



## General Surgery

# COMPARISON OF ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY AND SURGERY IN THE MANAGEMENT OF COMMON BILE DUCT STONE

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**ABSTRACT** **INTRODUCTION** Choledocholithiasis is a stone formation in a common bile duct Common bile duct (CBD) stone is a relatively frequent disorder with a prevalence of 1-15% in cholelithiasis patients. This is also associated with serious complications, including obstructive jaundice, acute suppurative cholangitis, and acute pancreatitis. Early diagnosis and prompt treatment is the most important for managing CBD stones. **METHODOLOGY** The study was conducted on 50 patients with CBD stones presented to the General Surgery and gastroenterology OPD and emergency department at NRI General Hospital from November 2021 to October 2022 This study is a prospective and observational study conducted at NRI General hospital during a period of 12 months **RESULTS** A total of 50 cases were taken in which 25 patients are assigned for ERCP group and 25 patients are assigned to surgery group. Mean age of ERCP group is 52+/- 15.6 and surgery group is 56+/- 10.6. complications such as hemorrhage , pneumonia, renal failure, wound infection are more among surgery group .Mean duration of hospital stay in ERCP group is 10.9+/- 5.6 , in surgical group is 27+/- 6.6 Success rate in ERCP group is 92% in surgery group is 96%. Mean duration of procedure in ERCP group is 30-60 min , in surgery group 100-160 min **Conclusion** surgery seems superior to ERCP in achieving common bile duct stone clearance based on the evidence available from the early endoscopy era.

## KEYWORDS :

### INTRODUCTION

The presence of stones within the common bile duct is known as choledocholithiasis (CBD). The presence of common bile duct stones is estimated to be present in 1-15 percent of cholelithiasis patients. 1-4 Choledocholithiasis occurs when stones form in the common bile duct (CBD) or gallstones pass from the gallbladder into the CBD. Several factors contribute to the formation of these stones, including bile stasis, bacterial overgrowth, chemical imbalances, increased bilirubin excretion, pH imbalances, and sludge formation. Primary hepatolithiasis is a condition in which stones form in the intrahepatic biliary tree, which can progress to choledocholithiasis. Stones larger than the ampulla of Vater remain in the distal common bile duct, causing obstructive jaundice and possibly pancreatitis, hepatitis, or cholangitis. Gallstones are classified chemically. Cholesterol stones are composed primarily of cholesterol, whereas black pigment stones are composed primarily of pigment and brown pigment stones are composed of pigment and bile lipids. In the United States, cholesterol stones account for approximately 75% of secondary common bile duct stones, while black pigment stones account for the remainder. The most common type of common bile duct stones are brown pigment stones. Gallstones that obstruct the CBD can result in a variety of symptoms and complications, including pain, jaundice, and sepsis. 4,5 Choledocholithiasis has been found in 4.6 percent to 18.8 percent of patients undergoing cholecystectomy. The prevalence of choledocholithiasis in patients with cholelithiasis rises with age. Cholelithiasis is more common in female patients, pregnant women, the elderly, and those with high serum lipid levels. Cholesterol stones are typically found in obese patients with little physical activity or in patients who have recently lost weight on purpose. Black pigment stones are found in patients with cirrhosis, those receiving total parental nutrition, and those who have had an ileal resection. The brown pigment primary common bile duct stones are caused by nucleating factors such as bacteria.<sup>6</sup>

The present-day treatment of bile duct stones is endoscopic retrograde cholangiopancreatography (ERCP), or in some cases, laparoscopic cholecystectomy with bile duct exploration. Present study was conducted to find if there is any advantage of endoscopic removal of CBD stone over clearance of stone by open surgery

### AIM:

To evaluate the efficacy of surgical approach and ERCP in the treatment of CBD stones

### OBJECTIVES :

To study the efficacy of ERCP.

To study the efficacy of CBD exploration.

To study the factors effecting the outcome like sr.bilirubin , alkaline phosphatase and physical effects like pain ,cholangitis.

### MATERIALS AND METHODS

#### Source of study :

The study was conducted on 50 patients with CBD stones presented to the General Surgery and gastroenterology OPD and emergency department at NRI General Hospital from November 2021 to October 2022

#### Type of Study :

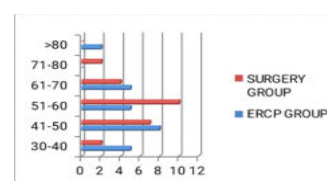
This study is a prospective and observational study conducted at NRI General hospital during a period of 12 months

**Table 1 distribution based on age**

|             | ERCP GROUP  | SURGERY GROUP |
|-------------|-------------|---------------|
| 30-40       | 5           | 2             |
| 41-50       | 8           | 7             |
| 51-60       | 5           | 10            |
| 61-70       | 5           | 4             |
| 71-80       | 0           | 2             |
| >80         | 2           | 0             |
| Total       | 25          | 25            |
| Mean +/- SD | 52.6+/-15.6 | 56+/-10.6     |

In the current study the age range of the study subjects is found to be 30 – 85 years . The mean age of ERCP group is 52.60± 15.66 years compared to 56.08±10.60 years among the surgery group.

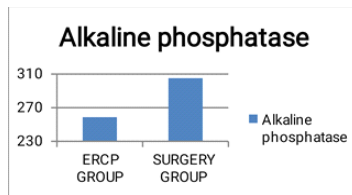
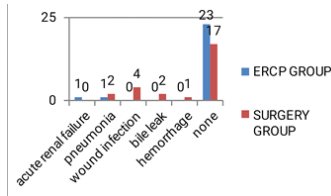
### GRAPH:



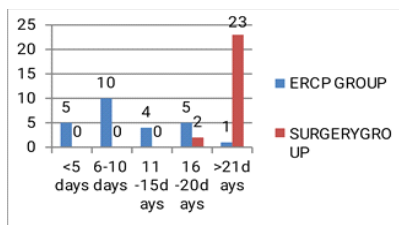
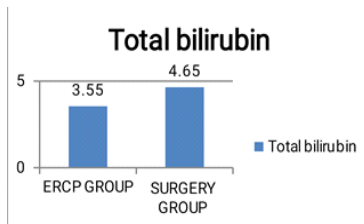
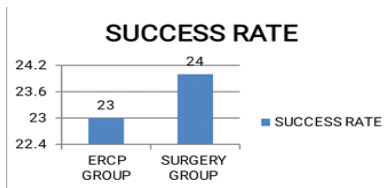
**Table 2 distribution based on gender**

|        | ERCP GROUP | SURGERY GROUP |
|--------|------------|---------------|
| Male   | 14         | 12            |
| Female | 11         | 13            |

In the current study among the ERCP group 56% were found to be males and females were 44% whereas among the study subjects who belong to surgery group 52% were females compared to 48% males.

**Graph: total bilirubin**

In the current study mean Alkaline Phosphatase level observed among the ERCP group is  $258.80 \pm 312.93$  within a range of 61 to 1526 whereas among the surgery group it was found to be  $305.16 \pm 232.97$  ranged between 50 to 949. The Alkaline Phosphatase level is found to be more among surgery group study subjects and this finding is found to be statistically insignificant.

**Graph alkaline phosphatase****Graph : complications****Graph success rate**

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In the current study mean duration of hospital stay is found to be  $19.10 \pm 10.28$  days whereas among the ERCP group the mean hospital stay duration is found to be  $10.92 \pm 5.67$  days compared to study subjects who belong to the surgery group the mean duration of stay was observed to be  $27.28 \pm 6.65$  days. The duration of stay was more among the surgery group study subjects and this finding was found to be statistically significant.

be extremely statistically significant with a p value of  $<0.0001$ . CBD Exploration success rate was 96% and ERCP success rate was 92%. Based on duration of procedure, the mean duration in ERCP group was 40 min and mean duration in CBD exploration group was 130 min.

|                       | ERCP            | CBD Exploration    |
|-----------------------|-----------------|--------------------|
| Duration of procedure | 30-60min(40min) | 100-160min(130min) |

|                           | OUR STUDY      | BERTRAND SUC ET AL | SHAHINMOHS ENI ET AL |
|---------------------------|----------------|--------------------|----------------------|
| MEAN AGE                  |                |                    |                      |
| ERCP GROUP                | 52+/-15.6      | 66+/- 17.5         | 58+/- 20             |
| SURGERY GROUP             | 56+/- 10.6     | 66+/- 18.1         | 51+/- 35             |
| GENDER                    |                |                    |                      |
| ERCP GROUP                | 56% MALES      | 31% MALES          | 30% MALES            |
| SURGERY GROUP             | 48% MALES      | 33% MALES          | 37% MALES            |
| TOTAL BILIRUBIN           |                |                    |                      |
| ERCP GROUP                | 3.5            |                    | 5.6                  |
| SURGERY GROUP             | 4.65           |                    | 5.1                  |
| COMPLICATIONS             |                |                    |                      |
| ERCP GROUP                |                |                    |                      |
| Hemorrhage                | 0              | 0                  |                      |
| Pneumonia                 | 1              | 0                  |                      |
| Wound infection           | 0              | 0                  |                      |
| SURGERY GROUP             |                |                    |                      |
| Hemorrhage                | 1              | 1                  |                      |
| Pneumonia                 | 2              | 1                  |                      |
| Wound infection           | 4              | 4                  |                      |
| DURATION OF HOSPITAL STAY |                |                    |                      |
| ERCP GROUP                | 10+/-5.67 DAYS |                    | 5+/-0.7 DAYS         |
| SURGERY GROUP             | 27+/-6 DAYS    |                    | 8+/-0.8 DAYS         |

## DISCUSSION

Limitations of the study

1. Low study population
2. Less duration of study

## Conclusion

surgery seems superior to ERCP in achieving common bile duct stone clearance based on the evidence available from the early endoscopy era. There is no significant difference in the mortality and morbidity between laparoscopic bile duct clearance and the endoscopic options. There is no significant reduction in the number of retained stones and failure rates in the laparoscopy groups compared with the pre-operative and intra-operative ERCP groups. There is no significant difference in the mortality, morbidity, retained stones, and failure rates between the single-stage laparoscopic bile duct clearance and two-stage endoscopic management. More randomised clinical trials without risks of systematic and random errors are necessary to confirm these findings.

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