

# Endoscopic Ultrasonography Guided Pancreatic Pseudocyst Drainage through the Stomach for the First Time in Iraq

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## Introduction:

The fact that transmural imaging can be achieved out of gut lumen to visualize nearly intra-abdominal structures such as the pancreas gives Endoscopic Ultrasonography (EUS) an edge over the other imaging techniques. EUS can thus provide highly detailed images of the gut wall and the vessels within it or just beyond, as well as visualization of the pancreas and peripancreatic structures. These characteristics appear to be nearly ideal to help prevent complication of pseudocyst drainage such as bleeding from the vessels within or just beyond the gut wall, or failure to localize a suitable puncture site for cysts that do not produce a 'bulge'.<sup>(1)</sup>

Most data suggest that pseudocyst larger than 6 cm, persisting for more than 6 weeks, are unlikely to resolve spontaneously and have an increased risk of complication<sup>(2)</sup>. Cyst drainage is recommended for cyst complication such as unrelenting symptoms, significant abdominal pain, pseudocyst expansion, and other serious complication<sup>(1,2)</sup>. Traditionally pseudocyst drainage has been primarily surgical, in the form of cyst enterostomy. Although effective, there is a significant morbidity rate of about 15%, with a postoperative recurrence rate of about 10% and mortality rate of about 5%<sup>(3)</sup>. Consequently, non-surgical interventional options such as EUS guided drainage have been favored and considered an attractive alternative to surgery and percutaneous route<sup>(4)</sup>.

EUS guided pancreatic pseudocyst drainage was decided as an alternative procedure to the surgery. The EUS imaging of pancreatic pseudocyst can provide:

- " Detailed images of the pancreas
- " Visualization of the cyst, its contents, and neighboring structures
- " Morphological criteria for differentiation of various cysts
- " Exact measurement of distance between the cyst and gut wall
- " Detection of intervening vessels

The EUS guided drainage of the pancreatic pseudocyst is indicated when the cyst is unilocular without septation inside, closely related to gastric wall (the distance between gastric wall and cyst wall > 1cm), and there are no intervening vessels as proved by EUS guided Color Doppler.

## Case Report:

Fifty-three years old female, a known case of chronic liver disease due to hepatitis B virus infection, suffered from an acute attack of pancreatitis before two months. She presented with dull aching abdominal pain with distension. Abdominal ultrasonography revealed a large cystic lesion (10x11 cm) related to body and tail of pancreas. The patient submitted to the Endoscopic Ultrasonography (EUS) examination for further evaluation of this cystic pancreatic lesion which demonstrated a well demarcated cyst that contained debris (necrotic pancreatic material) with a mature wall and has close proximity to the posterior gastric wall without intervening vessel between them as proved by EUS color Doppler. EUS guided diagnostic fluid aspiration from the cyst showed a cloudy color of aspirated material with turbidity. Cystic fluid amylase was 5000 IU/ml and cytology revealed inflammatory cells without malignancy. The case

was discussed with the surgeon regarding the surgical drainage of the cyst but unfortunately the patient could not tolerate general anesthesia because of her liver disease. EUS guided pancreatic pseudocyst drainage through the stomach has been done by inserting 2 stents (double pig tail, 7fr) through the gastric wall into the cyst with nasocystic catheter for washing of necrotic materials inside the cyst.

## Procedure:

The patient was fully conscious, hemodynamically stable, but febrile (38°C) at the time of procedure which was carried out under conscious sedation (Pethidin 50mg plus Diazepam 10mg). The patient was in left lateral decubitus position. First localization of the cyst by EUS using Olympus type (GF- UC2000P) through the stomach, and then introduction of fine needle aspiration (FNA) gauge 19 (Echo tip-Cook) through the gastric wall into the



cyst under EUS and fluoroscopy guidness was achieved, then guide wire 0.035 was advanced through(FNA) into the cyst. After that, dilation of gastric wall by using biliary balloon dilator (8 mm) over guide wire was performed and then two stents (double pig tail, 7fr) with nasocystic tube were inserted into the cyst through the gastric wall. The procedure went of under broad spectrum antibiotic cover.

### Post Procedure follows up:

Follow up of the patient clinically with daily abdominal ultrasonography demonstrated gradually decreasing in the size of the cyst till complete disappearance of the cyst one week after the procedure. The temperature returned to normal. Unfortunately 2 weeks later on the patient got deterioration regarding her liver function and passed into hepatic encephalopathy with deep coma for 3 days and then passed.

### Discussion:

Pancreatic pseudocyst formation is well known complication of acute or chronic pancreatitis. It is a collection of pancreatic juice enclosed by wall within the pancreas or peripancreatic area. Psedocyst are usually round or ovoid and have a well defend wall of fibrous and granulation tissue. Formation of pseudocyst require at least 4 weeks from the onset of acute pancreatitis. The cyst is usually rich in pancreatic enzyme as in our case where the cystic fluid amylase was 5000 IU/ml (5).

Indication of pseudocyst drainage (surgical and endoscopic) including cyst larger than 6 cm, persisting for more than 6 weeks, or presence of pseudocyst complication like abdominal pain, obstruction, infection, or hemorrhage (1).

The treatment of pancreatic pseudocyst in a non-surgical fashion has fascinated physians in different disciplines including radiologist and endoscopist. Percutaneous ultrasound (US) and CT- procedure have been well described (6). When endoscopic approach was introduced, it was thought that this might overcome some of the complications, such as coetaneous fistula formation, that occur with percutaneous route. The recent introduction of EUS-guided drainage combine the advantage of both techniques, allowing internal drainage but avoiding the risk of inadvertent puncture of other organs or blood vessels.

The proximity of EUS transducer to the gut wall and pancreas in combination with high resolution of EUS imaging afforded by high frequency (5- 10) transducer allows excellent visualization of gut wall and nearby structures. In our case, the indication of drainage was the size of the cyst and the significant abdominal pain. The EUS guided drainage of the this pseudocyst was recommended because it is unilocular cyst without septation inside, closely related to gastric wall (the distance between gastric wall and cyst wall > 1cm), and there is no intervening

vessels as proved by EUS guided Color Doppler.

Regarding the technique of EUS guided drainage of the cyst, there are two types of procedures; either using the linear EUS with small size accessory channel < 2.4mm. Consequently, the echoendoscope has to be exchange over the guide wire for a 4.2mm channel therapeutic gastroscope or duodenoscope, or using large channel echoendoscope of 3.7mm and no exchange of scope is necessary. In our case the procedure was carried out using the large channel echoendoscope of 3.7mm.

Giovannini et al (7) reported a single-step drainage using a needle-knife, Teflon catheter, and guide wire, allowing placement of an 8.5-Fr stent. A comparison of EUS-guided cyst drainage with the standard endoscope technique indicated favorable initial and long term success rate for EUS technique (100% and 85% respectively, versus 84% and 74% for the standard technique ), with complication rate of 5% versus 10% respectively (8). Further and large studies are necessary to evaluate the true potential of the EUS guided technique alone and in relation to the standard approach.

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