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Endoscopic Ultrasound Aspiration Needle

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EUS-FNA EFFICACY IN ACQUIRING TISSUE SAMPLES FROM SOLID UNRESECTABLE PANCREATIC MASS

CASE PRESENTED BY: **RYAN PONNUDURAI MD, FASGE**

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A 75-year-old male presented with two months of jaundice, weight loss, and intermittent fevers. A CT scan (**Figure 1**) showed multiple peri-pancreatic and celiac nodes, with a large heterogenous pancreatic head mass measuring to 7 x 8 cm. The patient was not a candidate for surgery; an Endoscopic Ultrasound-Fine Aspiration Needle (EUS-FNA) was planned, to be followed by ERCP and biliary metal stenting for palliation.

EUS showed a large cystic solid mass arising from the head of the pancreas with involvement of the portal vein and surrounding vascular structures, and multiple large peripancreatic, perihepatic and celiac nodes. As the patient's INR was 1.6, I targeted the lymph nodes using a 22 gauge Expect Needle. Adequate tissue was acquired after three passes. Specimens were sent for histopathology and cytology analysis. An ERCP was then performed and cholangiogram (**Figure 2**) revealed a long distal stricture with proximal bile duct dilation. A 10 mm x 6 cm WallFlex® Biliary RX Metal Stent was placed. The FNA showed abnormal lymphocyte aggregates, which on further staining with B cell marker (**Figures 3 and 4**), was strongly supportive of B-cell lymphoma.

This case further supports the algorithm for tissue sampling in unresectable pancreatic masses as the patient can now receive the appropriate palliative chemotherapy. The Expect Needle showed good visibility by ultrasound at all times, and it was easy to remove and replace the stylet on all three passes. It was also encouraging that using a 22 gauge needle, adequate tissue was obtained, making the diagnosis of lymphoma by using the appropriate stains.



Figure 1

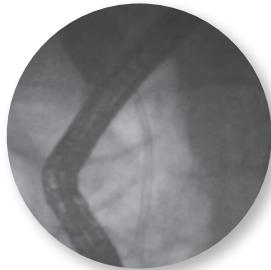


Figure 2

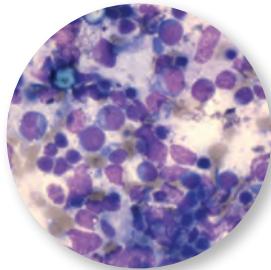


Figure 3

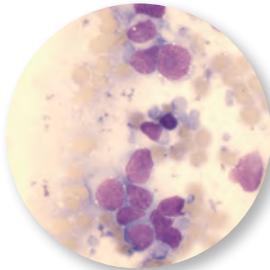
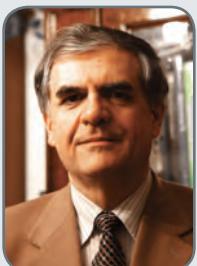


Figure 4



A CHALLENGING DIAGNOSIS OF DUODENAL GIST BY TRANSGASTRIC EUS-FNA CONFIRMED AFTER SURGICAL RESECTION

CASE PRESENTED BY: **PROF. CLAUDIO DE ANGELIS, MD, (PICTURED), R. FRANCESCO BRIZZI, MD, LUCA MOLINARO*, MD**

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INTRODUCTION

A 61-year-old female patient with a history of kidney stones underwent an abdominal ultrasound, showing a new-onset solid mass near the body of the pancreas. A CT scan showed a solid mass of about 3 cm near the aorta, just above the fourth portion of the duodenum, while the pancreatic parenchyma was deemed normal.

PROCEDURE

Endoscopic Ultrasound (EUS) was performed, which confirmed the mass. It was not possible to find the lesion with EUS scanning from the duodenum, but the mass was clearly visible from the stomach, roughly oval hypoechoic, with high vascularity, most probably originating from the duodenal wall (**Figure 1**). This EUS finding led to the diagnostic hypothesis of a Gastrointestinal Stromal Tumor (GIST) of the fourth portion of the duodenum. Fine Needle Aspiration (FNA) was performed with the 22 gauge and 25 gauge Expect™ Needles (**Figure 2**), with 3 and 2 passes respectively in the lesion, through the stomach wall. Cytopathological examination showed spindle cells, with positive reactions with vimentine and anti-CD117 antibodies (**Figure 3**), supporting the diagnosis of GIST. FNA samples were of good cellularity so that we could also have information about the cellular proliferation index of the lesion: immunostaining with Ki67 antibodies was <1%. Such diagnosis was eventually confirmed after surgical resection of the lesion, with total agreement between FNA cytopathology and histology on the surgical specimen (**Figure 4**).

CONCLUSION

Trans-gastric FNA of abdominal lesions can be challenging, due to the extreme mobility of the gastric wall: Sometimes it can be hard to carry out wide needle movements within the lesion in order to obtain samples with good cellularity (**Figure 5**). In this case we believe that the sharpness of the Expect Needle was helpful in easily penetrating the gastric wall and moving within the hard structure of the stromal tumor. The excellent agreement between cytology on FNA samples and histology on surgical specimen suggests that samples obtained by the Expect Needle have optimal cellularity and allow us to obtain information of prognostic value before surgery.

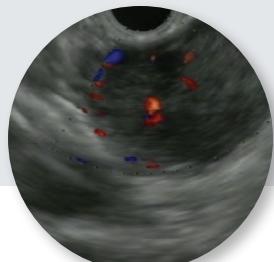


Figure 1



Figure 2

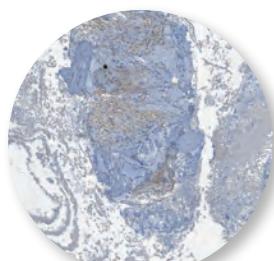


Figure 3

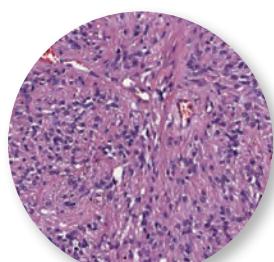


Figure 4



Figure 5



A CHALLENGING TRANS-DUODENAL FNA AT EUS: BETTER MANEUVERABILITY MADE A DIFFERENCE

CASE PRESENTED BY: **SHYAM VARADARAJULU, MD**

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A 53-year-old patient presented with right upper quadrant pain and obstructive jaundice. A CT of the abdomen revealed a mass in the hilum of the liver and an indeterminate lesion in the left lobe of the liver.

At EUS, a gallbladder mass measuring 3 x 2cm was seen near the liver hilum. A 25 gauge Expect Needle was passed via the trans-duodenal route and adequate specimen was procured on pass one. Onsite cytopathology confirmed this to be carcinoma. As the liver lesion was indeterminate on CT imaging, an EUS-guided FNA of the liver mass was undertaken. At EUS, the liver mass measured 22 x 18mm, was hypoechoic in appearance, and the lesion was located very tangential to the echoendoscope. A 22 gauge Expect Needle was deployed at right angle to the lesion and adequate tissue was procured on pass one. Onsite cytopathology confirmed the lesion to be a metastatic cancer.

Performing trans-duodenal FNAs at EUS can be technically challenging. In this case, there was no technical difficulty either with trans-duodenal needle deployment or when the Expect Needle was positioned at 90 degrees to the target lesion in the liver. The needle passed smoothly on both occasions and there was minimal deformation when removed from the scope. It appears that Cobalt Chromium, a feature in the construction of the Expect Needle, may contribute to its better maneuverability and low needle deformation.

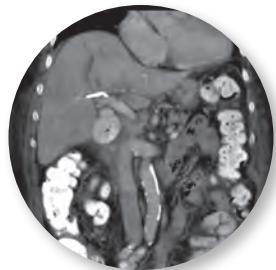


Figure 2

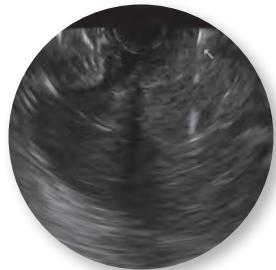


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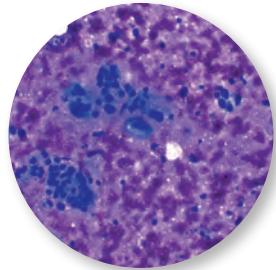


Figure 4





ADENOCARCINOMA CONFIRMED BY FNA ON A PATIENT WITH CHRONIC PANCREATITIS

CASE PRESENTED BY: **PROFESSOR PIERRE H. DEPREZ** (PICTURED), **IVAN BORBATH, MD**,
CHRISTINE GALANT, MD AND PROFESSOR JEAN-FRANÇOIS GIGOT

Cliniques Universitaires Saint-Luc
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A 46-year-old female patient with a long history of chronic calcifying pancreatitis had developed large liver abscesses related to biliary stricture and angiocholitis. Her septic condition improved with multiple internal and external biliary and liver drainage (**Figure 1**) but a CT scan showed appearance of a preaortic infiltrate (**Figure 2**) with involvement of the left adrenal gland suggestive of neoplasia. EUS confirmed a hypoechoic, poorly defined structure surrounding the celiac trunk, with enlarged lymph nodes and a tumoral adrenal gland. FNA was performed with the new Expect 22 gauge needle with two passes in the infiltrate (**Figure 3**), two passes in the adrenal gland and one pass in a small lymph node (**Figure 4**). Cytopathological analysis of the specimen clearly showed the presence of a poorly differentiated adenocarcinoma in the infiltrate and the adrenal gland (**Figure 5**).

Our first impression using the new Expect Needle was very positive. It had excellent sharpness, allowing puncture even in difficult scope positions and in hard structures. Its excellent visibility gave a precise view of the needle tract and tip, even in distant and small lesions, and as demonstrated in this case, the feasibility of multiple passes.



Figure 1

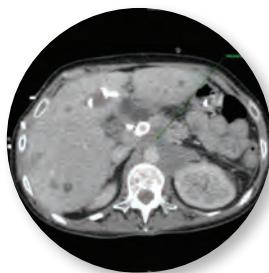


Figure 2

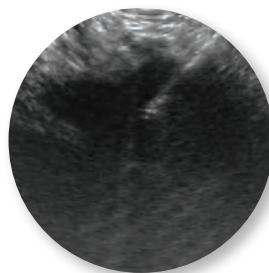


Figure 3

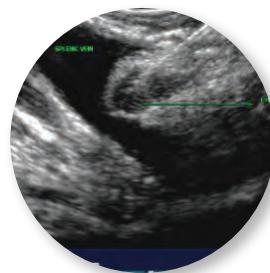


Figure 4

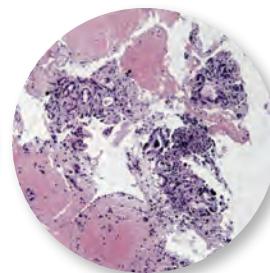


Figure 5



EUS-FNA FOR A SMALL PANCREATIC MASS; HIGH MANIPULATION PERFORMANCE WITH EXPECT NEEDLE

CASE PRESENTED BY: PROFESSOR ATSUSHI IRISAWA, MD, PhD (PICTURED)
AND ASSOCIATE PROFESSOR GORO SHIBUKAWA, MD, PhD

Department of Gastroenterology, Fukushima Medical University Aizu Medical Center
Aizuwakamatsu, Fukushima, Japan

A 54-year-old woman presented with nausea and abdominal distention. She had no particular past history. Blood laboratory revealed diabetes mellitus; therefore, an abdominal ultrasound was done for screening the pancreas, showing a small mass 15 mm in diameter on the pancreatic body. Upon Endoscopic Ultrasound (EUS) examination, the mass was visualized as hypoechoic with unclear border from the normal pancreatic parenchyma. The mass led to dilation of the pancreatic duct in the tail (**Figure 1**). To make a diagnosis, EUS Fine Needle Aspiration (FNA) was done with the transgastric approach.

A 22 gauge Expect™ Needle was deployed. Even though the strong angulation of the tip of the EUS scope was manipulated, the needle tip punctured the gastric wall and entered the small pancreatic mass easily. After three passes, an adequate amount of material was obtained for diagnosis. Next, we used the 25 gauge Expect Needle to puncture precisely the location of the pancreatic duct obstruction due to the mass. The 25 gauge needle easily and precisely entered into the small mass and target point (**Figure 2**).

The Expect Needle was very impressive with high operability and visibility of the needle tip. In particular, the 22 gauge Expect Needle handled as if it were a 25 gauge needle device. Therefore, a 22 gauge needle may be used for a wide variety of lesions.



Figure 1



Figure 2





EUS FNA OF A PANCREATIC GENU LESION: SHARPNESS HELPS

CASE PRESENTED BY: **ANAND V. SAHAI, MD, MSC (EPID), FRCPC**

St. Luc Hospital, Montreal, Quebec, Canada



A 45-year-old patient presented with obstructive jaundice and a pancreatic head mass. EUS showed a 3cm lesion at the genu. Attempts to biopsy the lesion in the short position were impossible due to the fact that the scope kept slipping into the stomach. Therefore, biopsy from the duodenal bulb with the scope in a long position was the only option.

A 22 gauge Expect Needle was deployed. The needle tip punctured the intestinal wall and entered the lesion very easily, suggesting the sharpness of the tip was particularly helpful.

In the majority of cases, EUS FNA procedures can be performed with the scope in a short (straight) position. However, lesions in the genu region can be difficult to biopsy in a short position because the scope must be pulled back so far that it tends to slip into the stomach before the lesion can be biopsied.

In these cases, the lesions can be seen easily with a stable, long scope position in the bulb. However, due to the tortuosity and tip angulation of the scope in this position (and possibly lesion hardness), pancreatic head mass biopsies from the bulb can be challenging. In this case, the sharpness of the Expect Needle appears to make FNA of such lesions easier.

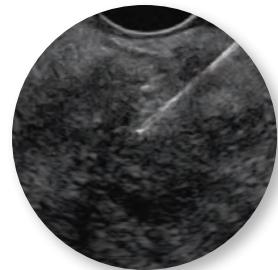


Figure 1



EUS FNA OF A MEDIASTINAL LYMPH NODE: 19 GAUGE EXPECT NEEDLE PROCURES A LARGER SAMPLE TO DIAGNOSE LYMPHOMA

CASE PRESENTED BY: **KRISHNAVEL V. CHATHADI, MD**

Therapeutic Endoscopist, BJC Medical Group
Missouri Baptist Medical Center, St. Louis, Missouri, USA

An 84-year-old male was referred for an evaluation for possible lymphoma. A CT scan demonstrated mediastinal, retroperitoneal and mesenteric lymph adenopathy. Endoscopic Ultrasound (EUS) revealed a malignant-appearing sub-carinal lymph node measuring 2.0 x 1.5 cm, in addition to several abnormal lymph nodes in the celiac, peripancreatic and porta hepatis region. A 19 gauge Expect Needle was used to make one pass (**Figure 1**) into the sub-carinal lymph node to get a larger sample after two prior passes with a 22 gauge needle. The sample was also sent for flow cytometry in addition to cytology review. Cytology was consistent with a non small-cell carcinoma and flow cytometry identified a monoclonal B-cell population consistent with involvement by B-cell non-Hodgkin's lymphoma, favoring chronic lymphocytic leukemia. The patient tolerated the procedure well without any complications. The 19 gauge Expect Needle entered the lesion easily and its tip and tract was well visualized during the pass.



Figure 1

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