Spontaneous Common Hepatic Duct Perforation in a Child: A Rare Case Report

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Abstract

Spontaneous perforation of common bile duct is a rare phenomenon; few cases are reported in literature. Hence, there is a dilemma for the management of these cases, but with modern radiological equipment and high degree of suspicion, it is possible to diagnose early. The overall prognosis of this condition is good, provided an early surgical intervention is instituted; we are reporting a case of a 6-year-old male with spontaneous perforation of common hepatic duct. Managed by repair of rent over T-tube, postoperative period was uneventful, T-tube was removed after 3 weeks, and the patient is doing well in follow-up.

Keywords: Biliary tract, common hepatic duct, spontaneous perforation

Introduction

Spontaneous perforation of common hepatic duct (CHD) is very rare in children and infants. Preoperative diagnosis is very difficult and diagnosis is often made during surgery.[1] However, with the help of ultrasonography (USG) and computed tomography and with good clinical evaluation diagnosis can be made preoperatively.

Case Report

A 6-year-old male patient presented with epigastric pain and abdominal distension for 10 days. For the last 2 days, he developed severity of epigastric pain increases along with increase in abdominal distension. However, history of trauma was absent. On general examination, patient's general condition was poor with pulse rate of 120/min and blood pressure of 80/54 mmHg. Abdominal examination revealed abdominal distension with mild tenderness. His plain X-ray abdomen erect view showed ground-glass appearance and USG was suggestive of the moderate peritoneal collection. Laboratory investigations showed Hemoglobin 8.8 g/dl, total leukocyte count − 18,500/mm3, total bilirubin 3.22 mg/dl (indirect 1.02 mg/dl), alkaline phosphatase 826.5 IU/L, alanine aminotransferase 262 IU/L, and aspartate aminotransferase 490 IU/L, negative Widal test. After adequate hemodynamic resuscitation, USG-guided diagnostic tap was performed which showed a bilious aspirate that was sent for biochemical examination. On biochemical examination, aspirated fluid confirmed as bile. The decision for laparotomy was taken and on exploration through supraumbilical midline vertical incision, about 1.5 L clear bile drained and whole bowel was found to be stained with bile pigments. Liver parenchyma and whole bowel were normal. Bile was coming out through a rent of 0.5 cm size at anterior surface of CHD just above the commissure. Gallbladder was thickened without any calculus and perforations [Figure 1]. After peritoneal lavage with lukewarm saline, biopsy was taken from margin of the rent. Common bile duct (CBD) also explored with no calculus or any impending perforation; distal patency was also checked. A 10-French T-tube was placed through the rent with the placement of subhepatic drain [Figure 2]. Postoperative period was uneventful. The patient was orally allowed on day 4. After 2 weeks, there was no subhepatic collection on USG and normal T-tube cholangiogram following which T–tube was removed [Figure 3]. Histopathology report showed normal fibrocollagenous tissue infiltrated by

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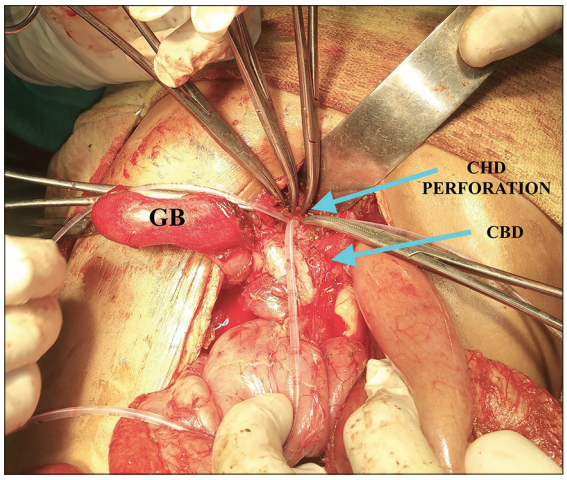

Figure 1: Perforation in anterior wall of common hepatic duct of size 0.5 cm in diameter

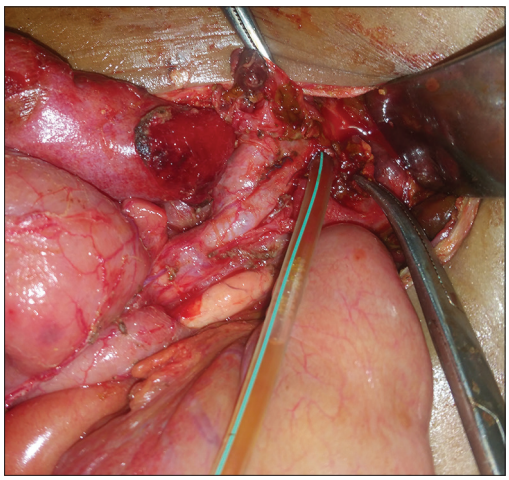

Figure 2: Placement of T-tube in rent of common hepatic duct

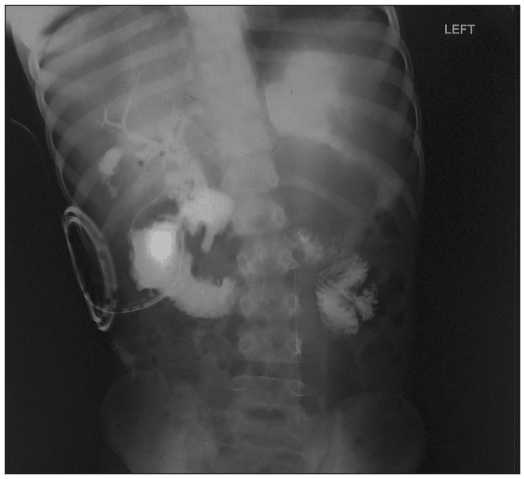

Figure 3: Normal T-tube cholangiogram showing passage of contrast both in biliary tree and jejunum

mild inflammatory infiltrate, no evidence of granuloma or malignancy. On follow-up after 6 months and 1 year, the patient is doing well.

Discussion

Spontaneous bile duct perforation (SBDP) is a rare cause of biliary ascites in children, mostly seen in child below 4 years of age.[2] It was first described by Dijkstra in 1932, and since then approximately 150 cases have been reported in the literature.[3] Very few data are available on spontaneous CBD perforation hence there is dilemmas for the management of these cases. The most common presentation is abdominal distension and jaundice, other symptoms may be localized or generalized peritonitis, pyrexia, and septicemic shock with or without sign and symptoms of biliary tract disease. The exact etiopathogenesis of SBDP is yet to be elucidated, various theories have been proposed such as congenital weakness of the bile duct, abnormal pancreaticobiliary duct anomalies such as pancreaticobiliary malunion (PBM), distal biliary obstruction, and bile duct ischemia.[4-6] Common site of perforation is junction of cystic duct to CHD, due to the developmental weakness of wall of duct that perforates after reaching a critical intraductal pressure.[7,8] Ischemic perforations are seen in anterior part of CBD due to paucity of blood supply as most of the blood supply of CBD is from two posterolateral marginal arteries. In PBM, repeated reflux of pancreatic juice into CBD causes chronic inflammation and microabscess formation in the wall of CBD, which may results in SBDP.[9,10] Our case is special with respect to site of perforation that is CHD, that has been reported only in very few cases in adults, however, to the best of our knowledge, no case has been reported in children. Whatever be the cause of perforation or site of perforation, the modality of basic treatment remains same in all the cases.

Conclusion

The surgical options in CBD perforations are simple drainage at the site of perforation, with or without biliary diversion and with or without primary repair. The common postoperative complications include stenosis of CBD (most common complication) and portal vein thrombosis. Overall prognosis of the condition is good, provided an early surgical management is instituted.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Sözütek A, Karabuğa T, Derici H, Bozdağ AD. A rare cause of acute abdomen: Spontaneous choledochus perforation. Akad Gastroenterol

Derg 2010;9:32-3.
2. Kanojia RP, Sinha SK, Rawat J, Wakhlu A, Kureel S, Tandon R, *et al.* Spontaneous biliary perforation in infancy and childhood: Clues to diagnosis. Indian J Pediatr 2007;74:509-10.
3. Jeanty C, Derderian SC, Hirose S, Lee H, Padilla BE. Spontaneous biliary perforation in infancy: Management strategies and outcomes. J Pediatr Surg 2015;50:1137-41.
4. Sai Prasad TR, Chui CH, Low Y, Chong CL, Jacobsen AS. Bile duct perforation in children: Is it truly spontaneous? Ann Acad Med Singapore 2006;35:905-8.
5. Goenka MK, Acharyya BC, Sethy PK, Goenka U. Spontaneous rupture of the bile duct associated with pancreatitis. A rare presentation. JOP 2011;12:149-51.
6. Jarmin R, Alwi RI, Shaharuddin S, Salleh KM, Gunn A. Common bile duct perforation due to tuberculosis: A case report. Asian J Surg 2004;27:342-4.
7. Chardot C, Iskandarani F, De Dreuzy O, Duquesne B, Pariente D, Bernard O, *et al.* Spontaneous perforation of the biliary tract in infancy: A series of 11 cases. Eur J Pediatr Surg 1996;6:341-6.
8. Stringel G, Mercer S. Idiopathic perforation of the biliary tract in infancy. J Pediatr Surg 1983;18:546-50.
9. Shenoy VG, Jawale SA, Oak SN, Kulkarni BK. Anomalous pancreaticobiliary union and chronic pancreatitis: Rare presentation with biliary peritonitis. Pediatr Surg Int 2001;17:549-51.
10. Treem WR, Hyams JS, McGowan GS, Sziklas J. Spontaneous rupture of a choledochal cyst: Clues to diagnosis and etiology. J Pediatr Gastroenterol Nutr 1991;13:301-6.