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Case Report

Cystic Dilatation of the Common Bile Duct Type I: A Case Report

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Abstract

Cystic dilatation of the bile ducts (CDBD) is a rare congenital malformation associated with a significant risk of malignant transformation. It predominantly affects young women and represents the second most common congenital anomaly of the biliary tract after biliary atresia. Abdominal pain is the main presenting symptom.

Management depends on the Todani classification, which distinguishes five types of congenital cystic dilatations of the bile ducts. We report the case of a 36-year-old woman presenting with a one-year history of epigastric pain associated with vomiting. Imaging established the diagnosis of type Ib cystic dilatation of the common bile duct. The patient underwent complete resection of the common bile duct followed by biliodigestive reconstruction.

Systematic assessment for malignant transformation and anomalous pancreaticobiliary junction is mandatory in such cases.

Keywords: Case Report; Congenital Cystic Dilatation of the Common Bile Duct; Common Bile Duct Resection; Biliodigestive Diversion; Todani Classification

Introduction

Congenital cystic malformations of the bile ducts are rare conditions. They are considered a premalignant state due to the risk of malignant transformation. Several types have been described and are classified according to the Todani system into five groups based on the location, extent, and morphology of biliary dilatation.

Surgical resection of the common bile duct is the standard treatment for type Ib lesions. The aim of our report is to highlight the diagnostic and therapeutic principles in the management of Todani type Ib cystic dilatation. Particular emphasis should be placed on the systematic search for an anomalous pancreaticobiliary junction, which plays a crucial role in both the pathogenesis of this malformation and the risk of biliary tract degeneration.

Case

A 36-year-old woman, mother of two children, presented with recurrent epigastric pain associated with vomiting. Symptoms had been evolving for approximately one year. Her past medical history was notable for two cesarean sections in 2011 and 2017. She had a psychiatric history and had been receiving prazepam 10 mg, sertraline 50 mg, and potassium citrate (Moncitra) 30 mg for six months. Her brother had type 1 diabetes mellitus diagnosed 17 years earlier.

Physical examination revealed tenderness in the right hypochondrium without palpable mass or jaundice.

Laboratory investigations showed normal liver function with a prothrombin time of 90%, albumin level of 35 g/L (reference 35–50), normal gamma-glutamyl transferase and alkaline phosphatase levels, alanine aminotransferase (ALT) at 93 IU/L (0–55), and aspartate aminotransferase (AST) at 35 IU/L (5–34). Lipase was 106.9 U/L (13–60), and amylase was 70.3 U/L (26–100). White blood cell count was 5,000/mm^3 (4,000–10,000), hemoglobin 13.8 g/dL (11–16), and C-reactive protein 0.9 mg/L (0–5). Serological tests for HIV 1/2 antibodies, hepatitis B surface antigen, hepatitis C antibodies, and hydatid disease were negative.

Abdominal ultrasound revealed a gallbladder with multiple microlithiasis without signs of complications. A cystic dilatation of the proximal portion of the common bile duct containing dependent microlithiasis was observed, while the distal portion was not dilated.

Magnetic resonance cholangiopancreatography (MRCP) demonstrated cystic dilatation of the common bile duct and cystic duct, classified as Todani type Ib. No anomalous pancreaticobiliary junction was identified, and there were no signs of malignant transformation. A biliary trifurcation at the level of the hepatic confluence was noted.

Complete resection of the common bile duct was performed via laparotomy, including excision up to the roof of the biliary confluence proximally and division at the level of the healthy distal common bile duct, along with cholecystectomy. Reconstruction was achieved by Roux-en-Y hepaticojejunostomy.

The postoperative course was uneventful. Oral feeding was resumed on postoperative day 1, the drain was removed on day 4, and the patient was discharged on postoperative day 5. Clinical symptoms resolved completely, and liver function remained within normal limits.

Discussion

Congenital cystic dilatations of the bile ducts are rare malformations characterized by cystic, communicating dilatations of the intrahepatic and/or extrahepatic biliary tree,They appear to be more frequent in women [1]. The Todani classification (Figure 1) remains the most widely used system and categorizes this condition according to the location, morphology, and distribution of the biliary dilatation. Type I is the most common form, accounting for approximately 80% of cases. The incidence of congenital cystic biliary dilatations is particularly high in Southeast Asia and Japan [2]. In our case, the patient presented with a type Ib lesion.

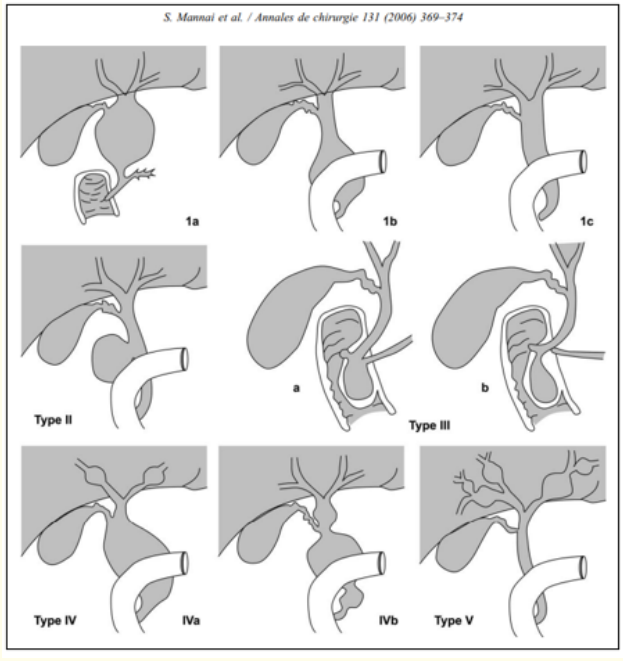

Figure 1: Todani classification.

An anomalous pancreaticobiliary junction is strongly implicated in the pathogenesis of cystic biliary dilatation (Figure 2). This abnormal fusion between the bile duct and pancreatic duct is defined by three criteria: a common channel longer than 15 mm, an extraduodenal junction located proximal to the sphincteric complex, and a junction angle greater than 30° [3,4]. In our patient, no pancreaticobiliary maljunction was identified.

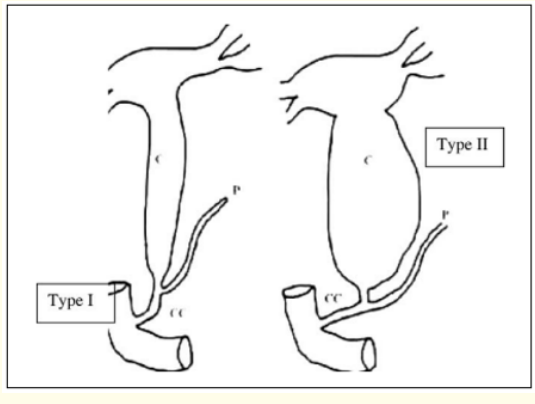

Figure 2: Classification of kimura of the AJPB.

The classic clinical triad of abdominal pain, jaundice, and palpable mass suggests cystic dilatation of the bile ducts. However, this triad is uncommon in adults. In our patient, abdominal pain was the only symptom, without jaundice or palpable mass.

Ultrasound and computed tomography are useful for establishing the diagnosis, particularly in types I, IV, and V [5]. Endoscopic ultrasonography may also contribute to diagnostic evaluation. In our case, abdominal ultrasound detected the biliary dilatation, while magnetic resonance cholangiopancreatography (MRCP) confirmed the diagnosis.

Preoperative imaging must assess associated biliary anomalies, some of which have therapeutic implications, such as intrahepatic biliary strictures, while others do not, such as cystic duct dilatation. In our patient, MRCP demonstrated cystic dilatation of the common bile duct and cystic duct without intrahepatic biliary dilatation, allowing classification as Todani type Ib.

Complete surgical excision is the treatment of choice, as it prevents malignant degeneration of the cyst wall and biliary epithelium. Cystodigestive bypass procedures are contraindicated [6]. In type I lesions, resection should include the gallbladder and the entire extrahepatic bile duct, preserving proximally only the roof of the biliary confluence and distally a minimal intrapancreatic portion of the common bile duct [7,8]. For this reason, we performed complete resection of the common bile duct with cholecystectomy, followed by biliary reconstruction using a Roux-en-Y hepaticojejunostomy with a 70 cm Roux limb.

Conclusion

The treatment of Todani type Ib congenital cystic dilatation of the bile duct is complete resection of the common bile duct. Cystodigestive anastomosis should be abandoned due to the significant risk of malignant degeneration.

The Todani classification plays a central role in guiding therapeutic strategy. Preoperative imaging, particularly magnetic resonance cholangiopancreatography (MRCP) and endoscopic ultrasonography, is essential for detecting an anomalous pancreaticobiliary junction and for assessing potential malignant transformation.

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