

Research Article,

Laparoscopic Cholecystectomy for Acute Cholecystitis: Indication, Risk, and Outcome

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Abstract:

Background: A laparoscopic cholecystectomy is a fundamental approach to treating acute cholecystitis, and the timing of performing this given treatment is associated with clinical outcomes. It is unknown whether surgical indication, risk, and consequences of laparoscopic cholecystectomy for acute cholecystitis differ from those for the chronic form, making it questionable whether urgent laparoscopic cholecystectomy is the best approach even in severe acute cases.

Objective: This study aimed to evaluate surgical indication, risk, and outcomes of laparoscopic cholecystectomy for acute cholecystitis.

Methods: This prospective observational study was carried out at Bangladesh Medical College Hospital (Uttara Campus) from July 2006 to November 2008. A total of 103 acute cholecystitis patients were observed to evaluate the safety, risk, and outcomes (includes hospital stay, joining to routine daily works) of laparoscopic cholecystectomy. Result: Male and female ratio is 1:4, and the mean age in our series is 47 years. Acute calculous cholecystitis ultra-sonogram feature shows the highest percentage (85.4%) compare to the other four parts. The study also confirmations around 69% did not get any complications, and bleeding was the most frequently observed (16%) complication. The overall outcomes in this research were observed around 75% of total operated patients did not experience any difficulty and said they fit entirely. The other 19% who had some complications include Pain, RTI, Seroma, Jaundice, Cholangitis, Wound infection).

Conclusion: Regarding bile duct injury and prolonged complications, laparoscopic surgery is not a very good treatment option for acute cholecystitis.

Keywords: laparoscopic cholecystectomy, acute-cholecystitis, gall bladder, surgery.

Introduction:

Acute cholecystitis is a potentially life-threatening condition that affects more than 20 million Americans yearly and causes a high economic burden worldwide. ^[1] Gallstones are the major contributor to acute cholecystitis. ^[1] It is swelling (inflammation) of the gallbladder and a potentially serious condition that usually needs to be treated in the hospital. The main symptom of acute cholecystitis is a sudden sharp pain in the upper right side of your tummy (abdomen) that spreads towards your right shoulder. The affected part of the abdomen is usually incredibly tender, and deep

breathing can make the pain worse.

Cholecystectomy is the definitive treatment for patients with acute cholecystitis. Laparoscopic cholecystectomy has become a popular alternative to open cholecystectomy in treating acute cholecystitis. It is now considered the gold standard of therapy for symptomatic cholelithiasis and chronic cholecystitis. Approximately 917,000 and more than 50,000 laparoscopic cholecystectomies were annually performed to treat acute cholecystitis in the United States and England. ^[2-6]

Gall bladder inflammations with stone or without

stones are very common to surgeons. About 20% patient of acute cholecystitis requires cholecystectomy. Traditionally acute cholecystitis is treated with nil by mouth, analgesic, antibiotics and operates after a period. Elective cholecystectomies by the laparoscopic procedure are the safest and noble method. But now, Laparoscopic cholecystectomy for acute cholecystitis is challenging and requires highly experienced hands. In the acute case gallbladder, Callot's triangle was edematous, inflamed, and anatomy was distorted; the tissue is friable, so any operation is very much complicated and has a high rate of complication and conversion rate. But gradually, it has been established that process at an early stage reduced morbidity, reduced hospital stay, and reduced economic burden.^[8] The timing of laparoscopic cholecystectomy for acute cholecystitis is also debated. Early cholecystectomy within three days from its onset is recommended to minimize complications and increase the chance of a successful laparoscopic approach.^[9]

In 1991 for the first time in Bangladesh, a Japanese Surgeon, Dr. Hashimoto, demonstrated this technique at BIRDEM hospital. Then, since early 1993, we started laparoscopic surgery on a regular basis in the country.^[10] Since then, it has gained acceptance and practiced in different medical institutes and private medical centers in Dhaka and other parts of the country routinely. Laparoscopic cholecystectomy for acute cholecystitis has a high risk of complication, but it is done selectively by some experienced surgeons with very few complications.

Our study tried to see some factors related to indication, risk, and outcomes of laparoscopic cholecystectomy in acute cholecystitis. We took some variables to observe the 103 cases of acute cholecystitis who underwent laparoscopic cholecystectomy. For indication, we experiential the complication, risk, conversion rate, hospital stay, and the relation between the timing of surgery and complication. Finally, we measure the outcomes by a hospital stay, joining routine work, difficulty, and fitness rate. All those variables were also compared with some published international journal data.

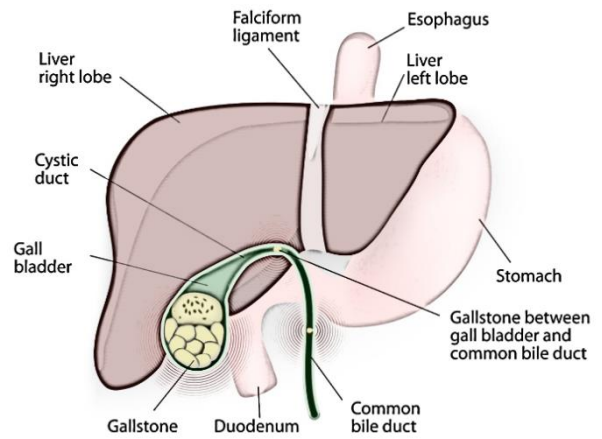


Figure1: The indications for Laparoscopic Gallbladder Stone Surgery

Objective:

- To evaluate the indications, risks, and outcomes of laparoscopic cholecystectomy for acute cholecystitis.

Materials and Methods:

Type of study: This was an observational prospective clinical study.

Place and period of study: This study was conducted at the department of surgery, Bangladesh Medical College Hospital (Uttara Campus) in Bangladesh from July 2006 to November 2008.

Study population: Total 103 acute cholecystitis patients at the hospital and routine daily worker of laparoscopic cholecystectomy at the department of surgery, Bangladesh Medical College Hospital, Uttara, Bangladesh.

a) Inclusion criteria

The selection criteria were random. Cases would be selected irrespective of age, sex, duration of symptoms, an acute attack of fewer than six days.

b) Exclusion criteria

Patients with chronic cholelithiasis, a history of previous abdominal surgery, acute cholecystitis with generalized peritonitis, bleeding disorder were excluded from the critical study attack for more than six days.

Sample selection: A total of 103 patients attended at the department of surgery, Bangladesh Medical College Hospital, Uttara, Bangladesh, were selected considering the inclusion criteria.

Data analysis:

Collected data were statistically analyzed using SPSS software, MS Word and MS Excel.

Results:

General characteristics and indications of acute cholecystitis patients undergoing laparoscopic cholecystectomy include age, gender distribution, and ultrasonography findings of the respondents

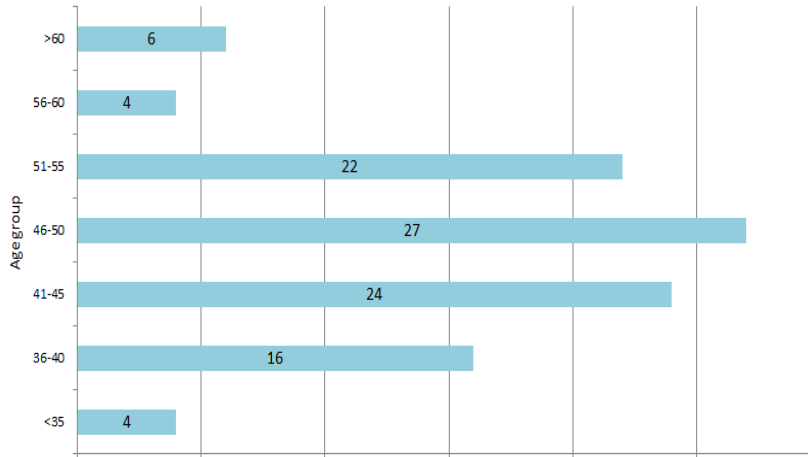


Figure2: Distribution of patients by age group

Figure 2 illustrates the age distribution among patients in Bangladesh. From this figure, it is clear that the maximum patients (26.2%) were from the 46-50 years age group and 23.3% from the 41-45 years age group, whereas the 51-55 years age group represent 21.4%. The minimum age was 31 years, and the maximum was 80. The mean age of the respondents who attended the acute cholecystitis was 47 years.

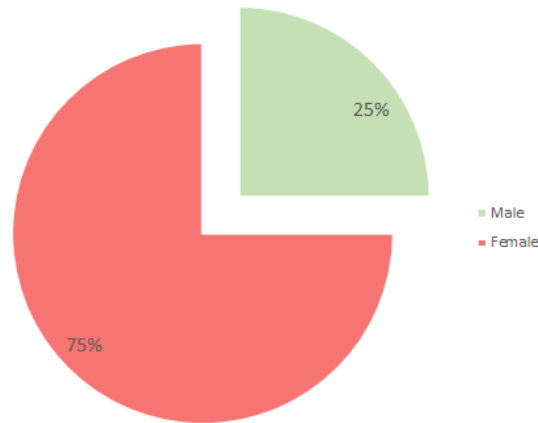


Figure3: Distribution of patients by sex

Figure3: depicts the gender distribution. The male and female ratio who had acute cholecystitis attended in the hospital were 25% and 75% accordingly.

Table1. Ultrasonography findings of the respondents

USG features	Frequency	Percentage
Feature of acute calculus cholecystitis	88	85.4
Feature of acalculas cholecystitis	2	1.94
Empyema	3	2.91
Gangrenous Gall bladder	3	2.91
Acute on chronic cholecystitis	7	6.79

USG = Ultra-sonogram while abdomen

Table 1 shows the frequency and percentage distribution of ultra-sonogram while abdomen feature. Our study with patients with acute cholecystitis USG findings corresponds to that about 85.4% of patients were suffering from acute calculas cholecystitis according to sonographic results.

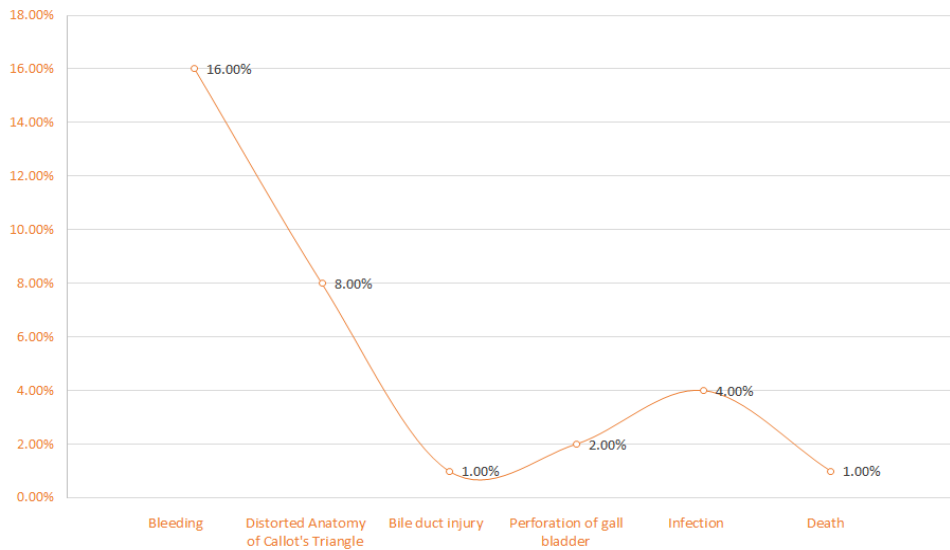


Figure4: Risk factors for laparoscopic cholecystectomy in acute cholecystitis

Figure 4 depicts the main risk factors for laparoscopic cholecystectomy in acute conditions. During lap-chole, we faced different complications in about 32% of patients. Among those, bleeding was most encountered in about 16% of cases. Other complications that were observed were distorted anatomy of Callot’s triangle, bile duct injury, perforation of the gallbladder. Among post-operative complications, infection occurred in only 4% of cases. One patient died post-operatively due to anesthetic hazards.

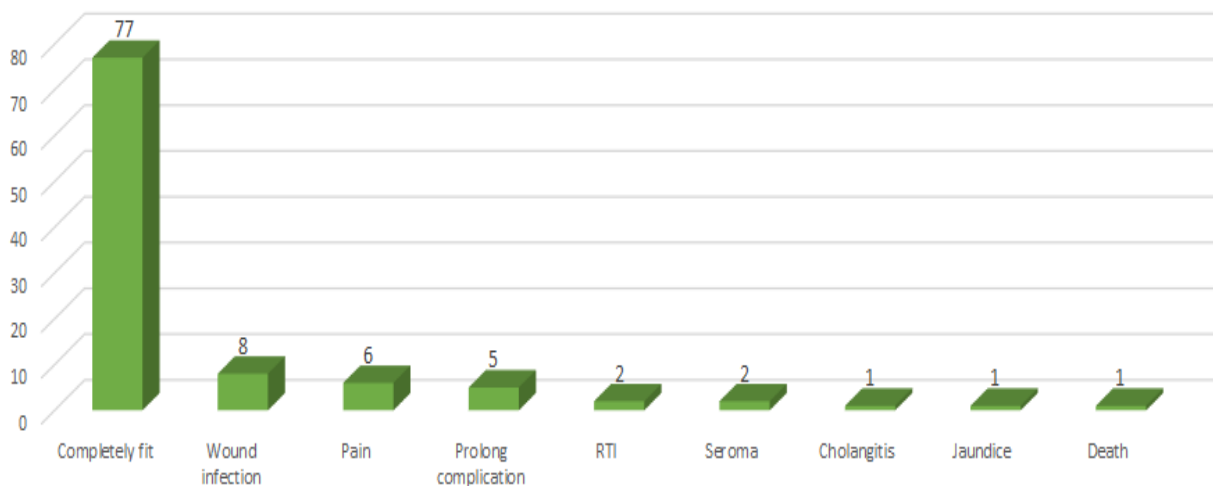


Figure5: Outcomes within one month of cholecystectomy (both laparoscopic and converted cases)

Figure 5 represents the outcomes of the laparoscopic and converted cases within 1 month of cholecystectomy. We observed the effects after 1 month of operation and counted both laparoscopic and converted cases. Then found 77 patients claimed that they were utterly fit. Others said some sorts of complications among those wound infections were most common (8). We faced one death during the procedure, and the cause was an anesthetic hazard.

Discussion:

Laparoscopic cholecystectomy is now one of the most common laparoscopic surgeries performed in a general surgical unit. The standard operation for patients with gallstone disease was considered due to its perceived efficacy with cosmetic and rapid recovery. ^[11] In our study, 103 patients with acute cholecystitis were observed who went for laparoscopic cholecystectomy (within six days) to find out the safety (indication), risk, and outcomes of the procedure.

We observed the distribution of age – sex, risk factors, and outcomes to determine the indications. The results of this study are reliable with recently published studies suggests that the laparoscopic approach is successful in most patients with acute cholecystitis. ^[12-15] In our study, out of 103 patients, the rate of female patients is comparatively the same as one of the series with the male-female ratio of 1:4. The mean age in our series is 47 years, which is comparable to other series is ranging from 42 years to 51.2 years. ^[16, 17]

We also indicated the ultra-sonography findings while abdomen. Acute calculas cholecystitis ultra-sonogram feature shows the highest percentage (85.4%) compare to the other four parts.

This research shows around 69% did not get any complications. For the others who had experienced some complication, bleeding was the most frequently observed (16%) complication. Others complication was bile duct injury (1%), perforation of gall bladder (2%) and death (1%) due to the anesthetic, medical hazards.

There is a significantly increased operative risk of both major and minor complications associated with acute cholecystitis. CBD (common bile duct injury) injury is the main risk during laparoscopic surgery for acute cases. It is mainly related to difficulty identifying anatomy and is more likely to occur in delayed surgery for acute cholecystitis. ^[12, 14, 18, 19]

There was 1 case CBD injury (1%) in our series in patients with acute cholecystitis, and that occurred in the group that underwent surgery after three days and required conversion. CBD injury is one of the grave morbid conditions. This 1% CBD injury is not accepted as CBD injury incidence is below 0.34%. ^[20-22] The rest of the risk factors are unfulfilling as those results showed significant values. The overall outcomes in this series were observed as follows around 75% of total operated patients did not experience any complications and said they fit entirely. The other 19% who had some difficulties (Pain, RTI, Seroma, Jaundice, Cholangitis, Wound infection) also get well after

follow-up visits. In the entire series, 4.8% of patients had some prolonged complication and infection. Only one case was died due to cardiac arrest as an anesthetic hazard.

Conclusion:

In the end, though we found some positive findings like recovery rate, less infection rate, etc., are encouraging. Still, the most morbid complication common bile duct (CBD) injury and prolonged complications are higher concerning recent international studies. So we can conclude that this study does not suggest that a laparoscopic cholecystectomy is a safe option for treating acute cholecystitis.

Declaration:

Funding: None

Conflict of interest: None

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