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Choledochal cyst: Presentation and modality of management in a tertiary care hospital

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Abstract---Background: Choledochal cyst are congenital cystic dilatation of the extrahepatic and / or intrahepatic biliary tree. They have an incidence of 100,000 to 150,000 live births with a 3 to 4 : 1 female to male preponderance. If left untreated, they can cause significant morbidity and mortality from recurrent cholangitis, pancreatitis, bile peritonitis secondary to cyst rupture and cholangiocarcinoma. Material and Methods : A retrospective study of the records of patients admitted in Surgery ward of RMRI , Bareilly between August 2020 to January 2022 was carried out. Results: 40 cases of choledochal cysts were studied .28 were females and 12 were males. These included 24 cases of Todani type 1 and 16 cases of Todani type 2 choledochal cyst. Abdominal pain and jaundice were the predominant symptoms. Investigations included ultrasound, computed tomography, ERCP and MRCP. Conclusion: This study observed that choledochal cyst is more common in females. The typical triad of abdominal pain, jaundice and abdominal mass is uncommon. The surgical strategy aims for single stage complete excision of the cyst with hepaticojejunostomy and cholecystectomy.

Keywords---choledochal cyst, cystic dilatations, todani classification.

Introduction

Choledochal cysts are congenital cystic dilatations of the extrahepatic and / or intrahepatic biliary tree. They have an incidence of 1 in 100,000 to 150,000 live births with a 3 to 4 : 1 female to male preponderance [1,2-9] . Cause remains unknown but one hypothesis is that pancreaticobiliary reflux allows the activation of pancreatic enzymes within the duct. The subsequent inflammatory response compromise the integrity of the duct wall which eventually results in dilation. Another theory is that these cysts arise from common bile duct obstruction which can occur with functional obstruction at the sphincter of oddi [10] . Anomalous pancreaticobiliary duct junction can also be a cause [3-6,11-15] . According to the Todani classification, the choledochal cysts are classified into 5 types on the basis of location [3,4,10,11] . Classic triad of jaundice , palpable

right upper quadrant mass and abdominal pain is seen in less than 20% of patients. Rarely, a long standing ,malformation can cause liver injury and cirrhosis. Common complications include cholangitis, pancreatitis and bile peritonitis secondary to cyst rupture. Incidence of malignancy ranges between 5% and 30% over a lifetime, most commonly occurring in type 1 and 4. Abdominal ultrasound can reveal a cystic mass that is separate from the gall bladder and also allows anatomic assessment of the biliary tree. Computed Tomography is a useful modality for defining the intrahepatic biliary anatomy and evaluating the distal common bile duct and pancreatic head. MRCP can also be helpful. ERCP is rarely indicated.

Treatment

type 1,2 and 4 : complete surgical excision, cholecystectomy and Roux-en-y hepaticojejunostomy. For type3, transduodenal excision or sphincteroplasty can be performed. For type 5 , liver transplant is done. In this study,presentation and management of the choledochal cyst is discussed.

Materials and Methods

A retrospective study of the records of patients admitted in Surgery ward of RMRI between August 2020 to January 2022 was carried out . Data regarding the clinical presentation, investigation , operation and follow up were analysed. The type of cyst was classified according to Todani classification. All the cases with diagnosis of choledochal cyst were included in the study. Patients who underwent resection of an extrahepatic choledochal cyst and Roux -en- y hepatojejunostomy were included in the study. Patients who were treated by a different approach were excluded. Data was collected through retrospective review of patient medical records. Presenting symptoms, patient demographics,imaging studies, diagnostic modalitieswere taken into consideration. The type of cyst was determined according to Todani classification. Surgical procedure carried out for treatment, liver function test, blood investigations, operative and post operative morbidity and mortality was studied. All available pre and peri-operative imaging information which consisted of pre operative ultrasound, MRCP, abdominal computed tomography were the various imaging modalities taken into consideration to classify the type of cyst according to Todani classification.

Result

40 cases of choledochal cyst were studied. 28 were females and 12 were males. The predominant symptom was abdominal pain occurring in all patients . the imaging study carried out for diagnosis included abdominal ultrasonography, abdominal computed tomography and MRCP in all patients. The cyst classification by Todani classification revealed 24 cases of Todani type 1 and 16 cases of Todani type 2 cyst. None of the patients had undergone preoperative drainage procedure. In none of these patients malignancy was detected. Surgical strategy in all the patients consisted of complete cyst resection, cholecystectomy and bilioenteric anastomosis.

Discussion

Choledochal cyst is more commonly seen in females. Very few patients present with the classic triad of symptoms of jaundice, abdominal pain and right upper quadrant lump. The classic triad of jaundice, right hypochondriac pain and a palpable mass was found more commonly in children compared to adults (85% versus 25% respectively) whereas abdominal pain, cholangitis, pancreatitis and history of cholecystectomy for biliary symptoms were more common in adults [10,11,15,25]. While ultrasound may be favoured as an initial investigation in assessing the choledochal cyst, its limitations may be in differentiating choledochal cyst from gall bladder distension due to cholecystitis.[3,11]. This is reflected by large percentage of adult patients with choledochal cyst being identified for the first time during cholecystectomy indicating that ultrasonography study may underestimate the diagnosis [11] . The choledochal cyst may have been missed on ultrasonography because of technical quality of the examination or a failure to recognise an uncommon pathology [3, 10 11]. However, if choledochal cyst is suspected, then ultrasound is usually diagnostic. Computed tomography provides important information about the extrahepatic or intrahepatic extent of biliary dilatation. [3, 10, 11] .the current gold standard for staging choledochal cyst is magnetic resonance cholangiopancreatography [4,10,11,15].

Conclusion

choledochal cyst is more common in females. The typical triad of abdominal pain, jaundice and abdominal mass is uncommon. The majority were type 1 choledochal cysts and symptomatic. Complete excision of the choledochal cyst and Roux- en-y hepaticojejunostomy with cholecystectomy is the best treatment for type 1 and type 2 choledochal cysts.

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