A Case of Perinephric Pancreatic Pseudocyst Secondary to Pancreatitis

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1 INTRODUCTION

Pancreatitis is associated with a range of local and systemic complications (1,2). However, fistula formation is noted in only a very small proportion of patients with acute pancreatitis (3). These fistulas are generally a result of disruption of the pancreatic duct, which may be due to several etiologies such as trauma, surgical trauma, pancreatic resection, or those causing pancreatitis (4). Pancreatic duct disruption results in fluid leakage, which causes erosion and formation of pathways, the locations of which depend on the anatomic location of the duct disruption (4). Management of pancreatic fistulas includes medical and nutritional optimization, surgical interventions, endoscopic treatments, and catheter drainage (3, 5-7).

Pseudocysts associated with acute pancreatitis are loculated fluid collections that are rich in amylase and usually develop within 2 weeks of onset of pancreatitis (8). They may be intra- or extra-pancreatic, are inflammatory, and lack a true epithelial lining. Just like pancreatic fistulae, pancreatic pseudocysts generally develop secondary to disruption of the pancreatic duct, and resolve spontaneously unless they develop complications (8). The management of pancreatic pseudocysts includes but is not limited to, percutaneous, endoscopic, and surgical drainage among others (9-11).

Among these complications, pancreatic pseudocyst stands as a rare but significant entity. A pancreatic pseudocyst represents an abnormal fluid collection originating from the pancreas and can arise as a consequence of acute or chronic pancreatitis and remains relatively uncommon in clinical practice.

The clinical presentation of pancreatic pseudocyst may include abdominal pain, fever, and biochemical abnormalities indicative of pancreatic injury.

In this report, we present a case of pancreatic pseudocyst formation secondary to pancreatitis in a 42-year-old male, highlighting the clinical presentation, diagnostic evaluation, therapeutic interventions, and outcomes. Through this case, we aim to underscore the importance of early recognition and appropriate management of pancreatic pseudocysts to prevent complications and optimize patient outcomes.

2 CASE HISTORY/EXAMINATION

A 42-year-old male presented with complaints of swelling in the epigastric region for four months, which worsened progressively. It was associated with weight loss. His history included a single episode of acute pancreatitis two years ago with subsequent multiple episodes of mild epigastric pain, which was managed conservatively. On physical examination, his abdomen was soft, non-tender, and non-distended.

3 METHODS (DIFFERENTIAL DIAGNOSIS, INVESTIGATIONS, AND TREATMENT)

Contrast-enhanced CT examination of the abdomen and pelvis showed features of chronic pancreatitis and a large perinephric pseudocyst which was communicating with a dilated pancreatic duct in the region of pancreatic tail (Figure 1). This was causing gross compression and displacement of the left kidney posteromedially and inferiorly with resultant splaying and significant thinning of the renal parenchyma (Figure 2).

Subsequently, exploratory laparotomy and cystojejunostomy were done in which more than two liters of turbid-appearing fluid were suctioned. The wall of the cyst was sent for histopathology. Microscopic examination showed fibro-collagenous tissue with a lymphocytic population in a densely fibrosed background. No epithelial lining was seen in the entirely submitted cyst wall, confirming the diagnosis of a pseudocyst (Figure 3).

4 CONCLUSION AND RESULTS (OUTCOME AND FOLLOW UP)

The patient presented after 1 month with a history of postoperative fever, vomiting, and fever. A Follow-up CT scan was performed which showed an interval decrease in the size of the peripancreatic pseudocyst with interval development enhancing thick walls along with surrounding fat stranding suggesting infection (Figure 4).

The patient was transfused 2-pack cell volume (PCV) due to low hemoglobin and admitted to the ward for further management. Intravenous (IV) fluids and antibiotics were continued. An ultrasound-guided drain was placed in the pseudocyst cavity and 120 ml of infected fluid was aspirated. Subsequently, the patient tolerated oral nutrition and was afebrile and clinically stable before being discharged.

Pancreatico-renal fistula is a rare but potentially serious complication of pancreatitis. Early recognition and appropriate management are crucial to prevent complications and improve outcomes. This case highlights the importance of a multidisciplinary approach involving gastroenterologists, radiologists, and surgeons in the management of pancreatic pseudocysts. Further research is needed to better understand the pathophysiology and optimal management strategies for this uncommon condition.

5 DISCUSSION

Pancreatic pseudocysts are organized loculated simple fluid collections that lack an epithelial lining, contain a fibro-inflammatory lining made up of fibrous and granulation tissue, and persist for more than 4 weeks after the onset of pancreatitis. They are usually in the peripancreatic location and less commonly in other locations.

Renal subcapsular extension of a pancreatic pseudocyst is extremely rare and may mimic renal cortical cyst. Perirenal pseudocysts may compress, displace, distort, or depress the kidney. These may result in “page kidney”, which refers to renin-angiotensin-mediated hypertension secondary to renal hypoperfusion following long-standing compression of renal parenchyma by a subcapsular collection (12-14). Early management of perirenal pseudocysts is, therefore, of high significance.

Pancreatico-renal fistula is a rare complication of pancreatitis. Its pathogenesis typically involves the disruption of pancreatic duct integrity due to inflammation, ductal obstruction, or tissue necrosis (4). In the background of pancreatitis, the inflammation can lead to the formation of abscesses or pseudocysts (8), which may erode into adjacent structures with resultant fistula formation (3).

The clinical presentation depends on the extent of the fistula and associated complications. Patients typically present with a constellation of symptoms including abdominal pain, urinary symptoms, electrolyte abnormalities, or recurrent urinary tract infections. These may be associated with raised serum amylase and lipase levels. Diagnosis may be confirmed through imaging studies such as CT, magnetic resonance imaging (MRI), or endoscopic retrograde cholangiopancreatography (ERCP).

Managing pancreatic pseudocysts requires a multidisciplinary approach tailored to the individual patient’s

clinical presentation and underlying etiology (9-11). Conservative measures such as fluid resuscitation, pain control, and antibiotics may be initiated to stabilize the patient and control symptoms. In cases of persistent symptoms or complications such as infection or renal dysfunction, more invasive interventions may be warranted. Endoscopic therapy, including ERCP with stent placement or sphincterotomy, can facilitate drainage of the pancreatic duct and promote closure of the fistulous tract. Surgical intervention may be necessary in cases of failed endoscopic therapy, extensive pancreatic necrosis, or recurrent complications. Surgical options include fistula excision, pancreatic duct ligation, or partial pancreatectomy, depending on the extent of pancreatic involvement and the patient's overall condition. In our case, surgical internal drainage was performed on first admission. However, the patient was again admitted with infected pseudocyst and an ultrasound-guided pigtail drainage catheter was placed.

The prognosis of pancreatic pseudocysts depends on the severity of pancreatic inflammation, the extent of adjacent tissue involvement, and the timely initiation of appropriate treatment. With prompt diagnosis and early intervention, most patients experience resolution of symptoms and improvement in pancreatic and renal function. However, complications such as recurrent pancreatitis, infection, or renal insufficiency may occur, particularly in cases of delayed diagnosis or inadequate treatment. Long-term follow-up is essential to monitor the recurrence of symptoms and ensure optimal outcomes for patients with pancreatic pseudocysts.

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CONFLICT OF INTEREST STATEMENT

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ETHICS STATEMENT

Not applicable.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

PATIENT CONSENT

Written informed consent was obtained from the Participant.

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