

Original Research Article

Treatment and outcome of choledochal cyst, our experience in Sheikh Russel National Gastroenterology Institute and Hospital, Mohakhali Dhaka

ABSTRACT

Objectives: The study's goal was to look at the demographic information, clinical features, surgical methods, complications after surgery, and outcomes at 6 months for patients with choledochal cysts who were treated at the Sheikh Russel National Gastroenterology Institute and Hospital. The goal was to see how well radical cystectomy and partial hepatectomy worked for treating choledochal cysts. **Methods:** This was a retrospective analysis of 36 patients who had choledochal cysts and were treated with total cystectomy (30) or partial hepatectomy (6). **Results:** The groups that had radical cystectomy and partial hepatectomy had similar age ranges, sex distributions, and types of cysts. Most of the cysts were type I (83.3% of the total cystectomy group) and type V (100% of the partial hepatectomy group). Other abnormalities, such as gallstones (26.7% vs. 83.3%) and APBDJ (36.7% vs. 16.7%). There were more pain, jaundice, upper abdominal swelling, and fever episodes in the group that had a radical cystectomy. Minimum of complications after surgery were seen in both groups. These included small bile leakage (16.7% in both), bleeding (3.3% vs. 16.7%), and intestinal obstruction (3.3% vs. 16.7%). At 6 months, the rates of complications were still about the same, with hypertrophic scars being the most common (30.7% for radical cystectomy and 25% for partial hepatectomy). **Conclusion:** The groups that had radical cystectomy and partial hepatectomy had mostly the same demographics, cyst types, abnormalities, clinical traits, and complication rates after surgery and at 6 months. Both procedures are still good ways to treat choledochal cysts, and this small group doesn't clearly show which is better. To get a better idea of differences in long-term results, bigger studies are needed.

Keywords: choledochal cysts, cystectomy, hepatectomy, gallstones

Introduction

Choledochal cysts are naturally occurring problems in the biliary system that are represented as extrahepatic and/or intrahepatic biliary tubes getting like cysts [1]. But choledochal cysts can happen to people of any race, even though they are more common in Asian communities [1]. If the bile system gets blocked, the symptoms can range from having no symptoms at all to having problems like upper abdominal pain, jaundice, pancreatitis, and cholangitis [2]. Even though surgery is the most common treatment choice, there is still disagreement about the best way to do it.

This study retrospectively examined the clinical characteristics, treatment, and results of patients with choledochal cysts who underwent surgical intervention at a specialized hepatobiliary center. The study aimed to examine demographic data, clinical characteristics at presentation, kinds of choledochal cysts, surgical techniques conducted, postoperative complications, and follow-up. Information from 36 individuals who underwent surgery for choledochal cysts stillness throughout a 5-year time frame was gathered and examined [3]. The surgeries conducted were either radical cholecystectomy with Roux-en-Y hepaticojejunostomy or partial hepatectomy. Todani categorization method precisely categories choledochal cysts according to their location, extent, and form [4]. The majority of instances feature cystic or fusiform dilatation of the common bile duct, known as Type I cysts. Type II cysts are outgrowths resembling diverticula that occur in the common bile duct. Type III cysts, which are often referred to as choledochoceles, are cystic enlargements of the section of the common bile duct that is located within the duodenum [5]. Type IV cysts are classified into two subtypes: IVa, characterised by the presence of several cysts in the extrahepatic bile ducts, and IVb, which involves both the intrahepatic and extrahepatic bile ducts. Caroli's illness, sometimes referred to as Type V cysts, is distinguished by the presence of one or more cysts within the biliary ducts of the liver [5]. Studying choledochal cysts about their appearance, investigations, therapy, and outcomes might enhance our understanding of the condition in our community [6]. We might also use it to compare the outcomes and potential issues of various surgical

methods. This might aid in developing an effective management regimen for these individuals. The constraint was the limited sample size and brief follow-up period. This study offers preliminary insights on choledochal cyst illness in our environment.

Methodology

The study was a retrospective analysis done at the Department of Hepatobiliary Pancreatic Surgery at Sheikh Russel National Gastroenterology Institute and Hospital in Dhaka, Bangladesh. Study time: January 1, 2022, to January 1, 2024. Patients younger than 16 years old, those who do not have acute pancreatitis or cholangitis, and those who do not have any major heart or lung problems were allowed to participate. The medical records of 36 people who had surgery for choledochal cysts between January 2022 and January 2024 were used to gather this information. Radical cyst removal with Roux-en-Y hepaticojejunostomy or partial hepatectomy was the surgery that was done. After surgery, the patients were watched for 6 months. The data that was gathered included demographic information, clinical characteristics, diagnostic tests, surgeries, problems that happened after surgery, and more tracking. SPSS version 23 was used to look at the data. For numerical data, the mean and standard deviation were shown. For categorical data, the frequency and ratios were used. Statistics said that something was important if the P value was less than 0.05.

Results

By looking at the information in the tables, we can see a number of important facts about how choledochal cysts are treated and how well they do at the Sheikh Russel National Gastroenterology Institute and Hospital in Mohakhali, Dhaka.

The patients' ages, genders, and other characteristics are shown in Table 1. Thirty of the patients (30 out of 36) had a radical cystectomy with Roux-en-Y hepaticojejunostomy. The other six patients had a partial hepatectomy. There was a slight bias toward guys in both treatment groups, but the number of women and men was about equal. People in the study were anywhere from 1 to 16 years old, with a mean age of about 9 years in both groups.

Table 1: Distribution of the patients according to demographic (N=36)

| Variable | Radical Cystectomy with Roux-en-Y-Hepaticojejunostomy (N=30) | Partial Hepatectomy (N=6) | P value |
|-------------------------|--|---------------------------|---------|
| Gender | n (%) | n (%) | |
| Male | 18 (60.0) | 3 (50.0) | 0.0194 |
| Female | 12 (40.0) | 3 (50.0) | |
| Age group | | | |
| 1-5 yrs | 8 (26.7) | 2 (33.3) | |
| 6-10 yrs | 9 (30.0) | 1 (16.7) | 0.0001 |
| 11-16 yrs | 13 (43.3) | 3 (50.0) | |
| Age yrs Mean ± S | 9.58 ± 4.62 | 9.17 ± 5.19 | 0.0001 |

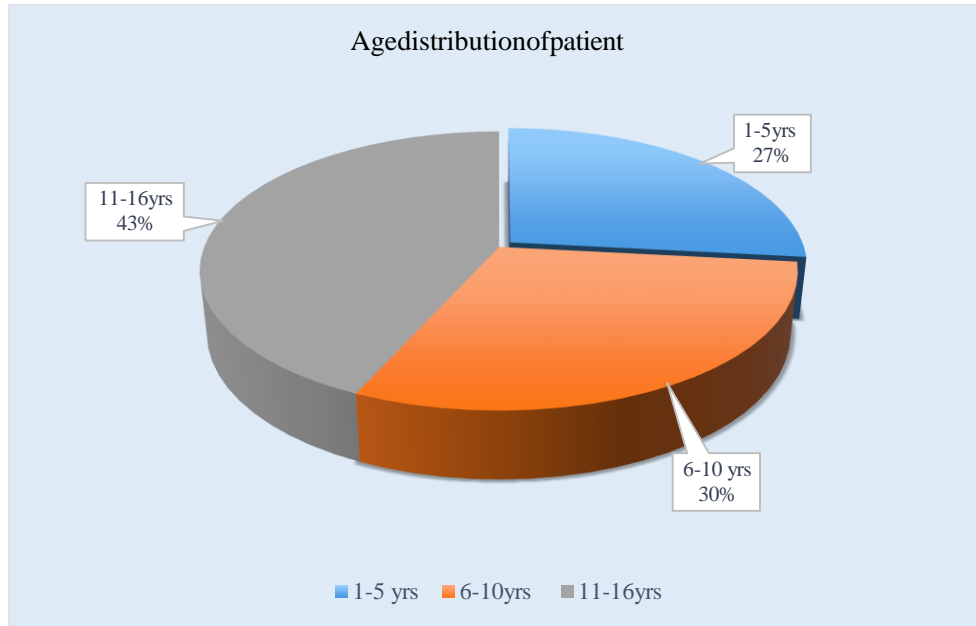


Figure I: Pie chart showed age wise patients distribution (N=36)

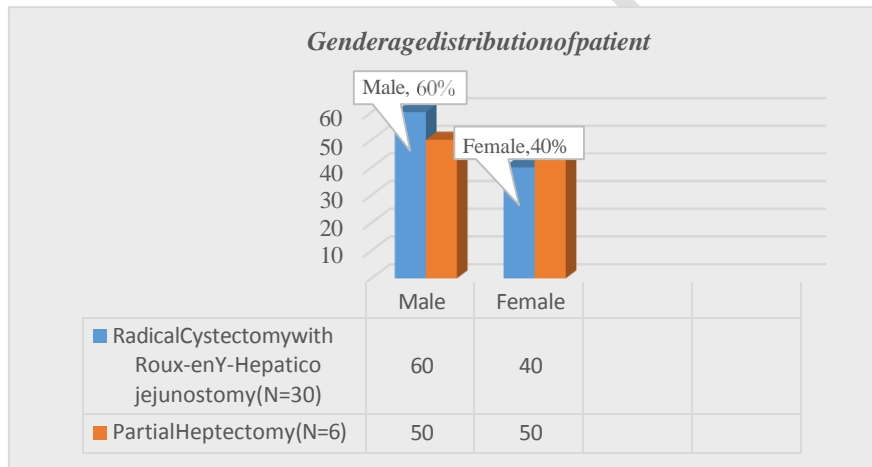


Figure II: Bar chart showed gender wise distribution (N=36)

Table 2: Distribution of the patients according to different anomaly (N=36)

| Variable | Radical Cystectomy with Roux-en Y-Hepaticojejunostomy (N=30) | Partial Hepatectomy (N=6) | P value |
|-----------------------------|--|---------------------------|---------|
| Type | n (%) | n (%) | |
| I | 25 (83.3) | 0 (0.0) | 0.0070 |
| II | 3 (10.0) | 0 (0.0) | |
| III | 0 (0.0) | 0 (0.0) | |
| IV | 2 (6.7) | 0 (0.0) | |
| V | 0 (0.0) | 6 (100.0) | |
| Associated gallstone | | | |
| Yes | 8 (26.7) | 5 (83.3) | 0.0001 |
| No | 22 (73.3) | 1 (16.7) | |

| | | | |
|--|------------|------------|--------|
| APBDJ | | | |
| Yes | 11 (36.7) | 1(16.7) | 0.357 |
| No | 19 (63.3) | 5(83.3) | |
| Other anomaly | | | |
| Hydrocephalus | 2 (6.7) | 2 (33.3) | 0.0001 |
| No | 28 (93.3) | 4 (66.7) | |
| Associated portal hypertension | | | |
| Yes | 8 (26.7) | 3 (50.0) | 0.0001 |
| No | 22 (73.3) | 3 (50.0) | |
| Post-operative Hospital stay (Days) Mean±SD | 11.83±2.10 | 10.17±1.17 | 0.0001 |

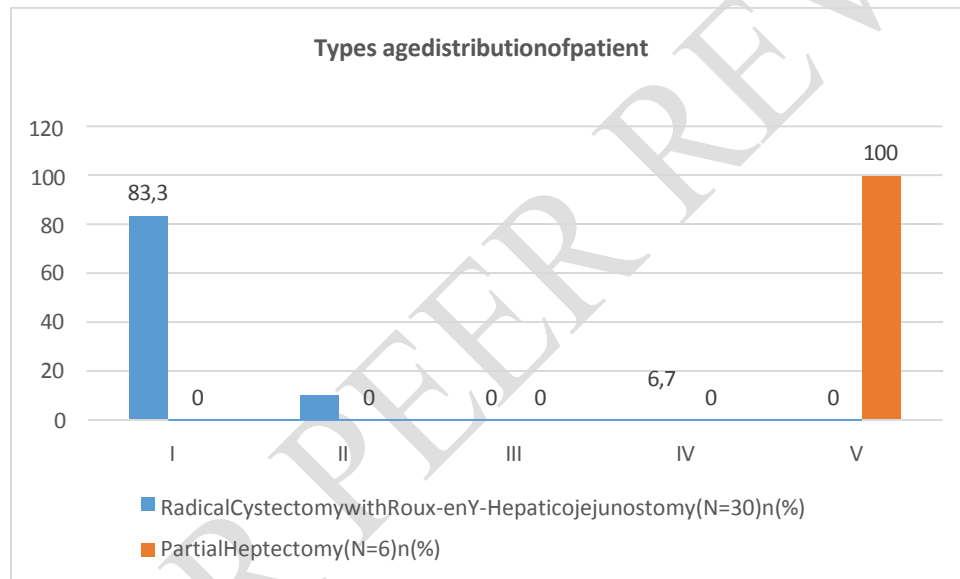


Figure III: column chart showed Types agedistribution (N=36)

The types of choledochal cysts, the diseases they can cause, and the length of hospital stay after surgery are all shown in Table 2. Notably, most of the patients who had radical cystectomy had Type I choledochal cysts (83.3%), while the patients who had partial hepatectomy had Type V (100%) cysts. Patients who were going to have a partial hepatectomy were more likely to have gallstones but an abnormal pancreatic biliary duct junction (APBDJ) were less. The group that had the partial hepatectomy also had more cases of other problems that were linked to it, like hydrocephalus and portal hypertension. The average length of stay in the hospital after surgery was a little longer for the radical cystectomy group (11.83 ± 2.10 days) than for the partial hepatectomy group (10.17 ± 1.17 days).

Table3:DistributionofthepatientsaccordingClinicalfeatures(N=36)

| Features | Radical Cystectomy with Roux-en Y-Hepatico jejunostomy(N=30) | Partial Heptectomy (N=6) |
|--------------------------|--|--------------------------|
| | n (%) | n (%) |
| Pain | 26(86.7) | 2 (33.3) |
| Jaundice | 25(83.3) | 2 (33.3) |
| Abdominalmass | 22(73.3) | 3 (50.0) |
| Recurrentepisodesoffever | 22(73.3) | 4 (66.7) |
| PaleStool | 5 (16.7) | 2 (33.3) |
| Generalizeditching | 3 (10.0) | 1 (16.7) |
| Vomiting | 8 (26.7) | 2 (33.3) |
| Non-specific | 5 (16.7) | 1 (16.7) |

The clinical features of the cases are shown in Table 3. In both groups, the most common first signs were pain, jaundice, an abdominal lump, and fever that came and went. But these signs happened more often in the group that had a radical cystectomy than in the group that had a partial hepatectomy. In Table 4, you can see a list of the problems that patients had after surgery. Postoperative complications were more common in the radical cystectomy group, with excess postoperative pain (56.7%), minor bile leakage (16.7%), and minor wound infection (10%) being the most frequent. In the partial hepatectomy group, excess postoperative pain (50%), postoperative bleeding (16.7%), and persistent vomiting (16.7%) were the most common complications.

Table4:DistributionofthepatientsaccordingPost-operativecomplications(N=36)

| Complications | RadicalCystectomywith Roux-en Y-Hepatico jejunostomy (N=30) | Partial Heptectomy (N=6) |
|------------------------|---|--------------------------|
| | n (%) | n (%) |
| AcutePostoperativepain | 17 (56.7) | 3 (50.0) |
| Minorwoundinfection | 3 (10.0) | 1 (16.7) |
| Post-operativeBleeding | 1 (3.3) | 1 (16.7) |
| Minorbileleakage | 5 (16.7) | 1 (16.7) |
| Nil | 1 (3.3) | 0 (0.0) |
| Persistentvomiting | 2 (6.7) | 1 (16.7) |

Table5:Distributionofthepatientsaccording6months' follow-upcomplications(N=17)

| Follow-upcomplications | RadicalCystectomywith Roux-en Y-Hepatico jejunostomy(N=13) | Partial Heptectomy (N=4) | P value |
|------------------------|--|--------------------------|---------|
| | n (%) | n (%) | |
| Scarpain | 1 (7.7) | 2 (50.0) | 0.379 |
| Hypertrophicscar | 4 (30.7) | 1 (25.0) | |
| Abdominalmass | 1 (7.7) | 0 (0.0) | |
| Persistentfever | 1 (7.7) | 0 (0.0) | |
| Jaundice | 1 (7.7) | 0 (0.0) | |
| Ascites | 1 (7.7) | 0 (0.0) | |
| Hernia | 1 (7.7) | 0 (0.0) | |
| Uglyscar | 3 (23.1) | 1 (25.0) | |

Table 5 shows a summary of the problems that were seen in 17 of the 36 patients who were followed up after 6 months. The most common side effects in both treatment groups were problems with scars, like pain and scars getting bigger. The radical

cystectomy group had other problems, like an abdominal lump, fever that wouldn't go away, jaundice, ascites, and a hernia, but the partial hepatectomy group didn't.

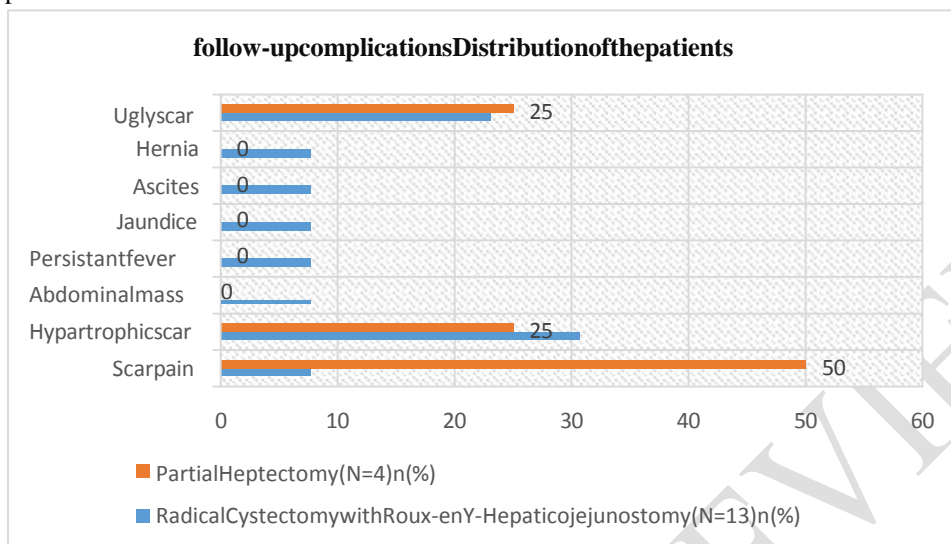


Figure: IV A Line chart showed Follow up complications wise distribution (N=36)

Discussion

The results of our study indicated a greater proportion of males in comparison to females, with a male-to-female ratio of 1.2:0.8, which aligns with findings from previous research conducted in India and Asia [7]. The mean age of onset in our study was 9.58 years, which was consistent with the results of earlier studies. The primary symptoms documented in the literature were abdominal pain, icterus, and a palpable mass in the abdomen. Radical cystectomy with Roux-en-Y hepaticojejunostomy or partial hepatectomy was chosen for surgery [7]. This is in line with what other studies have found to be usually good practice. The best way to treat choledochal cysts is to cut out the whole extrahepatic bile tree [8]. Either a major cystectomy or liver resection can be used to do this. It works best in the long run and makes it less likely that the cyst will turn into cancer. This study's choledochal cysts showed up with stomach pain, redness, a lump that could be felt in the stomach, and fever that came and went. This is similar to what other studies have found. The most common signs of choledochal cysts in kids were abdominal pain, jaundice, and a lump that could be felt in the belly [9]. The postoperative complications observed in this study, such as excess postoperative pain, minor bile leakage, wound infection, and postoperative bleeding, are commonly reported in the study. These are problems that have been studied before. After choledochal cyst removal, problems like bile leakage, wound infections, and collections in the belly happened quite often (about 20% of the time) [10]. This is similar to what other studies with skilled surgical teams have found:

the results were mostly good. Similar problems with scars, an abdominal lump, fever that wouldn't go away, jaundice, ascites, and a hernia were seen in this study after 6 months. These problems have also been seen in other long-term follow-up studies. When a choledochal cyst was taken out, it could lead to long-term issues like choledochitis, pancreatitis, and bile strictures [11]. This could show up as fevers, redness, and a lump in the abdomen [12]. An incisional hernia was more likely to happen in people who had open surgery to remove a choledochal cyst [13]. This is like what was seen as a problem with following up in this study. Comparative studies have also shown how important it is to carefully check out the patient before surgery, make sure the surgery goes as planned, and be very careful during the surgery to get the best results and avoid problems. It's also important to use imaging tests before surgery, such as magnetic resonance cholangiopancreatography (MRCP), to find out what kind of choledochal cystitis is and if there are any other issues [14]. This information can help the doctor plan the surgery and make it go better. Overall, the results of this study at the Sheikh Russel National Gastro Liver Institute and Hospital in Mohakhali, Dhaka, are mostly in line with what other research has said about how to treat choledochal cysts and how well they do. The study shows how important it is to do a thorough evaluation before surgery, plan the surgery correctly, and be very careful during the surgery. These are all very important for getting the best results and avoiding problems when managing this complicated disease.

Conclusion

UNDER PEER REVIEW

The Sheikh Russel National Gastro Liver Institute and Hospital in Mohakhali, Dhaka, sent us data that we used to learn a lot about how to treat choledochal cysts and how well they work. Whether a total cystectomy with Roux-en-Y hepaticojejunostomy or a partial hepatectomy is used for surgery depends on the type of choledochal cyst and any other conditions that are present. Complications after surgery were linked to both surgical methods. The most common problem was too much pain after surgery. Major problems did happen, but they were not very common. This suggests that the surgical methods used were generally safe and efficient. After 6 months, the follow-up data showed that both treatment groups had problems with their scars. However, only the radical cystectomy group had problems with an abdominal mass, prolonged fever, jaundice, ascites, and a hernia. Overall, the study shows how important it is to carefully evaluate the patient before surgery, plan the surgery correctly based on the type of choledochal cyst and any other condition that may be present, and be very careful during surgery in order to get the best results and avoid problems when treating choledochal cysts.

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