ORIGINAL ARTICLE

A comparison of electronic radial and curvilinear endoscopic ultrasonography in the detection of pancreatic malignant tumor

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Abstract

Objective. There is no comparative study of electronic radial endoscopic ultrasonography (ER-EUS) and electronic curvilinear EUS (EC-EUS). The aim of this study was to compare the accuracy of ER-EUS and EC-EUS for detecting pancreatic malignancies.

Methods. This was a retrospective review of the patients who had EUS assessment from September 2008 to December 2011 for suspicious pancreatic tumors. Sensitivity, specificity, and area under the ROC curve to detect pancreatic malignancies were calculated and compared between the ER-EUS and EC-EUS cohort. The final diagnosis of pancreatic malignancy was based on pathology, or the consensus of patient’s clinical course and multimodal imaging tests.

Results. Two hundred twenty-one patients were included and divided into two cohorts: ER-EUS (n = 139) and EC-EUS (n = 82) cohorts. With propensity score matching method, 70 cases in each cohort were selected for the comparison. There was no significant difference in sensitivity, specificity, and area under the ROC curve to detect pancreatic malignancies were calculated and compared between the ER-EUS and EC-EUS cohort. The final diagnosis of pancreatic malignancy was based on pathology, or the consensus of patient’s clinical course and multimodal imaging tests.

Conclusion: ER-EUS and EC-EUS provided similar accuracy for the detection of pancreatic malignancies. In view of similar diagnostic results of ER-EUS and EC-EUS for the detection of pancreatic malignancy, and the advantage of being able to perform FNA with EC-EUS, EC-EUS may be the preferred choice.

Key Words: endoscopy-general, pancreas-clinical

Introduction

Endoscopic ultrasonography (EUS) has been used for the diagnosis and local staging of pancreatic malignant tumors, and the diagnostic accuracy of it for pancreatic malignant tumors has been shown in a lot of studies to be significantly better than that of the other imaging modalities, including computed tomography (CT) and magnetic resonance imaging (MRI) [1–10]. Thus, EUS has been considered to be an essential tool for the diagnosis and staging of pancreatic malignancies.

There are two major designs of echoendoscopes: radial and curvilinear array-oriented instruments. Radial EUS can provide a 360° sonographic view, which is perpendicular to the tip of the echoendoscope, and the cross-sectional imaging obtained are similar to CT. On the other hand, curvilinear EUS provides linear-oriented sector image, which provides a relatively smaller view compared with that of the radial EUS. However, EUS-guided fine needle aspiration (EUS-FNA) is possible only with curvilinear EUS because the sonographic view is parallel to the long axis of echoendoscope.