



E-ISSN: 2616-3470  
P-ISSN: 2616-3462  
© Surgery Science  
www.surgeryscience.com  
2019; 3(4): 75-77  
Received: 13-08-2019  
Accepted: 17-09-2019

**Ajay Kumar**  
Associate Professor,  
Department of Surgery,  
Rajshree Medical Research  
Institute & Hospital Bareilly,  
Uttar Pradesh, India

**Ajai Agarwal**  
Associate Professor,  
Department of Surgery,  
Rajshree Medical Research  
Institute & Hospital Bareilly,  
Uttar Pradesh, India

## Evaluation of optimal time for laparoscopic cholecystectomy following acute cholecystitis attack in a tertiary care health centre

**Ajay Kumar and Ajai Agarwal**

DOI: <https://doi.org/10.33545/surgery.2019.v3.i4b.219>

### Abstract

**Background:** At the present time, acute cholecystitis is a common cause of acute abdominal pain and the definitive treatment is laparoscopic cholecystectomy but when to perform surgery still remains controversial. The aim of present study is to find out if laparoscopic cholecystectomy can be carried out for acute cholecystitis irrespective of the time since onset of acute symptoms.

**Methods:** We conducted a short term 6 months retrospective analysis of 24 patients in our hospital who underwent eTEP procedure for umbilical hernia and inguinal hernia, with a minimum of 3 months follow-up. Their data were analyzed for operative details, intra-operative and post-operative complications.

**Results:** Judging from our short term results, for 24 patients we have not come across any post-operative complications like seroma, SSI, recurrence, with a minimum of 3 months follow-up.

**Conclusion:** Laparoscopic cholecystectomy can be performed anytime of presentation of acute cholecystitis. Although delaying laparoscopic cholecystectomy was associated with more complications, higher mortality, and higher costs.

**Keywords:** Acute cholecystitis, timing of surgery and laparoscopic cholecystectomy

### Introduction

For the management of acute cholecystitis with cholelithiasis the appropriate timing for laparoscopic cholecystectomy remains controversial. Two approaches are available for the treatment of acute cholecystitis; the first approach is early (within 7 days of onset of symptoms) laparoscopic cholecystectomy (LC) as definitive treatment after establishing diagnosis and surgical fitness of the patient in the same hospital admission. The second approach is conservative treatment which is successful in about 90% of the cases and then delayed cholecystectomy is performed in the second hospital admission after an interval of 6–12 weeks. The choice of approach depends upon hospital infrastructure, surgical expertise, and patient's condition.

At first Laparoscopic cholecystectomy was not indicated in patients with acute cholecystitis due to fear of high morbidity and high rates of conversion to open surgery [2]. The prevalence of cholelithiasis is between 10% and 15%, and roughly 35% of patients build up complications or recurrent symptoms in their life span. [3,4] Even though over 70% of acute cholecystitis reacts to medical treatment in the initial 24-48 hours, laparoscopic cholecystectomy is the perfect treatment of symptomatic gallstone disease and its complications [5]. The probable risk of severe complications and the high conversion rate of Laparoscopic cholecystectomy in period of acute inflammation is a chief concern [6,7].

In the presence of acute inflammation, LC becomes more challenging and difficult because of edema, exudate, adhesions with adjoining structures, distension of gallbladder, friability of tissues, unclear and distorted ductal and vascular anatomy, hypervascularity, congestion, and dissemination of infection. These risk factors predispose for suboptimal outcome and high conversion rate to open cholecystectomy. As a result, the patient is deprived of potential benefits of LC which is now a "gold standard" for the management of symptomatic gallbladder stones. [8,9] Its job and its planning in the treatment of intense cholecystitis are questionable. Performing this technique amid the period of acute inflammation are, are related, even in master hands, with a high rate of transformation to open surgery [10-13]. Bringing about the loss of the upsides of this insignificantly invasive procedure. Though, of late laparoscopic cholecystectomy is viewed as

**Corresponding Author:**  
**Dr. Ajai Agarwal,**  
Associate Professor,  
Department of Surgery,  
Rajshree Medical Research  
Institute & Hospital Bareilly,  
Uttar Pradesh, India

the standard of consideration if the patient is seen within 48 h of the attack of acute cholecystitis because adhesions would not have developed so right after the onset of inflammation. [8] When patients are seen after 48 h from beginning of acute cholecystitis, surgeons though want to postpone cholecystectomy and lean towards conservative treatment followed by an interval cholecystectomy. [14]

The justification for such a methodology is, that inflammatory adhesions happen within 48 h and make dissection troublesome and risky, in this way provoking most surgeons to wait for 6 additional weeks to let adhesions subside, allowing them to perform surgery more safely. The disadvantage of such a methodology is, that few patients get repeated symptoms such as biliary colic or an additional attack of cholecystitis amid this waiting period.

So, present study was conducted to evaluate optimal time for laparoscopic cholecystectomy following acute cholecystitis attack in a Tertiary Care Health Centre.

### Materials and Methods

This prospective randomized study was undertaken in the Department of surgery at Rajshree Medical research institute & Hospital Bareilly for acute cholecystitis. We examined 200 laparoscopic cholecystectomies patients who had features of acute cholecystitis on USG at the time of acute presentation at our hospital or elsewhere. Of these, 80 cholecystectomies were performed for acute cholecystitis within 48 h to seven days of symptoms attack (Group A), 95 patients underwent surgery 6 weeks or more after the onset of symptoms (group B). They were compared on the following parameters:

1. Duration of surgery.
2. Duration of post operative stay.
3. Presence of major biliary injury and other surrounding organ injury

### Technique

We performed laparoscopic cholecystectomy using a four port technique. The 10 mm umbilical port is used for a 30° laparoscope. A 10 mm epigastric port serves as the main working port; while a 5 mm right hypochondriac port in the midclavicular line acts as the left-hand port for the surgeon. A 5 mm port as right lateral port in anterior axillary line is used by the assistant to hold the fundus of the gallbladder and retract it upward. In case of acutely inflamed tense gallbladders, the contents are first aspirated using a suction & cautery. The Calot's triangle is then dissected and the cystic artery is cauterized with bipolar or unipolar cautery after clipping at proximal end. The cystic duct is divided between ligatures and/or clips. The gallbladder is then dissected off the liver bed using hook with cautery. Inflamed gallbladders are retrieved with or without using an endobag through the umbilical port or through the epigastric port. Port sites are irrigated regularly. Drain is put through the right lateral port if spillage of gallbladder content occurs.

### Statistical Analysis

Data was statistically analysed by using student *t*-test, Fisher's exact test, and Wilcoxon rank-sum (Mann-whitney) test. *p* value < 0.05 was considered significant.

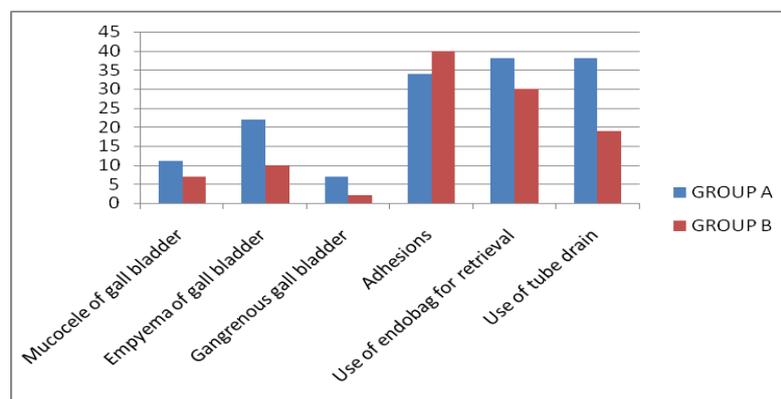
### Results

**Table 1:** Outcomes

	Group A	Group B
Number of cases	80	90
Duration of surgery (Mean)	48.75±7.15	42.7±8.25
Post operative stay (Days)	5 ±0.68	6 ±0.68
Total hospital stay	7±2.1	10.2±2.43
Major biliary injury	0	0
Other organ injury	0	0
Conversions	2	3

**Table 2:** Intra operative findings.

	Group A	Group B	P Value
Mucocele of gall bladder	11	7	<i>P</i> <0.05
Empyema of gall bladder	22	10	<i>P</i> <0.05
Gangrenous gall bladder	07	2	<i>P</i> <0.05
Adhesions	34	40	No significant difference
Use of endobag for retrieval	38	30	<i>P</i> <0.05
Use of tube drain	38	19	<i>P</i> <0.05



**Graph 1:** Graph demonstrating Intra operative findings.

### Discussion

Laparoscopic cholecystectomy was started in 1987 and in few years became "gold standard" for the treatment of symptomatic cholelithiasis and was also used for acute cholecystitis as more experience was gained in the technique. However, the

application of LC in the setting of acute cholecystitis is still controversial. In early years of laparoscopic surgery, acute cholecystitis was considered a relative contraindication to LC. However, some recent reports have suggested that LC is feasible and safe procedure for acute cholecystitis also, although the

complications and conversion rates are variable. However, more studies are required for conclusive results. [2, 3, 5]

The possible risk of severe complications and the high conversion rate of Laparoscopic cholecystectomy in the phase of acute inflammation is a main concern. [6, 7] Later, as a result of increasing experience and confidence in Laparoscopic cholecystectomy and technical support, the suggestions of early Laparoscopic cholecystectomy were extended to include patients with acute cholecystitis. Laparoscopic cholecystectomy has been accepted as the method of choice for treatment of Acute cholecystitis. [1, 2, 8-16] The possible hazards of severe problems and the high conversion rate of Laparoscopic cholecystectomy in the level of acute inflammation is an important concern. [6, 7] Afterwards, the outcome of increasing experience and confidence in Laparoscopic cholecystectomy and technical support, the indications of early Laparoscopic cholecystectomy were extended to include patients with acute cholecystitis. Laparoscopic cholecystectomy is accepted as the method of choice for treatment of cholecystitis. While the duration of surgery was longer when laparoscopic cholecystectomy was performed for acute cholecystitis within 6 weeks of the attack of cholecystitis at first, the time of post-operative stay and complications were comparable. [12, 14] There was no significant difference in any of the parameters compared between laparoscopic cholecystectomy performed within 48 hours to within seven days of acute cholecystitis and surgery performed after 6 weeks of the attack of acute cholecystitis. [1, 8-16] The longer duration of surgery for group 1 compared to group 2 could be attributed to the significantly higher percentage of gallbladder filled with pus, gangrenous gall bladder come across during surgery, and the time taken for endobag retrieval and drain placement, although it was comparable in both groups.

More surgeons agree that in acute cholecystitis timing of cholecystectomy is an important factor in determining outcome. Ideally the surgery should be performed as soon after admission as possible. Although operation within golden 72 hrs from the onset of symptoms has been suggested, such an early surgery is not always possible in clinical practice because of logistic difficulties in operating such patients on an emergency basis.

Al Qasabi *et al.* in their study reported conversion rates of 28.7% and mean operative times of 98 min for lap cholecystectomy for acute cholecystitis. [13] Lo *et al.* [15] in their study compared early (patients presenting within 120 h of the onset of symptoms) with interval cholecystectomy (patients undergoing surgery 6 weeks after the onset of acute symptoms). They reported conversion rates of 7.4% versus 20%, complication rates of 22% vs 20%, operative times of 141.5+55.2 min versus 108.8+47.4 min, and postoperative stay of 4.6+3.2 days versus 2.5+ 1.4 days) but reduced the total hospital stay (6.4 days vs. 12.4 days;  $p < 0.001$ ) between the two groups [15]. The results of a randomized controlled trial comparing early laparoscopic cholecystectomy after admission with delayed laparoscopic cholecystectomy showed that performing the surgery early was superior in terms of a lower conversion rate to open surgery and shorter total hospital stay. [14-18] Above results indicate that early laparoscopic cholecystectomy is preferable in patients with acute cholecystitis.

Both early and delayed laparoscopic cholecystectomies are feasible and safe in acute cholecystitis; however, delayed lap chole is associated with lower conversion rate as compared to early LC; early cholecystectomy offers definitive treatment at the initial admission and avoids the problem of failed conservative management and recurrent symptoms which required emergency surgery. [18]

## Conclusion

Laparoscopic cholecystectomy can be performed anytime of presentation of acute cholecystitis. Although delaying laparoscopic cholecystectomy was associated with more complications, higher mortality, and higher costs.

## References

- Siddiqui T, MacDonald A, Chong PS, Jenkins JT. Early versus delayed laparoscopic cholecystectomy for acute cholecystitis: a meta-analysis of randomized clinical trials. *American Journal of Surgery*. 2008; 195(1):40-47.
- Graves HA, Ballinger JF, Anderson WJ. Appraisal of laparoscopic cholecystectomy. *Ann Surg*. 1991; 213:655-61.
- Lo CM, Liu CL, Lai ECS, Fan ST, Wong J. Early versus delayed laparoscopic cholecystectomy for treatment of acute cholecystitis. *Annals of Surgery*. 1996; 223(1):37-42.
- Schirmer BD, Winters KL, Edlich RF. Cholelithiasis and cholecystitis. *J Long term Eff Med Implants*. 2005; 15:329-38.
- Chauhan HR, Charpot RV. A study to evaluate the optimal time for laparoscopic cholecystectomy after acute cholecystitis attack: A tertiary care centre study. *Int Surg J* 2016; 3:1325-8.
- Lee VS, Chari RS, Cucchiario G, Meyers WC. Complications of laparoscopic cholecystectomy. *Am J Surg*. 1993; 165:527-32.
- Kum CK, Goh PMY, Isaac JR, Tekant Y, Ngoi SS. Laparoscopic cholecystectomy for acute cholecystitis. *Br J Surg*. 1994; 81:1651-4.
- National Institutes of Health Consensus Development Conference statement on gallstones and laparoscopic cholecystectomy. *Am J Surg*. 1993; 165:390-8.
- Cuschieri A. Approach to the treatment of acute cholecystitis: open surgical, laparoscopic or endoscopic? *Endoscopy*. 1993; 25:397-8.
- Zucker KA, Flowers JL, Bailey RW, Graham SM, Buell J, Imbembo AL. Laparoscopic management of acute cholecystitis. *Am J Surg*. 1993; 165:508-14.
- Miller RE, Kimmelstiel FM. Laparoscopic cholecystectomy for acute cholecystitis. *Surg Endosc*. 1993; 7:266-99.
- Cox MR, Wilson TG, Luck AJ, Jeans PL, Padbury RT, Toouli J. Laparoscopic cholecystectomy for acute inflammation of the gallbladder. *Ann Surg*. 1993; 218:630-4.
- Al Qasabi QO. Laparoscopic cholecystectomy for acute cholecystitis. *Saudi J Gastroenterol*. 1998; 4:1163-6.
- Lai PB, Kwong KH, Leung KL, Kwok SP, Chan AC, Chung SC, *et al.* Randomised trial of early versus delayed laparoscopic cholecystectomy for acute cholecystitis. *Br J Surg*. 1998;85:764-7
- Lo CM, Liu CL, Lai ECS, Fan ST, Wong J. Early versus delayed laparoscopic cholecystectomy for treatment of acute cholecystitis. *Ann Surg*. 1996; 223:37-42.
- Yamashita Y, Takada T, Kawarada Y, Nimura Y, Hirota M, Miura F, *et al.* Surgical treatment of patients with acute cholecystitis: Tokyo Guidelines. *J Hepatobiliary Pancreat Surg*. 2007; 14(1):91-7.
- Johansson M, Tbune A, Blomqvist A, Nelvin L, Lundell L. Management of acute cholecystitis in the laparoscopic era: results of a prospective, randomized clinical trial. *J Gastrointest Surg*. 2003; 7:642-5.
- Rati Agrawal KC. Sood, and Bhupender Agarwal, Evaluation of Early versus Delayed Laparoscopic Cholecystectomy in Acute Cholecystitis. *Surgery Research and Practice*, Article ID 349801, 2015; 7:2015.