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General Surgery

A CLINICAL STUDY AND MANAGEMENT OF COMMON BILE DUCT STONES

Dr Hareshkumar Rajbahadur Singh*	Junior Resident *Corresponding Author
Dr Bahar Dattatray Kulkarni	Professor of General Surgery
Dr Samruddhi Vaidya	Associate Professor of General Surgery

ABSTRACT **Aim:** A Clinical Study and Management of Common Bile Duct Stones **Study design-** This is a Prospective descriptive study of patients treated at Tertiary health Care Centre, Pune. **Type of study-** Prospective descriptive study. **Period of study-** September 2020 to May 2022. **Sample size-** 50 patients. **Conclusion:** This study's findings suggest that treating CBD stones is a challenging technique that requires a gradual strategy.The gold standard treatment for successfully managing CBD stone patients after appropriate investigations was ERCP.

KEYWORDS : CBD stones, ERCP, MRCP, Bile acids, Bile salts.

INTRODUCTION

The stones present inside common bile duct (CBD) is referred to as choledocholithiasis and is also known as bile duct stones. The number CBD stones are made up of gallbladder-derived cholesterol stones. 1 Stones that are found in the CBD are the result of gallstones passing through the cystic duct into the CBD. Sometimes the common bile duct itself may be the source of stones. 2 These are non-crumbling concretions having a diameter neat about 2 mm. 3 CBD stones are classified as "retained" if they are found less than two years following cholecystectomy or "recurrence" if they are found more than two years later. 4

Point of origin of CBD stones:
There are two categories for CBD stones.
1. Primary stones
2. Secondary stones

Primary stones are made of calcium bilirubinate with varying levels of cholesterol or fatty acids, and they develop directly in the bile duct. 5 The presence of pathogenic infection and biliary stasis appears to influence their etiology.6,7 Generally, they are brown-pigmented stones. Patients who do not have a congenital gallbladder and those who have had their CBD removed during previous gallbladder surgery are more likely to develop primary stones. 8

Secondary stones are considered to be of gallbladder origin since they have the same composition as gallbladder stones, which is 80% cholesterol and 20% black pigment. 9 These compositional variations might influence how they react to therapy. 10 CBD stones that develop right after a cholecystectomy should be considered secondary stones brought on by an incompletely cleansed CBD.8

According to several studies, the prevalence of primary CBD stones ranges from 4% to 56%. Due to the prolonged duration of gallstones in older patients, the frequency of CBD stones (secondary) is age-based and ranges between 11% -18%.9

AIM

A Clinical Study and management of common bile duct stones.

METHODS

This is a prospective study of patients at tertiary health care hospital, Pune, Maharashtra. This study was conducted from September 2020 to May 2022 with complete knowledge and consent.

Inclusion criteria:
1. All patients over the age of 12 who have common bile duct stones.
2. Diagnosis of ductal dilatation >8 mm with or without CBD stones on preoperative USG Gall bladder with several stones and dilated cystic duct
3. CBD stones causing pancreatitis, cholangitis, and obstructive jaundice

Exclusion criteria:
1. Patient age ≤ 12 yrs. As there is a paediatric surgery unit our institution. These patients are dealt in that unit.
2. Even invasive imaging such as an OP cholangiogram has a very low predictive yield for CBD 8 mm without stone on USG. Sampling technique and sample size:
1. According to the pro forma, a complete clinical history and examination were conducted in each case.
2. In every case, diagnostic tests (abdomen ultrasound, LFT) were performed.
3. if Ultrasonography was negative for CBD stones but biochemical markers and history were positive for CBD stones, MRCP was preferentially employed.
4. All cases underwent procedural examinations, including Hb%, a coagulation profile, TC, DC, RBS, blood urea, serum creatinine, a chest X-ray, and an ECG.
5. In every instance, bile cultures were obtained.

Conduct of study:
Because of the extensive experience and adequate facilities in the institution, open CBD exploration and ERCP were chosen as treatment modalities.

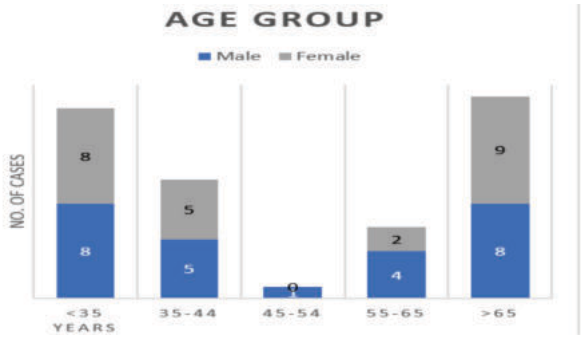
ERCP was done for –
1. Acute cholangitis
2. abdominal ultrasonography, endoscopic ultrasound (EUS), computed tomography (CT), magnetic resonance cholangio graphy (MRCP), or intraoperative cholangiogram indicated a CBD stone
3. Cholelithiasis, dilated CBD, and abnormal liver biochemical tests indicate a high suspicion of CBD stones.
4. Worsening gallstone pancreatitis
5. Frequently occurring CBD stones or gallstone pancreatitis, non-surgical cholecystectomy candidate Open CBD exploration was done for larger CBD stones or failed ERCP procedure.

RESULTS

Table-1: Age distribution with sex in given study.

Age in years	Male	Female	Total
<35 years	8	8	16
35-44	5	5	10
45-54	1	0	1

55-65	4	2	6
>65	8	9	17
Total	26	25	50
Mean	50.23	49.5	49.88



Graph-1: Age distribution with sex in given study.

Age distribution.
The patients ranged in age from over 35 to below 83. Males had a mean age of 50.23 years, while females had a mean age of 49.5 years. The prevalence was higher among people over 35. The age group of 44–54 had the lowest incidence.

Sex.
Out of the 50 patients, 26 (50.23%) were male and 25 (49.5%) were female.

Table: -2 Present complaints in patients.

Present complaints	Cases	Percent
Pain in abdomen	25	50.00%
Right upper quadrant pain	19	38.00%
High coloured pain	25	50.00%
Itching	19	38.00%
Jaundice	28	56.00%
Pale stools	21	42.00%

Abdominal pain was typically present in 25 patients, or 50% of the patients. severe abdominal discomfort Pain in the right upper quadrant was experienced by 19 patients (38%). 56 percent of 28 patients had jaundice. In 21 individuals (21%), pale stools were noted. No patients were therefore asymptomatic.

Table: 6- USG CBD diameter.

USG CBD Diameter	Cases	Percent
3.1-4	13	26.00%
4.1-5	19	38.00%
5.1-6	18	36.00%
Total	50	100.00%

.The CBD diameter of the majority of patients (38%) was between 4.1 and 5 mm. The highest recorded CBD diameter was between 5.1-6.

Table: 7- CBD Calculi In Usg Abdomen.

Stones	Cases	Percent
Multiple stones	12	24.00%
No stones	16	32.00%
Single stone	22	44.00%
Total	50	100.00%

In 34 patients (68%) there was sonographic evidence of CBD stones. According to MRCP, 16 instances (32% of the cases) had false-negative sonology results for stones in the CBD.

DISCUSSION

10% of individuals with acute cholecystitis and 5% of patients receiving elective cholecystectomy both have CBD stones. Blood tests alone or in combination cannot detect the existence of a CBD stone.

CBD stones are identified preoperatively with ultrasound, ERCP, or magnetic resonance cholangiopancreatography, but intraoperative cholangiography and choledochoscopy are required for a certain diagnosis. A variety of techniques can be used to diagnose choledocholithiasis before surgery. The age of patient and health, the existence of jaundice, the duct size and the stone, as well as other factors, define the best course of action. Choledocholithiasis has an uncertain natural history. Small stones may enter the duodenum on their own without generating symptoms, or triggering an episode of pancreatitis, before entering the duodenum and reducing symptoms. If the stones that do not enter the duodenum may stay symptom-free in the bile duct for a very long time before abruptly causing an episode of cholangitis or jaundice.

The study was carried out in the Department of General Surgery. This study was aimed at studying and managing common bile duct stones. The study's primary goal was to investigate various modes of presentation of CBD stones as well as various treatment modalities for these stones.

CONCLUSION

The treatment of common bile duct stones has been highly debated over the last few years, especially with the introduction of new laparoscopic techniques and improved endoscopic procedure proficiency. The study's objectives were to get a clinical understanding of CBD stones and to decide the appropriate therapeutic strategy depending on the patient's age, general health, complicating factors, and presence of endoscopy and minimally invasive techniques.

Choledocholithiasis most often affects men. The most common age group was over 65 years old. The most common complaint was pain or jaundice.

This study's findings suggest that treating CBD stones is a challenging technique that requires a gradual strategy.

The gold standard treatment for successfully managing CBD stone patients after appropriate investigations was ERCP.

Additionally, MRCP demonstrated to be a reliable and non-invasive screening for the identification or exclusion of CBD stones when combined with various biochemical indicators and a normal Ultra sonography, decreasing the likelihood of a false-positive diagnosis of residual choledocholithiasis. When USG had doubts about CBD stones but history and biochemical markers supported them, MRCP was employed selectively. In our cases, bile culture identified E. Fecalis as the most prevalent microbe.

In conclusion, the only characteristic that can be standardized for the treatment of CBD stones is the patient's age, and as endoscopic management facilities differ between institutions, the treatment of CBD stones must be adapted to the capabilities of each one.

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