

Spontaneous Closure of a Persistent Post-traumatic Pancreatic Fistula in a Child: Incidental Therapeutic Effect of ERCP

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Summary

A child with a post-traumatic pancreatic pseudocyst developed pancreatic fistula, following percutaneous drainage of the cyst. The fistula output was about 120ml/day and lasted for a month. A diagnostic ERCP revealed main pancreatic duct disruption. The fistula output ceased over the next two days following the ERCP. The patient has been well for the past four years. This patient's immediate recovery after ERCP could possibly be due to dislodgement of a mucus plug by the contrast injected during ERCP. Such a mechanism can explain the previous sporadic reports of spontaneous cure of persistent pancreatic fistulae in children.

Key Words: Pancreatic Fistula, Paediatric, ERCP, Endoscopic Retrograde Cholangiopancreatography

Introduction

The role of Endoscopic Retrograde Cholangiopancreatography (ERCP) in the management of pancreatic trauma in adults is well established. However, its use in children has been limited due to the smaller caliber of the ducts as well as the more frequent success with conservative treatment of pseudocysts. We report a boy with a post-traumatic pseudocyst, in whom a persistent pancreatic fistula was cured, following a diagnostic ERCP. A mechanism for this therapeutic effect is postulated.

Case Report

A seven-year-old Chinese boy was referred from a private hospital with history of sudden onset of epigastric pain and vomiting of one-day duration. The symptoms started following a trivial blunt injury to the

abdomen when he was pushed over by his friend in the school. He was apparently well prior to this. The serum amylase level was 4830 IU/L and a diagnosis of traumatic pancreatitis was made. Computed Tomography (CT scan) showed edematous pancreas and minimal ascites. His condition improved after a week of conservative treatment and the boy was discharged from the first hospital.

However, two months later he presented to us with abdominal distension and pain. There was a soft mass palpable in the epigastrium and the serum amylase was raised (1336 IU/L). Both abdominal ultrasound and CT scans revealed a cyst measuring 10x7cm, overlying the proximal half of the pancreatic body, with mesenteric edema and ascites (Fig.1). He was in distress and had poor oral intake, possibly due to the large pseudocyst. Percutaneous needle aspiration of the cyst was done under U.S. guidance and parenteral nutrition was

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instituted. The cyst recurred to its original size within a few days of aspiration. Magnetic resonance cholangiopancreatography (MRCP) performed at this stage showed a normal head of pancreas with a normal pancreatic duct in the region of the head. However, the rest of the pancreas could not be imaged adequately because of the presence of the large cyst.

Percutaneous external drainage of the cyst was performed. Drainage from the cyst persisted for a month, with a daily output of about 120ml of clear fluid with a high amylase content. The child lost about one kilogram of weight during this period. ERCP performed at this stage showed "cut off" of the contrast in the main pancreatic duct at the level of the vertebral column (Fig 2). The distal part of the pancreatic duct to the left of the vertebral bodies was not opacified. A day after the ERCP, the output from the pancreatic fistula dramatically decreased to 25ml/day and ceased completely within two days after ERCP. The drainage tube was removed one week after the cessation of drainage and by that time the child was able to take normal diet. The child has been well under follow-up for the past four years and ultrasound of the abdomen has been normal.

Discussion

The principles of management of pancreatic injuries in children have largely been derived from the experience in adult patients, though a few basic differences exist between the two groups¹. Penetrating injuries are more common in adults while in children pancreatic injuries are mainly due to blunt trauma. In blunt trauma, the pancreas gets compressed against the vertebral column¹. The incidence of pancreatic pseudocyst with blunt trauma is higher in children than in adults and recovery after a percutaneous drainage is more common in children¹. Healing of completely transected ducts in children has been documented either following percutaneous cyst drainage or even spontaneously^{2,3}. However, no explanation has been offered on the possible mechanism of the spontaneous healing of the duct in the reported cases.

In our case, the rapid decrease of the output from the fistula within a day following the ERCP, suggests that the procedure possibly corrected a proximal obstruction in the pancreatic duct. The obstructive agent could have been epithelial debris, a mucus plug, inflammatory exudate, a blood clot or even a flap valve from the transected duct. This case also substantiates the possible therapeutic benefit ERCP in achieving an

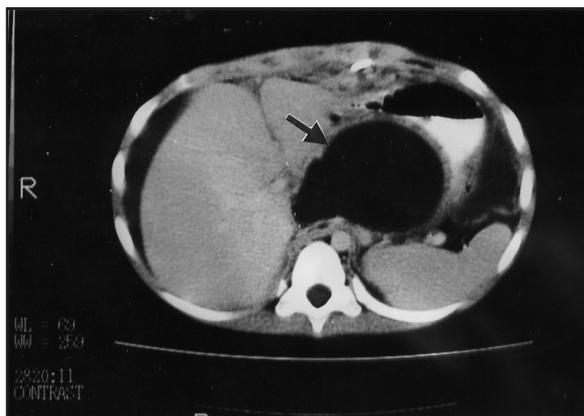


Fig. 1: CT scan of the pseudopancreatic cyst (black arrow)

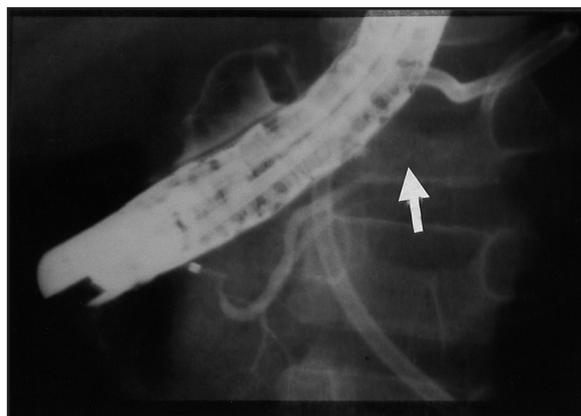


Fig. 2: ERCP demonstrating the "cut-off" of the contrast in the main pancreatic duct (white arrow). The distal pancreatic duct is not opacified.

CASE REPORT

early resolution in some cases of persistent post-traumatic pancreatic fistula.

MRCP enables non-invasive imaging of the pancreatic and bile ducts, but its use in pediatric pancreatic trauma has been limited to a few centers. It may be difficult to

visualize the pancreatic duct adequately by MRCP in children with large pseudocysts, as shown in this case. The potential therapeutic benefit from a diagnostic ERCP is an additional factor to be considered, in the choice of investigations for pancreatic trauma in children.

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