



## TO STUDY THE INDICATION OF LAPAROSCOPIC CHOLECYSTOMY IN ACUTE CHOLECYSTITIS

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### ABSTRACT

**Introduction:** Laparoscopic cholecystectomy (LC) has become the treatment of choice for symptomatic cholelithiasis. However, the laparoscopic approach has remained controversial for patients with acute cholecystitis (AC) because of technical difficulties that, compared with open cholecystectomy (OC), might lead to higher complication rates, particularly common bile duct (CBD) injuries and infection.

**Aim:** The purpose of this study is to present our experience of laparoscopic cholecystectomy as a safe and effective treatment of acute cholecystitis.

**Methods:** All patients with acute cholecystitis presenting to Surgery OPD and Emergency of M.L.B Medical College Jhansi will be included in the study from November 2017 to June 2019.

**Conclusion:** Our study suggests that laparoscopic cholecystectomy can be performed safely in acute cholecystitis with less morbidity and insignificant mortality.

**KEYWORDS :** Acute cholecystitis, Laparoscopic cholecystectomy, Open cholecystectomy, Conversion

### INTRODUCTION

Mouret pioneered the introduction of laparoscopic cholecystectomy in surgical practice in 1987<sup>[1]</sup>. It rapidly replaced "traditional" open cholecystectomy as the curative treatment of cholecystitis. The switch to laparoscopic cholecystectomy was attributed to its obvious benefits of a reduction in hospital stay, decreased postoperative pain, early return to normal activity and an improved cosmetic result<sup>[2]</sup>.

Many authors consider acute cholecystitis with associated inflammatory edema and adhesions a relative or absolute contraindication to laparoscopic cholecystectomy. This philosophy of treatment denies those patients presenting with acute cholecystitis the advantages of a laparoscopic approach<sup>[3]</sup>.

### AIMS AND OBJECTIVES

- The purpose of this study is to present our experience of laparoscopic cholecystectomy as a safe and effective treatment of acute cholecystitis.
- Indication and efficacy of laparoscopic cholecystectomy in a patient of acute cholecystitis.
- Morbidity of laparoscopic cholecystectomy in acute cholecystitis.

### MATERIALS AND METHODS

All patients with acute cholecystitis presenting to Surgery OPD and Emergency of Maharani Laxmi Bai Medical College, Jhansi will be included in the study from November 2017 to June 2019.

#### Inclusion Criteria:

- Acute right upper abdominal pain with Radiological evidence of gallbladder stones of acute cholecystitis.
- Other clinical signs of acute abdomen.
- Pain on inspiration
- Tenderness
- Tachycardia
- Guarding
- Rigidity

#### Exclusion Criteria:

- Age above 80 and below 16.
- Choledocholithiasis
- Severe Acute calculus Pancreatitis
- Severe co-morbid conditions (uncontrolled diabetes, hypertension, direct hyperbilirubinemia)
- ASA Grade-4

These patients will be age and sex matched and then assigned to one of the three groups according to the interval period (between the onset of acute attack and the time of presentation for treatment) < 3 days, 3 to 7 days, and > 7 days.

The diagnosis of acute cholecystitis will be based on the clinical picture [which included acute right upper abdominal pain of more than 8 hours, with tenderness, temperature > 37.5°C, with or without mild jaundice, and a white blood cell (WBC) count of greater than 10<sup>9</sup> /L] and supplemented by ultrasonographic evidence of distended gallbladder with edematous wall, positive ultrasonographic Murphy's sign +/- pericholecystic phlegmon +/- fluid in Morison's pouch).

A postoperative histopathology study will be performed on every gallbladder removed.

Patients will be excluded from the study if they had a significant medical illness that rendered them unfit for laparoscopic surgery.

Laparoscopic cholecystectomy will be performed as per the 4 port standard procedure.

#### METHOD OF COLLECTION OF DATA:

**Study design:** Prospective study

**Study methods:** The study will consist of 50 patients fulfilling the inclusion criteria and after written consent.

#### DISCUSSION

Laparoscopic cholecystectomy in acute cholecystitis is still not popular in India owing to the late introduction and sluggish

spread of laparoscopic technique and also due to lack of instrumentation in gall bladder removal in our country.

Our study was conducted over a 20-months period from November 2017 to June 2019 in Maharani Laxmi Bai Medical College Jhansi

#### Age and sex distribution:

There were thirteen males (26%) and thirty seven (74%) females, with a mean age of 42.04 years.

#### Preoperative Diagnosis:

In patients presenting with classic signs and symptoms of acute cholecystitis, the diagnosis is typically made based on confirmatory imaging studies. The diagnosis was based upon clinical, laboratory and ultrasonographic criteria. The most common symptom of cholecystitis is abdominal pain located in the Right upper quadrant or epigastrium. Among laboratory investigations, we studied serum Amylase, liver function tests and serum albumin. In a study by Gruber et al<sup>[3]</sup>, it was found that patients with acute cholecystitis diagnosed in the emergency frequently lacked fever or leukocytosis and the clinician should not rely on the presence of these signs in making the diagnosis of acute cholecystitis.

The most reliable ultrasonographic signs of acute cholecystitis are a thickened edematous gallbladder wall, a positive sonographic Murphy's sign and the presence of pericholecystic fluid collection.

In our study, all patients presented with acute upper abdominal pain, 70% with fever, 40% with nausea and 22% with palpable gallbladder.

22 (44.0%) had altered liver function tests (raised hepatic enzymes, elevated serum bilirubin or both) and 3 patients were jaundiced. The leukocytic count ranged from 6776 to 20548 /mm<sup>3</sup>. Forty patients had multiple gallstones and ten had a single stone in the gallbladder. On USG all the patients had pericholecystic adhesion and only 20% patients had pericholecystic collection, which is a sign of inflammation.

#### Time duration of laparoscopic cholecystectomy:

In our study, the mean length of the laparoscopic procedure, measured from skin incision to skin closure, was 42.5 minutes (range 30 - 60), which is similar to a study by Aly Mohammad Bakr et al where mean length of procedure was 43 min.

Time taken for laparoscopic cholecystectomy in acute cholecystitis was significantly higher due to obscure anatomy and friability at and around Calot's triangle. Distended, inflamed and friable gall bladder which gets easily perforated and stones might spill out (if patience is not shown) are other reasons of more time consumption. These few extra minutes benefitted the early group patients by a huge margin in the cost and total hospital stay.

#### Blood loss during surgery:

Mean intra operative bloodloss was 53 ml which was due to good expertise of surgeon and was equal in amount of blood loss in interval laparoscopic cholecystectomy. Only in one case there was blood loss of about 150ml which was due to presence of dense adhesion in Calot's triangle and converted into open cholecystectomy. In certain patients haemostatic material, such as surgical was used. We always used a gauze piece to apply pressure on the oozing surfaces. This pressure stopped any oozing automatically with a pressure for more than one minute.

#### Conversion to open cholecystectomy:

Majority of studies have shown conversion rate to be between 2%-16%.

In our study, the procedure was successfully completed in 49 patients. In one case, the identification of the cystic duct and cystic artery was difficult and dense adhesion was present at Calot's triangle, so this case was converted into open cholecystectomy and thus the rate of conversion in our study was 2% which is similar to other studies.

A low threshold for conversion to an open procedure should be maintained. The decision to convert should be taken early in the procedure. The reason for conversions should not be a complication but rather to avoid one. In our case the decision was taken within the first 10 minutes after exploring Calot's triangle and assessing the severity of oedema and adhesions. The most important indication for conversion is the inability to clearly and safely identify structures in the Calot's triangle. Conversion is not a failure from the academic point of view, but from patient's perspective it is definitely troublesome and irritating<sup>[4]</sup>.

#### Post operative pain score (Visual analogue score):

Mean postoperative pain score (VAS score) was 1.78, 4.86 and 1.32 at 4 hours, 4-12 hours and 12-24 hours respectively which was found lesser in comparison to open cholecystectomy in other studies. Pain was less in 1<sup>st</sup> four hours due to effect of anaesthesia and less to open cholecystectomy due to small incision.

#### Sub hepatic drain:

Every patient had drain insertion to monitor any kind of complication like leakage and bleeding. Mean day of Drain removal was 2.1 days post operation and those who had risk of complication drain was removed on 6<sup>th</sup> day when drain output was nil.

#### Duration of hospital stay:

Mean duration of hospital stay in our study was found to be 2.9 days (range 2-7 days) which is consistent with findings of other studies.

This duration is less than open cholecystectomy and interval laparoscopic cholecystectomy. Those, who were suspected of bile leak complication, stayed up to 7 days and one patient who was converted into open cholecystectomy stayed up to 6 days but maximum patients got discharged within 3 days.

#### Resumption of diet:

Ji W et al reported a series of 200 Laparoscopic Cholecystectomy (LC) where patients resumed diet within first 24 hours [10-22 hours].

Carolyn et al, reported resumption of diet within first 24 hours in majority of their patients.

Start of oral intake post surgery in our study was 26.4 hours which is consistent with other studies<sup>[5]</sup>.

#### Complications:

In our study, the morbidity rate was 10% which is comparable to other studies available in literature. All complications were minor except for one patient (2%), who had bile leak.

2 patients had post operative wound complication which resolved early and 2 patients had post operative minor bleeding which was controlled within 24 hours as it was due to major adhesion at Calot's triangle and gallbladder bed<sup>[4]</sup>.

One patient had bile leak up till 2nd post operative day with a drain output of 100ml/day which reduced to 50 ml/day on third day and on fourth day it was nil. This bile leak was due to cystic stump leak, which healed spontaneously, and patient was managed conservatively and no re-exploration was done.

There was no mortality and no re-operation in this series. We did not encounter any cases of gangrenous or emphysematous cholecystitis.

### Standard laparoscopic cholecystectomy

In our study 4 port laparoscopic cholecystectomy was done. We believe that number of ports required should always be considered as regards to safety of patient and do not hesitate to create extra port which is usually required to retract the stomach or the floppy caudate lobe of liver to gain good access at the target area. This also helps in reducing the total operating time.

### CONCLUSION

- Our study suggests that laparoscopic cholecystectomy can be performed safely in acute cholecystitis with less morbidity and insignificant mortality.
- This study also concluded that laparoscopic cholecystectomy done within 72 hours of symptoms of acute cholecystitis than it is more beneficial in terms of patient safety, financial cost and also length of hospital stay

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