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A RETROSPECTIVE STUDY TO ASSESS THE SURGICAL INVOLVEMENT FOR CHOLEDOCHAL CYSTS (CDC) ABDOMEN SCAN THROUGH CT SCAN

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Abstract:
Background: *Congenital expansion of hepatic biliary tract is called choledochal cysts (CDC). For their identification, different inspections are required.*
Objective: *For punctual settlement of surgical involvement, the kind of choledochal cyst by CT scan of the abdomen was determined.*
Methodology: *This research was carried out at Mayo Hospital, Lahore (February 2017 to April 2018). We included the children of sixteen years of age in this research. It was basically a retrospective assessment by information of children identified with a choledochal cyst on CT scan.*
Results: *Total patients enrolled for this research were thirty. The number of males and females was 21 (70%) and 9 (30%) respectively. On CT scan examination, these patients were identified with choledochal cyst. Type – II cyst was found in only one patient (3%). The patients with Type – IV cyst were 14 (47%) and patients with type – I CDC cyst was 15 patients. Type – III or Type – V cyst was not found in any patient.*
Conclusion: *To present various kinds of choledochal cysts, a CT scan is a significant tool.*
Keywords: *Cyst, Type I, Type II, Type III, Type IV, Hepatic, Biliary, CT Scan, CDC and Choledochal.*

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INTRODUCTION:

Congenital expansions of intra and extrahepatic biliary tree are known as choledochal cysts (CDC) [1, 2]. Five kinds of CDCs are known commonly. Todani, on the basis of their location in the biliary tree, categorizes CDCs [1, 3, 4]. Females are more vulnerable to this disorder. During the first decade of life, there are greater chances of identification of this disorder. Cholangitis, cholangiocarcinoma and acute pancreatitis are the complexities of this disease. To prevent these complexities, it is necessary to identify the CDC in time. Hepatic fibrosis and biliary atresia are also associated with the CDC. The incidence of cholangial carcinoma decreases or may be eliminated by in-time identification and surgical involvement in-time [5, 6]. In young children, jaundice and abdominal distension mark the presence of disease [3]. Palpable abdominal mass, right upper quadrant pain and jaundice are common indications of this disease [7, 8]. The aim of this study was to assess the kinds of choledochal cysts through a CT scan.

PATIENTS AND METHODS:

This research was carried out at Mayo Hospital, Lahore (February 2017 to April 2018). We included the children of sixteen years of age in this research. It was basically a retrospective assessment by information of children identified with a choledochal cyst on CT scan. The patients with jaundice, palpable mass, unexplained abdominal pain and abdominal distension were also referred for CT scan. Total patients enrolled for this study were 30. Demographic aspects, kinds of the cyst and other related anomalies were assessed. SPSS was used for data entry and assessment.

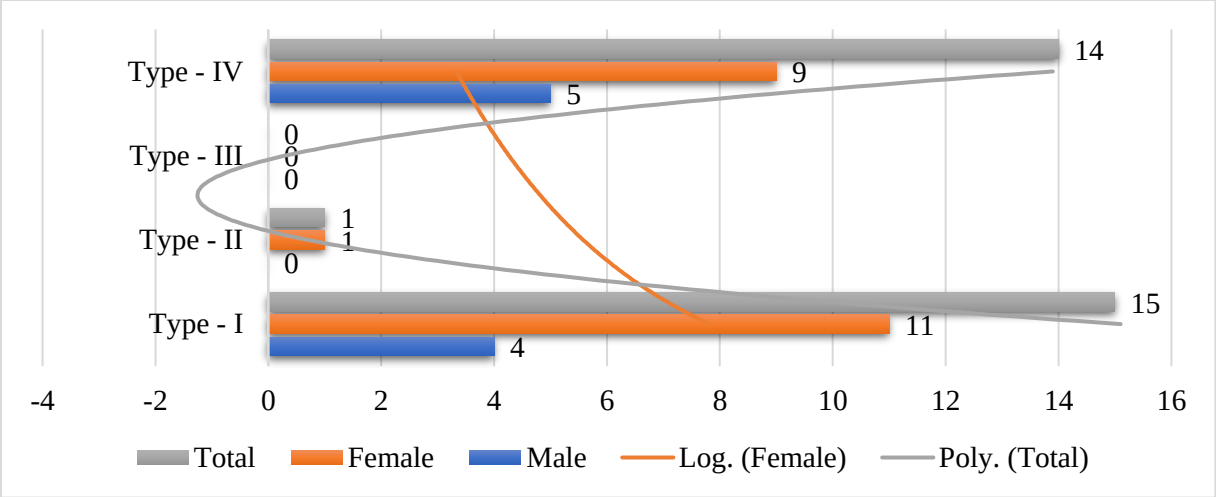
On four-slice CT scanner volume zone made of Siemens company, axial images of the abdomen were obtained. By using IV contrast and without this contrast, slices of size 5mm were acquired. In the marked areas, coronal images were also established.

RESULTS:

Total patients enrolled for this research were thirty. The number of males and females was 21 (70%) and 9 (30%) respectively. On CT scan examination, these patients were identified with choledochal cyst. Type – II cyst was found in only one patient (3%). The patients with Type – IV cyst were 14 (47%) and patients with type – I CDC cyst was 15 patients. Type – III or Type – V cyst was not found in any patient. In older children, abdominal pain was a common indication; whereas, in the younger children less than two years, jaundice and abdominal distension were common indications.

Table: Choledochal Cysts (CDC) Distribution

CDC Type	Male	Female	Total
Type - I	4	11	15
Type - II	0	1	1
Type - III	0	0	0
Type - IV	5	9	14



DISCUSSION:

The incidence of choledochal cysts is very low. This disorder commonly occurs in childhood or infancy. The main segment of the common bile duct is the major site for this disease. However, they are the congenital cystic expansions of any segment of the bile ducts [1]. Many theories are present related to the causes of bile duct cysts. The most commonly known theory is the common channel theory. Babbitt et al. proposed this theory [5]. Todani on the basis of anatomical location and Chol angiographic morphology of the choledochal cysts proposed a classification of choledochal cysts that is commonly considered [3]. Five kinds of choledochal cysts are suggested by Todani and his fellows. Type – I is the most frequent kind (80% – 90%). It is further subdivided into type IA (cystic expansion of the common bile duct), type IB (segmental expansion of the common bile duct) and types IC (fusiform dilatation extending to common hepatic duct). The infrequent kind is type – II (2%). This type is true diverticulum in the extrahepatic duct anywhere. Type – III cyst is also not frequently found (1%, 45 – 5%). It is restricted to the common bile duct within the duodenal wall. It is also known as choledochal. The most frequently occurring type is Type – IV cyst (19%). This type may be sub-grouped into type – IVA, in which both the intra and extrahepatic bile ducts were involved and IVB in which extrahepatic cysts are seen only. Single or multiple intrahepatic bile cysts are included in type V or Caroli's disorder. According to the results of our study, the most frequent type was Type – I CDC and second common kind was type – IV. Type – I CDC was found in 64% of patients according to the research the changing presentation of choledochal disorder and incidental diagnosis [6]. On the other hand, 50% was the chances of Type – I CDC [6]. The occurrence of Type – I cyst in girls/female is 90% according to another study [7]. The thickness of the fibrotic wall of choledochal cysts is in the range of few millimetres up to 1 cm. Dense collagenous connective tissue with occasional smooth muscle bundles and elastic fibres make up the cyst wall. Dispersed columnal or cuboidal epithelium can be observed. An inflammatory response is usually found [8]. Palpable abdominal mass, abdominal discomfort and jaundice mark the identification of choledochal cysts [9, 10]. In infants, the common indications include an abdominal mass and intermittent jaundice. Transferring of malignant into cholangial-carcinoma, regular acute pancreatitis, cholecystitis, biliary stricture, regular cholangitis and choledocholithiasis are the complexities of choledochal cysts [1, 9, 11]. If choledochal cysts are not identified in time and managed regularly, morbidity and mortality can result [12]. In order to decrease the chances of complexities especially cholangial-carcinoma, there is a requirement of in-time identification and surgery [1, 5, 13]. This disorder increases with age. It was observed once that surgical excision is the present method of treatment [14]. For the management of operative approach to choledochal cysts, it is necessary to assess preoperative imaging according to the viewpoint of the surgeon. In the assessment of suitable surgical method, the surgeon must consider the anatomic history on the pancreatic bile duct union and the exact morphology of duct. Surgeons favour to resect the cyst as low as possible without damaging the pancreatic duct and the common channel, as malignancy may establish in the rest stump after resection [4, 15].

CONCLUSION:

It is concluded that in order to eliminate the chances of complexities especially cholangial-carcinoma, it is necessary to indicate CDC in-time and involve surgery. Choledochal cysts are infrequent biliary lesions. In determining choledochal cysts to represent the anatomy of lesions and the nearby organs. CT scan

is a significant supplement. It will help in deciding the surgical method.

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