Ruparel F et al. GAIMS J Med Sci 2024;4(1) (Jan-Jun):64-67
Online ISSN: 2583-1763

Case Report

A Case of Pancreaticopleural Fistula Causing Gross Right Hydrothorax

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ABSTRACT

Hydrothorax due to a pancreaticopleural fistula (PPF) is an uncommon complication of acute pancreatitis. In patients with a history of pancreatitis, diagnosis is based on detection of amylase in the pleural exudate. For detection of pancreaticopleural disruption imaging, particularly magnetic resonance cholangiopancreatography (MRCP)is helpful. For management purpose invasive methods such as thoracocentesis and pancreatic duct drainage or pancreatic resection procedures are preferred. Here we are presenting a case of 40 years old male with pancreaticopleural fistula having right sided gross hydrothorax. Patient was managed conservatively.

Keywords: Pancreaticopleural fistula, Hydrothorax, ERCP, MRCP

INTRODUCTION

Pancreaticopleural fistula (PPF) is an uncommon complication of pancreatitis. Its incidence approximately 0.4% in patients with pancreatitis.[1] The diagnosis is often misleading as many patients typically present with pulmonary symptoms related to pleural effusion rather than pancreatitis.[2] Chronic pancreatic inflammation lead to abnormal connection known as fistula is formed between pancreatic duct & the pleural space leading to pancreatic secretion drain into the pleura causing pleural effusion.[3]The classical finding in PPF is a high amylase level in exudative pleural fluid.[4] Early surgical intervention can prevent recurrent pleural effusions and negate the need for multiple thoracocentesis. Conservative management of Pancreaticopleural fistula has a success rate of 30-60% with a recurrence rate of 15% & mortality of 12%. In contrast operative therapy hasa success rate of 90% with up to 18% recurrence rate.

We report an uncommon case of a gross right-sided hydrothorax based on PPF.

CASE HISTORY

A 40 years old male was admitted on 6/6/2023 with complain of right sided chest pain, breathing difficulty & abdominal pain since last 15-20 days. He had undergone exploratory laparotomy for retroperitoneal abscess. he was an ex-alcoholic drinking 2 bottles a day. Stopped since last 3 months. On admission Chest X-ray PA suggestive of ipsilateral right sided gross pleural effusion (Figure-1). ICD (intercostal drainage) insertion was done & pleural effusion drained.

Blood investigations were as below mentioned in Table-1.

Table-1: Blood investigationson day of admission

Hemoglobin	10.1 Gm/DL
WBC	28490 / mm^3
Platelets	5.2 Lacs
RFT	Normal
LFT & Electrolytes	Normal
S.Amylase	249U/L
S.Lipase	3314U/L

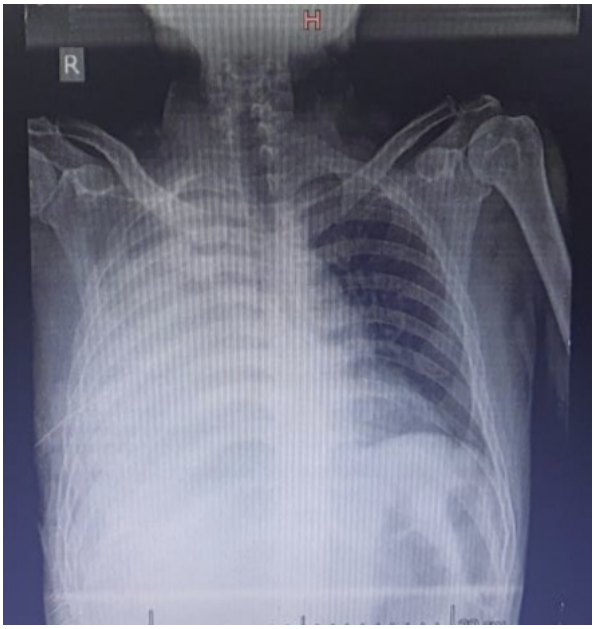

Figure- 1: Chest X-ray suggestive of right sided gross pleural effusion.

Biochemical analysis of pleural fluid revealed it was exudative (Figure-2) & pleural fluid amylase was 80034U/L. On daily basis 250 to 400 ml fluid was drained. Total 14000 ml fluid was drained.CECT abdomen revealed linear fistulous tract arising from pancreatic duct opens in the collection traverses upwards through the diaphragm & communicated with pleural fluid on right side possibility of pancreaticopleural fistula & suggestive changes of acute on chronic pancreatitis.

Figure -2: Pleural Fluid

Patient was counseled for surgical intervention to obliterate fistula but he denied for it. Antibiotics and analgesics were used in conservative approach in this case. Day 14 chest X-ray suggestive of right lung was expanded with ICD in situ (Figure-3). However, the patient left against medical advice & was lost to follow up.

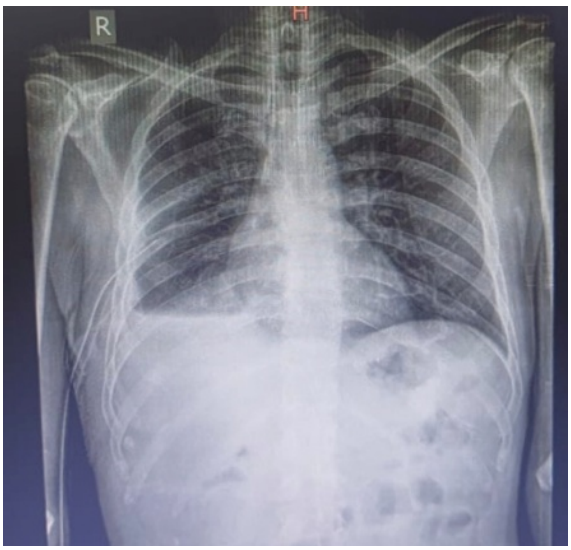

Figure-3: Day 14 Chest X-ray suggestive of right Lung was expanded with ICD in situ.

DISCUSSION

Gross pleural effusion caused by PPF is rarest complication of pancreatitis, very commonly associated with chronic pancreatitis in alcoholics.[2] Trauma, iatrogenic injury and underlying diseases are leading causes for disruption of a major pancreatic duct which leads to PPF. It is encountered usually that a ductal disruption on the anterior surface of the pancreas usually leads to pancreatic ascites, whereas a ductal disruption on the posterior surface may result in thoracic fluid collections as the fluid escalate retroperitoneally through pathways of least resistance at the aortic or esophageal hiatus.[3] It sometimes put in dilemma whether the fluid transgresses via diaphragmatic micro perforations or via lymphatic channels or directly through the hiatus.

In cases of a PPF resulting in a hydrothorax, approximately 75% encounter on the left side, although they may also be right-sided or bilateral.[4] In patients presenting with pleural effusions without recent abdominal symptoms, reaching the diagnosis of a PPF may impose a diagnostic challenge. The classical feature of a PPF is an exudative pleural fluid with high amylase content. In our patient, the pleural fluid was sent for amylase test.

Once a diagnosis of a PPF has been made, imaging is useful in rule out the cause and delineating the anatomy and location of the fistulous tracts. Contrast-enhanced computerized tomography (CECT) scan is the reliable modality for the evaluation of acute pancreatitis and its exaggerated consequences such as necrosis or pseudocyst formation; however, it is not sensitive in assessing the presence and morphology of fistulous tracts, which is better visualized onmagnetic resonance cholangio pancreatography(MRCP).[5] The triad of (a) history of acute pancreatitis (b) imaging showing pancreatic ductal disruption with pleural effusion and (c) amylase rich pleural exudate is diagnostic of pancreatic hydrothorax.

Thoracocentesis not only helps in diagnosis by obtaining fluid for biochemistry, but also relieve pulmonary symptoms. Lower the stimulation of pancreatic exocrine secretions lesser the fistula output which can be achieved with somatostatin agonists. Endoscopic retrograde cholangiopancreatography (ERCP) is diagnostic and potentially therapeutic incases of PPF. Therapeutic effect is achieved by trans papillary pancreatic duct stent placement and by achieving anastomosis in areas of ductal disruption to decrease the pancreatic ductal pressure and allow for the fistula to seal.[6] It is a less invasive alternative to surgery, although a significant proportion of patients undergoing ERCP still ultimately require surgical intervention.[7] A multidisciplinary approach in diagnosing pancreatic pseudocysts is essential as splenic artery pseudoaneurysm can mimic a pseudocyst on CT and MRCP.[8]

Table-2: Difference between MRCP & ERCP

MRCP	ERCP
Non-Invasive	Invasive
Only Diagnostic	Diagnostic&Therapeutic
Multiplanar projection	Less maneuverability
No risk of ionizing radiation	Risk of radiation
No post procedure complications	Complications-pancreatitis, hemorrhage, GI perforation

In patients with pancreatic necrosis, a less invasive approach is proposed, but for PPF aggressive approach in which distal pancreatectomy with splenectomy is recommended.[9] Other invasive procedures recommended are pancreatic duct anastomosis with an intestinal loop (the Partington-Rochelle procedure), pancreaticoduodenectomy, cystogastrostomy, and cystojejunostomy.[10] Choice of operative procedure will depend on the anatomy of the PPF. Despite repeated thoracocentesis, recurrent pleural effusion will be major issue to avoid such counter consequences early surgical resection should considered. Laparoscopic distal pancreatectomy still remains the gold standard.

CONCLUSIONS

PPF is a rare complication of recurrent acute pancreatitis and presentation with a right-sided hydrothorax is even rarer. Pleural fluid amylase levels should be examined in all patients with a history of pancreatitis presenting with a hydrothorax. The triad of a history of pancreatitis, imaging indicates pancreatic ductal disconnection, and amylase rich exudative pleural fluid establish the diagnosis of pancreatic hydrothorax. Surgical intervention is the main stay treatment option. A multidisciplinary approach of radiologic, endoscopic interventions and surgery are complimentary to each other in achieving successful outcomes.

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Source of support: Nil

Conflict of interest: None declared

How to cite: Ruparel F, Padvi C,Kava K, Patel K.A Case of Pancreaticopleural Fistula Causing Gross Right HydrothoraxGAIMS J Med Sci 2024;4(1):64-67

https://doi.org/10.5281/zenodo.10031147