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Research Article

A study to evaluate the optimal time for laparoscopic cholecystectomy after acute cholecystitis attack: a tertiary care centre study

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ABSTRACT

Background: Initially, laparoscopic cholecystectomy was contraindicated in patients with acute cholecystitis because of the fear of increased morbidity and high rates (60%) of conversion to open surgery. Nowadays, 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 purpose of this study is to find out whether laparoscopic cholecystectomy can be performed for acute cholecystitis irrespective of the time since onset of acute symptoms.
Methods: A total of 100 laparoscopic cholecystectomies performed for acute cholecystitis were evaluated for duration of surgery, conversion rates, biliary and other organ injury, and postoperative stay by chi square test and paired t-tests using SPSS software. 45 patients underwent laparoscopic cholecystectomy within 48 h to seven days of onset of symptoms (group 1) and 55 patients underwent surgery after 6 weeks of onset of symptoms (group 2).
Results: While the duration of surgery was comparable in both groups (56.5±15 vs. 45.5±15 min), there were no significant difference in conversions or major biliary or other organ injury in any of the two groups. Postoperative stay was also comparable between the two groups (4±1.5 vs 3±1.5, days) but total hospital stay was significantly reduced in group1 compared to group 2 (5±1.5 vs 8.5±1.5 days) and so as total cost is also reduced.
Conclusions: Laparoscopic cholecystectomy can safely be performed at any time after the onset of acute cholecystitis. Early laparoscopic cholecystectomy has an outcome comparable to the delayed procedure, with a shorter total hospital stay and lower total costs, and it should be considered as the preferred approach in treatment of acute cholecystitis.

Keywords: Acute cholecystitis, Timing of surgery, Laparoscopic cholecystectomy, Complication and conversion rate

INTRODUCTION

Most surgeons were previously in agreement that conservative treatment with antibiotics followed by interval elective Laparoscopic cholecystectomy (LC) several weeks after the acute inflammation subsides could result in a safer operation with a lower conversion rate.[1] Initially, LC was contraindicated in patients with acute cholecystitis because of the fear of increased morbidity and high rates (60%) of conversion to open surgery.[2] Cholelithiasis has prevalence between 10% and 15%, and approximately 35% of patients develop complications or recurrent symptoms in their lifetime.[3,4] Although more than 70% of acute cholecystitis responds to medical treatment in the first 24-48 h, laparoscopic cholecystectomy (LC) is the definitive treatment of symptomatic gallstone disease and its complications.[1,2] The potential hazard of severe complications and the high conversion rate of LC in the phase of acute inflammation is a major concern.[9,10] Later, as a result of increasing experience and confidence in LC and technical support, the indications of early LC were extended to include

patients with acute cholecystitis. Laparoscopic cholecystectomy has been accepted as the procedure of choice for treatment of symptomatic gallstones and chronic cholecystitis.[6,7] Its role and its timing in the management of acute cholecystitis are controversial. Performing this procedure during the phase of acute inflammation are associated, even in expert hands, with a high incidence of conversion to open surgery.[11-14] resulting in the loss of the advantages of this minimally invasive procedure. However, recently laparoscopic cholecystectomy is considered to be the standard of care if the patient is seen within 48 h of the attack of acute cholecystitis because adhesions would not have developed so early after the onset of inflammation.[6] When patients are seen after 48 h from the onset of acute cholecystitis, surgeons however prefer to delay cholecystectomy and prefer conservative treatment followed by an interval cholecystectomy.[8]

The rationale for such an approach is that inflammatory adhesions occur within 48 h and make dissection difficult and dangerous, thus prompting most surgeons to wait for 6 more weeks to let adhesions subside, enabling them to perform surgery more safely. The drawback of such an approach is that several patients get recurrence of symptoms such as biliary colic or another attack of cholecystitis during this waiting period.

METHODS

We examined 100 laparoscopic cholecystectomies performed at Civil Hospital, Sola, Ahmedabad, from October 2014 to October 2015 for acute cholecystitis. All patients included had features of acute cholecystitis on USG at the time of acute presentation at our hospital or elsewhere. Of these, 45 cholecystectomies were performed for acute cholecystitis within 48 h to seven days of symptoms attack (group 1), 55 patients underwent surgery 6 weeks or more after the onset of symptoms (group 2). They were compared on the following parameters:

- Duration of surgery
- Duration of pot operative stay
- 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 30º 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 gall-bladder 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.

RESULTS

The findings are shown in Table l. The results were analysed using chi square test and paired t-tests with SPSS software. There was no significant difference in the duration of surgery between group 1 and group 2 (56.5±15 vs 45.5±15, min). There was reduced the length of hospital stay in group 1 as compared to group 2 (5±2.5 vs 8.5±1.5, days). No major biliary injuries or other organ injury was noted in any of the two groups. There was no significance in conversions to open surgery in the two groups. The intra-operative findings were compared to analyze the difference between the two groups (Table 2).

Table 1: Outcomes.

	Group 1	Group 2
Number of cases	45	55
Duration of surgery (Mean)	56.5±15	45.5±15
Post operative stay (Days)	4 ±1.5	3 ±1.5
Total hospital stay	5±2.5	8.5±1.5
Major biliary injury	0	0
Other organ injury	0	0
Conversions	1	1

Table 2: Intra operative findings.

	Group 1	Group 2	P value
Mucocele of gall bladder	9	3	P<0.001
Empyema of gall bladder	19	05	P<0.001
Gangrenous gall bladder	05	0	P<0.001
Adhesions	29	39	No significant difference between groups
Use of endobag for retrieval	34	23	P<0.001
Use of tube drain	28	8	P<0.001

DISCUSSION

The potential hazard of severe complications and the high conversion rate of LC in the phase of acute inflammation is a major concern.[9,10] Later, as a result of increasing

experience and confidence in LC and technical support, the indications of early LC were extended to include patients with acute cholecystitis. Laparoscopic cholecystectomy has been accepted as the procedure of choice for treatment of Acute cholecystitis.[1,2,6-16] The potential hazard of severe complications and the high conversion rate of LC in the phase of acute inflammation is a major concern.[9,10] Later, as a result of increasing experience and confidence in LC and technical support, the indications of early LC were extended to include patients with acute cholecystitis. Laparoscopic cholecystectomy has been accepted as the procedure 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 initially, the duration of post-operative stay and complications were comparable.[8,13] Also, there was no significant difference in any of the parameters compared between laparoscopic cholecystectomy performed within 48 h 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 pus-filled gallbladder, gangrenous gall bladder encountered during surgery, and the time taken for endobag retrieval and drain placement, though it was comparable in both groups.

Al Qasabi et al. have reported conversion rates of 28.7% and mean operative times of 98 min for lap cholecystectomy for acute cholecystitis.[14] Lo et al 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.[8,15-17] These results indicate that early laparoscopic cholecystectomy is preferable in patients with acute cholecystitis.

CONCLUSION

Thus, laparoscopic cholecystectomy may be safely performed in patients with acute cholecystitis irrespective of the time since the onset of symptoms. Early laparoscopic cholecystectomy has an outcome comparable to the delayed procedure, with a shorter total hospital stay and lower total costs, and it should be considered as the preferred approach in treatment of acute cholecystitis.

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