

Case Report

## The Indigenous Young Man with Progressive Abdominal Distension

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Short running title: Pancreatic ascites

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## **ABSTRACT**

The incidence of pancreatic ascites is unusual. It is uncommon sequelae of chronic pancreatitis. Smith first discovered it in 1953 in the literature. The etiology includes chronic pancreatitis, pancreatic pseudocyst, pancreatic trauma and idiopathic in origin. Despite a rise in the incidence, it is scarcely reported. This is a case of a 20-year-old man presented with repeated acute pancreatitis episode complicated with gross ascites. Pancreatic duct stones were identified intra-operatively. Frey's surgery was the procedure of choice. We discuss the presentation, choice of treatment and outcome.

**Key Words:** pancreas, ascites, chronic pancreatitis, pseudocyst

## INTRODUCTION

Pancreatic ascites is a rare complication of chronic pancreatitis. It was first described in 1953, when Smith discovered 2 cases of pancreatic ascites as sequelae of chronic pancreatitis (1). It is defined as an exudative ascites caused by a non-malignant pancreatic disease and characterized by a very high level of amylase concentration in the ascites fluid (>1000 IU/L) and a high protein concentration (>30 g/dl) (2).

The exact **etiology** of pancreatic ascites is unknown. However, it has been described that the common possible causes of pancreatic ascites includes chronic pancreatitis (3.5%) and pancreatic pseudo cyst (6-14 %) (1,2). Acute pancreatitis is an uncommon etiology for the development of pancreatic ascites due to the small amount and reabsorption upon resolution. Pancreatic ascites is more prevalent in men and occurs in patients between 20 to 50 years old. The clinical symptoms at presentation include progressive increase in abdominal girth with abdominal pain or abdominal discomfort and even peritonitis due to the leaking enzymes. Non-specific symptoms such as weight loss may be present. **We describe a 20-year-old young man with repeated acute pancreatitis episodes complicated with gross ascites, in which Frey procedure was performed for a pancreatic duct stone.**

## CASE REPORT

This is a 20-year-old man, who presented with recurrent episodes of acute pancreatitis. He is a **Malaysian** aborigine man who is previously working as a contractor with his father. He is unmarried with no previous medical illness **especially diabetes mellitus**. He had no history of gallstone disease. He does not drink alcohol or smoke. There was no history of malignancy in the family. He was an active and fit young man before the episode

of pain started. He denied any history of trauma, drug or traditional medicine usage before this.

The initial episode of acute pancreatitis diagnosed in one of the district hospital was uneventful and complete resolution was attained. However, this unfortunate man had to undergo laparotomy for a perforated gastric ulcer following the resolution of the first acute pancreatitis episode and recovered well. Two weeks post surgery, he presented again with intermittent epigastrium discomfort, abdominal distention, loss of weight, lethargic and steatorrhea. He lost up to 20 kg within 2 months of presentation and appeared malnourished. Body Mass Index was less than 18. Physical examination revealed a cachexic patient with dehydration and a grossly distended abdomen. Fluid thrill was positive for ascites. There was no peritonitis during initial assessment. Full blood count and liver function test were within normal range. Ultrasonography was inconclusive in view of gross ascites. Ascites fluid aspiration showed an amylase and protein level of 64200 IU/L and 30 g/dl respectively. Albumin level was 30 g/dl. Abdominal radiography did not show any radioopaque stone or pancreatic calcification. Computed tomography (CT) of the abdomen showed a cystic lesion adjacent to the body of the pancreas measuring 4.5 X 3.1 cm, with a prominent pancreatic duct with stone and gross ascites (Figure 1a & 1b). Endoscopic Retrograde Cholangio Pancreatography (ERCP) was attempted to identify the fistula causing ascites but was unsuccessful.

He was started on octreotide, pancreatin and total parenteral nutrition but symptoms were overwhelming. The decision for exploration was made after the patient developed peritonitis. Intra-operatively, there were saponification at the uncinata process of the pancreas and a stone was palpated at the region of the pancreatic head (Figure 2). Frey's procedure was performed to drain the pancreatic duct and stone was removed

completely. There was no biopsy applied since neither pancreatic lesion nor peripancreatic lymph nodes identified intraoperatively even it was apparent in CT scan. Post-operatively, he recovered well and was discharged uneventfully.

## **DISCUSSION**

Smith first described pancreatic ascites in the literature in 1953 (1). He discussed the clinical course and management of two cases of pancreatic ascites secondary to chronic pancreatitis complicated by pseudocyst (2). Although this condition is on the rise but the awareness of this syndrome and its incidence are scarcely reported. It is critical in differentiating a pancreatic ascites with cirrhotic ascites, which has a different approach in management.

The management option of a patient with pancreatic ascites depends on the clinical status of the patient. Surgical interventions are reserved for patient with underlying cause for the pancreatic ascites and also with failure of conservative therapy. In selected patients, conservative management can be an acceptable choice of therapy. This comprises usage of elemental diet, total parenteral nutrition, continuous percutaneous drainage, paracentesis and usage of somatostatin analogue. It aims to reduce exocrine pancreatic secretion; hence eliminating ascites, thus facilitating closure of the leakage (3). Any evidence of possible pancreatic insufficiency may be dealt with pancreatin.

Conservative management however poses a failure rate as high as 50% and high mortality necessitate surgical intervention (1). Hence, selection of patient is imperative for success with conservative management. The high failure rate could be predicted by the severity of the pancreatic disease demonstrated during Endoscopic Retrograde Cholangio Pancreatography (ERCP) or by the poor healing capacity of the fibrotic pancreas (4).

Endoscopic treatment is a reasonable choice for pancreatic ascites. This minimal procedure on expert hands may be a good alternative for those who is surgically unfit, not keen for surgery and also those with good clinical profile. Sphincterotomy and stent insertions reduce the intraductal pressure and promote good healing especially in ductal disruption. It also bypasses the possible pancreatic obstruction in stone and stricture cases. The identification of leakage site upon endoscopic is beneficial in planning of surgery and may influence the outcome of surgery. Surgical failure rate has been shown to be as high as 12-18% if the site of leakage is not identified prior to surgery (5). Unfortunately, our patient was unable to benefit by this due to the distorted anatomy and pancreatic stone causing technical difficulties in cannulating the duct.

This patient has failed conservative management and also was unable to benefit from endoscopic therapy. Thus, open surgery was the only option. However, the surgical technique poses a challenge and requires detail planning. The choice of surgery depends on the ductal anatomy and site of leakage and communication. A walled-off pseudocyst can easily be treated with drainage and cystogastrostomy. However, the presence of pancreatic ascites and stone within the pancreatic duct complicates intervention. A pseudocyst involving the head and neck of pancreas require a pancreatico-jejunostomy using Frey's or Puestows procedure. A drainage procedure is required to prevent recurrence and failure of surgical therapy. We chose Frey's procedure in view of the presence of stones and a 'dominant' head of pancreas disease. **The complications of Frey procedure range from 7.5% to 42% (6). Those complications include bleeding, pancreatic fistula, and intra-abdominal absces (6). These are considered as early complication. Patient successfully underwent the surgery without any early complications. For late complications, recurrent abdominal pain, pancreatitis or cholangitis, and stricture can be perceived postoperatively.**

Smith descriptions in literature correlate well with our patient demographic and biometric features (2). Laboratory investigation supports our diagnosis with amylase and protein levels were 64200 IU/L and 30 g/dl respectively. The repeated acute pancreatitis may be due to the undetected pancreatic stone causing obstruction. However, the reason for such a gross ascites development is still dubious. It may well be due to a ruptured pancreatic pseudocyst, an acute collection following another episode of pancreatitis or a consequence of the pancreatic stone. All the features support each one of those differentials and need further clinical correlation.

## **CONCLUSION**

Pancreatic ascites poses a challenge in the management and choice of therapy. The choice of conservative management, endoscopic or open surgery depends on the site, anatomy and also clinical profile. An open surgery is reserved for those who failed conservative or endoscopic treatment. The timing of intervention is crucial to ensure success.

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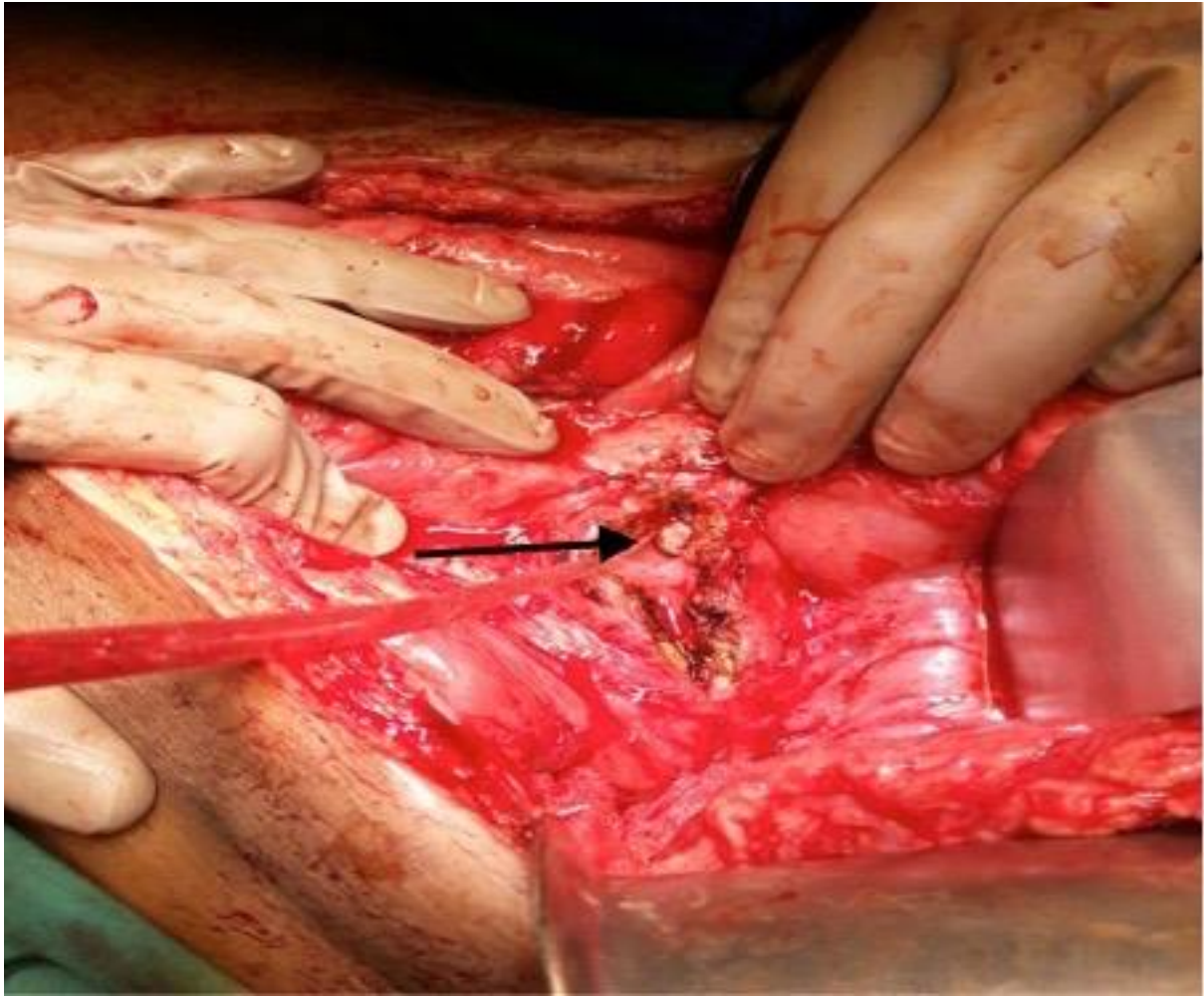


FIGURE LEGENDS





**Figure 1a:** CT scan of the abdomen (plain phase) showed a pancreatic stone (black arrow) with no pancreatic calcification. **Figure 1b:** CT scan (arterial phase) revealed a prominent pancreatic duct (white arrow) and gross ascites



**Figure 2:** A stone palpated at the region of the head of pancreas