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# Pancreaticopleural Fistula with Massive Left Hemothorax : A Case Report

KEYWORDS: Pancreaticopleural fistula, pseudocyst, pleural effusions,chronic pancreatitis

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**ABSTRACT** *Pancreaticopleural fistula is a rare clinical condition. Because of the paucity of clues suggestive of pancreatic disease and the preponderance of pulmonary symptoms and signs, its presentation is confusing. Pleural effusions are large, recurrent, highly exudative in nature often hemorrhagic. Many patients undergo extensive pulmonary evaluation before the pancreas is identified as the site of primary pathology.The therapeutic options include medical, endoscopic, as well as surgical interventions. Here we report a case of idiopathic chronic pancreatitis presenting as massive left sided hemothorax with asymptomatic pseudocyst of pancreas with pancreaticopleural fistula.After 3 weeks of medical therapy,endoscopic stenting was planned which failed.Finally she recovered with surgical treatment. This case demonstrates that the rarity of such a condition leads to delay as well as challenges in diagnosis and management.*

**INTRODUCTION:**
Pancreaticopleural fistula(PPF) was first described in 1973 by Tombroff (1). Incidence of PPF is less than 1% of acute pancreatitis cases but in 0.4%–4.5% of chronic pancreatitis cases. Two mechanisms are thought to be involved: mostly through a pseudocyst in nearly 77% cases (2) or directly via the main pancreatic duct with the pleural cavity . Produces massive and recurrent pleural effusions,often hemorrhagic usually on the left side .The key to the diagnosis is a dramatically elevated pleural fluid amylase. CT is useful in detecting pancreatic masses ,calcifications or pseudocysts. ERCP serves as a sensitive diagnostic and therapeutic tool for pancreatic duct dilatation and stent placements. MRCP is an alternative diagnostic tool in preferred patients .Conservative treatment consists of total parenteral nutrition, somatostatin, thoracentesis or chest tube drainage in water seal. Endoscopic treatment consists of placing implants inside Wirsung's duct and sphincterotomy. Surgical treatment consists of drainage with the preparation of pancreatic anastomosis with an intestinal segment and / or distal pancreatectomy alone.

**CASE REPORT :**
A 23 year old young unmarried non alcoholic female presented with complaints of shortness of breath,cough,chest pain for a period of 20 days, which were gradually progressive. She was a known case of chronic pancreatitis since the age of 10 years and was on irregular follow up and treatment. History of intermittent episodes of abdominal pain that were relieved with medication were present.On examination she was pale and was ill built and ill nourished. There were complete absence of respiratory movements and breath sounds with a dull note on the left hemithorax.

Investigations revealed hemoglobin 6g/dl,serum proteins 4.2g/dl,serum amylase 1520U/L with normal liver and renal functions. A chest x-ray showed a left opaque hemithorax, suggestive of pleural collection. Pleurocentesis was performed and one liter of hemorrhagic fluid was removed. Analysis showed amylase of 43,480U/L,proteins-3.6g/dl,plenty RBC and no malignant cells..CT confirmed massive left pleural effusion with collapsed lung(figure1).CECT of abdomen revealed chronic pancreatitis with multiple caliculi and pseudocyst(figure 2) showing intrathoracic extension on left side. Pleural biopsy ruled out tuberculosis and malignancy.

A provisional diagnosis of PPF was made and ERCP was planned. She was treated conservatively for 3weeks before ERCP with measures like nothing per orally, total parenteral nutrition,somatostatin analogs like octerotide and intercostal chest tube drainage as she had severe respiratory distress. Later ERCP was done showing multiple pancreatic duct calculi, stenosis and dilation of duct.The duct leak into the pseudocyst extending into thorax(figure 3) was demonstrated and stenting of pancreatic duct was done.As it is a large volume pseudocyst, pancreatico jejunostomy was done and pseudocyst resolved.

**DISCUSSION :**
Intra abdominal complications of pancreatitis such as pseudocyst, abscess, necrosis are common. However extra abdominal complications like thoraco pancreatic fistula do occur. Thoraco pancreatic fistula can manifest in four ways-pancreatico pleural fistula(PPF), mediastinal pseudocyst, pancreatico pericardial fistula, pancreaticobronchial fistula . High levels of amylase is the hall mark of recurrent pleural effusion in pancreatitis.(2). In cases of PPF, associated effusions tend to be large and recurrent. They are seen at the left side in 76% of cases.(3)

Pathogenesis of these enzyme containing pleural effusions differ. Several mechanisms may be involved. 1. Direct contact of pancreatic enzymes with diaphragm. 2. Hematogenous carriage of pancreatic enzymes to pleura. 3. Direct movement of fluid from abdomen to thorax through various sources viz., transfer of fluid via natural hiati , diaphragmatic perforation by a pancreatic pseudocyst, transfer of fluid into pleural cavity by trans diaphragmatic lymphatics(4). A leaking pancreatic duct or pseudocyst can access the pleural cavity through a diaphragmatic or aortic hiatus or directly transdia-

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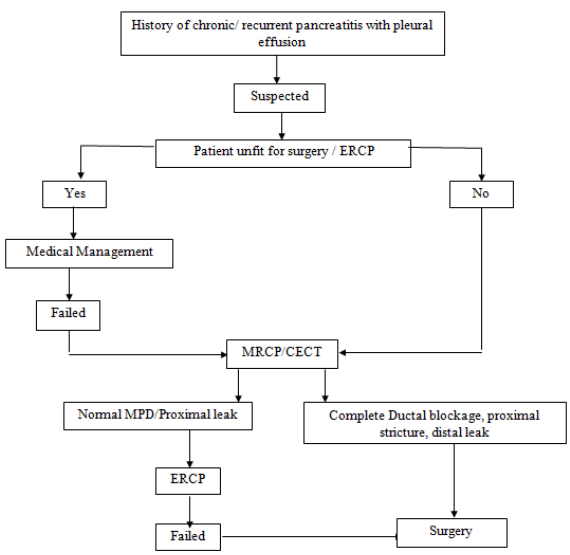
phragmatically leading to pancreaticopleural fistula.

Clinically patient will have more of respiratory symptoms than abdominal. Diagnosis of PPF is based on the triad of massive pleural effusions, elevated amylase and protein levels in pleural fluid (5). The best screening test in suspected cases is measurement of pleural fluid amylase(>4000U/L)(6) Other causes of raised pleural amylase levels are malignancy,esophageal perforation , post coronary artery bypass graft, pneumonia, cirrhosis, tuberculosis, hydronephrosis. Only in pancreatitis related PPF has amylase P(Pancreatic). CT and ERCP are required for confirmation. Delineation of pancreatic duct anatomy and to decide treatment ERCP or intraoperative pancreatography is mandatory. MRCP sensitivity is 80% but is reserved for failed ERCP where ductal anatomy is not clear.

Therapeutic options include medical treatment,endoscopic management and surgery(Algorithm)(7). The aim of medical treatment is to reduce pancreatic exocrine secretions.Complete bowel rest,parenteral hyperalimentation,somatostatin analogs, thoracocentesis or chest tube drainage can be attempted.The success rate of medical treatment is nearly 50-60%. Endoscopic treatment consists of balloon dilatation and stent placement. The stent may allow for drainage of pancreatic secretion into the duodenum and has reported success rates up to 25% (8) .Indications for surgery are failure of medical and endoscopic therapy,large volume pseudocyst, persistent or recurrent effusions,stenosis or disruption of the main pancreatic duct(9).We recommend an initial 2 to 4-week trial of medical therapy.




**ALGORITHM OF THERAPEUTIC OPTIONS :**

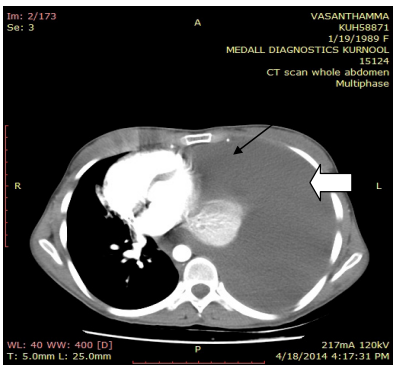



**Figure 1: CT Scan showing left sided massive effusion(white arrow) with collapsed lung border (black arrow )**

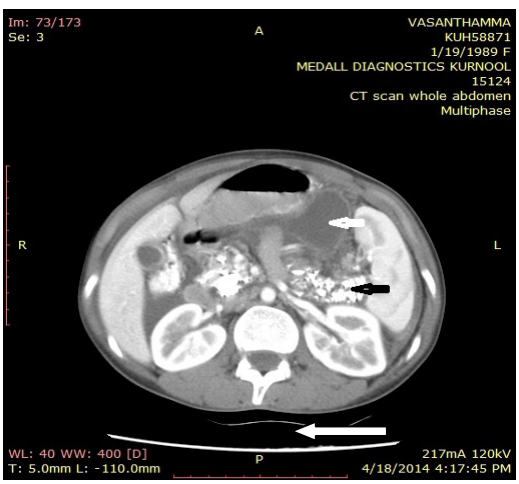



**Figure 2: CT Scan showing pseudocyst of pancreas (white arrow) and multiple calculi (black arrow) .**

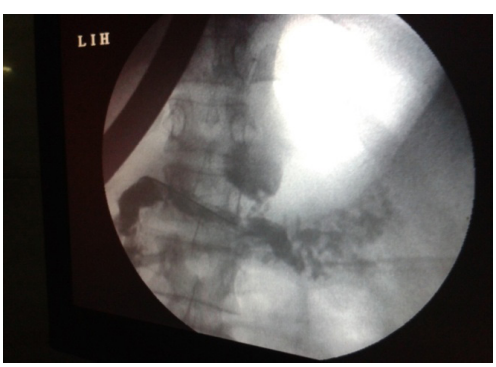



**Figure 3: ERCP showing duct leak into the pseudocyst (arrow) that is having intra thoracic extension.**

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