Case Report
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An Unusual Case of Recurrent Pleural Effusion in a Child

Un cas exceptionnel d'effusion pleurale périodique chez un enfant

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Abstract

Traumatic pancreatitis in children rarely results in the development of a recalcitrant pleural effusion, secondary to a connection between the pleural cavity and the pancreas. This child presented with predominantly respiratory symptoms of an underlying abdominal condition. Patients with large, recurring pleural effusions may have underlying pancreatitis with a pancreaticopleural fistula. It is important to establish this diagnosis because treatment may require operative interventions as in the index case.

Key Words: Traumatic pancreatitis, Recurrent pleural effusion, Pancreaticopleural fistula, Pancreatic pseudocyst, Children.

Résumé

La pancréatite traumatisante infantile aboutit rarement au développement d'une effusion pleurale réfractaire, secondaire à un rapport entre la cavité pleurale et le pancréas. Cet enfant s'est présenté avec les symptômes essentiellement respiratoires d'une maladie abdominale sous-jacente. Les malades aux copieuses effusions pleurales pourraient souffrir d'une pancréatite sous-jacente avec une fistule pancréaticopleurale. Il est important d'établir ce diagnostic parce que le traitement peut exiger des interventions chirurgicales comme dans le cas rapporté. ***Mots-clés:*** Pancréatite traumatisante, effusion pleurale périodique, fistule pancréaticopleurale, pseudocyste pancréatique, enfants.

Introduction

Recurrent pleural effusion in the pediatric age group is rare, the usual causes being collagen vascular disease, pancreatitis, radiotherapy, malignancies and diaphragmatic defects. Sympathetic pleural effusion during the acute episode of pancreatitis is well known, but a massive, bilateral, recurrent collection following a pancreatic trauma is unusual. We report a child who had pancreatic pseudocyst following trauma and later had recurrent pleural effusion on both sides due to pancreatico-pleural communication. The patient was successfully managed surgically.

Case Report

A seven-year-old boy was brought to the hospital with chest pain and breathlessness. There was a history of having sustained blunt trauma to the abdomen due to fall on a desk five days earlier. Clinical examination, ultrasonography (USG) of the chest and aspiration revealed a hemorrhagic pleural effusion (left) having amylase level of 2671 units/l. CT scan of the abdomen revealed presence of pseudo-pancreatic cyst, measuring 7 x 9cm in relation to the tail of the pancreas, without any main pancreatic duct (MPD) dilatation. Despite repeated intercostal drainage, pleural effusion

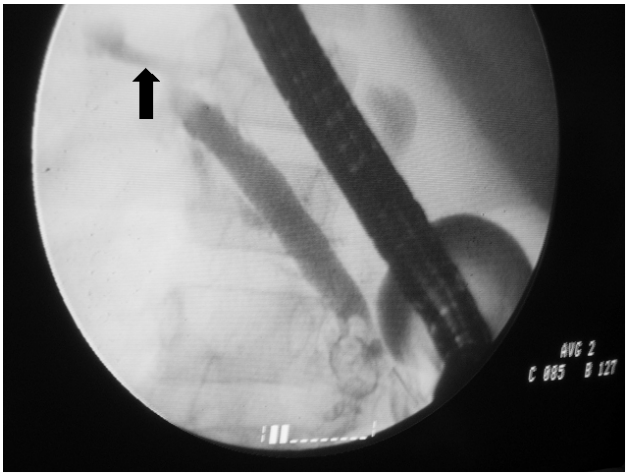


Fig 1: ERCP showing grossly dilated pancreatic duct in head and body region with communication tract going towards the thoracic cavity (Shown by arrow)

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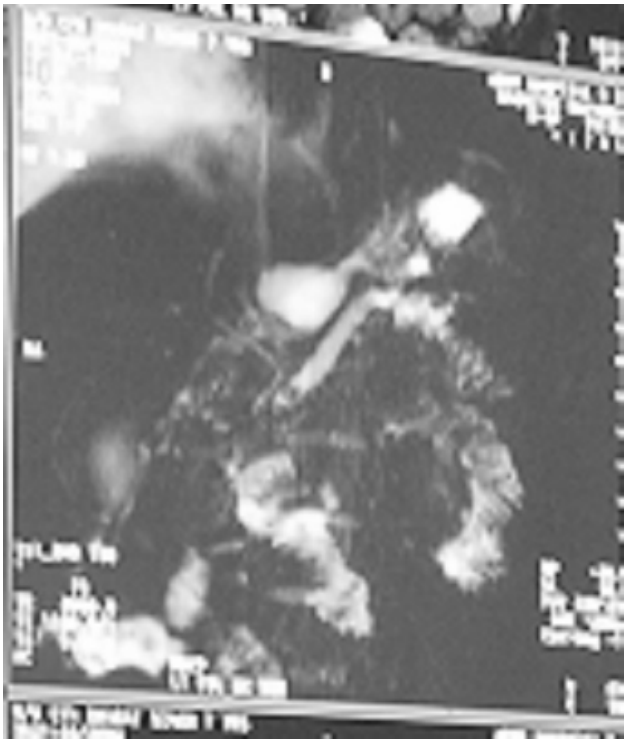


Fig 2: MRCP showing dilated pancreatic duct

reaccumulated. Roux-en-y-cystojejunostomy was performed 9 weeks after the injury, in view of poor response to conservative therapy. Pleural effusion and symptoms subsided.

Six months later, he presented with a right-sided pleural effusion. Pleural tapping revealed 700 ml of hemorrhagic fluid. Serum and pleural fluid amylase levels were 1758 units/l and 12000 units/l, respectively. USG of the abdomen showed dilated main pancreatic duct, measuring 6 mm with obstruction at the neck. CT scan of the abdomen showed recurrence of pancreatic pseudocyst with dilated main pancreatic duct and right pleural effusion.

A trial of conventional therapy with antibiotics and octreotide (25 μg subcutaneously given 8 hourly for 4 weeks), led to transient improvement in the pleural effusion. Endoscopic Retrograde-cholangio-pancreaticography (ERCP) revealed a grossly dilated main pancreatic duct communicating at its distal end with the right pleural cavity (Fig 1) MR cholangiopancreaticogrpahy revealed a dilated pancreatic duct but failed to delineate the pleural communication (Fig2). Definitive surgery (spleen preserving distal pancreatectomy with Roux-en-Y anastomosis) was followed by successful resolution of the pleural effusion. Patient is doing well on follow up for more than a year

Discussion

Pancreaticopleural fistula is rare. It is seen in acute and chronic pancreatitis or after traumatic or surgical disruption of the pancreatic duct. An inflammatory or traumatic injury to the main pancreatic duct or side branches is the pathological lesion. Rupture of the duct or pseudopancreatic cyst into the pleura, pericardium, and mediastinum may present as a pancreaticopleural fistula, mediastinal pseudocyst, pancreaticobronchial or pancreticopericardial fistula. These patients usually present with pulmonary symptoms such as dyspnoea or cough.[1] Confirmation of pleural effusion of pancreatic origin is by demonstrating a high amylase content in the pleural aspirate relative to the serum as in our case.[2] Imaging examination (CT, MR, MRCP, or ERCP) finding of a fluid-filled tract extending from the pancreas to the thorax is diagnostic. However, in our case, MRCP failed to delineate the pleuropancreatic fistula. Management options include conservative treatment with no oral intake, total parenteral nutrition, repeated thoracentesis or chest drainage, anti-secretory octreotide therapy, endoscopic retrograde cholangiopancreatography with or without pancreatic stent and surgery. Medical therapy with octreotide, and/or chest tube placement has been shown to be successful in resolving the pancreatico-pleural fistula in up to 33% of cases.[3] Surgical treatment is only indicated if conservative or endoscopic treatment fails as in our case, and consists of resection of the fistula and drainage of the pancreatic duct via a lateral pancreaticojejunostomy or resection of the part of the pancreas where the fistula originates. Surgery leads to healing in 80-90% of cases but carries a mortality of up to 10%.[4]

The pleural effusion recurred on the opposite side because cystojejunostomy failed to drain adequately, the exact cause of which can only be conjectured. It is possible that the initial trauma caused multiple fractures of the pancreas leading to discontinuity of the pancreatic duct. The

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cystojejunostomy, performed in the region of tail of the pancreas probably was unable to drain the dilated duct in the body of the pancreas. This would also explain the non-visualization of the cyst on ERCP. Failure of conservative therapy led us to choose a surgical option. Early ERCP, as recommended by Oh et al,[3] may have revealed the blocked pancreatic duct, thus avoiding the second surgery.

References

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