

CASE REPORT

A CASE OF RECURRENT PLEURAL EFFUSION FROM PANCREATICO PLEURAL FISTULA: DIAGNOSIS AND MANAGEMENT

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ABSTRACT: Pleural effusion and mediastinal pseudo cysts in Acute Pancreatitis are common but that of in association with chronic pancreatitis and trauma is rare and occurs only if fistulous communication develops between pancreatic ductal system and pleural space or due to direct extension of pseudo cyst into pleural cavity through mediastinum. The diagnosis of fistula can be made with high index of clinical suspicion and can be confirmed by elevated amylase and protein content in pleural fluid. The actual fistulous tract can be demonstrable by MDCT, MRCP (Magnetic resonance cholangio pancreaticography) and (Endoscopic retrograde Pancreatico cholangiography) ERCP Usually these fistulae resolve with conservative treatment. If not, Endoscopic retrograde cholangio pancreaticography (ERCP) guides sphincterotomy, stricture dilatation or endoprosthesis placement across the fistulous communication or surgery are the choices of treatment. We present a case of a pancreatic pleural fistula in a 30 year –old man with recurrent episodes of Left pleural effusion Radiological and biochemical investigations were performed and he was diagnosed to have a Pancreatico pleural fistula. The patient was initially treated conservatively with somatostatin analogs, symptomatic and supportive treatment including repeated pleurocentesis. for his symptoms which include recurrent pleural tapping also. Finally, endoscopic retrograde cholangio pancreatography was performed due to failed conservative treatment and a stent was placed in the pancreatic duct for healing of the fistulous communication.

KEYWORDS: A case of recurrent pleural effusion from pancreatico pleural fistula: diagnosis and management.

INTRODUCTION: Pancreaticopleural fistula is a rare complication of acute and chronic pancreatitis caused by an inflammatory or traumatic injury to the pancreatic duct. The ensuing thoracic collections may be in the form of pleural effusions, pleural pseudocysts or mediastinal pseudocysts. Treatment options include conservative or surgical. We present a case of pancreatico pleural fistula for which endoscopic retrograde cholangio pancreatography (ERCP) was performed due to failed conservative treatment and a stent was placed in the pancreatic duct for healing of the fistulous communication.

CASE HISTORY: A thirty year old male patient presented with chief complaints of cough with expectoration and chest pain. Initially patient was put on medical treatment with antibiotics and anti-inflammatory drugs and advised follow up as blood investigations revealed raised TLC and CXR revealed subtle blunting of Left CP angle. Despite of the conservative medical treatment for two weeks, there was no improvement in patient's symptoms and he continued to suffer with increasing left side chest pain and breathing difficulty.

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So decision was made to further investigate the patient, by repeating the blood investigation like CBP, ESR and Blood sugar. There was rise in TLC to 14500; ESR was 20mm in 1st hour and his fasting and post prandial blood sugars were within normal range. Repeat Chest radiograph revealed near total opacification of left hemi thorax with mediastinal shift to opposite side suggesting pleural effusion which was confirmed on ultrasonogram of chest. By Pleurocentesis under ultrasound guidance, 2 liters of straw coloured fluid was aspirated from pleural cavity and 20 ml is sent for biochemical analysis including amylase levels. Analysis of aspirated fluid revealed elevated total WBC count to 17000/ dL, amylase of >20000 IU/L and Protein of 3.7 g/dL No malignant cells or bacteria were seen in the fluid. On observation of elevated pleural fluid amylase and protein levels, the pleural effusion was concluded as pancreatic origin and a working diagnosis of Chronic pancreatitis and Pancreatic pleural fistula was made.

A detailed history from patient again revealed suffering of recurrent episodes of pancreatitis between the ages of 15 to 25 years. Immediately contrast enhanced MDCT of Chest and Abdomen were performed which revealed moderate left pleural effusion with passive atelectasis of underlying lung parenchyma, atrophic pancreatic parenchyma with multiple small specks of calcifications, dilated pancreatic duct from head to tail region and a pseudo cyst of 31x24 mm size at the junction of body with tail.

There was no demonstrable communication between main pancreatic duct and the cystic lesion on CECT abdomen. No abnormality was found in rest of the abdominal viscera. Patient was subjected to further investigation by Magnetic resonance cholangio pancreaticography (MRCP) to find out intra ductal calculi, strictures and fistulous communications. A fistulous tract was seen at pancreatic cystic area, coursing cranially and opening into left pleural cavity directly through left dome of diaphragm, confirming the presence of Pancreatico pleural fistula and cause of recurrent pleural effusion.

Patient was treated conservatively with somatostatins, nil by mouth, total parenteral nutrition and repeated pleurocentesis for two weeks. In spite of these treatments, patient continued to suffer with recurrent pleural effusion and chest pain. Finally patient was referred to Gastroenterology department for further management where Endoscopic retrograde Pancreatic cholangiography (ERCP) were performed, proximal strictures were excluded, sphincterotomy was done and a covered 7F stent was placed in pancreatic duct across the fistulous communication to facilitate forward drainage of pancreatic secretions and preventing the entry of pancreatic secretions into pleural cavity and for fibrous closure of the fistula.

A follow up CECT scan 4 weeks later revealed resolution of pancreatic cyst, and pleural effusion. Patient recovered well with symptomatic improvement and no recurrence of pleural effusion was noted on follow up.

DISCUSSION: Two types of pleural effusions can occur in Pancreatitis. These two forms of pleural effusion should be clinically recognized, in view of their different complication rate, prognosis, and treatment. The first one is usually small and located in the left pleural cavity which is characterized by a normal amylase level (below 150 IU/L) and a low protein content (Below 3g/dl). This type is associated with acute pancreatitis, and gets absorbed spontaneously during recovery. The second type of effusion is related to the development of fistulous communication between pleural cavity and pancreatic ductal system in the course of chronic or recurrent pancreatitis and following trauma to

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pancreatic duct. This type of effusion is usually large, single-sided, recurrent, and contains high levels of amylase (Usually over 1000 IU/L) and proteins (over 3g/dl). The pancreatico pleural fistulas develop because of disruption of pancreatic duct posteriorly with escape of pancreatic secretions into retroperitoneum and into mediastinum through oesophageal or aortic hiatus. Sometimes a fistula may directly pierce the diaphragm to communicate with pleural cavity.

In our case the pancreatico pleural fistula developed by direct piercing of left dome of diaphragm. Clinically the presence of massive recurrent pleural effusion with high concentrations of amylase and protein within the pleural fluid in a patient with chronic pancreatitis strongly suggests a diagnosis of pancreatico pleural fistula. But without a history of Pancreatitis, high levels of pleural fluid amylase and protein are also seen in oesophageal perforation, lymphoma, adenocarcinoma, and carcinomas of pancreas, rectum, ovary and breast also.

The fistulous connection with a pancreatic pseudocyst, or an injured pancreatic duct can frequently be demonstrable by various imaging modalities like Ultrasonogram, MDCT, MRCP and ERCP. However, a direct demonstration of the fistula may be difficult in a number of cases. Ultrasonography may not visualize pancreatico pleural fistula because of bowel gas inter position in upper abdomen. There was also a report of pancreatico pleural fistula diagnosis on endoscopic ultrasound.⁽¹⁾ CECT is next investigation of choice in cases of pancreatitis to estimate necrosis, complications and prognosis. But CT was able to demonstrable PPF in 33 – 47% of cases of suspected PPF.⁽²⁾ The reason was of being limited resolution of CECT to demonstrable poorly enhancing tortuous wall of fistulas, which are frequently hidden within pancreatic pseudocysts or in between bowel loops. In our case also PPF was not demonstrable on MDCT.

Magnetic resonance cholangiopancreatography (MRCP) is considered investigation of choice for suspected pancreatico pleural fistula.⁽³⁾ It gives the road map of the ductal anatomy along with pathologic changes in adjacent structures that may provide important information to understand the local anatomy and to plan an optimal treatment. False negative results for PPF on MRCP may be from multiple pseudocysts or Ascites, which may decrease image quality. The sensitivity of MRCP is estimated to be at 80% -⁽⁴⁾

In our case PPF was well demonstrated on MRCP. Endoscopic retrograde cholangiopancreatography (ERCP) is the second effective modality to diagnose PPF, with sensitivity of 46–78%.⁽⁵⁾ Despite its invasiveness, ERCP is widely in use in suspected PPF cases due to the feasibility for simultaneous endoscopic treatment such as sphincterotomy and endoprosthesis insertion across the fistula. It should be noted, that ERCP, either diagnostic or therapeutic, is an invasive procedure and is associated with complications such as reactivation of chronic pancreatitis and cholangitis.⁽⁶⁾

The available therapeutic options for PPF include conservative medical treatment, endoscopic management, and surgical management. Medical management can be given for 2–3 weeks with somatostatin or analogs of somatostatin such as Octreotide to reduce pancreatic exocrine secretions. In addition patient should be kept on total parenteral nutrition (TPN) to further decrease the pancreatic exocrine secretions. The success rate of this approach is estimated to be 30 – 60%.⁽⁷⁾ ERCP allows simultaneous assessment of the fistula and decompression of ducts.⁽⁸⁾

On the other hand placing a stent at the junction of pancreatic duct and fistula, prevents the entry of pancreatic secretion into the fistula, also results in healing of the fistula.⁽⁹⁾ Surgery is indicated in cases of failed conservative medical and endoscopic treatments.⁽¹⁰⁾ Depending on the local anatomy, distal pancreatectomy, pancreato jejunostomy or fistula closure via transthoracic

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approach are performed.⁽¹¹⁾ In our case there was no symptomatic improvement for the patient by conservative medical management for 2 weeks and patient responded and improved dramatically with endoscopy guided endoprosthesis placement across the PPF.

CONCLUSION: Recurrent unilateral pleural effusions not responding to repeated pleurocentesis and chest tube drainage in the absence of local chest disease should be investigated further with pleural fluid analysis for amylase, protein content and malignant cells with high index of clinical suspicion for pancreatico pleural fistula. MRCP is the investigation of choice to demonstrate these Pancreatico pleural fistulas and CT following ERCP to demonstrate the relationship of fistulas to surrounding structures, before going for surgery. ERCP and endoprosthesis placement across the pancreatic duct/fistula is usually effective in cases of failed conservative medical treatment and surgery is indicated in cases of non-responsive ERCP procedures like sphincterotomy and stent insertion. But still the management protocols to be further evaluated.

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FIGURE 1: CHEST X RAY PA VIEW SHOWING MODERATE LEFT PLEURAL EFFUSION.



Fig. 1

FIGURE 2: MRCP IMAGE DEMONSTRATING FISTULOUS TRACK FROM COLLECTION IN THE BODY OF PANCREAS COURSING CRANIALY THROUGH LEFT DOME OF DIAPHRAGM INTO LEFT PLEURAL CAVITY.



Fig. 2

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FIGURE 3: ERCP IMAGE SHOWING STENT NOTED INSITU IN PANCREATIC DUCT.

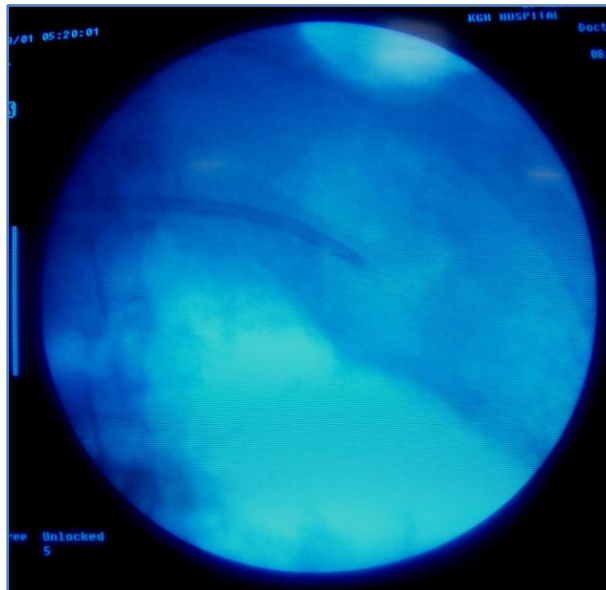


Fig. 3

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