Original Article

Choledochoduodenostomy

Choledochoduodenostomy a Minimal Invasive Procedure: Examine the Indications and Complications

Muhammad Akram Dogar[1], Muhammad Tanvir Iqbal[2] and Ahmad Raza Nsar[3]

ABSTRACT

Objective: To examine the indications outcomes of choledochoduodenostomy (CDD) in patients presented with common bile duct stone.

Study Design: Retrospective/Observational study.

Place and Duration of Study: This study was conducted at the Department of Surgery, Central Park Medical College and Allied Hospitals Lahore from July 2017 to June 2018.

Materials and Methods: Thirty patients of both genders presented with refusal or failed ERCP and common bile duct stone size was >1cm were included in this study. Patients detailed demographic including age, sex and indications of CDD were recorded after written consent. All the patients received CDD. Complications associated with procedure were examined. Mortality rate was also examined. Patients were followed for 1 year after surgical treatment. Data was analyzed by SPSS 24.0.

Results: Twenty (66.67%) patients were females and 10 (33.33%) patients were males. 12 (40%) patients were ages 35 to 50 years, 13 (43.33%) patients were ages 51 to 65 years and 5 (16.67%) had ages above 65 years. Failed ERCP was the commonest indication found in 12 (40%) patients followed by refusal of ERCP and recurrent stones. Respiratory complications found in 4 (13.33%) patients, wound infections in 10% patients, anastomotic leak in 1 patient and 1 (3.33%) patient had cholangitis. None of patient had recurrence of CBD and none of patient found to have sump syndrome. Mortality found in 1 (3.33%) patients

Conclusion: Choledochoduedenostomy is safe and effective treatment modality with fewer rates of complications.

Key Words: Choledochoduodenostomy, Minimal Invasive Procedure, Indications, Complications

Citation of article: Dogar MA, Iqbal MT, Nsar AR. Choledochoduodenostomy a Minimal Invasive Procedure: Examine the Indications and Complications. Med Forum 2019;30(12):28-31.

INTRODUCTION

Gallstone disease is one of the most common digestive diseases and its prevalence shows ethnic variability, with rates of approximately 10–15% in the United States and Europe.[1,2] Large longitudinal studies of patients with symptomatic gallstones have shown that 58–72% will have ongoing symptoms and complications.[3]

[1.] Department of General Surgery, Central Park Teaching Hospital, Lahore.
[2.] Department of Surgery Unit-2, Rashid Latif Medical College Lahore.
[3.] Department of General Surgery, Unit-3 University College of Medicine & Dentistry, University of Lahore Teaching Hospital, Lahore.

Correspondence: Dr. Muhammad Akram Dogar, Associate Professor, Department of General Surgery, Central Park Teaching Hospital, Lahore.
Contact No: 0333-5434247
Email: makramdogar@gmail.com

Received: June, 2019
Accepted: August, 2019
Printed: December, 2019

Most patients with symptomatic gallstones are recommended to undergo cholecystectomy to alleviate symptoms of pain and jaundice, and to prevent complications such as pancreatitis, cholangitis and cholecystitis.[4] Approximately 10–18% of patients who undergo cholecystectomy for gallstones also have common bile duct stones.[5]

Common bile duct stones may be suspected preoperatively by symptoms or signs of jaundice, pancreatitis or cholangitis, deranged liver function or imaging showing duct dilatation or actual ductal stones. At present, endoscopic sphincterotomy is widely accepted as the treatment of choice for patients with common bile duct stones.[6] Subsequent laparoscopic cholecystectomy is indicated in patients with concomitant gallstones to prevent biliary complications such as biliary colic, acute cholecystitis or recurrent common bile duct stones with cholangitis or biliary pancreatitis.[7] There have been many studies on the recurrence of bile duct stones after endoscopic sphincterotomy; however, the reported frequency of stone recurrence ranged from 4% to 24% and failure of endoscopic management occurred in patients with large stones, multiple stones, impacted stones, multiple intrahepatic stones and peripapilla diverticula.[8,9] Recurrent bile duct stones after endoscopic sphincterotomy have been suggested to be caused by

inflammation of the bile duct, a bile duct diameter greater than 15 mm, papillary stenosis, peripapillary diverticula, reflux of the duodenal contents into the bile duct, parasites or foreign bodies within the bile duct.[10] Endoscopic management was also required for stones that were difficult or failed to pass.

At present, CDD is indicated in patients with recurrent stones, biliary sludge, ampullary stenosis or where endoscopic management was difficult or failed. However, its use remains debatable because of the risk of complications such as reflux cholangitis, sump syndrome and alkaline reflux gastritis. Sump syndrome is the development of cholangitis, hepatic abscess or pancreatitis after CDD, owing to stones, sludge or debris being lodged in the pool of the terminal common bile duct.[11] The present study was conducted to examine the outcomes of CDD in patients presented with failed or refusal of ERCP, recurrent patients and those had stone size >1cm.

MATERIALS AND METHODS

This study was conducted at Department of Surgery, Central Park Medical College and Allied Hospitals Lahore from 1st July 2017 to 30th June 2018 A total 30 patients of both genders presented with refusal or failed ERCP and common bile duct stone size was >1cm were included. Patients detailed demographic including age, sex and indications of CDD were recorded. Patients with incomplete medical records, those lost to follow-up, CDD for malignant diseases, Re-do surgeries, and concomitant stones in CBD with malignancy or other pathologies were excluded. All the patients received choledochoduedenostomy with duodenotomy. Patients were analyzed attentively during their post-operative hospital stay. Patients were followed for postoperative 1 year. Follow-up was taken at 6 months and at 1 year. Complications such as respiratory complications, wound infection, anastomotic leak and cholangiutis were examined. Outcomes such as mortality and recurrence rate were examined at final follow up. Data was analyzed by SPSS 24.

RESULTS

There were 20 (66.67%) female patients and 10 (33.33%) male patients. Twelve (40%) patients were ages 35 to 50 years, 13 (43.33%) patients were ages 51 to 65 years and 5 (16.67%) had ages above 65 years. Failed ERCP was the commonest indication found in 12 (40%) patients followed by refusal of ERCP in 7 (23.33%), recurrent CBD stones in 5 (16.67%) patients, 3 (10%) patients had missed stones and 3 (10%) patients had very large stones (Table 1). Complications found in 9 (30%) patients in whom respiratory complications found in 4 (13.33%) patients, wound infections in 10% patients, anastomotic leak in 1 patient and 1 (3.33%) patient had cholangitis (Table 2). According to the final outcomes we found none of patient had recurrence of CBD and none of patient found to have sump syndrome. Mortality found in 1 (3.33%) patients (Table 3).

Table No.1: Frequency of age, sex and indications

Variable	No.	%
Gender		
Male	10	33.33
Female	20	66.67
Age (years)		
35 – 50	12	40.0
51 – 65	13	43.33
> 65s	5	16.67
Indications		
Failed ERCP	12	40.0
Refused ERCP	7	23.33
Recurrent atones	5	16.67
Missed stones	3	10.0
Very large stones	3	10.0

Table No.2: Complication among all the patients

Complication	No.	%
Respiratory	4	13.33
Wound infection	3	10.0
Anastomotic leak	1	3.33
Cholangitis	1	3.33

Table No.3: Final outcomes among all the patients

Outcome	No.	%
Recurrence		
Yes	-	-
No	30	100.0
Sump syndrome		
Yes	-	-
No	30	100.0
Mortality		
Yes	1	3.33
No	29	96.67

DISCUSSION

Common bile duct stone is one of the common diseases with high rate of morbidity and mortality. Different surgical techniques have been used for the management of common bile duct stone, in which minimal invasive laparoscopic cholecystectomy and endoscopic technique and open surgical procedure have been using in previous studies with higher success rate.[12,13]. Choledochoduodenostomy in the era of minimal invasive surgical treatment is considered as safe and effective treatment modality with fewer rate of complications for failed ERCP or refusal of ERCP due to cost and recurrent stones.[14] Present study was conducted to examine the outcomes of CDD in patients with recurrent stones, failed ERCP and refusal of ERCP due to high cost. Majority of patients 67.67% patients were females while 33.33% patients were males with mean age 52.15±8.46 years. These results were similar

to many of previous studies in which females were high in numbers 55 to 75% as compared to males and majority of patients were ages between 40 to 70 years.[15,16]

In present study the failed ERCP was the commonest indication found in 12 (40%) patients followed by refusal of ERCP in 7 (23.33%), recurrent CBD stones in 5 (16.67%) patients, 3 (10%) patients had missed stones and 3 (10%) patients had very large stones. A study conducted by Asad et al[16] reported that failed ERCP was the most common indication found in 37.65% followed by refusal of ERCP and recurrent stones. Another study by Bektas et al[17] reported that large impacted stone was the commonest indication and found in 46.2% patients.

In our study overall complications rate was 30% in which respiratory complications found in 4 (13.33%) patients, wound infections in 10% patients, anastomotic leak in 1 patient and 1 (3.33%) patient had cholangitis. These results showed similarity to several previous studies in which wound infection found in 6.2 to 15.4% patients.[18,19]

In present study according to the final outcomes we found none of patient had recurrence of CBD and none of patient found to have sump syndrome. Mortality found in 1 (3.33%) patients. A study by Asad[16] reported 0% recurrence rate and 0% sump syndromes and mortality rate was 1.18%. A study conducted by Okomoto et al[20] reported that reflux cholangitis and stone recurrence was 1.6% (2/125) and 0% (0/125) of cases by CDD, they also reported no patient found to have sump syndrome.

CONCLUSION

Choledochoduedenostomy is safe and effective treatment modality with fewer rates of complications among patients with failed ERCP and recurrent and very large stones. We found that failed ERCP was the commonest indication of CDD. The mortality rate in our study was 3.33%.

Author's Contribution:

Concept & Design of Study:	Muhammad Akram Dogar
Drafting:	Muhammad Tanvir Iqbal
Data Analysis:	Ahmad Raza Nsar
Revisiting Critically:	Muhammad Akram Dogar, Muhammad Tanvir Iqbal
Final Approval of version:	Muhammad Akram Dogar

Conflict of Interest: The study has no conflict of interest to declare by any author.

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