

# Outcome of Laproscopic Cholecystectomy in Acute Cholecystitis

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<sup>1</sup>Manuscript writing and data collection

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## ABSTRACT

**Objective:** To compare the outcome of early laparoscopic cholecystectomy in acute cholecystitis due to cholelithiasis as compared to interval cholecystectomy in terms of conversion rate, operative time and complications.

**Study design:** Descriptive study

**Place of study:** Department of general surgery, Pakistan Atomic Energy Commission General Hospital, H-11/4 Islamabad.

**Duration of Study:** January 2016 to June 2017.

**Methodology:** Patients were divided into two groups. Group A had acute cholecystitis and were admitted through emergency room or surgical OPD and were operated in the same index admission on earliest possible list thus waiting time for surgery was one to four days approximately. While group B, had all elective cases, without any evidence of acute cholecystitis, mainly booked through OPD. All the patients included in both groups, were studied for initial diagnosis, duration of symptoms, duration of surgery, conversion to open cholecystectomy, per operative and post-operative complications and duration of hospital stay.

**Results:** A total of 360 patients were operated in the hospital for cholelithiasis during the said period. Standard four ports were employed for the surgery. Group A (acute cholecystitis) had total 112 patients while group B (non-acute cholecystitis) had 248 patients. Of these 112 patients in group A, there were 77 males and 35 females. In group B, there were 112 male and 248 female patients in group B. The mean operating time for group A was  $64 \pm 13$  min. whereas for group B the mean duration was  $60 \pm 12$  min. The average amount of blood loss during surgery for group A was  $45 \text{ ml} \pm 33 \text{ ml}$  and for group B was  $30 \text{ ml} + 20 \text{ ml}$ .

**Conclusion:** Early Laparoscopic Cholecystectomy, for acute cholecystitis, is cost-effective, has shorter total length of hospital stay and reduces the risk of repeat cholecystitis.

**Keywords:** Acute cholecystitis, Laparoscopic Cholecystectomy, Cholelithiasis.

## Introduction

Cholelithiasis is a worldwide disease which is more prevalent in the women.<sup>1, 2</sup> Usually the symptoms are dyspepsia, nausea and abdominal fullness. Acute cholecystitis is an infective complication of cholelithiasis which is very common.<sup>3, 4</sup> The treatment includes indoor admission to hospitals keeping the patient nil per oral with intravenous fluids, antibiotics and analgesics for a variable time followed by surgery.<sup>5, 6</sup> Previously cholecystectomy in acute cholecystitis was performed after the symptoms had subsided and with a gap of approximately six

weeks as interval cholecystectomy.<sup>7</sup> Laparoscopic cholecystectomy in acute cholecystitis is an important technique now a day to reduce hospital stay and to reduce cost of the disease.<sup>8</sup> Laparoscopic cholecystectomy in acute cholecystitis is not very popular in our region mainly due to the non-availability of expertise, appropriate equipment, Operation Theater conditions in emergency cases to operate acute cases and the reluctance of surgeons due to the risk of complications associated with acute inflammation. But now with the gain in experience, laparoscopic cholecystectomy can be performed

with minimally increased risk in acute cholecystitis during the same admission.<sup>9</sup> Through early laparoscopic cholecystectomy, we can decrease the number of hospital visits of such patients and decrease complications due to recurrent attacks of cholecystitis during the conservative time period.<sup>10</sup> However, the best time of surgery for acute cholecystitis, are still controversial. The objective of this study was to compare the outcome of early laparoscopic cholecystectomy in acute cholecystitis due to cholelithiasis as compared to interval cholecystectomy in terms of conversion rate, operative time and complications.

## Methodology

A descriptive case series was conducted in Department of general surgery, Pakistan Atomic Energy Commission General Hospital H-11/4 Islamabad. The duration of the study was January 2016 to June 2017. All the patients with primary diagnosis of cholelithiasis were included in our study. Patients were divided into two groups. Group A had acute cholecystitis and were admitted through the emergency room or surgical OPD and were operated in the same index admission on the earliest possible list thus waiting time for surgery was one to four days approximately. While group B, had all elective cases, without any evidence of acute cholecystitis, mainly booked through OPD. Both the groups were started with laparoscopic cholecystectomy. The exclusion criteria were those patients who were planned for open cholecystectomy from the beginning, those with cardiac disease and those with the previous history of laparotomy. All the patients included in both groups were studied for initial diagnosis, duration of symptoms, duration of surgery, conversion to open cholecystectomy, per-operative and post-operative complications and duration of hospital stay. Acute cholecystitis was defined as any two or more of the following: the Persistent pain of more than 06 hours in right hypochondrium, associated with nausea, vomiting or fever more than or equal to 100F<sup>0</sup> Ultrasonographic evidence of acute cholecystitis was defined as cholelithiasis with gallbladder wall thickness more than 4mm or pericholecystic fluid. Raised total leukocytes count (more than 11000/mm<sup>3</sup>). All the patients were followed up to one month after surgery and any complications noted. All the data was collected and analyzed on SPSS 20.

## Results

A total of 360 patients were operated in the hospital for cholelithiasis during the said period. Standard four ports were employed for the surgery. Group A (acute cholecystitis) had

total 112 patients while group B (non-acute cholecystitis) had 248 patients as shown in Table I.

	Group A. acute N (112)	Group B non-acute N (248)
Age (years)	57.24+10.26	59.37+14.62
Gender		
Male	77 (68.7)	35 (14.11)
Female	35 (31.3)	213 (85.89)
Body temperature (mean)	99.8+1.7	98+1.2

Of these 112 patients in group A, there were 77 males and 35 females. In group B, there were 112 male and 248 female patients in group B. The mean operating time for group A was 64±13 min. whereas for group B the mean duration was 60±12 min. The average amount of blood loss during surgery for group A was 45 ml ± 33 ml and for group, B was 30ml ± 20ml. The mean duration of hospital stay was 03 days ± 1day for group A while it was 01 day + 01day for group B.

Physical exam findings, n (%)	Group A n (112)	Group B n(248)	P-value
Dyspepsia & feeling of upper abdominal fullness (%)	112(100)	248(100)	0.002
Positive Murphy's sign	112(100)	40(16.12)	0.001
<b>Laboratory (mean)</b>			
TLC	14.73 + 73	10.53 + 65	0.060
<b>Ultrasonography findings (%)</b>			
<b>Cholelithiasis (%)</b>	112(100)	248(100)	0.002
Increased wall thickness (> 5mm) of gallbladder, n (%)	76(67.85)	0 (0)	0.005
Pericholecystic fluid, n (%)	08(7.14)	0 (0)	0.005

There were complications in 13 patients of group A. 03 cases were converted to open cholecystectomy due to non-identification of the biliary anatomy. Two patients had bile leakage, one stopped spontaneously and the other one required ERCP and stenting. Two patients presented with pain after the discharge and were found to be having a fluid collection in the gallbladder bed of 35 ml and 25 ml on USG abdomen which was managed conservatively and it resolved. Three patients presented with the infected epigastric port site on the 7th postoperative day. All three were treated by the opening wound and removal of seroma and daily dressing. The infection settled in a week's time. In group B, however, there were very fewer

complications. Only 2 patients got epigastric port site seroma formation. Three cases were converted to open cholecystectomy due to non-identification of the biliary anatomy.

**Table III: Intraoperative and postoperative data of the patients in both groups**

	Group A n (112)	Group B n (248)	P-value
Duration of operation (minutes)	64±13	60± 12	
Per operatively found acute (thick wall GB, adhesions) n (%)	80 (71.42)	142(57.25)	0.002
Rate of conversion to open cholecystectomy n (%)	03(2.67)	03(1.20)	0.005
Duration of hospitalization (days)	03±01	01±01	0.080
Blood loss during surgery (ml)	45 ml ± 33	30ml + 20	0.050
Complication, n (%)	07(6.25)	03(1.20)	0.060

**Table IV: Complications (morbidity) of laparoscopic cholecystectomy**

Complications	Group A	Group B	P-value
Biliary leakage, n (%)	02 (1.78)	0 (0)	0.005
GB fossa Collection	02 (1.78)	0 (0)	0.005
Wound infection, n (%)	03 (2.67)	02 (0.80)	0.080
Conversion to open cholecystectomy (%)	06 (5.35)	03 (1.20)	0.060

## Discussion

In this study, we confirmed that early laparoscopic cholecystectomy has the advantage of shorter hospital stay, lower cost and reduces the risk of repeat cholecystitis. Cholelithiasis is a worldwide disease with a prevalence of about 10%.<sup>11</sup> Females are predominantly affected as compared to males with cholelithiasis having male to female ratio of 1:3.<sup>12</sup> Incidence of acute cholecystitis in patients with known cholelithiasis is 1% per anum.<sup>13</sup> Females are more prone to have acute cholecystitis than males.<sup>14</sup> Historically acute cholecystitis used to be treated conservatively and patient discharged after the symptoms settled and patient operated after 4 to 6 weeks interval as acute inflammation and reactive hyperemia of the gallbladder have been considered to be resolved after 6 to 08 weeks.<sup>15,16</sup> Early laparoscopic cholecystectomy is safe and shortens hospital stay, with morbidity and mortality similar to those of elective delayed cholecystectomy.<sup>17,18,19</sup> In Pakistan laparoscopic

cholecystectomy for acute cholecystitis is not routinely performed mainly due to lack of experience of the surgeons. We took this initiative and found that there was no significant difference in performing early laparoscopic cholecystectomy for acute cholecystitis as compared to elective surgery, rather it is beneficial and cost effective as it saves the patients from recurrent attacks of acute cholecystitis and even pancreatitis while waiting for elective surgery. A study by Popkharitov showed that in laparoscopic cholecystectomy for acute cholecystitis, there was no difference in conversion rate, complications rate or post-operative hospital stay.<sup>20</sup> An early laparoscopic cholecystectomy may be safely performed for patients with mild gallstone pancreatitis, without concern for increased morbidity and mortality, resulting in shortened hospital stays.<sup>21</sup> Recently the trend changed to operate these patients early to save time and is cost effective as well.<sup>22</sup> Following were the limitation observed in the study; sample size in our study was small and Cost-effectiveness was not assessed through a systematic way.

## Conclusion

Early laparoscopic Cholecystectomy, for acute cholecystitis, is cost-effective, has a shorter total length of hospital stay and reduces the risk of repeat cholecystitis. However, it may be more technically demanding and time-consuming and may be associated with a higher rate of wound infections. We suggest early laparoscopic cholecystectomy for acute cholecystitis as treatment of choice. However further trials with larger samples are needed to confirm or refute our findings. There is no conflict of interest in our study.

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