ORIGINAL RESEARCH PAPER
Volume - 11 | Issue - 12 | December - 2022 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

PANCREATICO-PLEURAL FISTULA

Respiratory Medicine

Dr Prachi Gupta
Dr Nalin T Shah

ABSTRACT

Introduction: Pancreaticopleural fistula (PPF) is an uncommon complication of chronic pancreatitis, often presenting with recurrent unilateral or bilateral pleural effusions. Pleural effusions secondary to pancreaticopleural fistulas (PPFs) are extremely rare, occurring in approximately 0.4% of chronic pancreatitis patients and accounting for approximately 1% of pleural effusion cases. PPFs occur in acute or chronic pancreatitis and typically arise from a pancreatic pseudocyst or disruption of the main pancreatic duct. Less commonly, they may also result from trauma. Demographically, these are commonly seen in patients with chronic alcohol use, more often in males. Inflammation from exposure to pancreatic digestive enzymes results in the formation of an anterior tract from the pancreas into the anterior retroperitoneum, resulting in fluid accumulation and subsequent communication with the pleural cavity **Case Report:** We present a case of a 49-year-old male, with history of chronic alcohol-induced pancreatitis, presented with one month of worsening left pleuritic chest pain and shortness of breath. Chest radiograph demonstrated bilateral pleural effusions. Thoracentesis revealed increased amylase in the pleural fluid. Computed tomography (CT) showed a fistula tract between the left pleural cavity and pancreas. Patient was treated with placement of a pancreatic stent with complete resolution of the fistula tract approximately in 9 weeks. **Conclusion:** Pleural effusions secondary to PPFs characteristically recur. If these pleural effusions are not drained for an extensive period of time, retention of the fluid may lead to the extremely rare development of a trapped lung. Once clinical suspicion points highly toward a PPF, endoscopic retrograde cholangiopancreatography (ERCP) is utilized for anatomic mapping with the possibility of ERCP also being used therapeutically for stent placement at the site of duct disruption.

KEYWORDS

Pancreatico-pleural fistula, chronic pancreatitis, chronic alcoholic, pleural effusion

Case Presentation

A 49-year-old male with history of alcohol-induced pancreatitis presented with 1 month of worsening left pleuritic chest pain and shortness of breath. Initial physical exam was unremarkable. Initial chest radiograph showed moderate left and small right pleural effusions with left retrocardiac opacity. Bilateral air entry present. On physical exam, blood pressure 117/60 mmHg, heart rate of 86 beat per minute, respiratory rate of 16 breaths per minute, temperature 36.6°C, oxygen saturation 95% on room air, the patient was alert and oriented. Heart examination showed a regular rate and rhythm with normal S1 and S2. Lung examination showed decreased breath sounds with dullness on percussion of the left side of the chest. Abdominal examination was significant for epigastric tenderness and hypoactive bowel sounds.

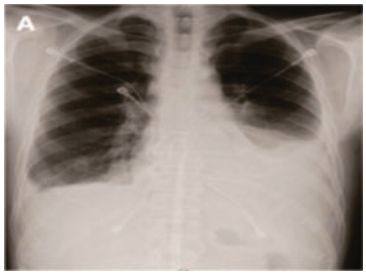

Figure1 CXR ON ADMISSION

Blood work showed leucocytosis with a WBC count of 14.1X 10E9/L, serum amylase of 1136U/L, serum lipase of 1199 U/L, serum creatinine 0.68 mg/dl, BUN 13 mg/dL, AST 22 U/L, ALT 25 U/L, alkaline phosphatase 58 U/L, and total bilirubin 0.4 mg/dL. Other systems' examination was unremarkable. Remaining physical finding were unremarkable. Electrocardiogram and 2D ECHO was unremarkable. RT PCR for COVID 19 was negative. In sputum culture no microorganism seen.

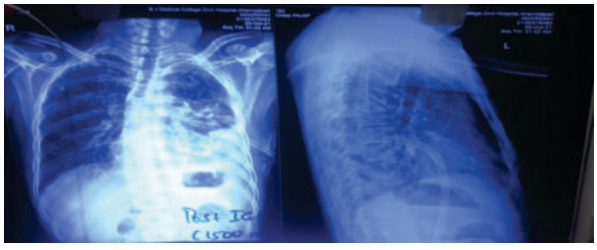

Figure 2 POST ICD INSERTION

On admission, patient underwent thoracentesis and approximately 1L of brown fluid from the left pleural space was removed. Later, intercostal drainage tube was inserted on the left side. Pleural fluid evaluation demonstrated an exudative effusion with lipase of 2912 IU/L and amylase of 2783 IU/L. Pleural fluid analysis showed adenosine deaminase 29.3 U/L, cholesterol 58 mg/dL, glucose 114 mg/dL, protein 5.0 g/dL, and triglycerides 25 mg/dL. ANA screen was negative. Cytology demonstrated histiocytes and benign mesothelial cells, with no malignant cells identified. CT abdomen and pelvis demonstrated a fluid density tract arising from the pancreatic tail, extending caudally through the diaphragm from the oesophageal hiatus, communicating with the left pleural space. The patient was started on medical therapy with octreotide. The patient underwent ERCP, which redemonstrated mild diffuse dilatation of ventral pancreatic duct involving the head, body, and tail of the pancreas with evidence of pancreatic duct leak in the most upstream tail of the pancreas that extended caudally to the left pleural cavity, consistent with PPF. The surgery team was consulted to evaluate the patient for possible surgical intervention, recommending starting total parenteral nutrition with surgical intervention plan within a week. The patient tolerated total parenteral nutrition well. A 5 FR x 10 cm plastic stent was placed in the pancreatic duct and a biliary and pancreatic sphincterotomy was performed to divert the fluid leak.

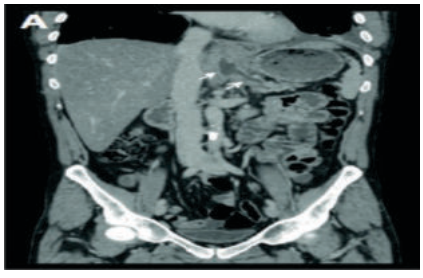

Figure 3 Ct Abdomen Showing Fistula Tract Arising From Tail Of Pancreas And Connecting To Left Pleural Space

DIAGNOSIS

History and physical examination are nonspecific for PPF and further evaluation with imaging and laboratory work-up is required. In patients with PPF, chest radiograph usually demonstrates unilateral or bilateral pleural effusion, with the left side being more common. Blood laboratory evaluation may show increased levels of gamma-glutamyl transferase. Thoracentesis is usually required for symptom relief. Laboratory analysis of the pleural fluid shows an amylase level greater than 1000 IU which may be suggestive for PPF in the absence of

malignant cells. In our patient, the initial CT imaging showed the fistula communication between the tail of the pancreas and left pleural space which was confirmed by ERCP. ERCP has the advantages that it can locate the site of ductal leak and perform simultaneous intervention. Earlier CT was reported to identify fistula tract only in 30% of cases with PPF; application of high-resolution CT images with multiplanar reconstruction has likely increased the ability to visualize the fistula tract.

MANAGEMENT

Management of PPFs can be divided into three categories – surgical, endoscopic, or medical. Medical management includes octreotide to decrease pancreatic secretions. Endoscopic management with balloon dilation and intraductal stenting is another option. Surgical management may be indicated if medical and/or endoscopic treatments fail and can include pancreatojejunostomy or partial pancreatic resections. Postprocedural acute pancreatitis and superinfection of the pleural fluid were the most common complications after ERCP. Endoscopic pancreatico- or cystogastric plastic stent placement may be helpful to avoid postprocedural acute pancreatitis. Some other less common complications are intra-abdominal infections, wound infections, entrapped lung and in some cases diabetes mellitus after surgery. The majority of patients receive medical therapy before any intervention. The medical therapy included octreotide, somatostatin, total parenteral nutrition, and antibiotics. The early operative management has a success rate of 94%. ERCP is both a diagnostic and therapeutic tool which has reduced the hospital stay and mortality rate compared to the traditional operative management.

DISCUSSION

Pancreatic Pleural Fistula (PPF) is a rare entity with an approximate incident rate of 0.4%. PPF usually involves males in their late 40s with chronic pancreatitis mainly from excessive alcohol abuse. A fistula typically occurs in the setting of a pseudocyst that communicates with the pleural cavity or through a channel between the pancreatic duct and pleura. In either case, the pancreatic fluid flows through the retroperitoneum and into the pleural space. A smaller percentage of cases may be due to biliary stones, trauma, and idiopathic pancreatitis. Patients with PPF usually present to the emergency room with respiratory symptoms including shortness of breath, as seen in our patient, and less commonly with diffuse upper quadrant abdominal pain, nausea, and vomiting without rebound or guarding

CONCLUSION

Imaging modalities, particularly CT, play an essential role in prompt preprocedural diagnosis of PPF. Early therapeutic ERCP is an effective and relatively safe treatment option for PPF, so invasive surgery may be avoided.

Acknowledgements

The authors thank the patient who this report describes for consenting to have his case and medical imaging submitted for publication.

Diclosures

The authors have no financial disclosures or conflicts of interest to declare.

REFERENCES

1. J. C. King, H. A. Reber, S. Shiraga, and O. J. Hines, "Pancreatic-pleural fistula is best managed by early operative intervention," Surgery, vol. 147, no. 1, pp. 154–159, 2010.
2. C. M. Tay and S. K. Y. Chang, "Diagnosis and management of pancreaticopleural fistula," Singapore Medical Journal, vol. 54, no. 4, pp. 190–194, 2013.
3. B. Y. Safadi and J. M. Marks, "Pancreatic-pleural fistula: the role of ERCP in diagnosis and treatment," Gastrointestinal Endoscopy, vol. 51, no. 2, pp. 213–215, 2000.
4. E. Wee, C. Anastassiades, and B. C. Yip, "Endoscopic treatment of a pancreaticopleural fistula associated with a tension hydrothorax," Journal of Digestive Diseases, vol. 18, no. 5, pp. 309–312, 2017.
5. K. Vijaykumar, K. G. Dsouza, and L. Lerner, "Pancreaticopleural Fistula: The Formidable Liaison," Journal of Bronchology & Interventional Pulmonology, vol. 24, no. 4, pp. e60–e61, 2017.
6. K. Dąbkowski, A. Białek, M. Kukla et al., "Mediastinal Pancreatic Pseudocysts," Clinical Endoscopy, vol. 50, no. 1, pp. 76–80, 2017.
7. J. C. Branco, D. V. Horta, and J. Reis, "A rare acute thoracic manifestation of a chronic digestive disease: pancreaticopleural fistula," Revista Española de Enfermedades Digestivas, vol. 109, pp. 317-318, 2017.
8. E. Virgilio, P. Mercantini, F. Catta, M. Grieco, M. Cavallini, and M. Ferri,"Pancreaticopleural fistula," Surgical Infections, vol. 17, no. 2, pp. 266-267, 2016.
9. E. E.-H. Chan and V. G. Shelat, "Pancreaticopleural Fistula Causing Massive Right Hydrothorax and Respiratory Failure," Case Reports in Surgery, vol. 2016, Article ID 8294056, 3 pages, 2016.
10. M. J. Blayney, A. Nguyen, and D. M. Aboulafia, "Diagnosis and Management of a Pancreaticopleural Fistula in a Patient with AIDS and a Large Pleural Effusion," Journal of the International Association of Providers of AIDS Care, vol. 15, no. 6, pp. 459–462, 2016.