CASE REPORT

Spontaneous perforation of common bile duct in a child

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Abstract

Spontaneous perforation of common bile duct is very rare. It is mostly found in children less than 2 years of age. Its diagnosis is always difficult as there are all features of peritonitis present with absence of pneumoperitoneum on chest radiograph. Diagnostic peritoneal tap of biliary aspirate helps in reaching the diagnosis. We need to have high index of suspicion to reach the diagnosis of this rare condition.

Key words: Spontaneous perforation of common bile duct, pneumoperitoneal biliary aspirate

Introduction:

Spontaneous Perforation of Common Bile Duct is rare entity that is mostly found in children less then 2 years of age. For a preoperative diagnosis, high level of suspicion is necessary. It is basically a diagnosis of exclusion. Clues to its diagnosis are absence of pneumoperitoneum, acholic stool[1], biliary peritoneal aspirate[2], non-bilious vomiting & signs of peritonitis.

Case Report:

A 1 year old female child presented to the Emergency Department of our hospital with abdominal distention & pain abdomen and vomiting for last 7 days. Physical examination revealed grossly distended abdomen with free fluid, absent bowel sounds and features of peritonism. Digital rectal examination was negative for any rectal mass, but stool was found to be acholic. Abdominal X-ray showed dilated bowel loops. There was no evidence of pneumoperitoneum. Abdominal sonography revealed ascites, enlarged mesenteric lymph nodes and intussusception or any bowel mass was ruled out. Blood biochemistry & hemogram were within normal limits.

Initially, the patient was managed as "Peritonitis under investigation". However, in absence of any clue, she was subjected to emergency laparotomy. The abdomen was opened by right paramedian supraumbilical incision. Bilious collection[2,3] about 3 liters was present in the peritoneal cavity. On exploration, common bile duct(CBD) at junction with cystic duct was found to be perforated (1cm X 0.5cm rent) (Figure 1). Biliary system was explored; CBD was of normal caliber and no calculi or biliary sludge was found. As per-operative cholangiogram facility was not available, distal CBD patency was checked by passing a 8 Fr infant feeding tube, which was entering in to duodenum easily.

The CBD rent was repaired over a silastic Kehr's 10F T-tube by interrupted suture using 5-0 vicryl with omental patch reinforcement. A silastic corrugated drain was also left in peritoneal cavity. The patient was administered 3rd generation cephalosporin and aminoglycoside antibiotics and adequate IV fluids for peri-operative period. Initially, there was a lot of bilious discharge through the drain apart from T-tube drainage, which gradually subsided and patient started passing normal stool by 5th post-operative day.

Subsequently, the patient showed clinical improvement and she was started on oral feeds. T-tube was clamped on the 14th Post-Operative day. Repeat sonography done during this time

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Figure 1: *T-tube being placed*

showed absence of any intra-abdominal collection. T-tube cholangiogram[3] was planned before its removal; however it got accidentally dislodged. The patient was discharged on the18th Post-Operative day, on a normal diet and oral fluoroquinolone antibiotic. Follow up USG at 1 month showed normal morphology of hepatobiliary tree (Figure 2).

Discussion

SPCBD (Spontaneous Perforation of CBD) is a rare condition[3]. The most common site of perforation is junction of cystic duct with CBD . The most often cause is idiopathic, but, there are certain proposed theories and important ones are:

1. distal obstruction of CBD
2. congenital weakness of CBD
3. pancreatico-biliary mal-junction (also involved in genesis of choledochal cyst)[1,2,]
4. trauma[5]
5. protein plug obstruction
6. choledochal cyst[3,4,7]
7. reflux of pancreatic juice into biliary tree.

Perforation is usually seen as a punched out hole on anterior aspect of CBD, at its junction with cystic duct, as it has been suggested that this site is prone to mural mal-formation during embryogenesis. For pre-operative diagnosis of cases, high degree of suspicion is a must. Peritonitis with absence of pneumo-peritoneum, bilious peritoneal tap[6] and acholic stool are few findings which point towards the diagnosis of SPCBD. Sonography showing ascitis in absence of biliary dilation[4] , and radio-nuclide scanning with DIS-IDA demonstrating radio-nuclide isotope in the ascitic fluid or contained by occasional pseudo-

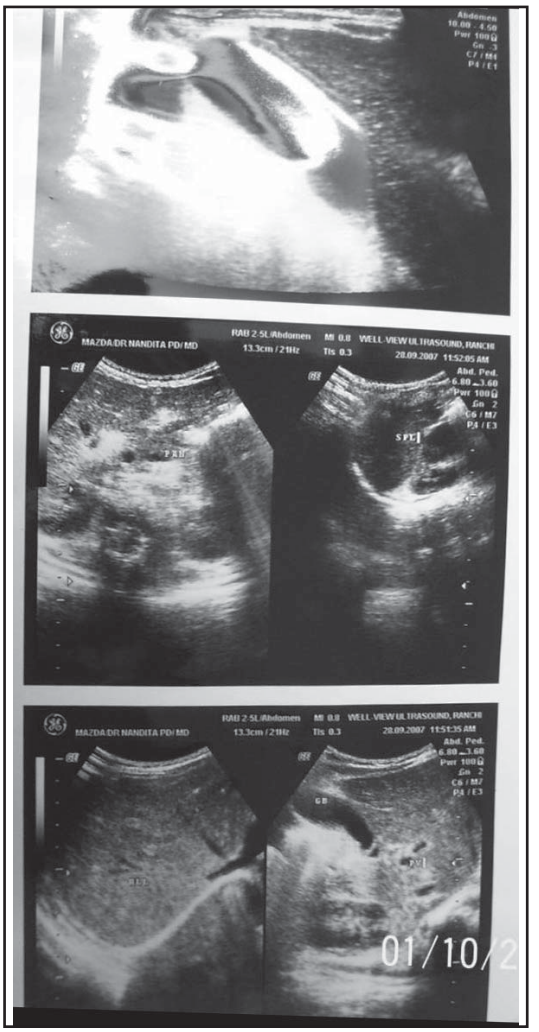

Figure 1: *Postoperative sonogram showing normal biliary tree*

cyst can add to its diagnosis.

All patients require surgical intervention. Results of surgical intervention are excellent. Surgical management consists of repair over T-tube and no T-tube repair . No T-tube repair includes cases with minor tear and in which CBD patency has been established by way of intra-operative cholangiogram.

Anomalous union of pancreatico-biliary ductal system is associated with increased risk of choledochal cyst, bile duct perforation and cancer in later life . So, these patients may require close monitoring in later life.

Conclusion:

SPCBD is a rare entity. A high degree of suspicion is required for its pre-operative diagnosis.

Surgery is the only treatment modality available. Surgery includes repair with T-tube and repair without T-tube, which includes placing simple external drainage at site of perforation[6].

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