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A Rare Case of Type 1C Congenital Choledochal Cyst in Female Child: Clinical Presentation and Surgical Treatment

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Abstract: Choledochal cysts are rare developmental anomalies involving intrahepatic and extrahepatic biliary ducts whose complete excision is recommended to prevent chronic inflammatory and malignant changes. During embryonic development, the pancreatic duct and common bile duct join abnormally outside the duodenal wall, forming a long common channel. This allows pancreatic enzyme reflux into the bile duct. Enzymes cause chronic inflammation and weakening of the bile duct wall. The weakened duct progressively dilates → forming a choledochal cyst.

Keywords*: Choledochal Cyst, Type 1 C, Female Child, Hepaticojejunostomy.*

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I. INTRODUCTION

Cyst formation is attributed to an abnormal pancreaticobiliary duct junction (APBDJ) located proximal to the ampulla of Vater, resulting in the formation of an abnormally long common channel between the bile duct and the main pancreatic duct. This anatomical configuration permits the reflux of pancreatic juice into the bile duct. The ensuing activation of pancreatic enzymes leads to chronic inflammation and progressive weakening of the bile duct wall, ultimately resulting in cystic dilatation.

Epidemiological studies of choledochal cysts shows that it is found more common in female than in.

II. CASE REPORT

A 5yr old Female paitent with history of abdominal lump over right hypochondrium which was noticed 1year back for which patient got admitted in Civil Hospital Rajkot on October 2025 with no other complain of abdominal pain, fever, yellowish discoloration of skin and sclera, lower urinary tract infection, vomiting, weight loss. No past history of NICU admission, neonatal jaundice, preterm delivery, meconium stain liquor. No operative history in past. Blood investigations normal levels of Hb- 10.9 gm/dl, WBC- 8300 /cumm, Plt- 2.16 lakh/cumm, total bilirubin 0.7mg/dl, direct bilirubin 0.3 mg/dl with altered S. ALP- 1218U/L, S. ALT- 168 IU/L, S. AST- 150 IU/L, s. lipase- 41.3 U/L, s. amylase- 93 IU/L. On admission paitent was on full diet with syp. Augmentin as preop antibiotic.

MRCP Cholangiopancreaticography reveals Approx. 91 X 95 X 139 mm (AP X TR X CC) well defined cystic dilatation of extra-hepatic CBD upto the origin of common hepatic duct is noted at porta hepatis and lesser sac in epigastric and right hypochondriac regions extending upto right iliac fossa with evidence of communication with CBD. CBD appears dilated & measures 17 mm at the point of communication with above mentioned cyst. Right and left hepatic duct dilated upto - 7.7 and 6.8 mm.

III. OPERATIVE MANAGEMENT

- *Complete Surgical Excision and Reconstruction of Cyst with Biliary Reconstruction with Biliary-Enteric Anastomosis with Roux-en-Y hepatico- Jejunostomy.*

Approx. 6 cm long right subcoastal incision was kept. On exploration a 10*8 cm² sized choledochal cyst was excised along with drainage of approx. 800ml of bile. Lower end of cyst connected with MPD. Ruox-en-Y end of distal duodenum flexure was taken to stump of common hepatic duct and end-to-side anastomosis was done between distal part of jejunum and common hepatic duct and closed with PDS 3-0. Approx. 40cm distal to DJ flexure side to side isoperistaltic jejuno-jejunal anastomosis using linear stapler was done in 2 layers with mersilk 2-0 suture.

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➢ *Post Operative Course:*

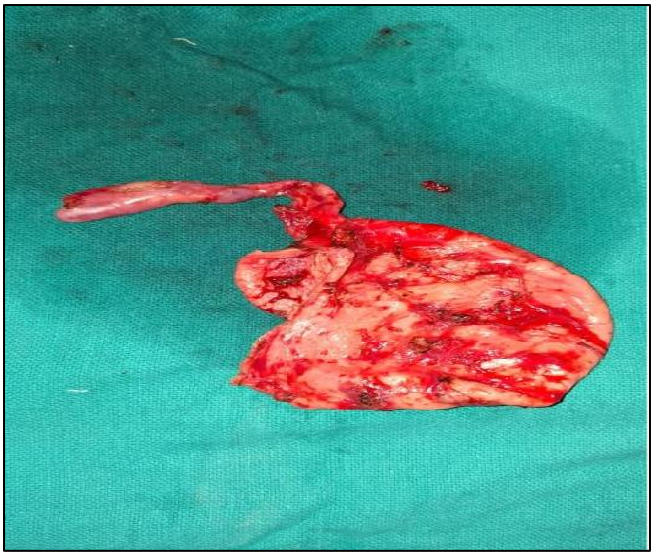

Fig 1 Excised Choledochal Cyst with GB with Cystic Duct Send to Histopathology.

➢ *Post Operative Courses are Uneventful. Follow-Up:*

- At 1, 3 and 6 months, child was asymptomatic with: Normal liver function test.
- No features of cholangitis or anastomotic stricture.

➢ *Histopathological Findings-*

- *Benign Cystic Lesion was Found.*

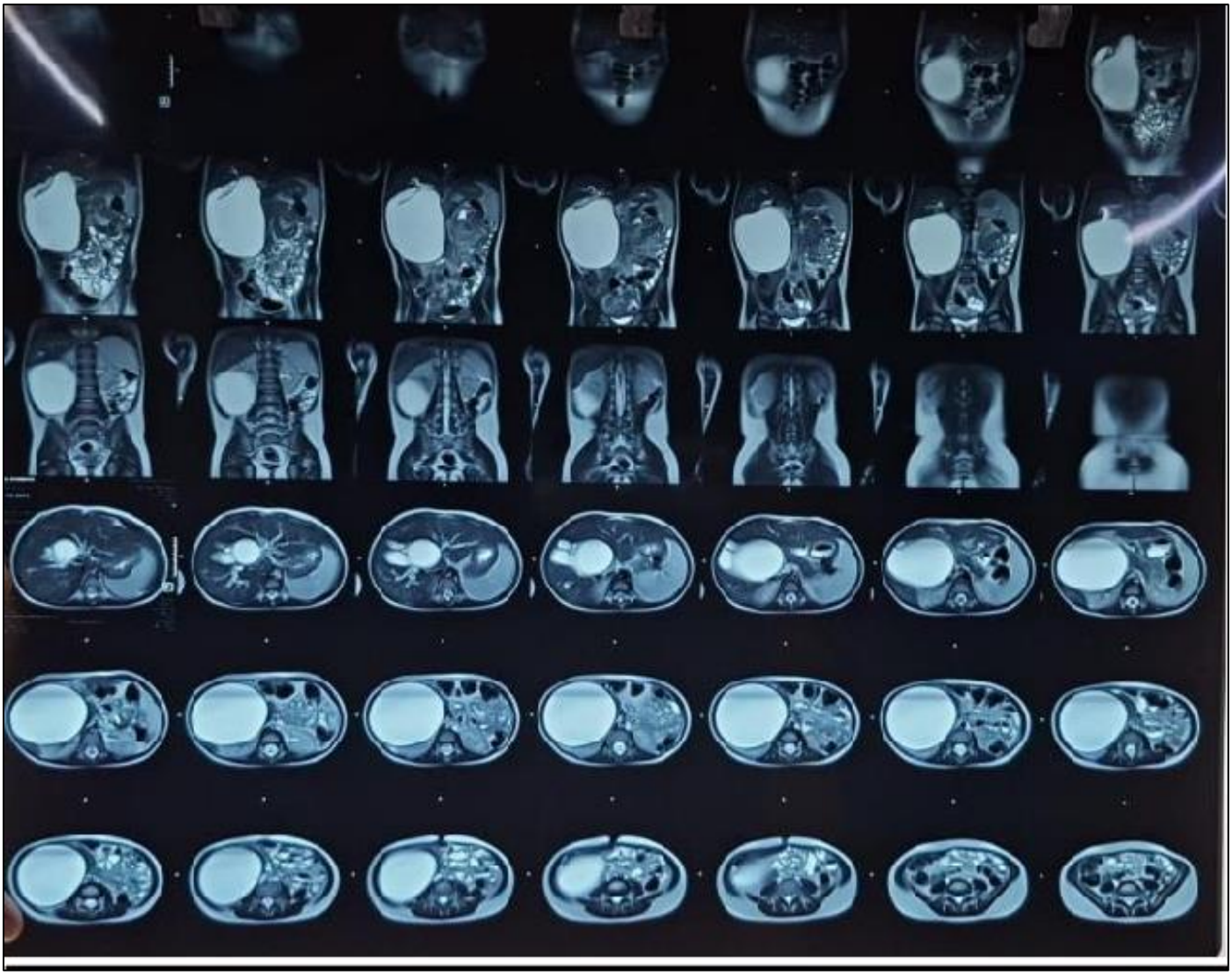

Fig 2 Saggital View Shows Large Solid Side Choledochal Cyst

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IV. DISCUSSION

➢ *Choledochal Cysts have been Classified According to Todani Classification into Five Major Classes:*

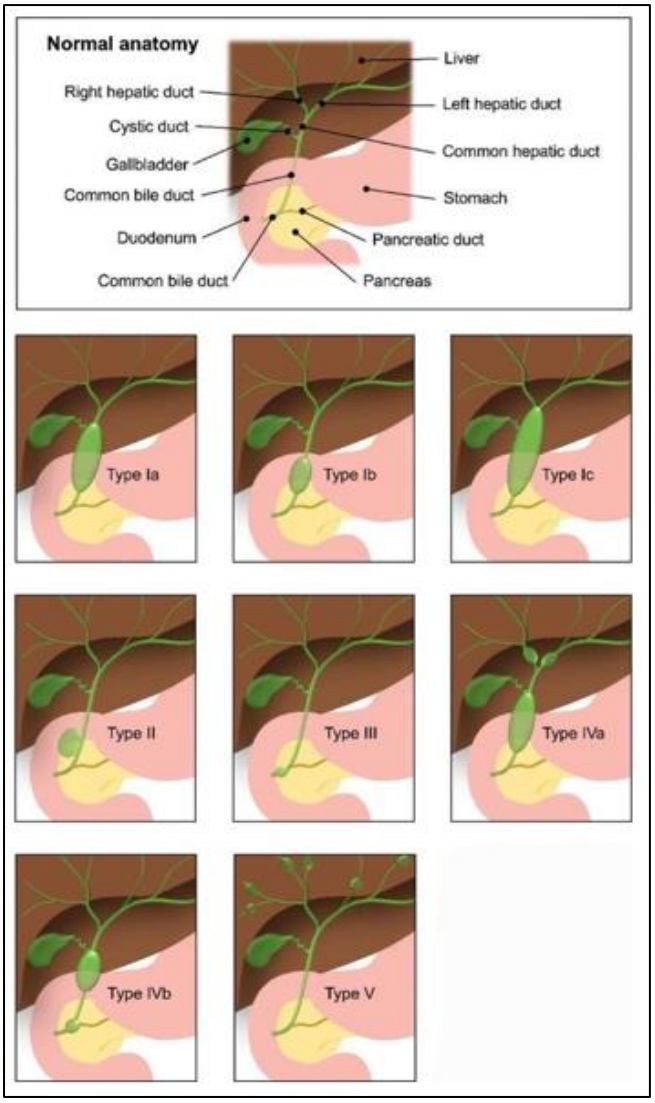

Fig 3 Todani Classification for Choledochal Cyst

➢ *Type I – Extrahepatic bile duct dilatation IA: Cystic dilatation of entire CBD*

- IB: Segmental/focal dilatation
- IC: Fusiform dilatation (often with APBDJ)

➢ *Type II – Diverticulum of CBD*

- A saccular outpouching from the extrahepatic bile duct.

➢ *Type III – Choledochocele*

- Cystic dilatation of intraduodenal portion of CBD.

➢ *Type IV – Multiple cysts*

- A: Both intra- and extrahepatic cysts IV B: Multiple extrahepatic cysts only.

➢ *Type V – Caroli Disease Multiple Intrahepatic Cysts Only.*

- When associated with congenital hepatic fibrosis →
- Caroli syndrome.

In our present case, the excised cyst represented the category of type 1C choledochal cyst. Late postoperative complications occurred more frequently in adults than in children. The classic triad of abdominal pain, jaundice and palpable right upper abdominal mass were more frequent in children than in adults and fibrosis of the cyst wall was peculiar to children. Hence, we concluded that choledochal cysts of children and those of adults should be considered as separate entities so we have to manage accordingly.

There are various surgical procedures have been employed in the treatment of choledochal cysts. These procedures vary between laparotomy and laparoscopic approaches; however, laparoscopic complete cyst resection, assisted Roux-en-Y reconstruction, and hepaticojejunostomy remain the procedure of choice by majority of surgeons.

Our case, congenital choledochal cyst of type 1c according to Tolani classification was found.

➢ *Take Home Message-:*

We aimed to resect extrahepatic biliary ducts as much as possible preserving the last segment of the bile duct joining the main pancreatic duct. The procedure applied reduces the risk of subsequent malignant changes in the remaining stump. Others have advocated a procedure leaving a longer stump of common hepatic duct with mucosal resection as an alternative measure of protection against cancerous changes. Some experiences suggests that a longer de-mucosal stump is more liable to malignant changes, and stump stricture is quite likely to occur. Definitive surgical management via cyst excision and hepaticojejunostomy provides excellent prognosis and prevent serious malignancies in future.

V. CONCLUSION

This case highlights the importance of early recognition of choledochal cysts, especially the rarer Type 1c variant. Definitive surgical management via cyst excision and hepaticojejunostomy provides excellent prognosis and prevents serious future complications such as chronic inflammation and malignancy.

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