

Impact of Late Laparoscopic Cholecystectomy beyond 72 Hours and Less Than 6 Weeks for Acute Cholecystitis on Patient's quality of Life. A randomized Control Trial.

Mohd. Riaz¹, Ab. Hamid Wani¹, Nasib Chand Digra², Pradip Kumar³,
Satish Parihar⁴.

¹Assistant Professor Department of Surgery, Govt. Medical College Jammu, Jammu and Kashmir

¹Lecturer Department of Surgery, Govt. Medical College Jammu, Jammu and Kashmir.

²Professor Department of Surgery, Govt. Medical College Jammu, Jammu and Kashmir.

³Post Graduate Student Department of Surgery, Govt. Medical College Jammu, Jammu and Kashmir.

⁴Assistant Professor Department of Surgery, Govt. Medical College Jammu, Jammu and Kashmir.
Corresponding Author: Ab. Hamid Wani

Abstract: Background. Early and delayed laparoscopic cholecystectomy is well established, but the role of late laparoscopic cholecystectomy is not well documented. Aim. To evaluate the role of late laparoscopic cholecystectomy in waiting period (72hrs to 6 weeks) between early and delayed laparoscopic cholecystectomy. Methods. Total of 96 patients were evaluated, 48 patients in each group with group A who underwent early laparoscopic cholecystectomy less than 72 hours after the onset of symptoms and group B who underwent late laparoscopic cholecystectomy beyond 72 hours and less than 06 weeks. Results. No significant difference found between the two groups with respect to operating time, clinical recovery, hospital stay, complications and conversion rate. Conclusion. Late laparoscopic cholecystectomy is safe and feasible as early laparoscopic cholecystectomy.

Key words: ELC (early laparoscopic cholecystectomy), LLC (late laparoscopic cholecystectomy).

Date of Submission: 18-12-2018

Date of acceptance: 03-01-2019

I. Introduction

Laparoscopic cholecystectomy is the gold standard of treatment for symptomatic gall stone disease¹. The high prevalence of gall stones makes the cholecystectomy one of the commonest performed operations worldwide. The first laparoscopic cholecystectomy was performed by Eric Muhe in 1985². The safety and feasibility of early laparoscopic cholecystectomy i.e. within 72 hours of index admission is no more a controversy now³⁻¹⁰. But there is a group of patients who due to one or another reason are not operated during this period i.e. the patient who report late to emergency or OPD or not responding to conservative management or there is a recurrence during this waiting period for delayed laparoscopic cholecystectomy (after 6 weeks) and this group needs late laparoscopic intervention. The safety and feasibility of laparoscopic surgery in this stage needs to be evaluated. There are newer reports which show safety and feasibility of laparoscopic cholecystectomy in acute cholecystitis regardless of timing¹¹⁻¹². Early and delayed laparoscopic cholecystectomy is well established, but there is little/no literature available regarding late laparoscopic cholecystectomy.

The aim of this study was to compare early and late laparoscopic cholecystectomy in terms of effect of time on clinical severity, pathology and surgical outcome in a patient of acute cholecystitis, to confirm the feasibility and safety of late laparoscopic cholecystectomy and to compare the difference between the two entities with respect to rate of complication days after presentation.

II. Material and methods

This study was conducted in the postgraduate department of surgery Govt medical college Jammu. Ninety six patients were included in this study and were divided in to two groups, group A and group B with forty eight patients in each group. Group A patient underwent early laparoscopic cholecystectomy <72h and group B patients underwent late cholecystectomy beyond 72h – 6 weeks.

Inclusion criteria

All patients who reported to emergency/OPD irrespective of age and gender.

EXCLUSION CRITERIA

1. Patients with choledocholithiasis.
2. Suspected gall bladder adhesions due to previous surgeries
3. Patients suffering from acute pancreatitis and cholangitis

All patients in both the groups were fully evaluated by thorough clinical examination, lab. Parameters and radiological examination. After preanaesthetic checkup, and proper consent, patients were posted for surgery and the standard 4 port technique was used to perform the procedure. All patients received preoperative antibiotics. Data recorded includes

clinical findings and severity, timing of cholecystectomy, intraoperative findings, duration of surgical procedure, conversion rate, complication rate, mortality, length of hospital stay and follow up.

III. Results

Majority of the patients were in the age group of 20 to 50(76%) years. Total number of the patients studied were 96 with the range of 15-66, mean 43.9 and standard deviation 13.1 out of which 80 (83%) were female and 16 (17%) were male. Male to female ratio was 1:5. Total number of the patients in the early group was 48 with the mean age of 44.3 and standard deviation of 11.16 and total number of patients in late group were 48 with the mean age of 43.6 and standard deviation of 14. Table -1 shows the clinical severity of patients in both the groups as per Tokyo Guidelines^{13,14} and Table - 2 shows the comparison of early and late laparoscopic cholecystectomy in terms of effect of time on pathology.

Table 1: Showing comparison of early and late laparoscopic cholecystectomy in terms of effect of time on clinical severity

Clinical type	Early	Late
Mild	35(72.91%)	30(62.5%)
Moderate	12(25%)	16(33.3%)
Severe	1(2%)	2(4.2%)

Table 2: Showing comparison of early and late laparoscopic cholecystectomy in terms of effect of time on pathology.

Pathology	Early laparoscopic cholecystectomy	Late laparoscopic cholecystectomy	Total
Simple	37(56.06%)	29(43.93%)	66
Phlegmonous	8(40%)	12(60%)	20
Gangrenous	1(20%)	4(80%)	5
Frozen calots	2(40%)	3(60%)	5
Total	48	48	96

The average time taken for ELC was 38.5 min and LLC was 47 min with the standard deviation of 14.5 and p value 0.001 which is significant.

Mean Duration of hospital stay was 1.20 days in early and 1.22 days in late with a p value of 0.88 which is not significant. There was no conversion in either group as shown in table 3.

Table 3. Comparison of early and late laparoscopic cholecystectomy in terms of effect of time on surgical outcome of the patient.

Surgical outcome	Early laparoscopic cholecystectomy	Late laparoscopic cholecystectomy
Operating time	35.8 min	47 min
Conversion rate	0	0
Hospital stay	1.20 days	1.22 days
Complication	6	7

Total no of complications in early were 6 and late group 7 with no significant P value (0.76) as shown in table 4.

Table 4 showing the comparative study between the early and late laparoscopic cholecystectomy in terms of complications

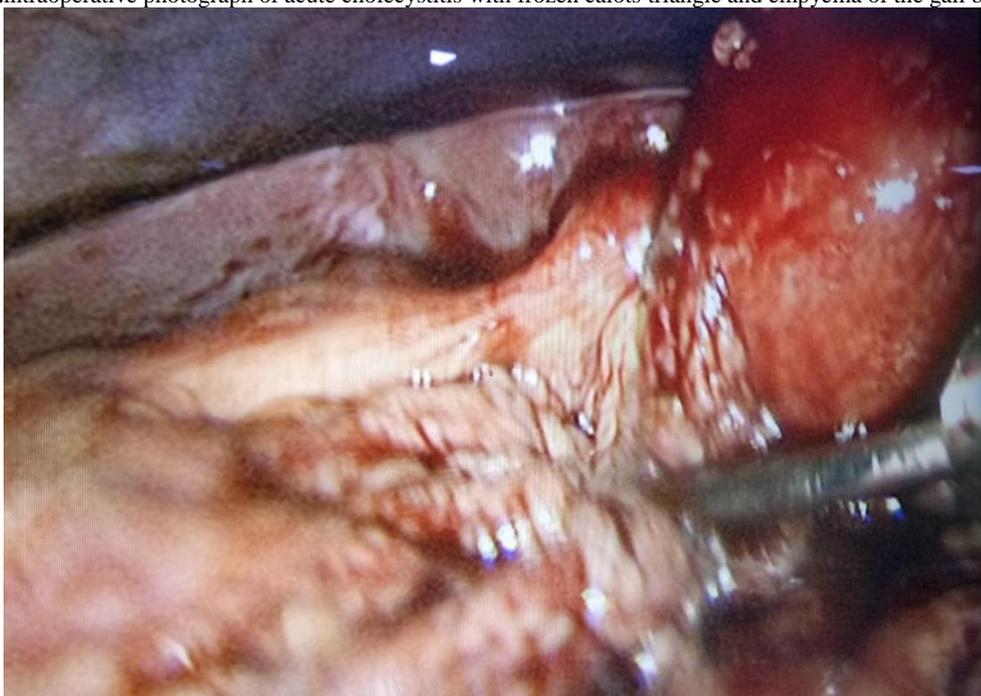
Complication	Early Laparoscopic cholecystectomy	Late laparoscopic cholecystectomy	Total	P value
Bile leak	2	1	3	0.76
Sinus bleed	2	3	5	0.81
Duodenal injury	1	1	2	-
Bile duct injury	0	0	-	-
Port site infection	1	1	2	0.65
Systemic infection	0	1	1	0.67
TOTAL	6	7	13	0.64

IV. Discussion

Most of the studies comparing early and delayed laparoscopic cholecystectomy have shown no significant difference in morbidity, mortality, operating time and conversion rates and early laparoscopic cholecystectomy is considered as safe and feasible choice in acute cholecystitis³⁻¹⁰. However current literature suggests that ELC should be performed within 72 hrs boundary from onset of symptoms setting a rigid boundary¹⁵. The effect of delay in early beyond 72hrs and its outcome is not clear in literature and these strata of patients needs to be evaluated.

The inflammatory response of acute cholecystitis is a well-defined pathological course. In early phase the stages of hyperemia and edema predominates and these even facilitates dissection at calots triangle. After 72 hours chronic inflammation develops with adhesions, fibrosis, hyper vascularity and necrosis is responsible for difficulty in dissection at calots triangle as shown in fig.1,2,3 the different stages of acute cholecystitis. Our analysis of data shows that majority are mild to moderate few are severe clinically in late laparoscopic group and majority are mild in severity in early laparoscopic group. Our finding show that a delayed treatment of acute cholecystitis is associated with increased clinical severity. Surpassing number of days from > 72hrs < less than 6 weeks is not a determining factor for inflammatory process and adhesion formation. Every individual in this universe is born with unique quintessence and inheritance having different response to different stimuli and hence to inflammation. So, pathological course of acute cholecystitis is not a time related event.

Fig.1.intraoperative photograph of acute cholecystitis with frozen calots triangle and empyema of the gall bladder.



Numerous studies have shown number of risk factors affecting the natural history of acute cholecystitis such as advanced age, male sex, co-morbidities, duration of symptoms etc more associated with complicated cholecystitis like gangrenous cholecystitis, perforation and peritonitis which may explain why the degree of inflammation may not only be a time dependent phenomenon.¹⁶Our finding showed that late laparoscopic cholecystectomy beyond 72hrs is not difficult as there is no significant difference in the intraoperative findings, complication rate, operation time and conversion rate in both the group.

V. Conclusion

Laparoscopic cholecystectomy for acute cholecystitis during emergency admission is safe and is associated with low morbidity and low conversion rate regardless of time limit and Late laparoscopic cholecystectomy is as safe as early laparoscopic cholecystectomy provided performed by an experienced laparoscopic surgeon. And there exists no pathological boundary as early as < 72hrs.

References

- [1]. Kolla SB, Aggarwal S, Kumar A, Kumar R, ChumberS, Paeshad R, et al. Early versus delayed laparoscopic cholecystectomy for acute cholecystitis: A prospective randomized trial. *SurgEndosc*. 2004;181 (9):1323-1327.
- [2]. Min-Wei Zhou, Xiao- DhongGu, Jian- Bin Xiang and Zong-You Chen. Comparison of clinical safety and outcome of early versus delayed laparoscopic cholecystectomy: a meta-analysis. *Scientific World Jou*
- [3]. Agrawal R, Sood KC and Agarwal B. Evaluation of Early versus Delayed Laparoscopic cholecystectomy in Acute cholecystitis, *Surg Res Pract* 2015; Article ID 349801, 7 pages.
- [4]. Bitnor R. The standard of laparoscopic cholecystectomy. *Langenbacks Arch Surg* 2000; 389:157-63.
- [5]. Cao AM, Eslick GD, Cox MR. Early Laparoscopic cholecystectomy is superior to delayed in acute cholecystitis –a meta analysis of case control studies [surgendosco 2016]
- [6]. Casillas RA, Yegiyants S, Collins JC. Early laproscopic cholecystectomy is preferred management in acute cholecystitis. *Arch surg* 2008; 143(6):533-37.
- [7]. Chang TC, LIN MT, Wu MH, Wang MY, Lee PH. Evaluation of early versus delayed laparoscopic cholecystectomy in the treatment of acute cholecystitis. *Hepatogastroenterology* 2009; 56(89): 26-8.
- [8]. Garber SM, Korman J, Cosgrove JM, Cohen JR. Early laparoscopic cholecystectomy for acute cholecystitis. *Surgical Endoscop* 1997; 11(4):347-50.
- [9]. Gul R, Dar RA, Sheikh RA, Salroo NA, Mataloo AR, Wani SH. Comparison of early and delayed laparoscopic cholecystectomy for acute cholecystitis: experience from a single center. *N Am J Med Sci* 2013; 5(7): 414-18.
- [10]. Gurusamy KS, Samaj K. Early versus delayed laparoscopic cholecystectomy for acute cholecystitis. *Cochrane Database Syst Rev* 2006; 4:CD005440.
- [11]. Meng FY, Tsao MZ, Huang ML. Laparoscopic cholecystectomy techniques with special care treatment in acute cholecystitis patients regardless of operation timing. *Hepatogastroenterology* 2012; 59:1006-1009.
- [12]. Zhu B, Zhang Z, Wang Y. Comparison of laparoscopic cholecystectomy for acute cholecystitis within and beyond 72 h of symptom onset during emergency admission. *World J Surg* 2012; 36:2654-2658
- [13]. Takada T, Kawarada Y, Nimura Y et al. Tokyo guidelines for the management of acute cholangitis and cholecystitis. *J Hepatobiliary Pancreat Surg* 2007; 14:1-10.
- [14]. Hirota M, Takada T, Kawarada Y et al. Diagnostic criteria and severity assessment of acute cholecystitis. Tokyo guidelines. *J hepatobiliary Pancreat Surg* 2007; 14:78-82.
- [15]. Rachel M, Niraj T Mehta, Vanesha Varik, Nilesh H. No 72- hour pathological boundary for safe early laparoscopic cholecystectomy in acute cholecystitis: a clinicopathological study. *Annals of Gastroenterology* 2013; 26:1-6.
- [16]. Bedirli A, Sakrako O, Sozuer EM. Factors effecting the complications in the natural history of acute cholecystitis. *Hepatogastroenterology* 2001; 48:1275-1278.