

A Case Report on Pseudocyst of Pancreas

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Date of Submission: 10-07-2024

Date of Acceptance: 20-07-2024

ABSTRACT

Pancreatic Pseudocysts are fluid collections adjacent to the pancreas, commonly arising as complications of pancreatitis. Lacking a true epithelial lining, they form due to inflammation and leakage of pancreatic enzymes and fluids. Pseudocysts vary in size and clinical impact, often presenting with symptoms such as abdominal pain, nausea, and vomiting. Treatment strategies range from observation to drainage procedures, depending on the size and impact of the pseudocyst. Pancreatitis triggers include gallstones, alcohol abuse, trauma, infections, and chronic inflammation. Pseudocysts occur in 20-40% of acute pancreatitis cases, predominantly in adults, with chronic pancreatitis cases exhibiting a lower incidence. Diagnosis involves imaging modalities such as ultrasound, CT, MRI and ERCP.

KEYWORDS: Pseudocyst, Iatrogenic, Steatorrhea, Haemorrhage, PERT, ERCP, FNA, CECT, USG

I. INTRODUCTION

A pancreatic pseudocyst is a collection of fluid around the pancreas, typically arising as a complication of pancreatitis. It's called a "pseudo" cyst because it lacks a true epithelial or cellular lining like a regular cyst. Instead, it forms as a result of inflammation and leakage of pancreatic enzymes and fluids into the surrounding tissues. They often manifest as fluid-filled sacs adjacent to the pancreas and can vary greatly in size and clinical impact. These collections of fluid can cause symptoms such as abdominal pain, nausea, and vomiting, and may require medical intervention ranging from observation to drainage procedures depending on their size and impact on surrounding structures.

The pancreas is a vital organ located in the abdomen, responsible for producing digestive enzymes and hormones such as insulin and glucagon. When the pancreas becomes inflamed or

injured, it can lead to the development of pseudocysts as a complication. Acute pancreatitis, often triggered by factors such as gallstones, alcohol abuse, or certain medications, can cause inflammation and damage to the pancreatic tissue. Similarly, chronic pancreatitis, characterized by persistent inflammation and fibrosis of the pancreas, can also predispose individuals to pseudocyst formation.

Pancreatic pseudocysts can vary in size, ranging from small, asymptomatic lesions to large, symptomatic cysts that cause abdominal pain, nausea, vomiting, or other complications. The clinical presentation of pseudocysts depends on factors such as the size and location of the cyst, the presence of symptoms, and the development of complications.

ETIOLOGY:

The primary cause of pancreatic pseudocysts is pancreatitis, which can be either acute or chronic.

1. Acute Pancreatitis:

- **Gallstones:** Obstruction of pancreatic ducts by gallstones is a common trigger for acute pancreatitis.
- **Alcohol Consumption:** Excessive alcohol intake can lead to direct toxic injury to pancreatic cells, initiating inflammation.
- **Trauma:** Blunt abdominal trauma or iatrogenic injury during surgical procedures can cause acute pancreatitis and subsequent pseudocyst formation.
- **Infections, Medications, and Other Factors:** Infections, certain medications, and less common factors can also contribute to acute pancreatitis.

2. Chronic Pancreatitis:

- **Repeated Episodes:** Recurrent episodes of acute pancreatitis can lead to chronic inflammation and fibrosis, predisposing individuals to pseudocyst formation.

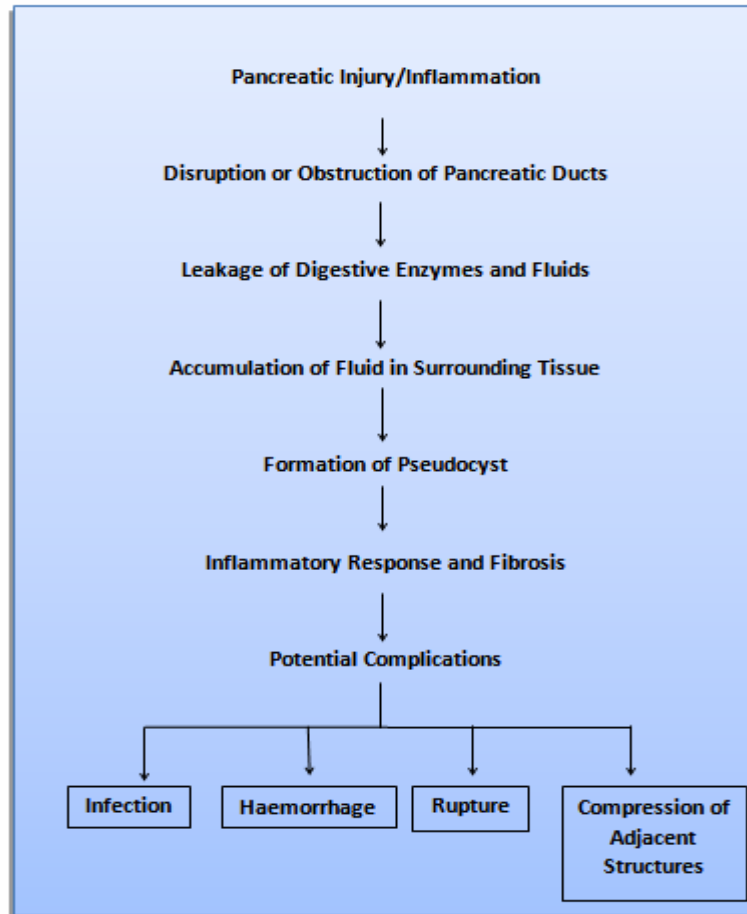
- **Ductal Obstruction:** Long-standing inflammation can result in strictures or obstruction of pancreatic ducts, further promoting pseudocyst development.
3. **Trauma:**
- **Blunt Abdominal Trauma:** Traumatic injury to the pancreas, such as from accidents or falls, can cause damage leading to pseudocyst formation.
 - **Iatrogenic Injury:** Surgical procedures involving the pancreas or adjacent structures may inadvertently cause pancreatic injury and subsequent pseudocyst development.
4. **Underlying Conditions:**
- **Pancreatic Anomalies:** Anomalies like pancreatic divisum, where the pancreatic ducts fail to fuse properly during embryonic development, can increase the risk of pancreatitis and pseudocyst formation.
 - **Genetic Factors:** Conditions like cystic fibrosis, which affect pancreatic function, may predispose individuals to pancreatitis and pseudocyst formation.
5. **Severity and Duration of Pancreatitis:**
The severity and duration of pancreatitis play a significant role in pseudocyst development. More severe or prolonged inflammation increases the likelihood of pseudocyst formation.
6. **Necrotizing Pancreatitis:**
In severe cases of acute pancreatitis, necrosis (tissue death) of pancreatic tissue may occur, increasing the risk of pseudocyst formation.

EPIDEMIOLOGY:

Pseudocysts develop in around 20-40% of individuals experiencing acute pancreatitis, a condition that can manifest at any age but is more frequently seen in adults, with a slight male predominance. The occurrence of pseudocysts is less frequent in cases of chronic pancreatitis when contrasted with acute pancreatitis. While the incidence varies, it tends to be lower overall. Chronic pancreatitis is more commonly observed in adults, typically peaking between the ages of 30 and 40. Like acute pancreatitis, it affects both genders, with a slight tendency towards males.

PATHOPHYSIOLOGY:

CLINICAL



MANIFESTATIONS:

- **Abdominal Pain:** Ongoing or repeating abdominal discomfort, usually situated in the upper abdomen or epigastric area. This pain may present as dull, persistent, or gnawing, and it can extend to the back or flanks.
- **Abdominal Distension:** Swelling or bloating of the abdomen may occur, particularly if the pseudocyst enlarges significantly and displaces surrounding organs.
- **Jaundice:** In some cases, compression of the common bile duct by a large pseudocyst can lead to jaundice, characterized by yellowing of the skin and eyes.
- **Fever and Chills:** If the pseudocyst becomes infected, fever and chills may develop as the body mounts an immune response to the infection.
- **Malabsorption Symptoms:** Malabsorption symptoms such as diarrhoea, steatorrhea (fatty stools), and nutritional deficiencies may occur

if the pseudocyst affects pancreatic enzyme secretion and impairs digestion.

- **Palpable Mass:** In some cases, a palpable mass may be felt in the upper abdomen upon physical examination, particularly if the pseudocyst is large enough to be detected.
- **Nausea and Vomiting**
- **Weight Loss**

TREATMENT:

1. Pain

Management:

Nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or

naproxen may be prescribed to help alleviate abdominal pain associated with pancreatic pseudocysts. If pain is severe or not adequately controlled with NSAIDs, stronger pain medications such as opioids may be necessary. However, opioids are typically used cautiously due to their potential for dependence and side effects.

2. Antiemetics:

Antiemetic medications such as ondansetron or metoclopramide may be prescribed to help relieve nausea and vomiting associated with pancreatic pseudocysts.

3. Antibiotics:

If the pseudocyst becomes infected (infected pseudocyst), antibiotics are essential to treat the underlying infection. The choice of antibiotic depends on the suspected or identified causative organism and its sensitivity to antibiotics.

- Ciprofloxacin

- Metronidazole
- Third-generation cephalosporin

4. Proton Pump Inhibitors (PPIs) or Histamine H2 Receptor Antagonists:

PPIs (e.g., omeprazole, pantoprazole) or H2 receptor antagonists (e.g., ranitidine) may be prescribed to reduce gastric acid secretion and help alleviate symptoms of gastritis or gastroesophageal reflux that can occur secondary to pancreatic pseudocysts.

5. Diabetes Medications:

If pancreatic pseudocysts cause or exacerbate diabetes mellitus by damaging pancreatic tissue involved in insulin production, medications to manage blood sugar levels (such as insulin or oral hypoglycaemic agents) may be necessary.

6. Fluid and Electrolyte Management:

Intravenous fluids and electrolyte replacement may be necessary, especially in cases of severe dehydration or electrolyte imbalances resulting from complications such as fistula formation or gastrointestinal losses.

7. Nutritional Supplements:

Nutritional supplements, including vitamins and minerals, may be recommended to address malnutrition or nutritional deficiencies resulting from pancreatic dysfunction associated with pseudocysts.

8. Pancreatic Enzyme Replacement Therapy (PERT):

In cases where the pseudocyst or underlying pancreatic disease impairs pancreatic enzyme secretion, pancreatic enzyme replacement therapy (PERT) may be necessary. PERT supplements digestive enzymes such as lipase, protease, and amylase to aid in digestion and nutrient absorption.

9. Enzyme Replacement Therapy:

Pancreatic enzyme supplements may be recommended to improve digestion and alleviate symptoms of malabsorption, which can occur if the pseudocyst compresses the pancreatic duct and impairs enzyme secretion.

DIAGNOSTIC TESTING:

1. **Abdominal Ultrasound:** Ultrasound imaging is often used as an initial screening tool for

detecting pancreatic pseudocysts. It can identify the presence of cystic lesions in the pancreas and assess for complications such as haemorrhage or infection. Pseudocysts typically appear as hypo echoic (dark) or anechoic (black) lesions with well-defined margins.

2. **Computed Tomography (CT) Scan:** CT scanning provides detailed anatomical information and is highly sensitive in detecting pancreatic pseudocysts. It can accurately delineate the size, location, and characteristics of the pseudocyst and assess for complications such as rupture or adjacent organ involvement. Pseudocysts appear as rounded or oval-shaped lesions with low attenuation (dark) contents compared to surrounding tissues, often with a well-defined, thickened wall.

3. **Magnetic Resonance Imaging (MRI):** MRI, particularly magnetic resonance cholangiopancreatography (MRCP), is useful for evaluating the pancreatic ductal anatomy and identifying ductal disruptions or strictures that may be contributing to pseudocyst formation. Pseudocysts may demonstrate variable signal intensity on T1-weighted and T2-weighted images, depending on the composition of the fluid and the presence of haemorrhage or debris.

4. **Endoscopic Retrograde Cholangiopancreatography (ERCP):** ERCP can be both diagnostic and therapeutic in patients with pancreatic pseudocysts. It allows direct visualization of the pancreatic ducts and can identify ductal abnormalities contributing to pseudocyst formation. Additionally, therapeutic interventions such as pseudocyst drainage or stent placement can be performed during the procedure.

5. **Endoscopic Ultrasound (EUS):** EUS is a valuable tool for assessing pancreatic lesions and pseudocysts, especially those located in proximity to the gastrointestinal tract. It provides high-resolution imaging and allows for guided fine-needle aspiration for cytology or fluid analysis.

6. **Laboratory Tests:** Serum amylase and lipase levels may be elevated in patients with pancreatic pseudocysts, although these findings are nonspecific and may also be elevated in other pancreatic conditions.

7. **Fine-Needle Aspiration (FNA):** In cases where the diagnosis is uncertain, or if there is concern for malignancy, a fine-needle aspiration may be performed to obtain fluid

from the pseudocyst for cytological analysis. FNA can help differentiate pseudocysts from other cystic lesions of the pancreas, such as cystic neoplasms.

LIFE STYLE MODIFICATIONS:

1. Dietary Changes:

- **Low-fat diet:** Minimizing intake of high-fat foods can reduce the workload on the pancreas and may help alleviate symptoms.
 - **Small, frequent meals:** Eating smaller meals throughout the day instead of large meals can ease the burden on the pancreas and aid in digestion.
 - **Avoiding alcohol:** Alcohol can exacerbate pancreatic inflammation and should be avoided or limited.
2. Hydration
 3. Smoking Cessation
 4. Regular Exercise
 5. **Weight Management:** Maintaining a healthy weight through proper diet and regular exercise is important for managing pancreatic health. Obesity can increase the risk of complications from pancreatic pseudocysts, so achieving and maintaining a healthy weight is recommended.
 6. **Stress Management:** Chronic stress can exacerbate symptoms of pancreatic disease. Practicing stress-reducing techniques such as meditation, deep breathing exercises, yoga, or mindfulness may help improve overall well-being.
 7. **Medication Adherence:** If medications are prescribed to manage symptoms or underlying conditions associated with pancreatic pseudocysts, it's important for patients to adhere to their treatment plan as prescribed by their healthcare provider.
 8. **Regular Medical Follow-up:** Regular monitoring and follow-up with healthcare providers are important for managing pancreatic pseudocysts. This allows for early detection of any changes or complications and adjustment of treatment plans as needed.

II. CASE PRESENTATION:

A 32 year old male patient admitted in general surgery ward, KGH hospital with a chief complaint of pain in upper abdomen since 3 months associated with nausea, abdominal bloating, loss of weight and fever. He's an alcoholic since 15 years. He was diagnosed with Chronic Pancreatitis with Pseudocyst of Pancreas by CECT (Contrast-Enhanced Computed Tomography) and USG –

Abdomen diagnostic tests and found large undulated cysts. He was treated with Injection Ceftriaxone 1 gram IV, Injection Pantoprazole 40 grams IV, Injection PCM 1 gram IV and IV Fluids for 2 days. Following this treatment, the patient underwent surgical removal of the cyst.

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