CASE REPORT

A Case of Pancreaticopleural Fistula

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ABSTRACT

Pancreaticopleural fistula (PPF) is a rare complication of pancreatitis (affecting 0.4% of cases). This case highlights the challenges of diagnosing and managing a pancreaticopleural fistula in a presentation of dyspnea and recurrent pleural effusion.

INTRODUCTION

Pancreaticopleural fistula (PPF) is a rare complication of pancreatitis (affecting 0.4% of cases). Inflammation of the pancreas can cause pancreatic duct or pseudocyst rupture. Pancreatic enzymes released from the pseudocyst rupture can erode surrounding tissues, forming a fistula between the pancreas and the pleural space.

This case highlights the challenges of diagnosing and managing a pancreaticopleural fistula in a presentation of dyspnea and recurrent pleural effusion.

CASE PRESENTATION

A man in his 50s with history of alcohol use disorder, chronic pancreatitis**,** and two months of bilateral pleural effusions presented with dyspnea, pleuritic right chest pain**,** and dizziness. A right thoracentesis removed 850cc of fluid. The right pleural fluid amylase level was 8,740U/L. Symptoms persisted; after four days, a right-side chest tube was placed. Chest tube drainage slowed**,** and tissue plasminogen activator was administered to facilitate drainage. A CT scan showed loculated pleural effusions. A video-assisted thoracoscopic surgery (VATS) was performed for decortication. Two days after VATS**,** the pleural effusion recurred. A left-side chest tube was placed and drained fluid with food debris. Investigation with an esophagram showed no esophageal leak. A repeat CT scan demonstrate a 4.5cm collection near the gastroesophageal junction with a fistulous connection to the pancreatic body and right pleural effusion, and

subcentimeter cystic structures visualized near the fistula origin.

He was transferred to a tertiary hospital. Gastroenterology started an octreotide infusion and performed an endoscopic retrograde cholangiopancreatography (ERCP) with duct stent placement in the mid-pancreatic body. Pleural fluid was sampled daily until amylase levels normalized (30U/L). Chest tubes were removed**,** and plans were made to repeat the ERCP in two months.

One month later, he re-presented to the hospital with dyspnea. CT scan demonstrated 2.6 x 2.3cm fluid collection posterior to the distal pancreatic body and right loculated pleural effusion recurrence. ERCP was performed to replace the stent. Repeat CT scan after the procedure showed resolution of peripancreatic fluid, decreased pleural fluid, and persistent right loculated effusion.

DISCUSSION

Pleural effusion with elevated amylase results from a communication between the abdominal and pleural cavities. Diagnosis is confirmed when a pleural fluid analysis yields exudate with levels of amylase >5,000 U/L.[1] PPF is often found on CT abdomen imaging. If PPF is suspected, an ERCP should be performed to visualize the pancreatic ducts and identify aberrant drainage. Magnetic resonance cholangiopancreatography (MRCP) can be considered if ERCP findings are equivocal.

Etiologies of PPF include perforated peptic ulcer, traumatic diaphragmatic hernia, traumatic or chronic pancreatitis, and malignancy.[2,3] Causes of fistula formation should be evaluated thoroughly with respective imaging and serology, such as CT scan of abdomen and pelvis, secretin-stimulated MRCP, liver function tests and lipase levels. Esophageal rupture is diagnosed with contrast esophagram; endoscopy should be performed after the esophagram confirms there is no esophageal rupture to limit risk of esophageal perforation during endoscopy.

Once a diagnosis is established, treatment is focused on fluid drainage and fistula repair. Mild cases are managed with pain control, nutritional support, and thoracentesis. Octreotide and total parenteral nutrition are administered to limit pancreatic secretions.[4,5] Fistulas may be clipped during endoscopy.[6] Endoscopic pancreatic sphincterotomy, pancreatic stent or nasopancreatic catheter placement facilitate pancreatic fluid drainage.[7] In complex cases, cystojejunostomy, cystogastrostomy, or pancreatic resection are required to remove the fistula or correct anomalies that caused the fistula to form.[8]

In a literature review from 1970-2008 medical therapy resolved fistula in 30-60% of cases and exhibited a recurrence rate of 15% while surgical therapy resolved fistula in 90% of cases and exhibited a recurrence rate of 18%. Although approximately 45% of fistulas close with octreotide use and stent placement, treatment may last for about six months of octreotide use and about one month of pleural drainage. The decision to pursue medical over surgical treatment is constrained as though medical therapy is effective, mortality rates in medical treatment and surgery are similar and recovery may be achieved sooner with early pancreatic stent placement or surgery.[9]

ERCP is typically repeated six weeks after initiating treatment to monitor for resolution and, in cases with stent placement, for consideration of stent retrieval. Complications such as malnutrition, sepsis secondary to intestinal mucosa atrophy, central line infection, deep venous thrombosis, and development of diabetes may occur throughout the treatment

course.[9,10] Endoscopy may have increased risk of complications such as gastrointestinal bleeding, as cases with chronic pancreatitis have more technically procedural considerations due to ductal strictures.[11] Recurrence of pancreaticopleural fistula after treatment is uncommon, with 85-90% achieving remission in 1 year.[10,11]

Notes

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