ACUTE ON CHRONIC PANCREATITIS PRESENTING WITH BILATERAL PLEURAL EFFUSION A CASE REPORT

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Abstract:
Pancreaticopleural fistula is a rare complication of pancreatitis and presents with pulmonary symptoms and signs. A highly elevated amylase level in the pleural fluid helps to diagnose a pancreatic pleural effusion. Pancreatic effusions are more common on the left side, but can present on the right side as well. The fistulous tract can be well delineated by endoscopic retrograde cholangiopancreatography. It can be treated conservatively, surgically or endoscopically by placing a stent that effectively drains the pancreatic secretions. Here we present one such patient who presented with bilateral pleural effusions of pancreatic origin.

Keyword: pancreatitis, pleural effusion, pancreaticopleural fistula

Introduction
Patients with chronic pancreatitis usually present with abdominal pain or features of pancreatic insufficiency, like fat malabsorption or diabetes mellitus. Pancreatic pleural effusion occurring as a result of a pancreaticopleural fistula is an uncommon presentation of chronic pancreatitis. Here we present one such patient who presented with bilateral pleural effusions.

Case report
A 38 year old agricultural labourer presented with gradually worsening breathlessness over the past 6 months with a rapid deterioration of the symptoms over the past 15 days. He also had history of significant loss of weight over the past few months. He denied any history of fever or cough associated with the dyspnoea. He had recurrent episodes of epigastric pain which resolved spontaneously in the last 1 year, but never sought any medical treatment for the same. He consumed alcohol on a daily basis for the last 7 years.

On examination he appeared emaciated. He was in visible respiratory distress, had tachycardia and tachypnoea. He also had marked pallor, bilateral pitting pedal oedema and elevated jugular venous pulsations. His blood pressures were stable.
Respiratory system examination revealed a tracheal shift to the left side along with decreased breath sounds, decreased vocal fremitus and stony dull percussion notes on the right side of the chest. On abdominal examination, there was some resistance to palpation in the epigastrum and right hypochondrium but there was no palpable mass or hepatosplenomegaly. Other system examination was within normal limits.

His blood investigations revealed haemoglobin of 3.5gm% with microcytosis (mean corpuscular volume was 64.5 fL). Three samples tested for occult blood in stools were negative. His renal function and liver function tests were normal except for a decreased albumin level of 2.3gm%. The serum amylase and lipase levels were 372 and 330 U/L respectively.

Subsequently, a computerised tomography of the abdomen and chest showed multiple pseudocysts in the pancreatic and peripancreatic region with one large pseudocyst in the lesser omentum which was extending up to the carina. Bilateral pleural effusion was visualised. There were features suggestive of chronic pancreatitis with atrophic parenchyma of the pancreas and dilated pancreatic duct.

Our patient had features of congestive heart failure due to severe microcytic anaemia. His dyspnoea was probably aggravated further by the massive pleural effusion on the right side. The effusion was clearly pancreatic in origin, owing to the markedly elevated amylase and lipase levels in the pleural fluid. He was transfused packed cells and was treated with diuretics. He was also started on iron supplements. An intercostal drainage was inserted on the right side, since he had rapid reaccumulation of the effusion despite therapeutic drainage procedures. He was managed conservatively since he was not willing for any interventional treatment. His symptoms gradually improved while on medical therapy and he was discharged from the hospital.

**Discussion**

Pancreatic effusions can occur as a complication of acute as well as chronic pancreatitis. In patients with acute pancreatitis, small pleural effusions may develop and they have been suggested as a negative prognostic feature (1). The enzyme levels are generally low and there is resolution of the effusion, along with the resolution of the underlying pancreatitis. These effusions are probably due to sympathetic, chemically induced, diaphragmo-pleural inflammation (2). 3 to 17% of patients with chronic pancreatitis.
have been found to have pleural effusions. The most common underlying pathophysiology is transdiaphragmatic lymphatic transfer of pancreatic secretions into the subpleural space (3). However a rare cause is the formation of pancreatico-pleural fistulae, which usually occurs in middle aged men who consume alcohol. It is usually seen in chronic pancreatitis, though isolated reports of the same in acute pancreatitis exist (4).

According to a series from Japan, the most common cause of pancreatic pleural effusion was chronic alcoholic pancreatitis (5). The other less common causes include surgical trauma to the pancreas, gall stones and acute pancreatitis. Though the effusion is more common on the left side, right sided effusions and bilateral effusions have been well noted. Another retrospective series by Oh et al suggested that nearly 70% of those who had a pancreaticopleural fistula had a prior episode of pancreatitis (6).

The elevated serum amylase level may be a clue that the pulmonary pathology is pancreatic in origin. In the above series, mean serum amylase on admission was 1441 U/L (range, 161 – 8000 U/L). However, the key to the diagnosis of a pancreatic effusion, as a result of a pancreaticopleural fistula, is the markedly elevated amylase levels in the pleural fluid as shown in the same series where the mean pleural fluid amylase was 53,622 U/L (range, 2000 – 446,600 U/L).

Once a pancreatic pleural effusion is suspected a computerised tomography of the abdomen has to be done to assess for evidence of chronic pancreatitis and for pancreatic pseudocysts. Endoscopic retrograde cholangiopancreatography (ERCP) is considered the diagnostic procedure of choice as it has the capability to demonstrate contrast filling the pancreatic ducts and extravasations in real time and hence it clearly delineates the fistulous tract. It can also demonstrate any communication of the pancreatic duct with surrounding fluid collection. Moreover, ERCP can be used for therapeutic reasons as well, unlike other diagnostic modalities. The Magnetic resonance cholangiopancreatography (MRCP) is still preferred by some due to its non invasive nature, especially when a therapeutic procedure is not planned. Two reports have shown that ultrasonography was useful in demonstrating the pancreaticopleural fistula, especially when other imaging modalities failed (7), (8). However, further data in this area is unavailable.

There have been documentations of pancreatic pseudoaneurysms as a result of pancreatitis, which have led to massive blood loss and sometimes even shock (9), (10). Such pseudoaneurysms are rare complications of pancreatic pseudocysts and can be diagnosed with mesenteric angiography or a dynamic CT (11). Most studies have looked at angiography for demonstrating pseudoaneurysms especially since this modality has the added possibility of therapeutic embolisation in case of a haemorrhage (12), (13). There are isolated case reports of patients in whom colour Doppler was been used to demonstrate pseudoaneurysms complicating pancreatic pseudocysts (14).

The various treatment options available are conservative, radiological, surgical or that of endoscopic stent placement. The aim of conservative treatment is to decrease pancreatic stimulation by feeding nasojejunal and to correct any underlying malnutrition, along with correcting fluid and electrolyte imbalances and treating superadded infections with appropriate antibiotics. When compared with
parenteral nutrition, enteral feeding avoids the risk of catheter related infections and the increased cost. It has also been shown that post-operative pancreatic external fistulæ (those that communicate with the skin) have shown spontaneous closure earlier with enteral feeding than with parenteral feeding (15). However, the same has not been studied for pancreatic fistulæ due to other aetiologies.

Radiological treatment is reserved mainly for post operative collections and involves percutaneous drainage of the same. Its usefulness has not been studied for internal fistulæ (those that communicate with other organs). Endoscopic treatment aims at drainage of pancreatic secretions internally via its normal course using a stent. There exists conflicting results as to whether the stent should be placed in a transpapillary manner or whether it should traverse the disruption in the pancreatic duct. Many case series have found both these approaches to be beneficial, the latter being more effective (16), (17), (18).

However, one retrospective series compared the treatment of pancreatic ascites by conservative methods (parenteral feeding, therapeutic paracentesis and somatostatin analogues) with interventional methods (endoscopic or surgical). It showed that patients who underwent interventional treatment in the form of surgery or trans-papillary stenting of the pancreatic duct had successful treatment outcomes (19). A recent case series published on pancreatic-pleural fistula, which had reviewed a total of 63 patients, revealed that the success rate with conservative management was 31% compared to 94% success rate with surgical therapy and the study concluded that these patients did better with early operative intervention (20).

Conclusions
Pancreaticopleural fistula is a rare complication of pancreatitis and may present in a patient without prior history of pancreatitis. A markedly elevated pleural fluid amylase level is the key point in diagnosing a pancreatic effusion. ERCP is the diagnostic tool of choice and offers therapeutic benefits as well. Endoscopic management (using the placement of a trans-papillary stent for effective downstream drainage of the pancreatic secretions) and surgical management appear to be therapeutic interventions most associated with successful outcomes.

References


18 Kozarek RA, Ball TJ, Patterson DJ, Freeny PC, Ryan JA, Traverso LW. Endoscopic transpapillary therapy for disrupted pancreatic duct and peripancreatic fluid collections. Gastroenterology. 1991 May;100(5 Pt 1):1362–70.


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