

## Case Reports

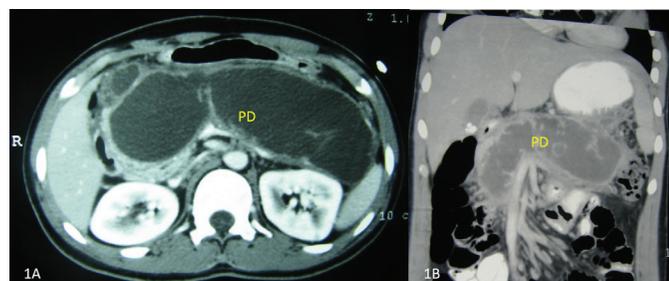
### Endoscopic ultrasonography-guided pancreatico-gastrostomy after failed transpapillary drainage in a patient of chronic pancreatitis

Patients with recurrent or persistent abdominal pain as a result of pancreatic duct (PD) head strictures require treatment to achieve ductal decompression. Conventional retrograde PD decompression procedures such as pancreatic sphincterotomy, pancreatic stenting, and dilation of PD strictures are highly effective treatment options for these patients. In patients with either failed cannulation with conventional endoscopic retrograde cholangio-pancreatography (ERCP) or tight PD strictures, endoscopic ultrasonography (EUS)-guided PD drainage (EUS-PDD) has been described as a rescue option.

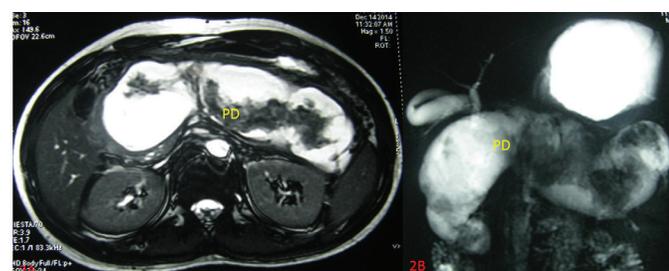
#### Case Report

An 18-year-old boy presented with history of recurrent episodes of severe epigastric pain for one year being conservatively managed with analgesics. There was no history of biliary colic, passage of worms in stools, gastroenteritis, pancreatico-biliary intervention, jaundice, fever, steatorrhea, weight loss or diabetes mellitus. Transabdominal ultrasonography revealed dilation of pancreatic duct (PD) with parenchymal atrophy and calcification. Further, contrast enhanced computed tomography (CECT) of abdomen and magnetic resonance cholangio-pancreatography (MRCP) demonstrated grossly dilated PD of 22 mm and thinned out parenchyma of the entire pancreas (**Figure 1,2**). Side viewing endoscopy (SVE) showed a normal papilla and cholangiogram. However, cannulation of PD could not be done due to tight stricture in head of Pancreas.

Using an echoendoscope (GF-UC140P-AL5, Olympus, Japan) the dilated PD with echogenic content



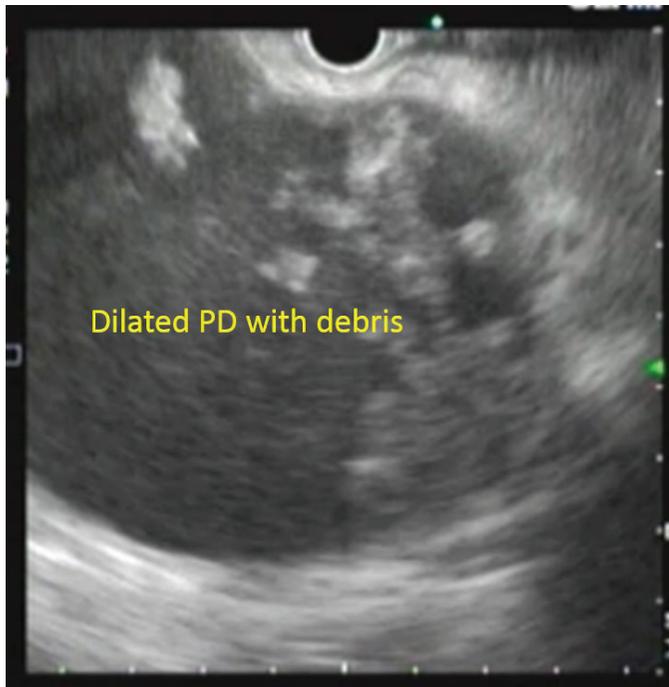
**Figure 1:** CECT of abdomen (1A: Transverse view and 1B: Coronal view) showed grossly dilated pancreatic duct (22 mm) and thinned out parenchyma.



**Figure 2:** MRI of abdomen (2A: MRI with T2 sequences, 2B: MRCP) showing dilated pancreatic duct with normal biliary system.

was visualized (**Figure 3**). Endoscopic pancreatico-gastrostomy was then performed under combined fluoroscopic and EUS guidance. A needle (19 G, Echo tip Ultrasound Needle, EUSN-19-T, Cook Ireland Ltd, Limerick, Ireland) was inserted across the stomach wall into the dilated proximal (upstream) pancreatic duct, dark brown fluid was aspirated. Aspirated fluid had high amylase levels (16000 IU/L), normal CEA level and cell count. A stiff guidewire (Metro, 0.035 inches) was placed into dilated PD. The track was dilated with 7F Sohendra Biliary Dilatation Catheter (SBDC) and 10 mm controlled radial expansion (CRE) balloon (**Figure 4**). Finally, a 10F x 7 cm double pigtail (DPT) plastic stent and 10F endoscopic naso-pancreatic drainage catheter (ENPD) was placed into the dilated PD. (**Figure 4,5**)

Patient remained asymptomatic after the procedure and repeat CECT of abdomen at 4 weeks revealed near normal pancreatic duct diameter with ENPD and DPT stents in situ (**Figure 6**). The patient is asymptomatic currently at 12 weeks of follow up.



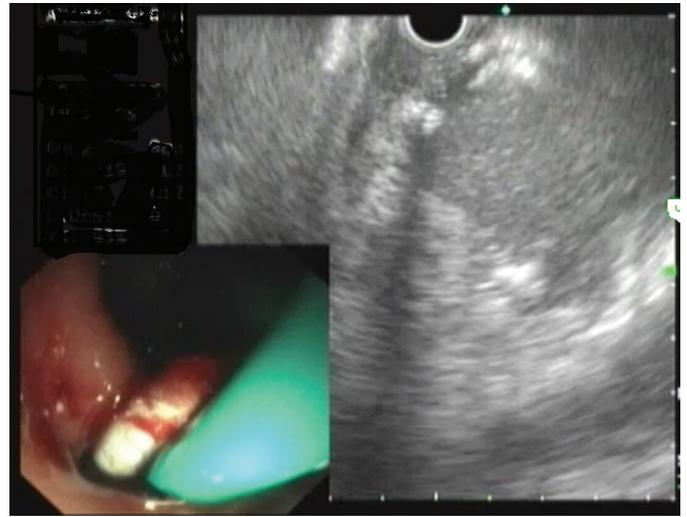
**Figure 3:** EUS showing the dilated main pancreatic duct with echogenic content.



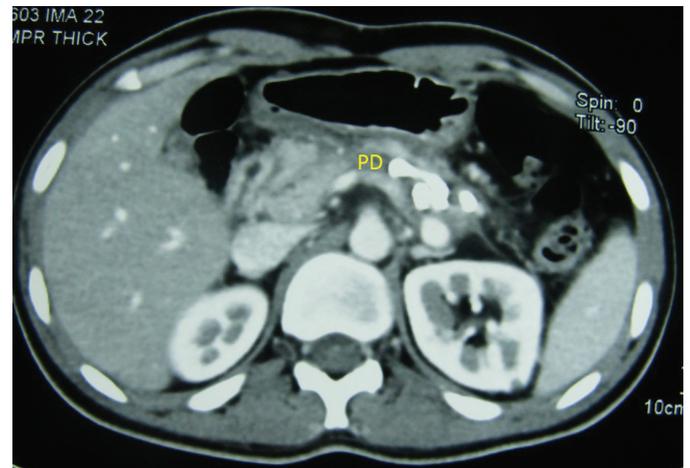
**Figure 4:** Fluoroscopic image showing EUS guided wire cannulation into dilated PD, CRE balloon dilation and DPT, ENPD placement.

## Discussion

In patients of chronic pancreatitis with PD strictures, surgical drainage of the pancreatic duct has been shown to be superior to endoscopic treatment in various studies.<sup>1</sup> However, surgical drainage is more invasive and has significant morbidity. Therefore, endoscopic treatment options need to be considered in patients. The standard endoscopic treatment for decompression of PD is via trans-papillary approach where successful cannulation via major papilla has been reported in 90-98% of cases.<sup>2</sup> A few studies have demonstrated that EUS-guided



**Figure 5:** EUS showed placement of DPT and ENPD into dilated PD.



**Figure 6:** Repeat CECT of abdomen after 4 week, normal PD with DPT and ENPD in situ.

transmural drainage of the PD is feasible in patients when conventional ERCP fails.<sup>3,4</sup>

The technical success rates of the EUS-guided rendezvous technique and PD stenting have been reported in two studies to be 77-92% and 25-100%, respectively.<sup>5,6</sup> Several technical improvisations have been described to improve the success rate of EUS-guided PD drainage. Adjusting the direction of the needle before puncture allows greater success for appropriate PD decompression in pancreatic ductal hypertension-related benign PD strictures.

In conclusion, EUS-guided PD drainage is a feasible and useful treatment option for tight PD strictures to achieve ductal decompression, especially if transpapillary approach has failed. However, this procedure is technically challenging, requires expertise and has a high rate of complications, therefore should be performed preferably at tertiary care centers.

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## Endoscopic diagnosis of duodenal tuberculosis: A case series

Tuberculosis is known to afflict various organ systems and sites in human body. Abdomen is a common extrapulmonary site for tuberculosis usually presenting as either intestinal or peritoneal tuberculosis.<sup>1</sup> However, involvement of gastroduodenal area is uncommon, which is believed to be because of high amount of gastric and pancreatic secretion present in these areas that may hinder the growth of mycobacteria. The literature studying duodenal tuberculosis is scanty and is usually in the form of case series or reports.<sup>2-5</sup> We herein report a series of four patients with duodenal tuberculosis all of whom were diagnosed endoscopically and responded well to antitubercular therapy (ATT).

### Case Series

Two of the four patients were males and the mean age of all patients was 35.25 years. The duration of symptoms prior to presentation varied from one and half months to 6 months. All patients had abdominal pain while three had features of gastric outlet obstruction (GOO). Other features were loss of appetite, loss of weight and fever (**Table 1**). All patients had a positive Mantoux test while one had evidence of healed old pulmonary tuberculosis on chest roentgenogram. Endoscopic findings included ulceration, nodularity, thickening of folds and narrowing of duodenal lumen (**Figure 1A**). Endoscopic diagnosis was possible in all patients but this required two attempts in two patients. In the second attempt, we used well biopsy technique (biopsy on site of previous biopsy) to take deeper tissue. In the other two patients the initial endoscopic biopsy itself yielded histological diagnosis.

None of the patients had caseation while all had evidence of epithelioid granulomas (**Table 2**). None of the biopsies were positive for either acid fast bacilli or for TB-polymerase chain reaction. The quantitative C-reactive protein (CRP) levels were either normal or only mildly elevated in these patients (4.8-9.2). All patients were treated with standard four drugs (rifampin, isoniazid, pyrazinamide and ethambutol) for initial 2 months