve of each experimental group. The apoptosis of PACN-1 cells each experimental group was measured by flow cytometry in 48 h after transfection.

**Results:** 1 After experimental exploration, the best transfection efficiency was 87.5%. 2 The Mcl-1 mRNA and protein of siRNA (Mcl-1) group were significantly downregulated (p < 0.05). This effect reached a peak at 48 h after transfection then declined. 3 Compared with the control group, siRNA (Mcl-1) group obviously slowed down. 4 The apoptosis rates of experimental groups 48 h after transfection were measured by flow cytometry. The apoptosis rates of experimental groups were 14.6 ± 0.36% (siRNA (Mcl-1) group), 4.1 ± 0.35 (control group), 4.2 ± 0.41 (liposome group), 4.4 ± 0.26 (NC-siRNA group), respectively. The apoptosis rate of siRNA (Mcl-1) group was significantly higher than other groups (p < 0.05).

**Conclusions:** Liposome-mediated siRNA (Mcl-1) can efficiently inhibit the expression of Mcl-1 in PANC-1. The proliferation of PACN-1 cell decreased after downregulation of Mcl-1 and the apoptosis of PACN-1 cell increased after downregulation of Mcl-1. The RNAi targeting Mcl-1 can be seen a potential measure in pancreatic cancer.
SURGICAL OUTCOMES AND PROGNOSTIC FACTORS OF INTRAHEPATIC CHOLANGIOCARCINOMA

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Objective: Although curative resection was the only chance of cure in patients suffering from intrahepatic cholangiocarcinoma (ICC), the prognostic factors of ICC following resection remains controversial. The purpose of this study was to analyze the surgical outcomes and prognostic factors of a cohort of patients with ICC undergoing resection.

Methods: The clinicopathologic data of 93 patients with ICC undergoing resection between January 2003 and November 2009 were retrospectively reviewed. The variables including age, sex, hepatitis B virus infection, cirrhosis, tumor marker, tumor size, number of tumors, vascular invasion, bile duct thrombi, lymph node metastasis, perineural invasion, tumor cell differentiation, AJCC staging and resection margin were analyzed by using the Kaplan–Meier method and Cox hazard models. The correlation between CA19-9 expression and clinicopathological factors was analyzed using the χ² test and a logistic regression model.

Results: The cumulative 1-, 3- and 5-year survival rates of the entire cohort were 67.7%, 40.2% and 30.2%, respectively. Univariate analysis revealed that curative resection, AJCC staging, tumor size (> 5 cm) and lymph node metastasis were statistically significant factors. Multivariate analysis further showed that curative resection (RR: 3.3; p < 0.001), high preoperative CA19-9 level (≥ 200 U/mL) (RR: 2.825; p < 0.001), and AJCC staging (RR: 1.56; p = 0.007) were independent prognostic factors. Among 69 patients who underwent curative resection, the 1-, 3- and 5-year disease-free survival rates were 62.3%, 40.0% and 30.7%, respectively, and the 1-, 3- and 5-year overall survival rates were 84.1%, 48.7% and 38.1%, respectively, with a median survival of 36 months. High preoperative CA19-9 level (≥ 200U/mL) was an independent dismal prognostic factor for recurrence (RR: 3.038; p = 0.001) and overall survival (RR: 3.433; p < 0.001) after curative resection. The rate of lymph node metastasis in the CA19-9 (≥ 200 U/mL) group was significantly higher than that in the CA19-9 (< 200 U/mL) group (OR: 4.538; p = 0.008).

Conclusions: Curative resection is the most effective treatment for ICC. High preoperative CA19-9 level (≥ 200 U/mL) is significantly associated with lymph node metastasis and poor surgical outcomes.

HEPATIC RESECTION FOR MULTIPLE HEPATOCELLULAR CARCINOMA LESS THAN 5 CM: A PROSPECTIVE COMPARATIVE STUDY

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Background: Treatment of multiple hepatocellular carcinoma (HCC) remains a critical issue. In addition, the prognosis and prognostic factors of multiple HCC after hepatic resection are not well documented, especially prospectively.

Methods: The clinicopathologic and follow-up data of 81 patients who underwent curative resection of HCC between January 2008 and January 2009 were prospectively collected. These patients were categorized according to the size of the largest tumor: group A (n = 40, two or three HCCs with maximum tumor diameter >3 cm and ≤ 5 cm) and group B (n = 41, two or three HCCs with maximum tumor diameter ≤ 3 cm). The two groups were compared for clinicopathologic data and survival results.

Results: The 1-, 2-, 3-, and 4-year survival rates of group A were 75.0%, 58.0%, 50.0%, and 44.0%, respectively, while the survival rates of group B were 93.0%, 80.0%, 66.0%, and 47.0%, respectively. The 1-, 2-, 3-, and 4-year disease-free survival rates of group A were 43.0%, 30.0%, 23.0%, and 15.0%, respectively, compared to 71.0%, 54.0%, 44.0%, and 36.0% in group B, respectively. The median overall cumulative survival time of group A and group B were 36.0 and 44.5 months, respectively (p = 0.322). The median disease-free survival time of group A was 10.0 months and was significantly shorter than that of group B (30.0 months, p = 0.011).

Conclusions: Resection may provide comparative survival benefits even for patients with multiple HCCs with maximum tumor diameter > 3 cm and ≤ 5 cm.

TOTAL LAPAROSCOPIC MANAGEMENT OF RECURRENT PYOGENIC CHOLANGITIS

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Background: Recurrent pyogenic cholangitis (RPC) is a common disease in East Asia. The treatment of intrahepatic duct (IHD) stones in these patients is challenging, as their complete removal is difficult. Reports of laparoscopic surgery for IHD stones have, until now, been rare with most studies including patients with stones.
Rat hepatic stellate cells alter the gene expression profiles and promote the growth, migration, invasion of hepatocellular carcinoma cells in vitro

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Background and aims: Recently, studies suggested that hepatic stellate cells (HSCs) play a great role in the progression of hepatocellular carcinoma (HCC). This part was to investigate the induction-activated HSCs (iHSC) with tumor-conditioned medium (CM) alter the gene expression profiles and promote the growth, migration, invasion of HCC cells in vitro through the mechanisms including release of paracrine factors.

Methods: Rat HSCs were isolated from rat livers by perfusion of collagenase and pronase, followed by centrifugation over percoll density gradient. We prepared rat McA-RH7777 hepatoma cells CM and induced HSCs activation in vitro. The iHSCs were collected and co-cultured with McA-RH7777 cells in transwell systems. We compared the gene expression profiles of co-cultured McA-RH7777 cells with the control McA-RH7777 cells. 28,728 gene expression was analyzed by cDNA microarray, and confirmed by real time polymerase chain reaction and Western blot analysis. We prepared iHSC CM, and investigated whether iHSC CM promote the growth, migration, invasion of HCC cells in vitro through the experiments, such as CCK-8 (cell count kit-8), scratch repair, transwell invasion. The cytokines of supernatant in the co-cultured McA-RH7777 cells and the control McA-RH7777 cells were assayed by ELISA and compared.

Results: 573 genes were differentially expressed in the co-cultured McA-RH7777 cells and control McA-RH7777 cells with more than two-fold up/down-regulated (among them, 432 genes were up-regulated and 141 genes were down-regulated), including cell surface receptors, metabolic process, cell adhesion molecules, signal transduction molecules, chemokines and immunity factors. By the release of paracrine factors from iHSC, some genes in the co-cultured McA-RH7777 cells were up regulated such as Tapbp, Ccl2, Cxcl1, Cxcl10, Junb, Igf1, Stat1, Irf1, Irf7, Irf9 and Csf1, and some genes including 4-Sep, Cck, Pdgfra, Itgae, Cd36 were specifically down-regulated. iHSC also promote the growth, migration, invasion of hepatocellular carcinoma cells in vitro through release of paracrine factors. Compared with the control McA-RH7777 cells, some cytokines of supernatant were increased in the co-cultured McA-RH7777 cells, such as HGF, IL-6, MMP-2, MMP-9.

Conclusions: iHSCs can alter the gene expression profiles and promote the growth, migration, invasion of HCC cells in vitro through the release of paracrine factors. The above suggested that iHSC play a major role in HCC during growth, and metastasis.
1241 MIDDLE-PRESERVING PANCREATECTOMY FOLLOWED BY REVERSED-PANCREATOGASTROSTOMY

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Background: Middle-preserving pancreatectomy (MPP) is a parenchyma-preserving procedure when the pancreatic body is spared from disease. Variability exists in the method of anastomosis with the remnant pancreas.

Aim: To show the surgical technique for MPP and an alternative method for the pancreatic anastomosis, so-called reversed-pancreatogastrostomy (RPG).

Methods: A 79-year-old woman was diagnosed for a carcinoma of the lower bile duct and a branched-type IPMN in the tail of the pancreas by CT-scan, MRI/ MRCP, and ERCP. A subtotal stomach preserving pancreatoduodenectomy was performed followed by a pancreatic tail resection with a splenectomy. Mobilization of the proximal stump of the pancreas was impossible because of an inadequate length of the pancreatic remnant and fixation of the pancreatic remnant to the surrounding vasculature and tissues. The distal (left side) stump with a lost stent was anastomosed to the stomach by invagination method.

Results: The patient developed pancreatic fistula on Grade B at the proximal stump of the pancreatic remnant, and recovered with conservative management. After a year of surgery patient had normal endocrine and exocrine functions.

Conclusion: MPP is a useful procedure for resecting multifocal lesions in the head and tail of the pancreas. RPG is a feasible method for pancreatic reconstruction after MPP.

1250 PROSPECTIVE RANDOMIZED STUDY OF GLUCOCORTICOIDs IN THE IMPACT OF THE LIVER FUNCTION AND THE PROGNOSIS AFTER HEPATECTOMY OF HEPATOCellular CARCINOMA

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Background: Liver ischemia-reperfusion injury occurs in a number of clinical settings, including liver surgery, transplantation, and circulatory shock, leading to significant morbidity and mortality. Perioperative steroid administration has been advocated to reduce liver damage. The aim of this prospective, randomized study was to determine whether steroid administration can reduce liver injury and impact the prognosis.

Methods: Sixty patients of the primary liver cancer undergoing liver resection were randomized to steroid group or control group. Patients in the steroid group received 100 mg of hydrocortisone sodium succinate postoperatively once a day for 5 days. Serum levels of alanine aminotransferase (ALT), aspartate aminotransferase (AST) and total bilirubin were compared between the two groups. Length of stay and type and number of complications were recorded as well. On the other hand, the rate of disease-free survival was compared between the two groups by follow-up.

Results: The total bilirubin level on postoperative day 3, 5 was significantly lower in the steroid group than in control group (p = 0.016, p = 0.032, respectively). However, the postoperative time courses of the ALT level and the AST level were no significant difference between the two groups. There was no significant difference between the two groups in the proportion of patients with complications (26.7% vs. 36.7%, p = 0.405) or the rate of the disease-free survival (p = 0.965).

Conclusion: The hydrocortisone sodium succinate may reduce the lever of total bilirubin, and the steroid has protective effect during the liver resection. The glucocorticoid has no affect on the recurrence of the hepatocellular carcinoma.
1253
APPLICATION OF LIVER GRAFTS FROM MARGINAL DONOR
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Aims: To discuss the effect of marginal donor on postoperative liver function and prognosis in liver transplantation and to share our experience of perioperative care in these cases.
Methods: We analyzed 37 marginal donor liver transplantation cases (steatosis: 16 cases, aged donors: 3 cases, prolonged ischemia: 5 cases, HBV positive: 8 cases, ABO incompatible: 3 cases and donation after cardiac death: 2 cases) carried out in our center and compared with 31 control cases of normal donor liver transplantation. Postoperative liver function, prothrombin time (PT), ICU stay days, the incidence of donor liver initial poor function/primary nonfunction(IPF/PNF) and 1 year survival rate were summarized and compared between marginal donor cases and control cases.
Results: We found no significant deviation between marginal donor cases and control cases in all of analyzed parameters (p > 0.05).
Conclusions: With proper perioperative care, the application of marginal donor liver in the situation of organ shortage may have similar therapeutic efficacy with normal donor liver transplantation.

1257
STUDY ON THE PHENOTYPIC IDENTIFICATION AND TUMORIGENICITY OF ABCG2+ HEPATOCELLULAR CARCINOMA
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Objective: Using the axenic flow sorting method selected ABCG2 positive and negative cells after marking by ABCG2 antibody, and testing two by stem cell phenotype of CD44, CD90, CD133 differences ABCG2-positive and ABCG2-negative cells isolated from the human hepatoma cell line, culture will be two groups of cells cross-reference to a certain concentration of cells inoculated into nude mice armpit, observing two tumor differences.
Methods: (1) By flow cytometry detection of ABCG2 expression in hepatoma cell line SMMC-7721 level, to assess whether flow cytometry sorting; (2) SMMC-7721 cells of the human ABCG2 monoclonal antibody logo, elected to the sterile flow sorting method ABCG2-positive and ABCG2-negative cells, sub-elect cells were cultured until the cells have a certain number were detected ABCG2-positive and negative cells ABCG2 expression rates; (3) detection of ABCG2-positive and negative cells in the stem cell phenotype of CD44, CD90 and CD133 expression rates; (4) the sorting of cells to cross-reference, respectively, according to a certain concentration of inoculation to nude armpit, regular observations of tumor formation time, tumor size, time of death and whether the transfer.
Results: (1) Human hepatoma cell line SMMC-7721 cell lines in the ABCG2 positive expression rate of about 8.8%, and optional for flow cytometry sorting; (2) after sorting by flow cytometry culture passed 3–4 times ABCG2-positive cells ABCG2 expression rate of about 12.7%, while the negative cells ABCG2 positive expression rate of less than 2%; (3) of CD44 expression in positive cells and negative cells no difference; about 5.2% of the expression of CD90-positive cells; about 0.2% of the expression of CD90-negative cells; approximately 14.3% of the expression of CD133 positive cells in the expression of negative cells is about 2.9%; (4) sorting after the cells were inoculated to nude armpit of ABCG2-positive cells in tumor formation than negative cells as early as the high rate of tumor formation, tumor volume greater.
Conclusion: SMMC-7721 cell line expression of ABCG2, stem cell markers of CD90 and of CD133 negative cells in the ABCG2-positive cells compared with enrichment of ABCG2-positive cells in the tumor was significantly higher than ABCG2-negative cells. Tip ABCG2 positive cells with stem cell properties. Thus, ABCG2 may be a sign of liver cancer stem cells

1261
THE EXPRESSION OF ABCG2 IN HUMAN LIVER CANCER CELL LINES AND ITS RELATED FUNCTIONS
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Methods: 1) The expression of ABCG2 in four liver cancer cell lines – PLC/PRF/5, SMMC-7721,7402,7701 was detected by flow cytometry. The cell line which expressed the highest ABCG2 was investigated further. 2) The growth inhibiting to 5-FU and adriamycin of the four cell lines were examined by MTT. 3) To detect the location and expressed rate of the ABCG2 expression in the cell line by using the immunofluorescence staining. 4) To observe the shape of the ABCG2 cells by using the immunohistochemical staining. 5) Using the axenic flow sorting method selected ABCG2 positive and negative cells after marked much more cells by ABCG2 antibody, then subcultured. When the two subpopulations increased much more, we detected the expression of ABCG2 of the two subpopulations and clone formation ability in the common media. We observed the difference of function between the ABCG2 positive and negative cells with the growth curve, the inhibitory rate to 5-FU and adriamycin and the cell cycles.
Results: 1) The expression of ABCG2 was highest in SMMC-7721, the positive rate of ABCG2 ranged from 15% to 30%, and the ABCG2-positive and-negative cells have clear bimodal; 2) ICS5 of the cell line 7721 to 5-FU and adriamycin is higher; 3) fluorescence microscopy revealed the ABCG2 expressed green fluorescent in the membrane, the expressed rate is about 5–12%; 4) after
immunohistochemical staining, the ABCG2 was located in the membrane and cytoplasm as brown. The shape of cells was round, and smaller; 5) culture and passage 3–4 times after sorting by flow cytometry, the expression rate of ABCG2-positive cells about 30%, whereas the negative cells ABCG2 expression rate was about 2–5%. the rate of drugs inhibited of positive cells were lower than the negative cells. Cell cycle analysis showed that the ABCG2 positive cells had more quiescent cells.

Conclusion: Different liver cancer cell lines have different ABCG2 expressed rates, the 7721 cell line has significantly higher expression, and the ABCG2-positive and-negative cells have clear bimodal. The IC50 value of 5-FU and doxorubicin in the 7721 cell line is slightly higher. Suggest that the ABCG2 positive cells may contain the liver stem cells. The ABCG2-positive and negative cells have slightly different in colony formation assay, growth curve, and the drugs inhibited, but no statistical significance. It prompted that some of ABCG2 cells with stem cell characteristics. ABCG2 may be one of liver cancer stem cell marker.

1278
PARTIAL HEPATECTOMY FOR HEPATOCELLULAR CARCINOMA IN ELDERLY PATIENTS: A RETROSPECTIVE CASE-CONTROL STUDY
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Background and Aims: The outcome of partial hepatectomy in cirrhotic patients has improved remarkably in recent years; however, the role of age is still uncertain. The aim of this study was to elucidate surgical outcomes of hepatectomy in elderly patients.

Methods: Data from 16915 consecutively patients who underwent curative resection for hepatocellular carcinoma were retrospectively collected and analyzed: patients were divided into 2 groups according to the age whether ≥ (n = 718) or < (n = 16197) 70 years old at the time of surgery. To overcome biases owing to the different distribution of covariates throughout the 2 groups, a one-to-one match was created: after match, the different distribution of covariates throughout the 2 groups, a one-to-one matching, patients with (n = 0.051) in comparison to those younger: after one-to-one matching, patients with (n = 412) and without portal hypertension (n = 412) had the same preoperative characteristics and showed the same intraoperative course, postoperative occurrence of liver failure, morbidity, length of in-hospital stay and survival rates (p = ns in all cases). The only predictors of postoperative liver failure were liver function (p < 0.001), comorbidities (p < 0.001) and extent of hepatectomy (p = 0.006).

Conclusions: Eldly HCC patients showed less inflammation and better preservation of liver function, indicating that facing with the same hepatic function and extent of hepatectomy planning, the eldly should not be considered as a contraindication for hepatic resection in HCC patients.

1280
ONE CENTER’S EXPERIENCE: SURVIVAL ANALYSIS OF 194 CASES OF LIVER TRANSPLANTATION FOR PRIMARY HEPATOCELLULAR CARCINOMA
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Background and aims: To investigate the significance of orthotopic liver transplantation in the management of primary hepatocellular carcinoma (PHC); To evaluate the survival and prognostic factors of liver transplantation for PHC.

Methods: The clinical data from 194 consecutive PHC patients who underwent OLT were retrospectively analyzed.

Results: The 1-year, 3-year and 5-year cumulative survival rates of the 194 patients were 92.78%, 78.07% and 64.29%. The integrity of tumor TNM stage (p = 0.026667), tumor diameter (p = 0.0045), tumor number (p = 0.0318), vascular invasion (p = 0.006059), and AFP level before transplantation (p = 0.003426) were significantly related with tumor recurrence; Multivariate analysis revealed that tumor diameter (p = 0.0081, OR = 0.789, 95% CI we[2.1233, 6.124]), vascular invasion (p < 0.001, OR = 5.928, 95% CI we [1.173, 86.789]), and AFP level before transplantation (p = 0.019, OR = 2.601, 95% CI we[2.196, 5.658]) were independent risk factors for tumor recurrence. The differences in survival rate, tumor-free survival rate were statistically significant between Milan criteria group and beyond-UCSF criteria group (p < 0.01), and between UCSF criteria group and beyond-UCSF criteria group (p < 0.01). The differences in survival rate, tumor-free survival rate were not statistically significant between Milan criteria group and UCSF criteria group (p > 0.05).

Conclusion: Liver transplantation is an effective treatment for PHC; The tumor diameter>8 cm, vascular invasion and AFP level significantly affect the survival of PHC patients.

1281
ROLE OF B-CATENIN IN REGULATING THE BALANCE BETWEEN TNF-A- AND FAS- INDUCED ACUTE LIVER INJURY
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Background and Aims: Acute liver failure is a life threatening clinical syndrome associated with devastating consequences. B-Catenin, the main component of

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the canonical Wnt signaling pathway, plays many critical roles during various physiological and pathological processes. However, the role of B-Catenin in acute liver failure has not been fully investigated.

**Methods:** This study examined the role of B-Catenin in D-galactosamine and LPS (GalN/LPS) and Fas-induced experimental acute liver failure using hepatocyte specific B-Catenin knockout mice. The extent of liver injury was assessed by histopathology, serum aminotransferase levels, TUNEL staining and Western blot.

**Results:** Hepatocyte-specific knock-out of B-Catenin significantly reduced GalN/LPS-induced elevation of serum alanine aminotransferase levels, liver damage and hepatocyte apoptosis. Furthermore, mice with B-Catenin?deficient hepatocytes showed stronger NF-κB transcription activity, resulting in reduced oxidative stress level in liver after GalN/LPS treatment. Conversely, overexpression of B-Catenin in vitro inhibited TNF-A mediated NF-κB activation, aggravating TNF-A-induced oxidative stress and cell death. Interestingly, hepatocyte-specific knockout of B-catenin exacerbated Jo2-mediated liver injury. The mechanism by which ?

**Conclusions:** The self-help surgical retractor was evaluated well in the clinical use, and it was similar with the abdominal retractor in clinical profits, but it reduced the incidence of wound infection and significantly reduced the extent and duration of paining.

**1285**

**PIVOTAL ROLE OF ANTISECRETORY FACTOR PROTEIN IN HEPATOCELLULAR CARCINOMA DEVELOPMENT**

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**Background/aims:** Liver cancer is a malignant tumor with dismal prognosis, and half patients with HCC reside in China. Up to now, surgical resection remains as the primary treatment for patients with HCC. For those with severe liver cirrhosis, however, alternative therapy is desirable due to poor physical condition. Recent findings suggested that aberrant expression of oncopgenes and growth factors were closely related with malignant tranformation and metastatic invasion of hepatoma cells, but effective therapeutic targets of HCC remain obscure. Therefore, it is urgent to illustrate the mechanism underlying hepatocarcinogenesis and elicit target for prevention therapies as well as prognostic markers. AF (antisecretory factor protein) is an important protein involved in ubiquitin-proteasome system. Our previous studies on mRNA expression microarray of 70 cases of para-tumor tissues and tumor samples of HCC patients demonstrated that AF was aberrantly over-expressed in HCC tissues. However, the mechanism underlying AF-mediated hepatocellular carcinoma (HCC) remains elusive. This study aims to investigate the role of AF in the malignance of hepatomas, and evaluate the effect of AF interference in the suppression of HCC cells.

**Methods:** Tissue microarray was utilized to evaluate the correlation between AF expression and HCC malignant status in HCC patients. Changes of HCC malignance was detected by cck8, colony formation and flow cytometry assay using AF interference.

**Results:** AF was remarkably overexpressed in human HCCs. The levels of AF protein expression closely correlated with the malignant status of hepatoma in HCC patients. Down-regulation of AF protein in hepatoma cells significantly inhibited their malignancy.

**Conclusions:** AF plays important role in HCC development, and AF interference could be a novel strategy for HCC therapy.

**1288**

**ABSTRACT WITHDRAWN.**
THE CLINICOPATHOLOGICAL SIGNIFICANCE AND CLONAL ORIGIN OF COMBINED HEPATOCELLULAR-CHOLANGIOCARCINOMA

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Background and aims: Combined hepatocellular cholangiocarcinoma (CHC) is a rare form of primary liver cancer, showing a mixture of hepatocellular and biliary features. Data suggest that most CHC arise from hepatic progenitor cells (HPCs). The aim was to investigate the origin of CHC.

Methods and results: We microdissected multiple HCC and CC foci and studied frequency of loss of heterozygosity (LOH). Of the 16 cases studied, 16 cases showed identical allelic losses between HCC and CC foci, indicating the single clonal derivation. The cumulative recurrence rates and survival rates in the CHC group were lower than those in the HCC group and higher than those in the CC group.

Conclusions: The HCC-CC group has distinct clinico-pathologic features compared with the HCC or CC groups. In addition, the CC group has a prognosis that is better than the CC group but worse than the HCC group. They potentially derive from HPCs.

SOLID-PSEUDOPAPILLARY TUMOR OF THE PANCREAS: A CASE REPORT

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We report a case of the solid-pseudopapillary tumor of the pancreas (SPTP), which is considered to be a rare pancreatic tumor. In contrast to other pancreatic tumors, SPTP has a favorable prognosis, it has a low malignant potential. These tumors are typically present in women in 20–30 years. Ultrasound, computed tomography and magnetic resonance imaging are widely used in diagnosis. It is very important to make the diagnosis preoperatively because with an adequate surgical resection the prognosis is good.

ASSOCIATION OF MITOCHONDRIAL DNA CONTENT IN PERIPHERAL BLOOD LEUKOCYTES WITH RISK OF HBV-RELATED HCC IN A CHINESE HAN POPULATION

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Increasing epidemiological evidence has indicated that inherited variations of mitochondrial DNA (mtDNA) content could affect the genetic susceptibility of many malignancies in a tumor-specific manner. However, the association between mtDNA content and hepatocellular carcinoma (HCC) risk remains undetermined. In this study, we measured mtDNA content of peripheral blood leukocytes (PBLs) using quantitative real-time polymerase chain reaction (PCR) in a case-control study consisting of 274 HCC cases, 126 non-cancer patient controls with chronic liver diseases (CLD) and 258 healthy controls. We found that HCC cases had a significant lower mtDNA content than CLD controls [median (range): 0.77 (0.17–2.30) vs. 0.84 (0.32–3.37); p = 0.012] and healthy controls [0.77 (0.17–2.30) vs. 0.84 (0.35–3.44); p = 0.035]. There was no difference in mtDNA content between CLD and healthy controls [0.84 (0.32–3.37) vs. 0.84 (0.35–3.44); p = 0.261]. We further assessed the association between mtDNA content and HCC risk and found that compared to individuals with high mtDNA content, those with low mtDNA content had a significantly increased risk of HCC when health controls [adjusted OR (aOR) = 1.64, 95% CI = 1.06–2.55], CLD controls (aOR = 1.57, 95% CI = 1.10–2.25) or combined controls (aOR = 1.55, 95% CI = 1.12–2.14) was used as reference. In addition, stratified analyses showed that the significant association was only evident in younger individuals, male individuals, ever-smokers and never-drinkers.
Collectively, our findings provided the first epidemiological evidence that low mtDNA content in PBLs is significantly associated with increased HCC risk, which warrants further validation in prospective studies.

1312
LONGER LEUKOCYTE TELOMERE LENGTH PREDICTS INCREASED RISK OF HBV-RELATED HEPATOCELLULAR CARCINOMA: A CASE-CONTROL ANALYSIS
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Background: Convincing evidence indicated that alteration of telomere length was involved in the tumorigenesis. Consistently, epidemiological studies also observed strong correlations between relative telomere length (RTL) in peripheral blood leukocytes (PBLs) and the susceptibility of many cancers. However, whether leukocyte RTL can be used as a risk predictor for hepatocellular carcinoma (HCC) remains to be determined.

Methods: RTL in PBLs was measured using a PCR-based method in a case-control study, consisting of 240 HCC cases, 240 healthy controls and 120 non-cancer controls with chronic liver diseases (CLD).

Results: HCC cases exhibited a significantly longer RTL [median (range): 0.57 (0.21–3.3)] than CLD [0.46 (0.15–1.99)] (p < 0.001) or healthy controls [0.39 (0.13–2.69); p < 0.001]. Compared to individuals with short RTL, those with long RTL had a significantly increased risk of HCC when either the health (adjusted OR = 7.28, 95% CI = 4.46–11.8) or CLD controls (adjusted OR = 2.86, 95% CI = 1.74–4.70) was used as reference. A significant dose-response relationship was observed between HCC risk and long RTL (p for trend < 0.001 in both controls). Additionally, there was a significantly positive RTL correlation between PBLs and normal (r = 0.78, p < 0.001) or cirrhotic liver tissues (r = 0.67, p = 0.001). Furthermore, a significant joint effect on HCC risk was noted between RTL and smoking status or alcohol use.

Conclusion: Our findings for first time provide the epidemiological evidence linking long RTL in PBLs to increased HCC risk, which warrants further investigation in other population.

1318
SURGICAL TREATMENT OF IATROGENIC TRAUMATIC STRicture OF BILE DUCT: THE EXPERIENCES OF A SINGLE TREATMENT GROUP
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To summarize the experiences of a single treatment group in surgical treatment of iatrogenic traumatic stricture of bile duct during the past 14 years. A retrospective summarization was made for 173 cases of iatrogenic traumatic biliary stricture operated by a single surgery team in the Eastern Hepatobiliary Surgery Hospital from 1998 to 2011. There were 61 males and 112 females, their ages ranged from 12 to 77 years old (47 years on average). According to Bismuth classification of injured restructure of bile duct, 10 patients were type I, 22 patients were type II, 87 patients were type III, 38 patients were type IV and 16 patient was type V. Excision of the traumatic stricture with end-to-end anastomosis were performed on 19 patients. 154 patients were treated by Roux-en-y duodenojunostomy, among them 8 patients were performed hemihepatectomy or partial hepatectomy also. In the patients available through this follow-up, the total excellent and good rate was 94.8% after operation. Surgery is the most effective therapy for iatrogenic bile duct trauma. Optimal timing of surgery, reasonable surgical methods, following the principle of bile duct surgery strictly, prefect operative skills are the key to the treatment of traumatic biliary stricture.

1319
A NEW APPROACH OF GALLBLADDER-PROTECTED LITHOTOMY FOR HEPATOLITHIASIS
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The usually treatment of choledochojunostomy for hepatolithiasis, reconstruction of the digestive tract and abolished the Oddi function, also abolished the gallbladder, brought a lot of complications. We design a new operation: subcutaneous tunnel and hepatochoangioplasty with the use of gallbladder (STHG). The strictured bile ducts in the hilus was opened after removal of stones or resection of the damaged liver segments. The gallbladder, instead of usually used jejunum, was anastomosed to the widely opened bile duct in the hilus to form a widened pass way through intrahepatic to extrahepatic ducts. The fundus of gallbladder was mobilized and pulled to abdominal wall to form a subcutaneous tunnel which could be used for reentry to biliary tree at any time, even many years later. The disadvantages of traditional choledochojunostomy was avoided by the new operation.
1322

THE APPLICATION OF GRADUAL DILATATION WITH BILIARY BALLOON DILATORS ON ONE STAGE REPAIR FOR BILE DUCT INJURY

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Objective: To summarize our 5 years’ experience on management of bile duct injury with gradual biliary balloon dilator dilatation, and the prophylactic effect of this method on traumatic biliary stricture after instant hepatojejunostomy.

Methods: 31 patients with bile duct injury were studied during the time from Jan 2005 to Jan 2010, their mean age is 49 years (28–64) with 18 were male and 13 female. All the cases were done hepatojejunostomy instantly after the injuries were found, with the biliary balloon dilators set within the anastomosis. The balloon dilator was dilated with air infusion from the 7th postoperative day, 4 times/day and 2–3 hours per time. The balloon dilator was pulled out 3 months after operation and all the cases were followed up.

Result: All the 31 patients had been done hepatojejunostomy successfully. The mean follow-up time is 2.8 years (from 0.5 year to 5 years). There was 1 case which has complication of cholangitis and was stricture diagnosed by MRCP examination. The other 30 cases was found were no complications of cholangitis and stricture such as recurrent abdominal pain, fever, icterus and itching. There’s also no stricture diagnosed by ultrasonography, cholangioscopy and MRCP examination.

Conclusion: When bile duct injury accured, instant hepatojejunostomy and biliary balloon dilator setting accompanied with gradual balloon dilatation afterwards can prevent anastamotic stricture successfully.

1323

LAPAROSCOPIC TREATMENT OF MIRIZZIS SYNDROME

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Mirizzi Syndrome is of three types and in the later stages, the gall bladder and common hepatic duct have a common wall with the stone having partly eroded into the hepatic or bile duct. This coupled with the acute nature of the disease make surgical and particularly laparoscopic treatment of this disease particularly difficult. In fact a few authors also advice open surgery for this kind of pathology. We present a simple way to tackle Mirizzi syndrome laparoscopically and at the same time remove the CBD stones and clear the bile duct. With experience all such cases can be managed laparoscopically and this technique is aptly demonstrated with a video.

1326

THE ROLE OF PRE-LIGATION OF BLOOD VESSELS AND TACE IN THE PREVENTION OF TUMOUR DISSEMINATION DURING HEPATECTOMY

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To study the efficacy of pre-ligation of hepatic inflow and outflow blood vessels of lesioned liver lob as well as postoperative transcatheter arterial chemoembolization (TACE) in the prevention of tumour dissemination during liver resection for hepatocellular carcinoma (HCC).

Methods: A case-control study was carried out on 160 patients who underwent liver resection for HCC between January 2005 and January 2012. 60 patients underwent hepatic resection using pre-ligation blood vessels and TACE (group A), 50 patients using pre-ligation blood vessels (group B) and 50 using Pringle maneuver (group C). The postoperative 1-, 2-, 3 year rates of intrahepatic recurrence and lung metastasis, and the overall disease-free survivals were compared between the three groups.

Results: The incidence of lung metastasis at 1 year after operation was significantly lower in group A than group B and C respectively (8.1% vs. 14.6% and 16.8%, p = 0.042, 0.038). There were no significant differences in the incidences of lung metastasis at postoperative year 2 and 3 between the three groups. The differences in the postoperative 1-, 2, 3 year intrahepatic recurrence rates were not significant among the three groups. The median survivals of the three groups were 30.5 months, 22.3 months and 21.4 months respectively. Patients in group A had a significantly higher overall disease-free survival rate than patients in group B and C respectively (p = 0.041, 0.036).

Conclusion: Pre-ligation of blood vessels of lesioned liver lob and postoperative TACE was efficacious in reducing the incidence of lung metastasis and in improving the overall disease-free survival in patients after liver resection for HCC. CHVE contributed in preventing intraoperative tumour dissemination and in improving prognosis.

1329

NEEDLESCOPIC CLIPLESS CHOLECYSTECTOMY – A STUDY OF 463 CASES

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To investigate the value of needlescopic clipless cholecystectomy in the early benign gallbladder disease.

Methods: Four hundred sixty-three consecutive patients who underwent needlescopic clipless cholecystectomy were analyzed. Surgical technique: after performing the pneumoperitoneum at the umbilical site, 3 trocars were
inserted; 2 of 3 mm and 1 of 10 mm in diameter, through which a laparoscope was inserted. Neither the 3-mm laparoscope, nor clips were used. The cystic artery and duct were safely ligated near the gallbladder neck with surgical knots. Removal of the gallbladder was carried out in an adapted endobag through the 10-mm umbilical site.

Results: Four hundred sixty-three consecutive patients had undergone needlescopic clipless cholecystectomy successfully. No complications were observed, and postoperative results are superior to conventional laparoscopic surgery.

Conclusion: The incidence of needlescopic clipless cholecystectomy was nearly invisible, and postoperative recovery was faster; free titanium clip eliminate adverse effects on the human body; Our results indicate that this procedure could be performed successfully and safely by experienced surgical teams.

1331

REEXAMINING THE ROLE OF PANCREATIC COMPOSITION IN SHORT TERM OUTCOMES AFTER PANCREATICODUODENECTOMY FOR MALIGNANCY

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To assess the influence of pancreatic composition on early outcomes pancreatic anastomotic leakage after pancreaticoduodenectomy for malignancy and its relation with texture.

Material and method: In this prospective study patients enrolled were those who underwent Whipple’s pancreaticoduodenectomy for malignant lesions of the periam-pillary and pancreatic head region from March 2009 to March 2011. 68 patients had undergone Whipple’s PD as curative procedure for malignancy in two years and 54 were included in the study. There were 42 men and 12 women. The median age of the sample population was 57 (36–83). Of the 54 patients, surgical indications were ampullary carcinoma in 33, pancreatic cancer in 15, Distal common duct growth in 3 patients and Duodenal tumour in 4. The median BMI of the sample population.

Conclusion: The incision of needlescopic clipless cholecystectomy was nearly invisible, and postoperative recovery was faster; free titanium clip eliminate adverse effects on the human body; Our results indicate that this procedure could be performed successfully and safely by experienced surgical teams.

1335

ENDOSCOPIC TREATMENT OF BILIARY COMPLICATIONS AFTER CADAVERIC OR LIVING DONOR LIVER TRANSPLANTATION

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Background and Aims: Biliary complications occur in 5% to 34% patients after orthotopic liver transplantation (OLT), and constitute an important cause of morbidity and mortality. The traditional method for treatment of biliary complications is surgical intervention. We aimed to characterize the features of biliary complications after liver transplantation and to evaluate the efficacy of endoscopic treatment of biliary complications.

Patients and Methods: From January 2006 to September 2012, Post-OLT patients who underwent endoscopic treatment of biliary complications in our hospital were reviewed retrospectively. The biliary stricture was treated by endoscopic placement of multiple plastic stents or removable fully covered self-expandable metal stent (FCSEMS). Leakage was treated by nasobiliary drainage or plastic stent placement. The strategy of endoscopic intervention was “treating leak- age firstly, and then stricture”. If biliary stricture recurred, patients would undergo endoscopic reintervention. Success of endoscopic treatment was defined as the resolution of the cholangiographic findings.

Results: Total 635 patients (female = 93; male = 542) after liver transplantation [cadaveric donor (565), living donor (70)] underwent endoscopic treatment. The median age of patients was 48 years (range, 9–72 years). Biliary strictures were diagnosed in 601 patients and biliary leakages were in 34 patients. 505 of 601 patients (84%) were anastomotic strictures and 96 patients (16%) were non-anastomotic strictures. 516 of 601 patients (81.25%) achieved resolution of strictures after endoscopic stenting, of which multiple plastic stents (Mean, 3 stents [range, 2–6 stents]) placement was
performed in 471 patients, and removable FCSEMS placement was performed in 45 patients. The mean stents duration was 5.5 ± 1.5 months with plastic stents and 6.2 ± 1.6 months with metal stent respectively. Both plastic stents and metal stents were removed successfully without further surgery intervention. The median follow-up period after stent removal was 10 months (2–25.5 months) and there was no biliary stricture recurrence during follow-up. In 34 patients with biliary leakages, 24 patients (70.59%) combined with biliary stricture concurrently. 30 of 34 patients (88.24%) were treated successfully without leakage recurrence. The main complications included pancreatitis (9 patients), bleeding (8 patients), cholangioliis (5 patients), stent migration (3 patients), all complications were treated conservatively.

Conclusion: Endoscopic treatment of biliary complications after OLT is an effective approach with high success rate and low risk, and avoids unnecessary surgical intervention, deserving wide clinical use.

1337
SORAFENIB COMBINED WITH CYBERKNIFE IN PRIMARY LIVER CANCER
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Background and aims: In the treatment of liver carcinoma, the role of sorafenib has been confirmed today, but still it has its limitations, especially in hilar tumors or tumors with lymph node metastasis. Meanwhile, cyberknife has been proved efficient for abdominal tumors. But the efficacy and safety of cyberknife in combination with sorafenib as adjuvant therapy for hepatocellular carcinoma (HCC) remains unclear. This study was to evaluate the safety and initial curative effect of sorafenib combined cyberknife in primary liver cancer which were unresectable.

Methods: Ten patients with advanced HCC who are not eligible for surgery received sorafinib as standard treatment (800 mg/day, if adverse events occurred, then 400 mg/day). Patients underwent cyberknife after sorafinib was introduced. Tumor response was assessed every eight weeks.

Results: Median time of overall survival is 15.5 ± 5.3 months, median time of progression free survival is 7 months. By Aug 2011, average survival of BCLC B grade patients is 16.7 ± 6.56 months, average survival of BCLC C grade patients is 13.8 ± 2.87 months (p = 0.433). Average total tumor diameter is 6.96 ± 2.75 cm before treatment and 6.55 ± 3.04 cm after six months of treatment. Average AFP is 933.8 ± 1333.72 ng/mL before treatment and 119.2 ± 182.76 ng/mL after (p = 0.082).

Conclusions: Cyberknife in combination with sorafinib can improve overall survival for advanced HCC patients. Safety profile is acceptable with similar adverse events of sorafinib alone or cyberknife alone.

1342
TRANSCATHETER ARTERIAL CHEMOEMBOLIZATION COMBINED WITH Γ-RAY THREE-DIMENSION CONFORMAL RADIOTHERAPY FOR HEPATOCELLULAR CARCINOMA
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Objective: To evaluate the effects and safety of Transcatheter arterial chemoembolization (TACE) combined with γ-ray three-dimension conformal radiotherapy (3DCRT) in the treatment for the unresectable hepatocellular carcinoma with portal vein thrombus (PVTT). Methods: from 2006 to 2011, 132 patients of unresectable hepatocellular carcinoma with PVTT were treated with TACE and 3DCRT. The 3DCRT was performed followed by TACE. The planed target was PVTT only, the dose was 3.0 Gy to 4 Gy per fraction, the total does ranging from 30 Gy to 40 Gy. The objective responses were analyzed and the survival rates were assessed using Kapkan–Meier method.

Results: The total efficacy rate after 3-month treatment was 71.2% (94/132), the remission rate of PVTT was 77.3(102/132), the 1, 2, 3 year survival rate was 54.5%, 34.1% and 19.7% respectively. The median survival time was 15.3 months.

Conclusion: TACE combined with 3DCRT is a effective method in the treatment for the hepatocellular carcinoma with portal vein tumo thrombus.

1343
PHENACETIN O-DEETHYLATION IS A USEFUL TOOL FOR EVALUATION OF HEPATIC FUNCTIONAL RESERVE IN RATS WITH CCL4-INDUCED CHRONIC LIVER
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Background: Mortality of liver resection is as high as 3.1% to 25% in patients with chronic liver disease. Evaluation of hepatic functional reserve is critical for the prediction of risk of post-operation death. Phenacetin O-deethylation is a marker reaction of cytochrome P4501A2 (CYP1A2) activity. In this study, our aim is to investigate whether phenacetin O-deethylation is a useful tool for the evaluation of hepatic functional reserve in rats with chronic liver injury.

Materials and methods: Rat model for chronic liver injury was established by subcutaneous administration of 50% CCl4, 1 mL/kg twice per week for 12 weeks. Hepatic CYP1A2 activity, content and mRNA expression were determined (n = 10). Effects of 15%, 30% and 45% hepatectomy on phenacetin O-deethylation were evaluated in the rats (n = 5 in each group). Additionally, the correlation of risk of death after 70% hepatectomy with phenacetin O-deethylation was studied in 27 rats with chronic liver injury.
Results: Compared with normal controls, CYP1A activity, content and mRNA expression decreased 33%, 60% and 50% in the rats with chronic liver injury (p < 0.05), respectively. Following the increasing of liver-resected size, CYP1A2 activity decreased proportionally (rs = −0.877, p < 0.05). Six of 27 rats with chronic liver injury died within 7 days after 70% hepatectomy. Phenacetin metabolism was impaired more severely in 6 dead rats than in 21 living rats (p < 0.05).

Conclusions: Phenacetin O-deethylation is a useful tool for the evaluation of hepatic functional reserve in the rats with CCl4-induced chronic liver injury.

THE IMPACT OF SPHINGOSINE KINASE 1 ON THE PROGNOSIS OF PATIENTS WITH PORTAL VEIN TUMORTHROMBUS

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There is considerable evidence that sphingosine kinases 1(SPHK1) play a key role in cancer progression, which is essential in several biologic processes, such as enhanced cell migration, invasion and angiogenesis. However, the prognostic value of SPHK1 expression in hepatocellular carcinoma (HCC) remains unclear. The purpose of this study was to investigate the relationship between SPHK1 expression, tumor recurrence, and patient survival. We identified SPHK1 as the most overexpressed gene in portal vein tumor thrombus (PVTT) by way of gene expression profiling. A prospective study of 256 patients undergoing curative resection indicated that SPHK1 expression was an independent factor affecting survival (hazard ratio [HR] 1.799, 95% confidence interval [CI] 1.337–2.368, p < 0.001) and recurrence (HR 1.451, 95% CI 1.087–1.935, p = 0.011). Patients with SPHK1 overexpression had a poorer prognosis than those with SPHK1 under-expression (p < 0.001 and p = 0.011 for survival and recurrence). According to portal vein tumor thrombus (PVTT) classification, overexpression of SPHK1 could have shorter time to recurrence and survival than those whose tumors had decreased expression of this molecule in PVTT I and II stage, respectively.

Conclusions: SPHK1 might represent a novel and useful prognostic marker for hepatocellular carcinoma and play a role during the development and progression of the disease.

THE CLINICAL CHARACTERISTICS OF THE TERMINAL STAGE BILIARY TRACT DISEASES PERFORMED LIVER TRANSPLANTATION

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The terminal stage biliary tract diseases are the primary or secondary ones which can’t be cured by internal and surgical means. During the hazardous course, the complications occur repeatedly within the “hospital dependent stage”.

Objection: Summarize the clinical characteristics of 11 cases of terminal stage biliary tract diseases.

Method: Retrospectively study the clinicopathologic characteristics of 11 cases of terminal stage biliary tract diseases performed liver transplantation during 2004–2008.

Results: OLT has been performed in 4 cases with the hepatolithus in our department. Among the 4 cases, the exploration of biliary tract lithotomy and biliary intestinal anastomosis have ever been done repeatedly in the two quarters hepatolithus cases. The CT images of the 2 cases show bilateral hepatic duct stone with apparently unilateral atrophy and fibrosis of the liver, 2 cases accompanying with the caudate lobe and diffuse intrahepatic bile duct dilatation and stone. The common hepatic duct and left hepatic duct in 1 case with HCC is injured by radio frequency therapy, with progressive aggravating jaundice, with repeatedly futile treatment of bile duct injury. 1 case with biliary tract complication after the liver transplantation, who has ever experienced a liver transplantation in other hospital in 2002, whose jaundice appeared after 1 year. Further investigation shows the hepatic arteriostenosis, intrahepatic bile ducts stenosis, and repeat cholangitis. 1 case in sclerosing cholangitis with upper gastrointestinal hemorrhage and liver function failure. 1 case in diffuse type Caroli disease with liver decompensation. 1 case of advanced gallbladder carcinoma with liver failure. 2 cases in advanced hilarcholangiocarcinoma with portal vein invasion and liver failure.

Conclusion: Liver transplantation can be selectively applied for the terminal stage biliary tract diseases except advanced Hilarcholangiocarcinoma and gallbladder carcinoma.
TREATMENT STRATEGY OF SURGICAL PATIENTS WITH LARGE HEPATOCELLULAR CARCINOMA (>10 CM)

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Background: Despite significant improvement in the management of hepatocellular carcinoma (HCC), it is often difficult to manage patients with large HCC (>10 cm). Hepatic resection is the only curative treatment for large HCC, but there are some problems regarding operation, postoperative complications, and tumor recurrence.

Aim To review the clinicopathological features and the outcomes of surgical patients with large HCC and to clarify treatment strategy for these patients.

Patients and Methods: From January 2000 through March 2010, 14 patients underwent elective hepatic resection for primary large HCC in our hospital (group I: n = 14). 1) Clinical data of group I were compared to those of surgical patients with HCC (<5 cm) (group II: n = 104). Clinical data consisted of overall (OS) and disease-free survival (DFS), complications, patients-, tumor-, and operative related factors including gender, age, BMI, diabetes mellitus (DM), hypertension, serum aspartate aminotransferase (AST), alanine aminotransferase (ALT), total bilirubin (T-bil), albumin (Alb), alkaline phosphatase (ALP), gamma-glutamyl transpeptidase (γ-GT), white blood cell count (WBC), platelet count (Plt), ICGR15, AFP, PIVKA-II, maximum tumor size (maxTS), number of tumors (solitary or multiple) and blood transfusion (RC, FFP). 2) In group I, prognostic factors were investigated. 3) In group I, the significance of preoperative TACE (preTACE) was evaluated (TACE (+): n = 4, TACE (-): n = 10).

Results: 1) In group I compared with group II, nonBnonC (NBNC) was significantly more frequent, and in group II HCV positivity was more frequent (p < 0.01). In group I compared with group II, the value of BMI, Plt, AFP, and PIVKA-II were significantly higher (p < 0.01), and that of ICGR15 was significantly lower (p < 0.01). In group I, the pathology of portal vein invasion was more frequent (p < 0.01). In intraoperative factors, operation time in group I was significantly longer, and blood loss and transfusion volume were significantly larger (p < 0.01). In group I compared with group II, OS and DFS were significantly worse (p < 0.01), while the rate of complications was comparable between group I and II. 2) Prognostic factor in group I was blood transfusion (FFP) (p < 0.05). 3) In group I, preTACE might be beneficial for survival.

Conclusion: The characteristic features of large HCC seems to be NBNC, good liver function, and high malignant potential. In order to improve prognosis of large HCC, it is important to control operative blood loss, reduce blood transfusion, and employ other measures to reduce tumor recurrence. Also, preTACE might be beneficial for survival.

ANALYSIS OF HIGH RISK FACTORS AND CLAVIEN CLASSIFICATION FOR BILIARY COMPLICATION AFTER LIVER TRANSPLANTATION

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To explore the value of Clavien classification of biliary complication (BC) after liver transplantation (LT). Methods: The clinical data of 181 patients who underwent LT between Jan. 2004 and Dec. 2008 were collected retrospectively. The mean follow-up time was 656.44 ± 452.75 days. Cases of BC were classified by Clavien system. The risk factors of BC above ClavienIIIb were evaluated by using a binary forward stepwise logistic regression analysis.

Results: Among the 181 patients, 26 (14.4%, BC group) recipients developed BC after LT (1/Clavien I, 2/Clavien II, 4/Clavien IIIa, 14/Clavien IIIb, 5/Clavien IV). Stepwise logistic regression analysis revealed that the abnormal hepatic arterial resistance index (HARI) on the 1st and 7th day after the surgery, placement of “T” tube were the risk factors of BC after LT. The abnormal HARI was also the independent risk factor of BC above ClavienIIIb.

Conclusion: Clavien system may be important to the classification of BC. Patients of lower grade BC seem to have a better survival rate and quality than the higher grade. Hepatic arterial insufficiency (HAI) was an independent risk factor of BC above ClavienIIIb.

FUNCTION CONSERVATION SURGICAL STRATEGY FOR TREATMENT OF SOLID PSEUDOPAPILLARY TUMOR OF THE PANCREAS: A RETROSPECTIVE STUDY OF 23

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Purpose: The purpose of this study was to investigate effectiveness and safety of surgical treatment for the patients with solid pseudopapillary tumors of the pancreas (SPTP) by summarizing and analyzing clinical information of them.

Methods: A single-institution, retrospective evaluation of a database of 23 SPTP patients treated from October 2006 to May 2011 was performed.

Results: In this study, 21 females and 2 males were including, median age was 32.5 (range, 10–66). The tumor was most commonly located in the body and...
tail of the pancreas. The median operative time was 255 min (range, 200–386), median Intraoperative bleeding was 289 mL (range, 100–500), median postoperative hospital stay of the patients was 22 days (range, 18–28) are decreased compare with other surgical procedure for SPTP and pancreatic fistula rate was 12.5% by Middle segment pancreatectomy. In a comparative study pancreaticoduodenectomy group there only one patient developed a low-output pancreatic fistula, median operative time was 340 min, median Intra-operative bleeding was 150 and median postoperative hospital stay of the patients was 23 days. There is no new-onset diabetes and no patient developed clinical signs of exocrine pancreatic insufficiency in MSP group.

Conclusion: According to the data of our results, the surgical approaches such as MSP, the parenchyma-sparing resection is an available and safe operation for SPTP which may reduce the risk of exocrine/endocrine insufficiency. Duct-to-mucosa anastomosis will lower the risk of operative complication.

1365 EXPERIENCE IN DIAGNOSIS AND SURGICAL TREATMENT OF ABERRANT RIGHT POSTERIOR HEPATIC BILE DUCT INJURY

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Objective: To explore the diagnosis and surgical management of aberrant right posterior hepatic bile duct injury.

Methods: Twenty eight cases with aberrant right posterior hepatic bile duct injury were analyzed retrospectively; according to injury type and diagnostic time, 28 patients divided into three groups; the first group is comprised of 10 patients in whom the injury was recognized and repaired at the time of original surgery; the second group is consisted of 10 patients in whom the injured aberrant right posterior hepatic bile duct was ligated and diagnosed after operation; third group is comprised of 8 patients with external bile fistula after aberrant right posterior hepatic bile duct injury; compare with short and long term complication after surgical repair in three groups.

Results: In first group, 1 patient was abdominal hydropsy, no one has the bile duct stricture; in second group, 1 patient was bile fistula, 2 cases were abdominal hydropsy, case was incisional infection, 1 case was bile duct stricture. In third group, 2 cases were bile fistula, 1 patient was intestinal obstruction, 2 cases were incisional infection, 1 patient has intra-abdominal hemorrhage, 2 cases were bile duct stricture and 1 case has incisional hernia at follow-up period.

Conclusion: Finding and repairing the aberrant right posterior hepatic bile duct injury at original operation are the precious time to success. It can use different surgical repairamental method for aberrant right posterior hepatic bile duct injury according to its type and diagnostic time.

1368 HEPATITIS B VIRUS X PROTEIN ENHANCES CISPLATIN-INDUCED HEPATOTOXICITY VIA A MECHANISM INVOLVING DEGRADATION OF MCL-1

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Hepatitis B virus X protein (HBx) is implicated in the pathogenesis of hepatitis B virus (HBV)-associated liver diseases. However, whether HBx has the ability to disturb the susceptibility of hepatocytes to common chemotherapeutic agents remains incompletely understood. Here we demonstrate that HBx enhances cisplatin-induced hepatotoxicity by a mechanism involving degradation of Mcl-1, an antiapoptotic member of the Bcl-2 family. Ectopic expression of HBx sensitized hepatocytes to cisplatin-induced apoptosis, which was accompanied by a marked down regulation of Mcl-1 but not of Bcl-2 or Bcl-xL. Overexpression of Mcl-1 prevented. HBx-induced proapoptotic and proinflammatory effects during cisplatin treatment both in vitro and in vivo. HBx-induced dysregulation of Mcl-1 resulted mainly from posttranslational degradation rather than transcription repression. Moreover, a caspase-3 inhibitor effectively abrogated HBx-enhanced Mcl-1 degradation and cell death. Importantly, antioxidants blocked activation of caspase-3 and acceleration of Mcl-1 loss, as well as cell death, in HBx-expressing hepatocytes upon cisplatin exposure in vitro and in vivo. Collectively, these data implicate oxidative stress-dependent caspase-3-mediated degradation of Mcl-1 as a mechanism contributing to HBx-mediated sensitization of cisplatin-induced hepatotoxicity. A combination of cisplatin and antioxidants might provide more advantage than cisplatin alone in the treatment of cancer patients with chronic HBV infection.

1369 DETECTION AND DIAGNOSTIC VALUE EVALUATION OF SERUM FUCOSYLATED FETUIN-A IN HEPATOCELLULAR CARCINOMA AND LIVER CIRRHOSIS

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Background and aims: To establish a new lectin enzyme-linked immunosorbent assay (lectin-ELISA) to detect the fucosylated level of serum fetuin-A. And to investigate the diagnostic value of fucosylated fetuin-in hepatocellular carcinoma (HCC) and liver cirrhosis.

Method: We established a lectin-ELISA method using the lectin-fetuin A antibody sandwich method to determine serum fucosylated fetuin-A level. A total of 122 cases of HCC, 66 cases of liver cirrhosis, 118 asymptomatic HBV carriers and 117 cases of normal control
were collected for serum fetuin-A protein fucosylated level detection. The diagnostic value of fetuin-A fucosylated level in HCC and cirrhosis was analyzed with receiver operating characteristic (ROC) curve.

**Result:** The fucosylated level of serum fetuin-A in HCC and cirrhosis groups were significantly higher than that in asymptomatic HBV carriers and healthy control groups, \((p < 0.05)\). The difference between the Asymptomatic HBV carriers and healthy control group was not statistically significant. Using Cutoff value of 1.122 to identify cirrhotic patients from asymptomatic HBV carriers and the healthy control group, the area under the ROC curve was 0.906, the 95% confidence interval was 0.861 to 0.951. Using Cutoff value of 0.976 to identify HCC from asymptomatic carriers of HBV and healthy control group, the area under the ROC curve was 0.831, the 95% confidence interval was 0.787 to 0.876. The fucosylated level of serum fetuin-A of liver cirrhosis group was above HCC group, the difference was statistically significant \((p < 0.05)\).

**Conclusion:** Fucosylated level of serum fetuin-A is a potential maker of liver cancer and liver cirrhosis, it is expected to afford an new serum reference for laboratory diagnosis of liver cancer, and cirrhosis. A larger cases could be needed to validate its value in further studies.

### 1417

**EXPRESSION AND SIGNIFICANCE OF SHH, E-CADHERIN AND IL-6 IN HUMAN CHRONIC CHOLECYSTITIS**

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**Aim:** To investigate the expression of sonic hedgehog (SHH), E-cadherin and IL-6 in human chronic cholecystitis.

**Methods:** 120 post-operation specimens of cholecystitis and 36 post-operation specimens of gallbladder carcinoma were selected in Wuhan General Hospital of Guangzhou Military from February 2005 to May 2010. The expression of SHH and E-cadherin protein in 45 specimens of mild cholecystitis, 45 specimens of moderate cholecystitis, 30 specimens of severe cholecystitis and 36 specimens of gallbladder carcinoma were assessed by immunohistochemistry, they all signed the informed consent.

**Results:** There was significant difference between the four groups in average gray scale and positive unit of SHH, E-cadherin and IL-6 \((p < 0.01)\). There was significant difference between the groups of stone size \((d \geq 3 \text{ cm vs. } <3 \text{ cm}) (p < 0.01)\). However, there was no significant difference between age groups, gender groups in SHH, E-cadherin and IL-6 expression value \((p > 0.05, \text{respectively})\). The expression of SHH or IL-6 was inversely correlated with E-cadherin \((p < 0.01)\), positive correlation were observed among SHH and IL-6 \((p < 0.01)\).

**Conclusion:** Sonic hedgehog signaling pathway and E-cadherin is activated in the tissue of chronic cholecystitis and gallbladder carcinoma, it may play an important role in the development and transformation of gallbladder carcinoma.

### 1418

**EXPRESSIONS OF GRP78 AND GRP94 DURING THE PERIODS OF HEPATIC ISCHEMIA REPERFUSION IN RAT**

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**Objective:** To evaluate the changes of GRP78, GRP94, p-Akt1 and Caspase-12 expression during the periods of hepatic ischemia reperfusion in rat.

**Methods:** Fifty-five Wistar rats were randomly divided into three groups: normal group\((n = 5)\), sham operated group\((n = 25)\)and ischemia reperfusion group\((n = 25)\). The rat model of hepatic ischemia reperfusion was established by clamping hepatic pedicle for 45 min with no damage artery clamp and then reperfusion. The expression of GRP78, GRP94 and Caspase-12 was detected by immunohistochemistry SABC at 0, 3, 12, 24, 72 h after ischemia reperfusion. The expression of p-Akt1 was detected by Western-blot at the same time.

**Results:** The expression level of GRP78, GRP94 and Caspase-12 in ischemia reperfusion group was significantly higher than in normal group and sham operated group \((p < 0.01)\). In ischemia reperfusion group, expressions of GRP78, GRP94 and Caspase-12 were increased at 0–3 h after reperfusion, peaked at 12 h, and began to decline at 24–72 h, but still significantly higher than the other two groups. In ischemia reperfusion group, the tide of expression of p-Akt1 resembled GRP78, and significantly higher than the other two groups.

**Conclusion:** GRP78 and GRP94 played an important role during the periods of hepatic ischemia reperfusion in rat by reducing the burden of endoplasmic reticulum and promoting gluconeogenic pathway, p-Akt1 probably was an important signal molecule in the PI3K/Akt signal path which raised the expression of GRP78.

### 1419

**EFFECTS OF RADIX SALVIA MILTIORRHIZA FOR EXPRESSION OF ACTIVATING TRANSCRIPTION FACTOR 6A(ATF-6A) DURING THE PERIODS OF HEPATIC ISCHEMIA-REPERFUSION IN RAT**

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**Objective:** To investigate the expressions of activating transcription factor-6α(ATF-6α) and cysteinylasparate specific proteinase-12(Caspase-12) during the periods of hepatic ischemia-reperfusion injury and the effect of radix salvia miltiorrhiae (RSM) in this process.

**Methods:** A total of 80 Wistar rats were randomly divided into four groups: normal group, sham-operation group, ischemia-reperfusion group and Radix
Salvia Miltiorrhiza (RSM)-pretreated group. The model of hepatic ischemia-reperfusion injury was established by occlusion of hepatic pedicle, the expressions of ATF-6α and Caspase-12 were detected by Western blot method and immunohistochemistry method at 45 min after ischemia and 0, 3, 12, 24 and 72 h after reperfusion.

**Results:** There was no significant difference between the normal group and the sham-operation group (p > 0.05). In the ischemia-reperfusion group, the expressions of ATF-6α and Caspase-12 were higher than the normal group and the sham-operation group (p < 0.01); ATF-6α and Caspase-12 expressed nearby the central veins and the portal area (0–3 h), strong positive expressions of ATF-6α and Caspase-12 diffused distribution in the hepatic lobule (12–24 h), the range of ATF-6α and Caspase-12 expressed around the central veins (24–72 h). In the RSM-pretreated group, the expressions of ATF-6α and Caspase-12 around the central veins and portal area were higher than the normal group and the sham-operation group (p < 0.01), but lower than the ischemia-reperfusion group (p < 0.01). The degree of liver tissue injury was relieved.

**Conclusions:** The protective effect of RSM-pretreatment may be regulate hepatocyte endoplasmic reticulum stress steady state, reduce the apoptosis during the periods of hepatic ischemia/reperfusion by maintaining the proper expression of ATF-6α and down-regulating the over expression of Caspase-12 in rats.

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**THE EFFECTS OF RADIX SALVIAE MILTIOHRHIZAE PRECONDITION FOR EXPRESSIONS OF PHOSPHORYLATED EUKARYOTIC INITIATION FACTOR 2A (EIF-2A)**

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**Objective:** In order to research the expression of phosphorylated eukaryotic initiation factor 2α on rat hepatic ischemic-reperfusion injury after radix salviae miltiorrhizae (RSM) precondition, and to explore RSM pretreatment on hepatic ischemia reperfusion injury in endoplasmic reticulum steady state regulation.

**Methods:** We used the model of rat hepatic ischemia reperfusion injury. Wistar rats were randomized into four groups: control group, sham group, hepatic ischemia-reperfusion group and RSM group, and sham group, hepatic ischemia-reperfusion group and RSM group were, respectively, divided to five subgroups: 0, 3, 12, 24 and 72 h. Liver tissues were sampled at 0, 3, 12, 24 and 72 h after reperfusion for detection of phosphorylated eukaryotic initiation factor 2α (eIF-2α) and Caspase-12, and phosphorylated eIF-2α and Caspase-12 protein expressions were examined by western blot.

**Results:** The expressions of the phosphorylated eIF-2α and Caspase-12 were not statistical significance between control group and sham group (p > 0.05). In the hepatic ischemia-reperfusion group, the expressions of phosphorylated eIF-2α began to increase at 3 h after reperfusion, which reached peak at 12 h, then gradually reduced, and were close to control group and sham group at 72 h (p > 0.05); and the expressions of Caspase-12 gradually increased at 0 h after reperfusion, which reached peak at 12 h, then gradually reduced, but it also kept higher level than control group and sham group at 72 h (p < 0.01). Compared with the different reperfusion time of hepatic ischemia-reperfusion group, there were higher level of the expressions of phosphorylated eIF-2α in RSM group (p < 0.01); the expressions of Caspase-12 were higher than control group and sham group, but were obviously lower than hepatic ischemia-reperfusion group (p < 0.01).

**Conclusion:** RSM can increase of eIF-2α phosphorylation level, which alleviate unfolded protein response, stabilize endoplasmic reticulum internal environment, eventually protect liver from damage in the hepatic ischemia-reperfusion injury.