



## TO STUDY THE CONVERSION RATE OF LAPAROSCOPIC TO OPEN CHOLECYSTECTOMY AND ITS CAUSES

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**ABSTRACT** **BACKGROUND** Today laparoscopic cholecystectomy has replaced open cholecystectomy as the GOLD STANDARD in treatment of patients with cholelithiasis.

**METHOD:** A prospective study consisting of 112 patients undergoing laparoscopic cholecystectomy over a period of 1 year (2019) in tertiary care hospital.

**RESULTS:** Females were the main sufferers of gallbladder disease in our study. 12 out of 112 cases, were converted to open cholecystectomy. Intraoperative causes of conversion are altered anatomy due to dense adhesions, haemorrhage and injury to CBD.

**CONCLUSION:** Laparoscopic cholecystectomy is safe and minimally invasive technique with only low conversion rate and commonest cause of conversion in this study is dense adhesions.

**KEYWORDS :** Laparoscopic Cholecystectomy, Bile Duct Injury, Hospital Stay.

### INTRODUCTION

Gallstones are the most common biliary pathology. It is estimated that gallstones affects 10-15% of the population. Asymptomatic in majority (80%). Approximately 1-2% of asymptomatic patients will develop symptoms requiring surgery per year, making cholecystectomy one of the most common operations performed by general surgeons.

Advantages of laparoscopic cholecystectomy are avoidance of large incision, shortened hospital stay and earlier return to work. Condition of the patient, level of experience of the surgeon and technical factors all can play a role in the decision for conversion.

Conversion rate for elective laparoscopic cholecystectomy is around 5% whereas conversion rate in setting of acute cholecystitis may be as high as 30%.

### AIMS AND OBJECTIVES OF THE STUDY

- 1) To determine the rate of conversion of laparoscopy to open cholecystectomy.
- 2) To identify factors responsible for conversion of laparoscopy to open cholecystectomy.

### SOURCE OF DATA

A prospective study conducted over a period of 1 year (Jan 2019-Dec 2019) in all patients undergoing laparoscopic cholecystectomy at our tertiary care hospital.

### Inclusion criteria:

- 1) All patients with symptomatic cholelithiasis including acute cholecystitis >18yrs of age.
- 2) Patients with acalculous cholecystitis.

### Exclusion criteria:

- 1) Patients unfit for general anaesthesia.
- 2) Patients age <18yrs.
- 3) Carcinoma of gall bladder
- 4) Perforated gallbladder
- 5) Previous upper abdomen surgeries.

### CLINICAL FEATURES:

Detailed history was taken with special reference to duration of pain, its periodicity, aggravated by fatty meal and relief by oral/parenteral analgesia, other significant history like fever, jaundice.

Preoperative workup was done. USG was routinely performed on all patients to confirm the clinical diagnosis of cholelithiasis with number of calculus, size of calculus, gall bladder wall thickness

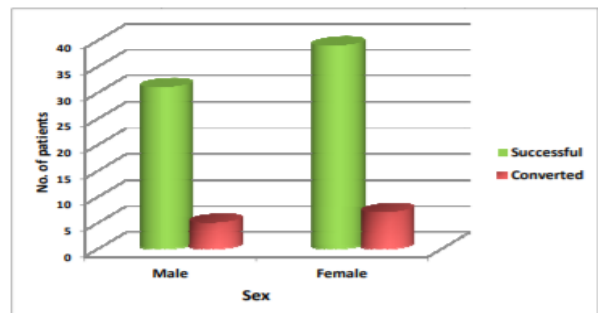
(4mm considered abnormal), pericholecystic collection and CBD calculi or dilatation of CBD.

### OBSERVATION AND RESULTS:

A prospective study was carried out in Department of General Surgery during the period from January 2019 to December 2019 in 112 patients undergoing laparoscopic cholecystectomy patients belong to various surgical units operated by different senior surgeons.

### CORRELATION BETWEEN GENDER AND SURGERY OUTCOME:

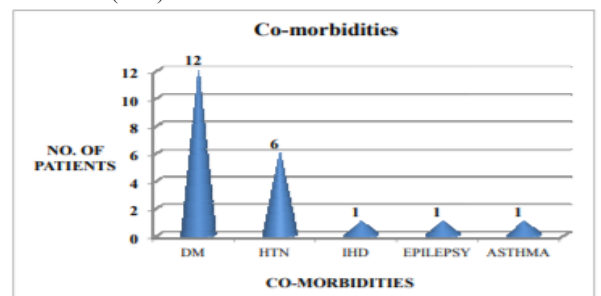
Among a total of 36 male patients, 5 were converted (13.8%) whereas among 46 female patients, 7 were converted (15.2%).



Graphical representation of gender and surgery outcome

### CORRELATION BETWEEN COMORBIDITIES AND OUTCOME:

Out of total 12 patients who were diabetic, 3 patients underwent conversion (25%).

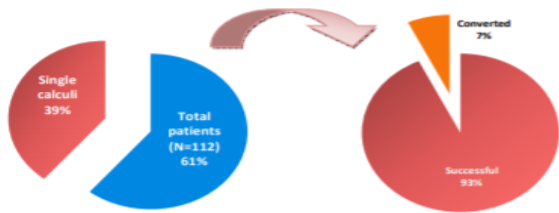


Graph showing comorbidities

**CONVERSION IN PATIENTS WITH SINGLE CALCULI**

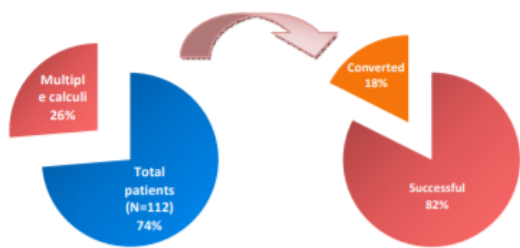
Out of total 72 patients who had single calculi, 5 patients underwent conversion (6.9%).

**CONVERSION IN PATIENTS WITH SINGLE CALCULI:**



**CONVERSION IN PATIENTS WITH MULTIPLE CALCULI**  
Out of total 40 patients who were hypertensive, 7 patients underwent conversion (17.5%).

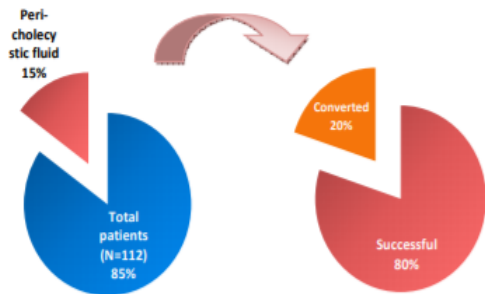
**CONVERSION IN PATIENTS WITH MULTIPLE CALCULI:**



**CONVERSION IN PATIENTS WITH PERICHOLEIC COLLECTION:**

Out of 20 patients who had peri-cholecystic fluid, 4 patients underwent conversion (20%).

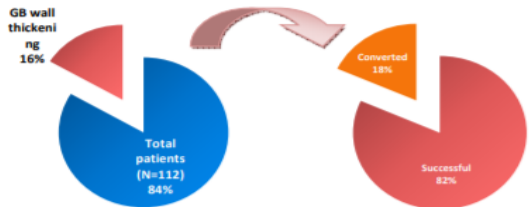
**CONVERSION IN PATIENTS WITH PERI-CHOLECYSTIC FLUID:**



**CONVERSION IN PATIENTS WITH GB WALL THICKENING**

Out of 22 patients who had thickened GB wall, 4 patients underwent conversion (18.1%).

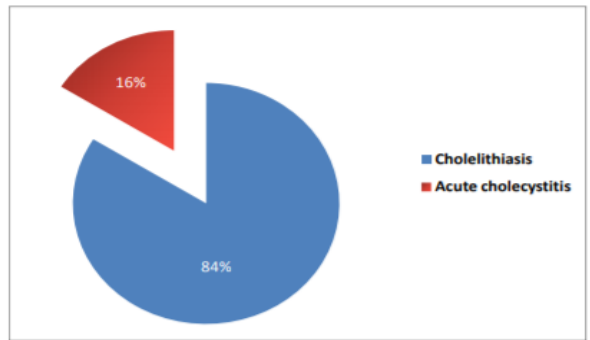
**CONVERSION IN PATIENTS WITH GB WALL THICKENING:**



**PREOPERATIVE DIAGNOSIS**

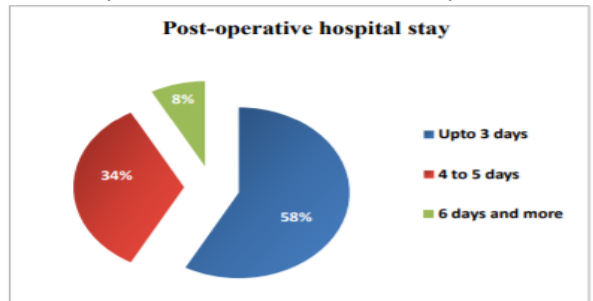
Out of 112 patients, 94 patients presented with a diagnosis of Cholelithiasis of which 9 cases were converted (9.5%), and 18 patients presented with acute cholecystitis of which 3 underwent conversion (16.6%)

Indication	Total number of cases	No. of cases		Percentage	
		Successful	Converted	Successful	Converted
Cholelithiasis	94	85	9	90.4 %	9.5 %
Acute cholecystitis	18	15	3	83.3 %	16.6 %



**DURATION OF POSTOPERATIVE HOSPITAL STAY**

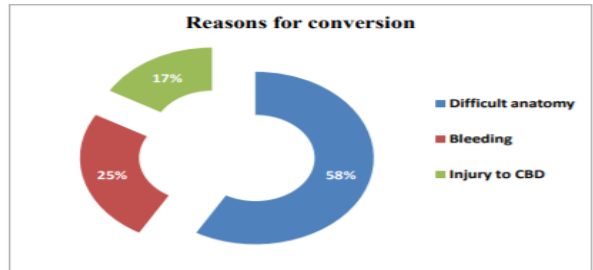
The average duration of post-operative hospital stay was 3.6 days. 65 patients were discharged by 3 days post-operatively, 38 patients stayed for 4-5 days and the remaining 9 patients stayed for more than 6 days. Average duration of post-op stay in successful cases was 3.37 days and in converted cases it was 5.75 days.



Graphical representation of post-operative hospital stay

**REASONS FOR CONVERSION**

The below figure shows the graphical representation of conversion.



Compares our conversion rate with some major published similar work

Study	Place	Year	No. of cases	Conversion rate
This study	India	2012	112	10.7%
Masoom Raza et al <sup>[88]</sup>	Karachi	2006	118	11.1%
Tarcoveanu et al <sup>[59]</sup>	Romania	2005	6985	3.2%
Ishiazaki et al <sup>[53]</sup>	Japan	2006	1179	7.5%
Dholia et al <sup>[56]</sup>	Larkana	2005	100	8.0%
Lim et al <sup>[60]</sup>	Singapore	2005	443	11.5%
Vecchio et al <sup>[57]</sup>	USA	1998	114005	2.2%
Tan et al <sup>[89]</sup>	Australia	2006	202	4.2%
Tayeb et al <sup>[67]</sup>	Karachi	2005	1249	7.5%
Cheema et al <sup>[90]</sup>	Lahore	2001	75	16.0%
Magge et al <sup>[61]</sup>	UK	1996	149	10.0%
Balsara & Shah <sup>[91]</sup>	India	1994	100	10.0%
Saeed Hadi et al <sup>[92]</sup>	Yemen	2009	709	8.3%

**CONCLUSION**

- Diabetic patients had a higher rate of conversion than non-diabetic patients i.e., 3 out of 12 patients (25%) as compared to 9 out of 100 non diabetic patients (9%) got converted. Thus, diabetes being one of the important factors.
- Ultrasonography appeared to be the most economical, simplest, easiest and an early tool for the evaluation of gall bladder diseases. Patients with thickened gall bladder wall had a high rate of conversion i.e., 4 out of 22 patients with a thickened gall

bladder wall (18.1%) had to be converted. This being one of the important parameters.

- Patients who presented with acute cholecystitis had a higher chance of getting converted to an open procedure compared to those who presented with cholelithiasis.
- The main intra-operative cause of conversion from laparoscopic cholecystectomy to open was difficulty in identifying the anatomy as a result of dense adhesions (58.3%) followed by hemorrhage in the Calot's triangle (24.9%) and injury to the CBD (16.6%).
- Laparoscopic cholecystectomy is a reliable and safe surgery. With growing experience in laparoscopic technique, it is possible to bring complications and conversion rate to minimum.
- The present study has shown that we still have higher conversion rate comparing with the literature in last five years. While many reasons lead to conversion and influence conversion rate, the most important reason for conversion was dense and extensive adhesions. It is, therefore, mandatory to explain to the patients about the possibility of conversion to open technique at the time of taking consent for LC.
- In conclusion, LC is a safe and minimally invasive technique, with only low conversion rate and the commonest cause of conversion in this study was the presence of dense adhesions at Calot's triangle.

### SUMMARY

This is a prospective study of 112 cases of laparoscopically operated patients in Department of General Surgery, in tertiary care hospital over a period of 1 year jan-2019 to dec-2019.

Out of 112 patients studied, 12 cases were converted to open cholecystectomy i.e,10.7 %. Conversion was more common in diabetic patients.

Patients presenting with acute cholecystitis had a high conversion rate. Ultrasound finding suggestive of thickened gall bladder wall was a good indicator of conversion; hence ultrasound can predict difficult laparoscopic cholecystectomy and likelihood of conversion to open surgery.

The main cause of conversion from laparoscopic cholecystectomy to open was difficult anatomy secondary to dense adhesions.

Conversion from laparoscopic to open procedure should not be considered a complication but rather a reflection of sound surgical judgement in difficult case.

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