

## INCIDENCE AND CLINICAL OUTCOMES OF ACCIDENTAL GALLBLADDER PERFORATION DURING LAPAROSCOPIC CHOLECYSTECTOMY

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### Abstract

**Background:** Study on Accidental gallbladder perforation during laparoscopic cholecystectomy (LC) is on the rise because of increased attempts at minimally invasive surgery. There have been a number of studies attempting to determine the influence of gallbladder perforation and the clinical outcomes, but the results are still conflicting. This study is attempted to find the incidence of gall bladder perforation and clinical outcomes in patients who sustained a gallbladder perforation during LC. **Materials and Methods:** We evaluated 85 patients who underwent LC during June 2021 and May 2022 in Department of General surgery, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur. **Results:** The mean operative time, mean length of hospital stay and pain score on P O day 1 and 2 is significantly higher in accidental G.B perforated cases when compared to non-perforated cases. Also trocar site infection and ileus incidence is significantly higher in GB perforated cases. There is no significant difference in incidence of leucocytosis, fever and vomiting between perforated and non-perforated cases Gallbladder perforation leads to prolongation of the operative time and postoperative hospital stay and consequently an increase in the total hospital costs, which reduces the advantage of LC. **Conclusion:** Gallbladder perforation during LC causes postoperative pain, ileus, and trocar site infection and has led to an increase in the duration of hospitalization, thereby reducing few advantage of a laparoscopic procedure. There is need of meticulous dissection performed during surgery to prevent gallbladder perforation.

## INTRODUCTION

Laparoscopic cholecystectomy (LC) is the most common procedure of choice in surgical treatment of gallbladder diseases. Gallbladder perforation is increasing in frequency along with increasing efforts to perform minimally invasive surgery, which has limitation in the visual field and mobility of the surgical instruments. The incidence of perforation of the gall bladder during LC is 13%–40% .<sup>[1]</sup> The gall bladder perforation leads to spillage of bile or gallstones into peritoneum leading to benign to very severe complications.

### Objective

To find the incidence of gall bladder perforation during Laparoscopic cholecystectomy

To assess the clinical outcome among patients with gall bladder perforation during LC.

## MATERIALS AND METHODS

**Study Design:** Prospective study

**Study Location:** Dhanalakshmi Srinivasan Medical College, Perambalur, India.

Target population: Patients with gallbladder disease who underwent LC

Sampling method: Convenience sampling

Study period: June 2021 - May 2022

Sample size:

Calculated using  $Z\alpha^2 pq/d^2$

$\alpha$  value =1.96

$p=13\%$ ,<sup>[1]</sup>  $q=100-p$

$d=$  Allowable absolute precision at 7.5%

with 10% attrition rate

Sample size is 84 rounded off to 85

### Eligibility Criteria

Patients admitted for Laparoscopic cholecystectomy above 18 years

### Data analysis

The Data thus collected is entered in Microsoft excel sheet & analyzed using SPSS 21

The categorical variables expressed in proportion and continuous variable in mean

The independent t test and chi square test is used to find the association. ( $p < 0.05$  is significant).

## RESULTS

The mean operative time, mean length of hospital stay and pain score on P O day 1 and 2 is significantly higher in accidental G.B perforated cases when compared to non-perforated cases.

Also trocar site infection and ileus incidence is significantly higher in GB perforated cases.

There is no significant difference in incidence of leucocytosis, fever and vomiting between perforated and non-perforated cases

Gallbladder perforation leads to prolongation of the operative time and postoperative hospital stay and consequently an increase in the total hospital costs, which reduces the advantage of LC.

A study by Suh et al., have shown results similar to our study with the mean operative time and duration of postoperative hospitalization were longer in the perforated group ( $P = .015$  and  $P = .001$ ).

Pain scores on the P O days 1 and II were higher in the perforated group ( $P = .009$  and  $P = .034$ ). Complications such as ileus and trocar site infection developed

more frequently in patients with a gallbladder perforation ( $P = .001$  and  $P = .004$ ).

**Table 1: Causes of accidental gall bladder perforation (N=16)**

Causes	n	%
Dissection of hepatic fossa	10	62.5
Traction of GB	3	18.75
Dissection of cystic duct	3	18.75

**Table 2: Clinical outcome in GB perforation**

OUTCOME	Non perforated mean+/- S.D	Perforated mean+/- S.D	P value
Operative time ( in Mins)	52.7+/-0.75	63.2+/-2.6	0.004*
P.O Hospital stay (in Days)	3.8+/-0.38	7.2+/-0.95	0.004*
P.O Pain score I day II day	2.6+/-0.49 1.8+/-0.38	4.2+/-0.5 3.2+/-1.8	0.003* 0.006*
Leukocytosis on P.O 1 n(%)	24(34.7%)	7(43.4%)	0.56

**Table 3: Complications between perforated and non-perforated GB**

Complication	Non perforated n(%)	Perforated n(%)	P value
Fever	16(23.2)	2(12.5)	0.50
Nausea and vomiting	13(18.8)	2(12.5)	0.72
Trocar site infection	6(8.6)	6(37.5)	0.004*
Ileus	9(13.1)	7(43.5)	0.006*

## CONCLUSION

1. Gallbladder perforation during LC causes postoperative pain, ileus, and trocar site infection and has lead to an increase in the duration of hospitalization, thereby reducing few advantage of a laparoscopic procedure.
2. There is need of meticulous dissection performed during surgery to prevent gallbladder perforation.
3. To minimize the risk of gallbladder perforation, some technical modifications and new methods for dissection of the gallbladder from the liver bed have to be attempted.
4. Also, the surgeons should not hesitate to record the intra operative events of spillage of bile and gallstones and manage/monitor the patient for the possible complications.

### Limitations

1. The wound infection diagnosis and discharge of patients were assessed/decided by surgeons depending on their own clinical experiences that it might lead to bias in our results
2. Laparoscopic cholecystectomies were done by different surgeons for different indications and hence operation time may depend on the diagnosis, expertise and experience of each surgeon.

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