RESEARCH ARTICLE

Diagnosis and Management of Choledochal Cyst : A Single Center Experience

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ABSTRACT

Objective: Choledochal cyst is cystic dilatation of intrahepatic and/ or extrahepatic bile duct. Its incidence is 1 in 1000 in Asian population. The objective of the study was to study the presentation, diagnosis, treatment and postoperative outcome of choledochal cyst operated in Dhulikhel Hospital, Kathmandu University Hospital, Dhulikhel, Nepal. **Methods:** This retrospective study was done by reviewing all the records of patients with choledochal cyst who underwent operative treatment in Dhulikhel Hospital from January 2015 to July 2019. **Results:** We analyzed twenty cases of Choledochal cyst. It was found to be common in age group (21-30) years with female preponderance (85%). Most common presenting symptom was abdominal pain. Abdominal Ultrasonography was the initial diagnostic tool. Todani type I choledochal cyst was the commonest type. All the cases underwent complete excision of extrahepatic biliary treefollowed by hepato-jejunostomy. There was no post-operative anastomosis stricture in follow up period. **Conclusion:** Choledochal cyst presents commonly with abdominal pain. It can be diagnosed with abdominal ultrasonography. It has good outcome if treated adequately with good surgical technique.

Key words: Choledochal Cyst, Hepatojejunostomy, Ultrasonography

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INTRODUCTION

Choledochal cyst (CC) is disproportionate dilatation of the biliary system[1]. Its incidence is 1:1000 in Asian population[2,3,4], and female : male ration is 3:1[5]. Todanoi type I cysts are the most common type accounting for 50-80%[6]. The precise etiology of CC is not well understood. Anomalous pancreatico-biliary duct union is generally accepted hypothesis[7].

The classical triad of clinical presentation of CC i.e abdominal pain, abdominal mass and Jaundice is present only in 5-10% of the pediatric age group and on all most none in adult patients[8]. Chronic abdominal pain is the main presenting symptom in 50-96% of the cases[8]. The diagnosis of the biliary cyst is frequently based on ultrasound of abdomen. CTscan of the abdomen has 70-96% sensitivity[9]. MRCP is the best non -invasive method for the diagnosis of CC[10].

The objective of this study is to perform retrospective analysis of cases of choledochal cyst operated in Dhulikhel Hospital in respect to its presentation, diagnosis, treatment and postoperative outcomes.

METHODS

This retrospective observational study was done by reviewing all the records of the patients with CC who was operated in Dhulikhel Hospital from January 2015 to July 2019. Data regarding demography, clinical presentation, investigations, operative findings, postoperative complications and follow up were retrieved and analyzed.The CC was classifiedas per the Todani Classification[11]. The case was followed up every 6 months, 12 months, 18 monthsand yearly there after telephonically.

Statistical analysis ofData was done using SPSS 20 software for descriptive statistics, frequencies and central tendency measures.

RESULT

During the study period, there were a total of 20 cases of CC underwent surgical treatment in Dhulikhel Hospital. Female: male ratio was 5.66:1. The mean age of presentation was found to be 27 years with the highest age of 65 years and lowest age of 2 years.

None of the patient in our review had triad of abdominal pain, Jaundice and mass per abdomen. However, all the patients had abdominal pain.

Only 3 patients (15%) had obstructive jaundice at presentation. All the patients underwent abdominal sonography as the first radiological investigation.

Following abdominal sonography, 20% of the patients underwent CT scan of the abdomen and 65% underwent MRCP. Only 3 patients (15%) had undergone ERCP. These patients had obstructive jaundice.

There were 15 cases of (75%) of TodaniType I(11 cases of type Ia and 4 cases of type Ib) and 5 cases (25%) of Type 4b.

All the patients were operated through midline incision and all undergone Roux-en Y Hepato-jejunostomy. Eighteen cases had complete excision of extrahepatic biliary radical. Two patients had Lilly technique by ablating mucosal lining of retained cyst wall as there was dense adhesion and fibrosis in distal most part of Common Bile duct (CBD) which was deep inside the pancreatic head. Two Patients had Stone within CC. One patient was found to have APBDJ (anomalous pancreatico-biliary duct Junction.) He had pancreatic duct injury which was repaired ontable with good post- operative outcome.

Six patients (30%) had Surgical Site Infection (SSI). Out of them 3 patients had Superficial SSI and 3 patients had deep SSI.

One patient (5%) had anastomosis leak and one patient had pancreatitis in postoperative period. Both of them were managed conservatively.

The mean hospital stay was 10.9+/- 6.42 days. The histopathological examination of CC showed malignancy in none of the cases.No anastomosis stricture or malignancy was found in follow up. The average follow up period was 25.05 months

DISCUSSION

The incidence of CC is found to increase in adult in many case series conducted in both children and adults[12,13].This is also true in our series as the mean age of CC is 26. 90years. This increase is justified, according to some authors, by advance in hepato-biliary imaging technique[14].

The most acceptable theory in explaining the pathogenesis of CC is Babbitt's theory of APBDJ. This anomalous Junction leads to reflux of pancreatic secretion in CBD due to higher pressure in pancreatic duct. This theory is supported by radiological detection of APBDJ or high level of amylase in cyst fluid .In our series, only one (5%) case had APBDJ. This APBDJ was not diagnosed at radiology imaging but it was diagnosed on table during operation. Cyst fluid[15] analysis for amylase is not routinely practiced in our Centre. Other series[1,12] are showing 15% of APBDJ in their study. This difference may be due to small number of cases in our study.

The classical triad of jaundice, abdominal pain and abdominal mass was found only in minority of the cases according to most of the case series[16]. The most common presentation was abdominal pain which was nonspecific[17,18]. These clinical findings were well corroborated with our study.

Abdominal ultrasonography is the initial imaging modalities of choice for any biliary symptoms. Further accurate delineation of the biliary system mandates cholangiography with advantage of non-invasive MRCP over ERCP[1,19]. In our series, initial imaging was also abdominal ultrasonography. Biliary system was delineated by MRCP in majority of the cases. These findings were well consisted with other studies[20,18,21].

As per the Todanimodification of Alonso_Lej classification, Type I CC consists of 50-80% of all CC and Type IV consists of 15-35% of all CC[11]. Our Findings were well correlated with Todani classification as 75% of our cases are Type I CC.

Complete excision ofextrahepatic component of CC with Cholecystectomy followed by Roux-En Y biliary reconstruction is considered treatment ofchoice for Type I and Type IV CC as per Libsett et al[22] and Cho et al[23].

Dissection towards the upper end of the cyst should be performed considering measures to avoid postoperative anastomosis stricture. The best strategy is to resect at the level of Carina with left duct spatulation to obtain wide stoma for anastomosis. We follow the same operative strategy at the treatment. That may be cause to have no postoperative anastomosis stricture in our series, though the reported incidence of anastomosis stricture is 4.1%[25]. Other reason may be small sample size in our series and limited period of follow up.

Limitation of our study is small number of cases and limited period of follow up.

CONCLUSION

Choledochal Cyst is common in adult age group. Initial evaluation should be done withabdominal ultrasonography. Delineation of the biliary system is must before operative treatment. Complete excision of extrahepatic biliary tree and biliary reconstruction using Roux-En Y hepato-jejunostomyis the treatment of choice for Type I and IV Choledochal Cyst.

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