CASE REPORT

Pancreaticopleural fistula: an unusual complication of pancreatitis

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SUMMARY

Pancreaticopleural fistula is an uncommon complication of pancreatitis. The authors describe a case of a man in his mid-40s with a history of alcohol abuse, who presented with dyspnoea and whose chest X-ray revealed a massive left pleural effusion. Further diagnostic work up revealed a pancreaticopleural fistula. There was no improvement with a conservative approach and endoscopic treatment was not feasible, leading to the need for a surgical intervention.

BACKGROUND

Pancreaticopleural fistula (PPF) is an unusual complication of pancreatitis with an incidence in 0.4% of patients,¹ and is most commonly associated with alcoholic chronic pancreatitis.² This rare entity results from a disruption of the pancreatic duct (PD), resulting in leakage of pancreatic fluid.³ It typically presents as a massive pleural effusion and the symptoms are usually thoracic, making it difficult to diagnose. One can suspect the presence of this pathology when there is a high level of amylase in the pleural fluid analysis, or when the imaging work up towards a thoracic pathology reveals a fistulous tract between the pancreas and the pleural space.

CASE PRESENTATION

A 43-year-old man with a history of alcohol abuse presented with dyspnoea for 2 weeks, without fever or cough. Physical examination revealed reduced left basal breath sounds and a chest X-ray (figure 1) showed a massive left pleural effusion. Blood tests revealed a normal white cell count and C reactive

protein of 7 mg/dL (reference range 0–0.5 mg/dL). Diagnostic thoracentesis was performed yielding pleural fluid with an exudative pattern with negative microbiology and cytology. CT of the thorax showed, in the abdominal cross section, features of chronic pancreatitis and signs of a PPF. A raised pleural fluid amylase level of 5645 U/L confirmed the diagnosis. MR cholangiopancreatography (MRCP) revealed a tortuous and mildly dilated main PD and a fistula between this structure (in the transition of body and tail of the pancreas) and the left pleural space (figure 2). The patient was initially managed conservatively with chest drainage, parenteral nutrition and octreotide administration (100 µg three times a day). Endoscopic retrograde cholangiopancreatography (ERCP) was attempted two times, but the PD cannulation was not feasible. After 4 weeks of medical treatment, there was no clinical improvement; therefore a surgical procedure was proposed to the patient. During surgery, inflammatory tight adhesions were found in the superior border of the body and tail of the pancreas involving the splenic vessels. The pancreatic body had a stenotic segment where the fistulous tract originated (figure 3). Distal pancreatectomy and splenectomy were performed with a Roux-en-Y end-to-side pancreaticojejunostomy. Intraoperative wirsungography was carried out revealing a tortuous wirsung and flow of the contrast to the duodenum without leaks. Histological examination showed signs of chronic pancreatitis and the presence of the fistulous tract with no malignancy.

OUTCOME AND FOLLOW-UP

The postoperative course was uneventful and the patient is doing well without any complication or recurrence 8 months from operation.

DISCUSSION

PPF is a rare clinical entity that results from a leak of the PD, which can dissect through the aortic or the oesophageal hiatus to the mediastinum, resulting in pleural effusion.³ The most common cause of pancreatitis leading to PPF formation is alcohol abuse.² The patients usually present with predominant thoracic symptoms, such as dyspnoea (the most common symptom), chest pain or cough,³ which can result in a delay in the diagnosis, given that the initial work up is directed toward finding a thoracic pathology. Pleural effusion is more frequently left sided, as in this case; however, right and bilateral effusions can occur.² A large and recurrent pleural effusion, despite repeated thoracentesis in a patient with history of pancreatitis,

Figure 1 Chest X-ray revealed a massive left pleural effusion.

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Figure 2 MR cholangiopancreatography demonstrated a fistulous communication (arrows) between the pancreas and the left pleural space, which shows an effusion (asterisk).

should raise suspicion of a PPF.⁴ There is no established diagnostic threshold for amylase pleural fluid, but it is usually considerably elevated (>1000 U/L).⁵ Further work up with CT, ERCP and MRCP can reveal the fistulous tract between the pancreas and the pleural space. MRCP is the imaging study of choice for PPF as it enables better characterisation of the fistulous tract due to its enhanced sensitivity compared to CT.² It is also a non-invasive examination compared to ERCP.² The management of PPF can be medical, endoscopic or surgical.

Figure 3 Intraoperative finding of a stenotic segment of the pancreas where the fistulous tract originated (white arrow). The body of the pancreas is referenced by the red vessel loop. Black asterisk shows the stomach and the white asterisk the spleen.

Figure 4 Algorithm for the diagnosis and management of pancreaticopleural fistula. MRCP, MR cholangiopancreatography; PPF, pancreaticopleural fistula.

The type of therapeutic approach used must take into account the PD anatomy. Thus, in the presence of a normal or mildly dilated duct without stenosis, a medical approach is recommended, with chest drainage, octreotide administration (to suppress pancreatic exocrine function) and total parenteral nutrition, for 2–3 weeks.⁵ Thirty to 60% of patients can be managed successfully this way.^{1 2} Failure of medical treatment is an indication for endoscopic or surgical treatment. If there is a

ductal stenosis downstream to a disruption, an endoscopic treatment must be attempted by placing a stent.⁵ Surgery is recommended in those cases with complete ductal obstruction or if stenting is not feasible.⁵ Distal pancreatectomy and pancreaticojejunostomy are the most common surgical procedures reported.² In our case, a distal pancreatectomy was carried out followed by a Roux-en-Y pancreaticojejunostomy, since, considering the pancreatic and main PD characteristics, there was a high risk of a pancreatic fistula occurring. We propose an algorithm for the diagnosis and management of PPF (figure 4).

Learning points

- ▶ Pancreaticopleural fistula is a rare entity that requires a high index of suspicion, particularly in patients presenting with only chest symptoms and pleural effusion with a history of pancreatitis or alcohol abuse.
- ▶ The diagnosis can be suggested by a high level of amylase in the pleural fluid and confirmed by MR cholangiopancreatography, which is the imaging study of choice.
- ▶ The therapeutic approach attempted, whether medical, endoscopic or surgical, should be tailored to the pancreatic duct anatomy.

Competing interests None.

Patient consent Obtained.

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