

CASE REPORT

Pancreaticopleural Fistula Visualized by Computed Tomography Scan Combined with Pancreatography

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ABSTRACT

Context We report a case of a pancreaticopleural fistula which was clearly demonstrated by computed tomography (CT) scan following pancreatography and which was successfully treated with endoscopic nasopancreatic drainage combined with octreotide.

Case report A 52-year-old male was admitted to our hospital for additionally evaluation of bilateral pleural effusion. The pleural fluid amylase level was markedly elevated. Endoscopic retrograde pancreatography showed a cyst in the body of the pancreas and extravasation of contrast medium extending cranially from the cyst. The disease was treated successfully with endoscopic nasopancreatic drainage combined with the administration of octreotide. A pancreaticopleural fistulous route was clearly demonstrated by CT scan following pancreatography through the nasopancreatic drainage tube.

Conclusions A CT scan following pancreatography was useful in demonstrating a pancreaticopleural fistulous route.

INTRODUCTION

A pancreaticopleural fistula is a rare complication of pancreatitis [1]. It can be

demonstrated by endoscopic retrograde cholangiopancreatography (ERCP) [2, 3, 4] or magnetic resonance cholangiopancreatography (MRCP) [5], but these imaging methods sometimes fail to demonstrate a fistulous tract. A computed tomography (CT) scan offers an effective diagnostic method for the anatomic evaluation of the intrathoracic route of a pancreatic fistula [6, 7]. The successful treatment of pancreaticopleural fistula using endoscopic therapeutic options, including transpapillary stent placement or transpapillary nasopancreatic drainage, has been reported [8, 9, 10]. We present a case in which a CT scan performed following pancreatography clearly demonstrated a pancreaticopleural fistulous route and the anatomical relationship with other organs; the disease was successfully treated with endoscopic nasopancreatic drainage combined with the administration of octreotide.

CASE REPORT

A 52-year-old male visited his family doctor complaining of fever and back pain. As a chest radiography showed bilateral pleural effusion, he was referred to our hospital (Figure 1). On admission, he was pyrexial, dyspnoetic and tachypnoetic, with dullness and decreased air entry at the base of both lungs. He had drunk a half bottle of whisky daily for 20 years, but he had experienced no attacks of pancreatitis. The laboratory data were the following: white blood cell count,

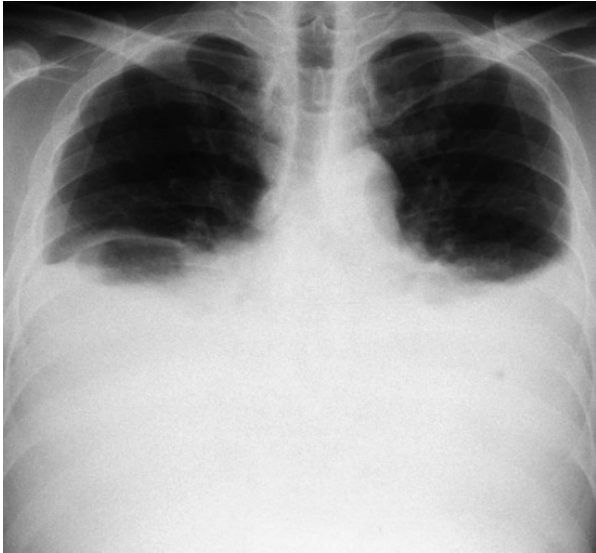


Figure 1. Chest radiography on admission showing bilateral pleural effusion.

9,300 μL^{-1} (reference range: 3,700-8,300 μL^{-1}), C-reactive protein 12.9 mg/dL (reference range: 0-0.3 mg/dL), and serum amylase 1,491 IU/L (reference range: 40-155 IU/L). An abdominal CT scan showed a 2 cm cystic lesion in the pancreatic body and dilatation of the main pancreatic duct of the tail of the pancreas. MRCP demonstrated an irregular cystic lesion in the body of the pancreas. ERCP showed mild stenosis of the main pancreatic duct and a cyst in the body of the pancreas (Figure 2a). Furthermore, extravasation of contrast medium extending cranially from the cyst was demonstrated (Figure 2b), but it was unclear whether the leakage reached the pleural cavity. The pleural fluid amylase level was markedly elevated (right 42,740 IU/L, and left 118,020 IU/L). He was diagnosed as having a pancreaticopleural fistula associated with acute pancreatitis. Although the patient was treated conservatively, with thoracentesis, fasting, total parenteral nutrition and administration of gabexate mesilate for 4 weeks, and amylase-rich fluid was drained continuously through the chest tube. Therefore, a 5-Fr transpapillary nasopancreatic drainage tube with side holes (Wilson Cook Medical Inc., Winston-Salem, NC, USA) was inserted endoscopically into the main pancreatic duct so that it bridged the leak. On CT performed following pancreatography

through the nasopancreatic drainage tube, a pancreaticopleural fistulous route was demonstrated to originate from a cyst in the pancreatic body, penetrate along the esophagus into the mediastinum and extend to the bilateral pleural cavities (Figure 3a-d). Octreotide (300 $\mu\text{g}/\text{day}$) was also administered subcutaneously. After 3 days of drainage, pleural effusion stopped. ERCP

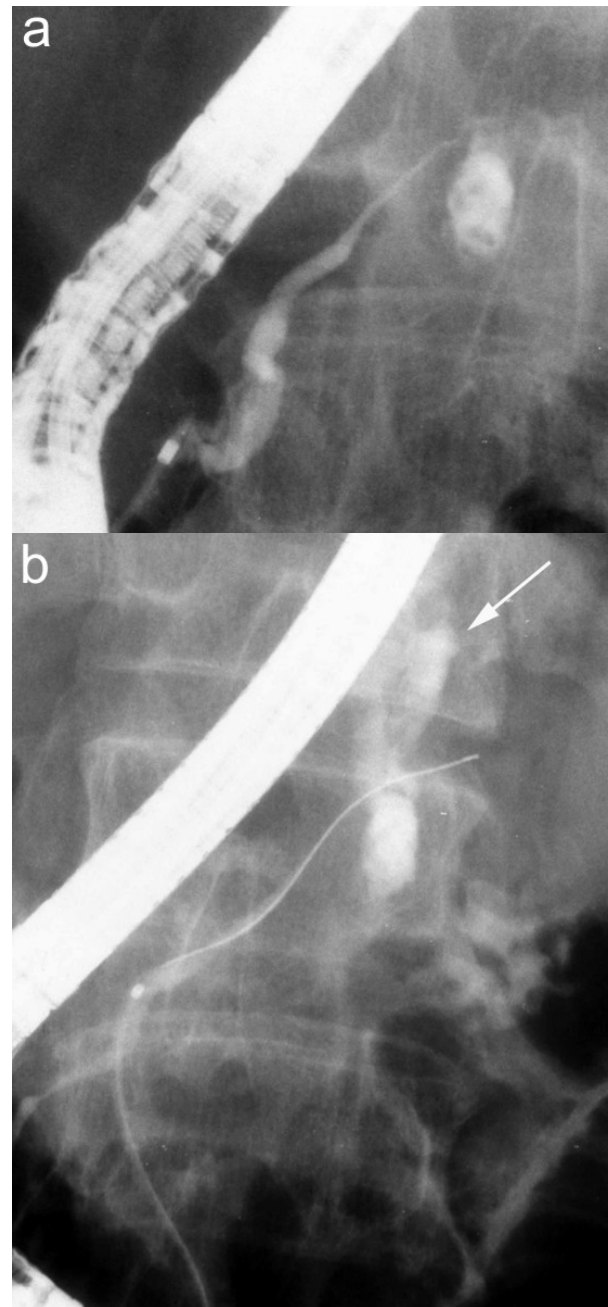


Figure 2. Endoscopic retrograde cholangiopancreatography showing stenosis of the main pancreatic duct and a cyst in the body of the pancreas (a). Furthermore, extravasation (arrow) of contrast medium extending cranially from the cyst was demonstrated (b).

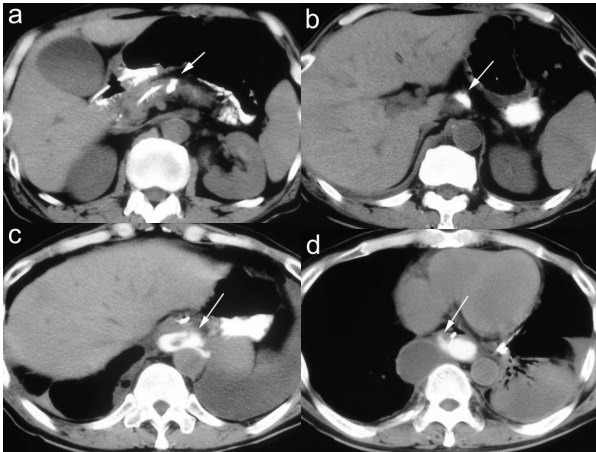


Figure 3. On a CT scan performed following pancreatography through the nasopancreatic drainage tube, a pancreaticopleural fistulous route (arrows) was demonstrated to originate from a cyst in the pancreatic body (a), extend cranially (b), penetrate along the esophagus into the mediastinum (c) and extend to the bilateral pleural cavities (d).

after treatment showed closure of the pancreaticopleural fistula. During a 2-year follow-up period, recurrence of pancreatic pleural effusion was not detected on chest radiography.

DISCUSSION

Pancreatic effusion due to a pancreaticopleural fistula is a rare complication of pancreatitis [1]. A pancreaticopleural fistula results from the posterior disruption of the pancreatic duct or a pancreatic cyst into the retroperitoneal space, leading to the formation of a fistulous tract between the pancreas and the pleural cavity through the aortic or esophageal hiatus. A markedly elevated pleural fluid amylase level is the most important laboratory finding [5]. A pancreaticopleural fistula can be demonstrated by ERCP or MRCP, but the entire anatomy of the fistula will not always be delineated [2, 3, 4]. A CT scan is also useful in diagnosing the anatomic evaluation of the intrathoracic route of a pancreatic fistula [6, 7]. In the present case, a CT scan performed following pancreatography clarified the anatomical relationship of the fistula with other organs as well as with the pancreas.

Most patients with pancreatic pleural effusion are initially treated conservatively with thoracentesis, fasting and drugs which reduce pancreatic exocrine secretion. The response rate to the conservative treatment has been reported to be 40-50% [11]. If a complete cure is not obtained after several weeks, surgical intervention is indicated. Recently, endoscopic therapeutic options, including transpapillary stent placement or transpapillary nasopancreatic drainage, have been successfully used in patients with a pancreaticopleural fistula [8, 9, 10]. Placement of a transpapillary nasopancreatic drain can facilitate the healing of ductal ruptures by partially occluding the leaking duct or by traversing the pancreatic sphincter converting the high-pressure pancreatic duct system to a low-pressure system with preferential flow through the drainage tube [12]. Octreotide, a long-acting somatostatin analogue, inhibits pancreatic exocrine secretion [13] and its use is recommended for the treatment of high-output pancreatic fistulas [14]. In the present case, endoscopic nasopancreatic drainage combined with the administration of octreotide was very useful in treating the pancreaticopleural fistula. In conclusion, we report a case of bilateral pancreatic pleural effusion with a pancreaticopleural fistula caused by pancreatitis. A pancreaticopleural fistulous route was clearly demonstrated by a CT scan following pancreatography, and the disease was treated successfully with endoscopic nasopancreatic drainage combined with the administration of octreotide.

Received January 17th, 2006 - Accepted February 2nd, 2006

Keywords Cholangiopancreatography, Endoscopic Retrograde; Pancreas; Pancreatic Fistula; Pancreatitis; Respiratory Tract Fistula; Tomography, X-Ray Computed

Abbreviations ERCP: endoscopic retrograde cholangiopancreatography

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