Case Report

A Rare Case of Anomalous Insertion of Common Bile Duct and Pancreatic Duct Leading to Acute Pancreatitis in a Child

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Abstract

The incidence of Acute Pancreatitis is rising among the pediatric population. The most common causes in children are cholelithiasis and choledochal cyst. Anomalies of biliary tract and pancreatic duct are other rare causes of the same. However these anomalies are suspected and detected after repeated episodes of pancreatitis and later in life. We report a case of a 4 year old female child who presented with acute Pancreatitis due to cholelithiasis resulting from a rare anomalous insertion of Common Bile Duct and Pancreatic Duct.

Keywords: Acute Pancreatitis; Child; Common Bile duct; Pancreatic duct.

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Introduction

Acute pancreatitis is an acute inflammatory process of the pancreas, diagnosed by abdominal pain, elevations of serum pancreatic enzymes, and radiological changes in pancreas. Pancreatitis may cause injury to the pancreas, peripancreatic area, ranging from mild to severe, and MODS. Previously, considered rare among children, pancreatitis has now increased incidence in children, over the past two decades, over the world.[1,2] In majority of cases gallstones or congenital anomalies like choledochal cyst are the underlying cause of pancreatitis. We report a case of a 4 year old female child , diagnosed with Acute Pancreatitis with Choleliathiasis due to a rare anomalous insertion of Common Bile Duct and Pancreatic duct.

Case Report

A 4 years old female child presented to our hospital with complaints of recurrent abdominal pain for the last 3 years. She had been managed conservatively in other hospitals for the same but she was not investigated further. In this episode, the child had severe abdominal pain and vomiting for 3 days. On examination she had signs of some dehydration, tender abdomen with no organomegaly or icterus. She was started on IV fluids, antispasmodics and antiemetics. Complete Blood count, CRP, Blood Culture, Liver Function tests and Kidney Function tests with electrolytes and blood gas were sent which were normal. An Ultrasound Abdomen revealed bulky pancreas, cholelithiasis and minimal ascites. We got a surgical consult and also started her on IV antibiotics on high suspicion of Acute Pancreatitis. Levels of Amylase and Lipase were done; which were six times higher than normal; 852U/L and 4460 U/L respectively. A CECT was

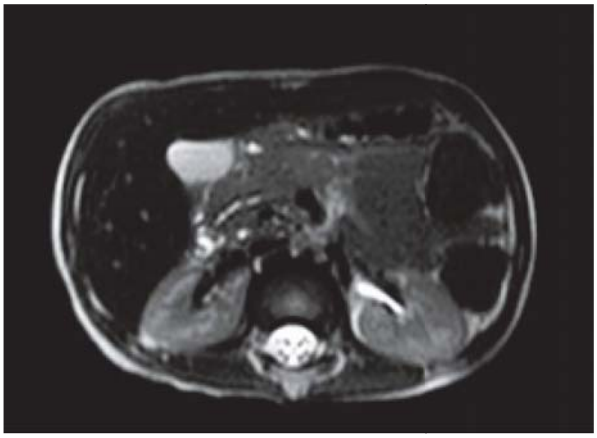

Figure 1. T2W MRI MRCP image showing drainage of main pancreatic duct into the second part of duodenum

Figure 2. Image showing drainage of main pancreatic duct and common bile duct

planned for further confirmation which showed bulky pancreas with gross edematous body and bile duct, as well as necrotic areas in the pancreas. (Modified CTSI score 6/10), cholelithiasis and moderate ascites. The child fulfilled the INSPPIRE Criteria (International Study Group of Pediatric Pancreatitis) and Atlanta Criteria which include threefold rise in markers (Amylase, Lipase), abdominal pain and radiological evidence and was managed as a case of acute Pancreatitis. An MRCP done on the same day confirmed the findings of CECT and also delineated the anatomical variant of common bile duct draining into duodenum at a lower level and main pancreatic duct draining into the second part of duodenum proximal to the common bile duct. She had complete resolution of her symptoms on the 5th day of admission and was discharged on 10th day after her antibiotic course. Antibiotics were started empirically and continued till any need of acute surgical intervention ruled out. For the cholelithiasis, a surgery was planned on follow up as advised by the surgical team.

Discussion

The main pancreatic duct and the common bile duct open into the second part of the duodenum alone or after joining as a common channel. Development of gallstones are more common when there are separate openings for the two ductal systems, as the sphincter mechanism at the lower end of the CBD behaves differently when the two ducts open separately than when they have a common channel. This may result in a more prolonged bile stasis that promotes stone formation.

The major papilla of Vater is typically located in the posteromedial wall of the second portion of the duodenum, and is the main exit for the bile and pancreatic juices that flow down the common bile duct (CBD) and the main pancreatic duct (MPD). Sometimes, the opening of the CBD can be located in aberrant sites along the duodenum, mainly in the third or the fourth portion of the duodenum or rarely in the duodenal bulb.

The incidence of an ectopic opening of the CBD is 5.6% to 23% and is most commonly located distal to the second duodenal portion, around the third and the fourth duodenal portions.[3]

In a study by Mirza Nida et al a total of six patients had structural abnormality as the underlying cause, out of which 5 had Choledochal cyst and only 1 had pancreatic duct anomaly.[4] In another similar study by Altamimi and Droubi, which included 22 children, structural anomaly was the underlying cause in six. Out of which only 2 had anomaly of pancreatic divisum, rest had choledochal cyst.[5]

In a retrospective study to assess whether the anatomy of the pancreaticobiliary ductal drainage into the duodenum has any relationship with biliary diseases 259 endoscopic retrograde cholangiopancreatograms (ERCP) were analyzed and only 37% had separate openings in the control group comprising of 102 patients.[6] Other authors have reported that overall the finding is rare, with only several cases reported in the literature.[7]

Very few cases are reported globally as well as in India, where the patient has an anatomical variant of the pancreaticobiliary duct; as picked up on ERCP after they have presented with Chronic Pancreatitis or Recurrent Pancreatitis. It is unusual to suspect and pick up this anomaly with the first episode of acute Pancreatitis, especially in a young child.

Conclusion

It needs a high end of suspicion to diagnose Acute Pancreatitis in a child and when diagnosed in time can have a better prognosis. All cases should undergo imaging studies which can delineate the underlying anatomical anomaly if present.

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