

## Study of the Various Indications of Laparoscopic Cholecystectomy for Acute Cholecystitis in Bihar Region

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Conflict of interest: Nil

### Abstract:

**Aim:** The aim of the present study was to evaluate the indication of laparoscopic cholecystectomy for acute cholecystitis.

**Methods:** The present study was conducted in the Department of General Surgery, Netaji Subhas Medical College and Hospital, Bihta, Patna, Bihar, India for 1 year. Total 100 acute cholecystitis patients at the hospital and routine daily worker of laparoscopic cholecystectomy in the Department of General Surgery, Netaji Subhas medical College and Hospital, Bihta, Patna, Bihar, India. Out of 100 selected patients, 80 were males and 20 were females.

**Results:** The result of the study showed that the maximum patients (25%) were from the 46-50 years age group and 20% from the 41-45 years age group, whereas the 51-55 years age group represents 22%. The minimum age was 30 years, and the maximum was 75. The mean age of the respondents who attended the acute cholecystitis was 48 years.

**Conclusion:** In acute cholecystitis, post-operative morbidity, mortality and hospital stay were reduced by laparoscopic cholecystectomy. Moreover, pneumonia and wound infection rate were reduced by LC. Severe hemorrhage and bile leakage rates were not influenced by the technique. Cholecystectomy in acute cholecystitis should be attempted laparoscopically first.

**Keywords:** Laparoscopic Cholecystectomy, Acute-Cholecystitis, Gall Bladder, Surgery.

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### Introduction

Acute cholecystitis is a potentially life-threatening condition, which affects >20 million Americans yearly and causes high economic burden around the world. Gallstones is the major contributor to acute cholecystitis. [1] Laparoscopic cholecystectomy (LC) is an important approach for treating acute cholecystitis nowadays. [2] Issued data indicated that approximately 917,000 and >50,000 LCs were annually performed to treat acute cholecystitis in the United States and England, respectively. [3-7] Although LCs have been extensively performed to manage

acute cholecystitis, the optimal timing of LC for this given condition is inconclusive.

Accepting early surgery for AC and moving to technical aspects, laparoscopic should be compared to open surgery. While laparoscopic cholecystectomy (LC) has become the approach of choice for elective cholecystectomy, 48.7% of acute cholecystitis are nowadays still operated with the open technique. To our knowledge there are no meta-analysis comparing these techniques in AC. Some authors consider the presence of inflammation, edema, and necrosis as unfavorable conditions for safe dissection. As a consequence, the suspected

increased rate of complications leads numerous surgeons, in the laparoscopic era to postpone cholecystectomy after resolution of acute inflammation.

Traditionally, given the higher rate of morbidity such as bile duct injury, leakage, and conversion to open surgery, the delayed LC (DLC), which is defined as at least 1 week after initial conservative treatment, is commonly adopted in treating acute cholecystitis. [8]

Gallbladder disease is among the leading causes for hospital admission for acute abdomen among adults and the most common indication for abdominal surgery in the elderly. [9,10] In situations when LC is unsafe the surgeon might have to convert to an open procedure. The risk of conversion is higher in LC for acute cholecystitis than it is in an elective procedure. [11] The risk of conversion for patients undergoing LC for acute cholecystitis has been linked to male gender, age, previous endoscopic retrograde cholangiopancreatography (ERCP), a non-palpable gallbladder, elevated C-reactive protein (CRP) and white blood cell count (WBCC), gangrenous inflammation and the experience of the operating surgeon. [12]

The aim of the present study was to evaluate the indication of laparoscopic cholecystectomy for acute cholecystitis.

## Materials and Methods

The present study was conducted in the Department of General Surgery, Netaji Subhas medical College and Hospital, Bihta, Patna, Bihar, India for 1 year.

### 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.

### 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.

### Methodology

Total 100 acute cholecystitis patients at the hospital and routine daily worker of laparoscopic cholecystectomy in the Department of General Surgery, Netaji Subhas medical College and Hospital, Bihta, Patna, Bihar, India for 1 year. Out of 100 selected patients, 80 were males and 20 were females.

**Data analysis:** Collected data were statistically analyzed using SPSS software, MS Word and MS Excel.

## Results

**Table 1: Distribution of patients by age group**

Age group	N	Percentage
<35 years	5	5
36-40	13	13
41-45	20	20
46-50	25	25
51-55	22	22
56-60	7	7
>60	8	8

It is clear that the maximum patients (25%) were from the 46-50 years age group and 20% from the 41-45 years age group, whereas the 51-55 years age group represents 22%. The minimum age was 30 years, and the maximum was 75. The mean age of the respondents who attended the acute cholecystitis was 48 years. (Table 1)

**Table 2: Ultrasonography findings of the respondents**

USG features	Frequency	Percentage
Feature of acute calculas cholecystitis	80	80
Feature of a calculas cholecystitis	3	3
Empyema	4	4
Gangrenous Gall bladder	5	5
Acute on chronic cholecystitis	8	8

Table 2 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 80% of patients were suffering from acute calculus cholecystitis according to sonographic results.

### Discussion

LC has become the standard procedure for managing acute calculous cholecystitis. The main concerns are with safety and feasibility as reflected in the risk of conversion to open cholecystectomy as well as the risk of postoperative complications, especially bile duct injuries.

In our study, 100 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. [13-16] In our study, out of 100 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 48 years, which is comparable to other series is ranging from 42 years to 51.2 years. [17,18]

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. [13,15] 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. [19]

The rest of the risk factors are unfailing 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.

### Conclusion

In acute cholecystitis post-operative morbidity, mortality and hospital stay are reduced by laparoscopic cholecystectomy. Moreover pneumonia and wound infection rate are reduced by laparoscopy. A positive trend exists in operating time favoring laparoscopy, however more studies are necessary. Severe hemorrhage and bile leakage rate are not influenced by the technique. Cholecystectomy in acute cholecystitis should be attempted by laparoscopy at first. Early LC is safe and feasible in the treatment of acute calculous cholecystitis. Early identification and treatment of acute calculous cholecystitis might lower the number of patients with advanced cholecystitis and thus reduce the amount of converted patients and postoperative complications. When LC

cannot be performed safely conversion should be initiated to minimize the risk of bile duct injuries.

### References

1. Strasberg SM. Acute calculous cholecystitis. *New England Journal of Medicine*. 2008 Jun 26;358(26):2804-11.
2. Menahem B, Mulliri A, Fohlen A, Guittet L, Alves A, Lubrano J. Delayed laparoscopic cholecystectomy increases the total hospital stay compared to an early laparoscopic cholecystectomy after acute cholecystitis: an updated meta-analysis of randomized controlled trials. *HPB*. 2015 Oct 1;17(10):857-62.
3. Wu XD, Tian X, Liu MM, Wu L, Zhao S, Zhao L. Meta-analysis comparing early versus delayed laparoscopic cholecystectomy for acute cholecystitis. *Journal of British Surgery*. 2015 Oct;102(11):1302-13.
4. Ballal M, David G, Willmott S, Corless DJ, Deakin M, Slavin JP. Conversion after laparoscopic cholecystectomy in England. *Surgical endoscopy*. 2009 Oct; 23(10):2338-44.
5. Ingraham AM, Cohen ME, Ko CY, Hall BL. A current profile and assessment of North American cholecystectomy: results from the American College of Surgeons National Surgical Quality Improvement Program. *Journal of the American College of Surgeons*. 2010 Aug 1;211(2):176-86.
6. Kiviluoto T, Sirén J, Luukkonen P, Kivilaakso E. Randomised trial of laparoscopic versus open cholecystectomy for acute and gangrenous cholecystitis. *The Lancet*. 1998 Jan 31;351(9099):321-5.
7. Yamashita Y, Takada T, Kawarada Y, Nimura Y, Hirota M, Miura F, Mayumi T, Yoshida M, Strasberg S, Pitt HA, de Santibanes E. Surgical treatment of patients with acute cholecystitis: Tokyo Guidelines. *Journal of hepato-biliary-pancreatic surgery*. 2007 Jan;14(1):91-7.
8. Gomi H, Solomkin JS, Takada T, Strasberg SM, Pitt HA, Yoshida M, Kusachi S, Mayumi T, Miura F, Kiriya S, Yokoe M. TG13 antimicrobial therapy for acute cholangitis and cholecystitis. *Journal of hepato-biliary-pancreatic sciences*. 2013 Jan;20(1):60-70.
9. Miettinen P, Pasanen P, Lahtinen J, Alhava E. Acute abdominal pain in adults. In *Annales chirurgiae et gynaecologiae* 1996 Jan 1; 85(1): 5-9.
10. Ukkonen M, Kivivuori A, Rantanen T, Paajanen H. Emergency abdominal operations in the elderly: a multivariate regression analysis of 430 consecutive patients with acute abdomen. *World Journal of Surgery*. 2015 Dec;39(12): 2854-61.
11. Giger U.F., Michel J.M., Opitz I., Inderbitzin D.T., Kocher T., Krähenbühl L., of Laparoscopic S.A. and Group T.S.S.S., Risk factors for perioperative complications in patients undergoing laparoscopic cholecystectomy: analysis of 22,953 consecutive cases from the Swiss Association of Laparoscopic and Thoracoscopic Surgery database. *Journal of the American College of Surgeons*, 2006;203(5):723-728.
12. Domínguez LC, Rivera A, Bermúdez C, Herrera W. Analysis of factors for conversion of laparoscopic to open cholecystectomy: a prospective study of 703 patients with acute cholecystitis. *Cirugía Española (English Edition)*. 2011 Jan 1;89 (5): 300-6.
13. Lai PB, Kwong KH, Leung KL, Kwok SP, Chan AC, Chung SC, Lau WY. Randomized trial of early versus delayed laparoscopic cholecystectomy for acute cholecystitis. *British journal of surgery*. 1998 Jun;85(6):764-7.
14. Lo CM, Liu CL, Lai EC, Fan ST, Wong J. Early versus delayed laparoscopic cholecystectomy for treatment of acute cholecystitis. *Annals of Surgery*. 1996 Jan; 223(1):37.

15. Koperna T, Kisser M, Schulz F. Laparoscopic versus open treatment of patients with acute cholecystitis. *Hepato-gastroenterology*. 1999 Mar 1; 46(26):753-7.
16. Catani M, Modini C. Laparoscopic cholecystectomy in acute cholecystitis: a proposal of safe and effective technique. *Hepato-gastroenterology*. 2007 Dec 1;54(80):2186-91.
17. Kolla SB, Aggarwal S, Kumar A, Kumar R, Chumber S, Parshad R, Seenu V. Early versus delayed laparoscopic cholecystectomy for acute cholecystitis: a prospective randomized trial. *Surgical Endoscopy and Other Interventional Techniques*. 2004 Sep; 18(9):1323-7.
18. Lee VS, Chari RS, Cucchiaro G, Meyers WC. Complications of laparoscopic cholecystectomy. *The American journal of surgery*. 1993 Apr 1;165(4):527-32.
19. M. O. O., T. P. O., & I. A. S. O. Malacological Survey of Intermediate Hosts of Public Health Importance in Akure South and Owo Local Government Areas of Ondo State, Nigeria. *Journal of Medical Research and Health Sciences*. 2023; 6(2): 2414–2423.