

COMMON BILE DUCT STONE MANAGEMENT AT OUR INSTITUTE:

General Surgery

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ABSTRACT

Background: Common Bile Duct stone is a one of common diagnosed condition in India. Biliary passage should be clear to prevent obstructive jaundice and its complications. This study intends to study management of CBD stone at our institute.

Methodology: 46 patients of CBD stone were included in study from January 2016 – July 2017. Ethics approval from institutional committee was obtained. Consent for inclusion was taken before enrolling in to study. Patients were treated by either by ERCP with stenting and choledochoduodenostomy (CDD) and T-tube drainage. Routine follow up for 6 months was done for any complications.

Conclusion: ERCP is better option for CBD stone when available and affordable than Combined Choledochoduodenostomy (CDD) and T-tube drainage.

KEYWORDS

ERCP, Choledochoduodenostomy, common bile duct, T-tube.

Introduction:

In Patients with choledocholithiasis cholecystectomy with exploration of CBD (common bile duct) and extraction of stone was the gold standard for the treatment (1) before ERCP was discovered. After extraction, biliary passage should not have any residual stone and should be clear to prevent recurrent stone to prevent morbidities and mortalities in such patients (1). To ensure complete drainage either ERCP (Endoscopic Retrograde Cholangio-pancreatography) with stenting or side to side choledochoduodenostomy (CDD) (2) or end to side choledochoduodenostomy (CDD) can be done. It can also be done in patients having multiple CBD stones or biliary sludge in a dilated duct (3, 4). There are chances of leak (12) or narrowing of stroma after anastomosis. Our study intends to study CDD with T-tube drainage.

Material and Methods:

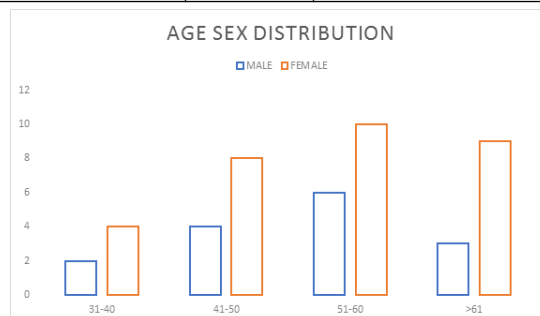
All the patients presenting with signs and symptoms of obstructive jaundice to the surgical OPD at Dhiraj hospital were screened for bile duct stones by USG (Ultrasonography) and patients with choledocholithiasis were included in our study. Routine investigations were done in all patients for preoperative work up including complete blood count, liver function tests, renal function, bleeding profile. USG would give us size of CBD and Number of stones CT scan or MRCP was done to know exact anatomical delineation of Biliary Tract in few cases. Those patients who were having CBD size <15mm were counselled and managed by ERCP Stenting while those having >15mm were explained about both procedure and depending upon economic condition were managed accordingly. Those patients with common bile duct Size more than 15 mm, with multiple stones, biliary sludge or stone impacted in the lower CBD were treated by choledochoduodenostomy. Open cholecystectomy was done followed by longitudinal incision of 2.5 – 3 cm length over CBD and similar length transverse incision over duodenum. Kher's T tube was inserted in to CBD and duodenum and suturing of end of incision of CBD with midpoint of incision over duodenum and vice-versa was done with 3-0 PDS suture to achieve diamond configuration. Later T- tube was taken out vertically through separate incision. Drain was kept and patients were kept nil- bymouth for 5 days and on 12th day T-tube cholangiogram was done for finding any leakage and tract. If cholangiogram was normal T-tube was blocked for 48 hrs and patients were monitored for features like fever, jaundice or increase in drain. If patients does not develop any complications T- tube was removed and 24 hrs later drain was removed. If patient develops any complication following blockage of T-tube, it was kept for 5 more days and similar procedure was performed. For ERCP patients were prepared and ERCP with stenting was done and patients were kept on antibiotics for 5-7 days and interval cholecystectomy was done after 6 weeks.

Results: Total 46 patients of CBD stones were included in our study with age ranging from 32 years to 66 years, with a mean age of 49 years. There was a female predominance in our study as well as

Maharaul et al study (13) with males accounting for 32.6% of patients which may be due to higher incidence of gallstone in females (Table 1 & Figure 1).

Table 1: Age-Sex Distribution

Age	Male	Female
31-40	2	4
41-50	4	8
51-60	6	10
>61	3	9



All the patients presented with pain in abdomen and 37 patients had fever. Patients were admitted and LFT and other investigations were done. 91.6% patient had increased levels of Serum Alkaline Phosphatase. Ultrasonography was done to find out CBD diameter (Table 2). Those patients having Serum Bilirubin more than 1.5 mg% Injection Vitamin K intramuscular was given preoperatively for 5 days.

Table 2: CBD Diameter of Patients:

SR.NO	CBD DIAMETER	SEX	AGE	PROCEDURE
1	16	F	64	CBD EXPLORATION
2	18	F	54	CBD EXPLORATION
3	22	F	53	CBD EXPLORATION
4	20	F	55	CBD EXPLORATION
5	14	F	57	ERCP STENTING
6	14	M	34	ERCP STENTING
7	15	M	45	CBD EXPLORATION
8	13	F	32	ERCP STENTING
9	13	M	36	ERCP STENTING
10	14	F	37	ERCP STENTING
11	28	F	44	CBD EXPLORATION
12	18	F	43	CBD EXPLORATION
13	15	F	47	CBD EXPLORATION

14	16	F	54	CBD EXPLORATION
15	18	M	46	ERCP STENTING
16	18	F	57	CBD EXPLORATION
17	14	M	44	ERCP STENTING
18	14	F	66	ERCP STENTING
19	20	M	62	CBD EXPLORATION
20	16	F	37	ERCP STENTING
21	24	F	57	CBD EXPLORATION
22	16	M	55	ERCP STENTING
23	20	M	48	CBD EXPLORATION
24	16	F	64	ERCP STENTING
25	14	F	54	ERCP STENTING
26	14	F	64	ERCP STENTING
27	18	F	39	CBD EXPLORATION
28	15	F	53	ERCP STENTING
29	17	F	43	ERCP STENTING
30	13	M	53	ERCP STENTING
31	22	F	62	CBD EXPLORATION
32	23	M	61	CBD EXPLORATION
33	20	F	57	CBD EXPLORATION
34	14	M	58	ERCP STENTING
35	16	F	64	CBD EXPLORATION
36	14	M	59	ERCP STENTING
37	14	F	46	ERCP STENTING
38	19	F	46	CBD EXPLORATION
39	18	F	48	CBD EXPLORATION
40	16	M	53	ERCP STENTING
41	17	F	65	CBD EXPLORATION
42	16	M	57	ERCP STENTING
43	18	F	65	CBD EXPLORATION
44	15	M	64	ERCP STENTING
45	18	F	64	CBD EXPLORATION
46	13	F	65	ERCP STENTING

Those patients who underwent ERCP and stenting were given antibiotics for 7 days and interval cholecystectomy was done after 6 weeks and stent was removed 2 weeks after surgery.

Patients who were included for surgery were having CBD diameter of at least 15mm which is required for anastomosis. Post operatively patients were given injectable antibiotics for 7 days. All the patients were admitted for 15 days. In 1 patient was having fever and abdominal pain after blocking T-tube so it was removed on post-operative day 21. 2 patients had features of mild epigastric pain, gastritis, nausea, vomiting who were managed conservatively with Proton pump inhibitors while others were asymptomatic. Patients were followed for at least 2 months and none were having complications like cholangitis, recurrence.

Discussion:

Endoscopic retrograde cholangiopancreatography (ERCP) is a technique that uses a combination of luminal endoscopy and fluoroscopic imaging to diagnose and treat conditions associated with the pancreatobiliary system. The endoscopic portion of the examination uses a side-viewing duodenoscope that is passed through the esophagus and stomach and into the second portion of the duodenum. Indications for diagnosis of pancreatic malignancies include the following(9):

- Pancreatoscopy
- Bile duct brushing and biopsy
- Intraductal ultrasonography
- Diagnosis and characterization of suspected main duct intraductal papillary mucinous neoplasms.

Contraindications

Absolute contraindications for ERCP include the following:

- Patient refusal to undergo the procedure
- Unstable cardiopulmonary, neurologic, or cardiovascular status
- Existing bowel perforation
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Structural abnormalities of the esophagus, stomach, or small intestine may be relative contraindications for ERCP. Examples are acquired conditions such as esophageal stricture, paraesophageal herniation, esophageal diverticulum, gastric volvulus, gastric outlet obstruction,

and small-bowel obstruction.

Most common indications for CDD are dilated CBD (>15mm) with stones and multiple CBD stones as concluded in our and other studies (1, 3, 5, 6, 13). Other indication includes impacted stone, Choledocal cyst, bile duct stricture, bile duct injury. The first successful CDD was performed by Sprengel in 1913 (7) Choledochoduodenostomy (CDD) was the method of choice for treatment of CBD stone before ERCP with stenting was discovered. ERCP (Endoscopic Retrograde Cholangiopancreatography) with extraction and stenting but it is an expensive method and requires expertise. CBD exploration and suturing has drawback of stricture formation, infection and leak. 100 successful cases were reported in 1928 by Florcken and he described about the size and adequate stroma for CDD and concluded that "more the barium the better" in barium study of the biliary tract suggesting that inadequate stroma may result in stricture formation. In our study as the anastomosis was done with T tube insitu, the stroma becomes adequate. There is no evidence of recurrence of symptoms or recurrent stone in our as well as other studies (6, 8, 9, 13) which is due to adequate drainage of bile through neostroma (CDD).

Conclusion: ERCP is better option for CBD stone when available and affordable than Combined Choledochoduodenostomy (CDD) and T-tube drainage.

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