## Meeting Report

# Role of Endoscopic Ultrasound in the Management of Digestive System Disease: Proceedings of 2013 Asian Pacific Digestive Week Meeting

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## Abstract

Endoscopic ultrasound (EUS) was one of the important topics in 2013 Asian Pacific Digestive Week Meeting and some new progresses were highlighted. The global burdens of pancreatic diseases and biliary diseases are increasing. EUS is becoming a fundamental tool for this cohort of patients, because of not only its ability to provide superior visualization of the lesions, but also its ever-improving interventional capacity. Meanwhile, EUS may also help to diagnose and treat the gastrointestinal tract diseases.

Keywords: endoscopic ultrasound; biliary disease; pancreatic disease; gastrointestinal disease

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## INTRODUCTION

The Asian Pacific Digestive Week Meeting was held on September 21<sup>st</sup>-24<sup>th</sup>, 2013 in Shanghai, China. A multidisciplinary group of international gastroenterologists, hepatologists, endoscopists, digestive surgeons and other health professionals related in the field attended the meeting. Endoscopic ultrasound (EUS) was one of the important topics in the meeting due to its increasing values in the diagnosis and treatment of pancreatic-biliary and gastrointestinal tract (GIT) diseases.<sup>1</sup> This article summarizes the principal progress of EUS in the field of pancreatic disease, biliary disease and GIT disease discussed in the meeting.

## PANCREATIC DISEASE

Pancreatic cysts have malignant potential, so it is necessary to be further characterized and decide when they should be respected. EUS with or without fine needle aspiration (FNA) has been proven helpful.<sup>2</sup> Yung *et al.*<sup>3</sup> evaluated the impact of EUS-FNA in the management of pancreatic

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cysts. They retrospectively reviewed 111 cases underwent EUS for pancreatic cysts. FNA was done in about 87 (78.4%) patients. Post-EUS-FNA diagnosis showed pseudocyst (46.8%), serous cystadenoma (16.2%), intraductal papillary neoplasm (9%), mucinous cystadenoma (12.6%), neuroenocrine tumor (3.6%), solid pseudopapillary tumor (0.9%) and cystic ductal adenocarcinoma (8.1%). EUS-FNA changed the diagnosis and management in 33.3% (37/111) of the patients. 17 patients (45.9%) initially diagnosed with benign cysts were finally diagnosed with malignant/ premalignant cysts. Only 10 patients underwent surgical resection, nine of whom were diagnosed with malignancy by histology. Of the seven patients who did not undergo surgery, four had metastasis, two had premalignant cyst and one declined surgery. 20 (54%) patients initially diagnosed with malignant lesions did not require surgery after EUS-FNA was performed. None of the 20 patients developed malignant lesions after 6 months of surveillance. The sensitivity and specificity of EUS-FNA were 75% and 81.1% respectively to accurately determine the nature of pancreatic cyst while those of imaging modalities were 25% and 68.4%, respectively. In conclusion, they stated that EUS-FNA was valuable in the management of pancreatic cyst. It was more accurate than imaging modalities alone and could correctly help to judge who should undergo surgery.

Acquisition of histologic core tissues is the advantage of EUS-guided fine needle biopsy (EUS-FNB). Jin *et al.*<sup>4</sup> compared the diagnostic accuracy and safety of 22-G

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FNB ProCore device to those of 22-G FNA device for pancreatic solid lesions. 85 patients were enrolled, 41 of whom underwent FNA (48.2%) and 44 underwent FNB (51.8%). Similar diagnosis was found between FNA and FNB groups (75.6% vs. 77.3%). Neither technical failures nor procedure related major complications occurred. Final diagnosis was as follows: 72 (84.7%) pancreatic ductal adenocarcinoma (PDCA), 7 (8.2%) neuroendocrine tumor (NET), 4 (4.7%) autoimmune pancreatitis (AIP), 1 (1.2%) metastasis and 1 (1.2%) chronic pancreatitis. EUS-FNA and EUS-FNB were used for PDCA (40 FNAs vs. 32 FNBs). Sensitivities were comparable between FNA and FNB groups (75.0% vs. 81.3%) and their specificities were 100% in both groups. EUS-FNB was mainly used for AIP or performed for core tissue of pancreatic solid lesion suspicious of NET and they were all compatible with NETs. EUS-FNB provided enough tissue to determine AIP in patients. The results showed that the sensitivity and safety profiles of FNA and FNB needles were comparable in tissue acquisition of pancreas solid lesion, especially of PDCA. In addition, EUS-FNB might be helpful for diagnosis of NET and AIP.

## **BILIARY DISEASE**

EUS becomes necessary when the common imaging modalities fail to identify the cause of common bile duct (CBD) dilation. Rasoul et al.5 assessed value of EUS in identifying the cause of CBD dilation undiagnosed by transabdominal ultrasonography. Final diagnoses were confirmed by endoscopic retrograde cholangiopancreatography (ERCP), EUS-FNA, surgical exploration, or clinical follow-up of at least 10 months. Patients with choledocholithiasis were referred for ERCP and sphincterotomy and patients with operable tumors were referred to surgery. Patients with inoperable tumors underwent biliary stent with or without chemoradiotherapy. A total of 150 patients with dilated CBD were included. The final diagnosis was as follows: Choledocholithiasis in 32 (21.1%), passed CBD stone in 35 (23%), opiuminduced CBD dilation in 14 (9.2%), post-cholecystectomy states in 20 (13.1%), ampullary neoplasia in 15 (15.8%), cholangiocarcinoma in 14 (9.2%) and pancreatic head cancer in 9 (5.9%). Sensitivity, positive predictive value, negative predictive value and accuracy of EUS were 89.5%, 100.0%, 100.0% and 90.9%, respectively. Therefore, they concluded EUS might be a reasonable choice for determining the etiology of dilated CBD.

EUS-guided biliary drainage (EUS-BD) may be done as transmural choledocho-duodenostomy (EUS-CD) or hepatico-gastrostomy (EUS-HG), or antegrade transpapillary stenting (EUS-AG). To compare the technical aspects, success rates, clinical outcomes and complications of them, Amol *et al.*<sup>6</sup> observed 31 patients who underwent one of the three EUS-BD procedures during a 7-year period. EUS-CD was performed in 13 (42%) patients, EUS- HG in 9 (29%) and EUS-AG also in 9 (29%). On intention to treat basis, EUS-AG was technically successful in 90% vs. 77.7% in EUS-HG, and 84% in EUS-CD. Clinical success was similar in all three groups. Failures were converted to alternative EUS-BD procedure when feasible (one each in EUS-CD and EUS-AG) or else to percutaneous drainage (EUS-HG). All three EUS-BD techniques are comparable for technical success and clinical efficacy to achieve biliary drainage. EUS-CD had the shortest procedure time. Aggressive track dilation was not required in EUS-AG, thus preventing immediate complications. EUS-HG was technically more difficult and resulted in one case of severe complication. However further randomized prospective studies comparing these three techniques are needed to confirm these findings.

EUS reduces the need for ERCP with its implicit risk. Shan *et al.*<sup>7</sup> evaluated the role of EUS in avoiding diagnostic ERCP in patients with severe acute pancreatitis with negative cross-sectional imaging, but high clinical suspicion of CBD stones. EUS showed CBD stone in 38.7% patients and no CBD stone in 61.3% patients. Diagnostic ERCP was avoided in 61.3% and therapeutic ERCP was performed for the rest. All cases of CBD stones identified by EUS were confirmed by ERCP. All patients with negative EUS investigation had normalization of serum bilirubin within 3-6 months. Therefore, EUS was useful in avoiding substantial number of unnecessary diagnostic ERCP even in patients with severe acute pancreatitis and high clinical suspicion of CBD stones.

## GIT DISEASE

EUS-guided biopsy allows cytologic and/or histologic diagnosis of sub-mucosal lesions of the GIT. The diagnosis vield with FNA, however, is often unsatisfactory (~30%-40%) for these lesions. A newly developed ProCore needle (PCN) is able to obtain core tissue and might improve diagnostic yield. Namq et al.8 compared the performance of two EUS-guided biopsy needle systems, FNA vs. PCN, in the evaluation of sub-mucosal lesions in the upper GIT. EUSguided biopsy was performed in 64 patients, using 19-22-G FNA (n = 36) and 22-G PCN (n = 28) system to clarify the tissue diagnosis. The results showed that biopsy with PCN obtained significantly more diagnostic material than FNA, leading to a substantially higher diagnostic field (25/28 vs.)16/36). Of the 25 suspected spindle cell tumors from PCN group, immunohistochemistry (c-kit stain) was successful in all cases and provided tissue confirmation of 15 leiomyomas and 10 gastrointestinal stromal tumors (GIST). In contrast, only 9/16 patients with FNA needle had sufficient material for additional immunohistochemistry study, confirming GIST in only 4/16 of suspected spindle cell tumors. Neither group had abdominal pain or clinical significant bleeding after the biopsy. In conclusion, EUS-guided biopsy with 22-G PCN had substantially higher histocytological yield than that

with FNA needle (89% *vs.* 44%), without any complication. PCN, therefore, should be the needle of choice for tissue acquisition of submucosal lesions in GIT.

It is difficult to recognize specific inflammatory bowel disease (IBD) phenotype. Rustemovic *et al.*<sup>9</sup> evaluated the real potentials of transrectal EUS elastography (TRUS-E) in this field. They included 30 patients with Crohn's disease (CD) and 25 patients with ulcerative colitis (UC). The results showed there was a significant difference in strain ration (SR) between CD and UC groups. Active CD patients had a significant higher SR than active UC patients. Therefore, they concluded quantitative elastography with SR calculation provided information on the stiffness of the rectal and perirectal tissue which enables us to differentiate CD from UC, making TRUS-E a valuable tool in defining IBD phenotype.

## SUMMARY

This conference provided current and valuable information of EUS for medical physicians from different countries. It delivered new insights such as TRUS-E to recognize specific IBD phenotype and to compare the SR between CD and UC. Some new techniques like PCN were also discussed in the meeting and it threw light on the diagnosis and treatment of digestive diseases.

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