



## A COMPARATIVE STUDY OF EMERGENCY CHOLECYSTECTOMY AND INTERVAL CHOLECYSTECTOMY IN ACUTE CHOLECYSTITIS.

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### ABSTRACT

**Introduction:** Cholecystectomy has become the gold standard in the treatment of symptomatic gallstones. The common opinion was initially conservative treatment, to prevent complications of inflammation and following cholecystectomy after 6-8 weeks. However in recent years, emergency cholecystectomy has become more common. **Methods:** In this study 60 patients who are coming to General Surgery out patient department and who are diagnosed with acute cholecystitis will be randomly selected into two groups of 30 each. One group will undergo emergency cholecystectomy and other group will be treated conservatively initially and undergo interval cholecystectomy. **Results:** In our study emergency cholecystectomy had better outcome in terms of , mean operating time (p-0.013) ,mean operative stay ( p-0.002 ) , time taken to return to work (p-0.008) . Other estimates did not show significant difference. **Conclusion:** Emergency cholecystectomy is better as it reduces mean duration of hospital stay and time taken to return to work in patients with acute cholecystitis. However, caution should be exercised when selecting patients for early operation. Emergency cholecystectomy is feasible and safe for acute cholecystitis

**KEYWORDS :** Interval, Emergency, laparoscopic cholecystectomy

### INTRODUCTION

- Biliary tract diseases are the most common abdominal condition that the surgeons, radiologists and gastroenterologists encounter in everyday life next to appendicitis.
- Acute cholecystitis is an inflammatory condition, very often associated with cholelithiasis.1
- Cholecystectomy has become the gold standard in the treatment of symptomatic gallstones.
- The common opinion was initially conservative treatment, to prevent complications of inflammation and following cholecystectomy after 6-8 weeks.
- However in recent years, emergency cholecystectomy has become more common
- The aim of the study is to evaluate the safety and feasibility of emergency cholecystectomy during the acute admission with cholecystitis and to compare that with a policy of interval cholecystectomy.2
- Laparoscopic cholecystectomy is nowadays widely accepted as the standard operation in acute cholecystitis
- There are two surgical therapeutic options: Emergency cholecystectomy [EC] during the same admission done within 2 - 3 days of presentation and Interval cholecystectomy [IC] during a later admission after conservative treatment, performed 6 to 10 weeks after initial admission.3,4
- Our study aims to compare two treatment protocols for cholecystitis, in which EC performed within 3days after admission for acute episode with LC performed after 6 weeks after index episode.

### OBJECTIVES

- To study and compare the need for emergency laparoscopic cholecystectomy versus interval laparoscopic cholecystectomy in acute cholecystitis.
- To study and compare the outcome of emergency laparoscopic cholecystectomy versus interval laparoscopic cholecystectomy in acute cholecystitis

### METHODS

This study was a prospective interventional study carried out on 60 patients diagnosed with acute cholecystitis between 1st March 2021 to 31st August 2022 (18 months) and randomly divided into two groups of 30 each. One group will undergo emergency cholecystectomy and other group will be treated conservatively initially and undergo interval cholecystectomy.

### Inclusion criteria

- Diagnosed cases of Acute cholecystitis
- Patients of all age groups.Exclusion criteria
- Common bile duct calculi
- Pregnancy.

- Major bleeding disorder.
- Cirrhosis with portal hypertension.
- Generalised peritonitis
- Suspected gallbladder malignancyThe patients who presented with acute symptoms were treated as follows;
- Nasogastric tube aspiration.
- Intravenous fluid.
- Broad spectrum antibiotics.
- Analgesics.
- Antispasmodics

Patients were then allocated in to either 'early' or the 'delayed' group.

- In the early group, laparoscopic cholecystectomy was performed within 3days of randomization, whereas in the delayed group ,conservative treatment with intravenous fluids and antibiotics .The patients who responded to conservative treatment underwent an elective laparoscopic cholecystectomy 6 weeks after acute episode has subsided.RESULTS

### Table 1: AGE DISTRIBUTION OF ACUTE CHOLECYSTITIS CASES

The age range of patients in this study was from 23 to 52 years. The mean age of presentation was 42.61 years.

Age in years	Group A (Emergency cholecystectomy)		Group B (Interval cholecystectomy)		Total	
	No.	%	No.	%	No.	%
21—30	5	16.7	2	6.7	7	11.7
31—40	8	26.7	7	23.3	15	25.0
41—50	13	43.3	20	66.7	33	55.0
51—60	4	13.3	1	3.3	5	8.3
Total	30	100.0	30	100.0	60	
Mean ± SD	40.48 ± 8.19		42.72 ± 5.79		42.61 ± 6.72	
t-test value	t =	P =	NS			
P-value	0.202	0.841				

### Table 2: Gender wise distribution of cases in the groups

In the study female cases were predominant with 18 patients in early group and 23 patients in elective group.

Gender	Group-A		Group-B		Total	
	No.	%	No.	%	No.	%
Males	12	40.0	7	23.3	19	31.7
Females	18	60.0	23	76.7	41	68.3
Total	30	100.0	30	100.0	60	100.0

### Table 3: Clinical features of acute cholecystitis cases

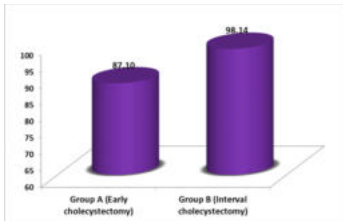
Clinical features	Group A (Emergency cholecystectomy)	Group B (Interval cholecystectomy)

	No.	%	No.	%
Pain abdomen	30	100.0	30	100.0
Fever	2	6.7	1	3.3
Nausea/vomiting	10	33.3	5	16.7
Tenderness	11	36.7	13	43.3

**Table 4 and Figure 1: Operating time of cases**

The mean operation time in Emergency group was 87.10 minutes and in Interval group was 98.14 minutes.

The mean operating time in the interval cholecystectomy group had significantly more as compare to emergency cholecystectomy group (p- 0.013).

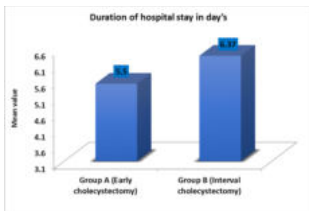


Groups	No. of cases	Operating time in min.	t- test value, P-value
		Mean ± SD	
Group A (Emergency cholecystectomy)	30	87.75 ± 13.10	t = 2.575 P = 0.013 S
Group B (Interval cholecystectomy)	30	98.19 ± 17.14	

**Figure 2: Duration of hospital stay in day's wise distribution of cases**

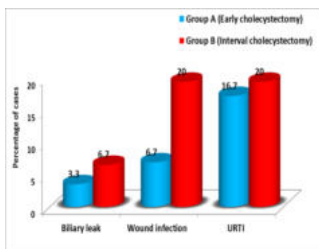
Duration of hospital stay in days in Emergency cholecystectomy was 5.50 days and in Interval cholecystectomy was 6.37 days.

The mean hospital stay was significantly higher in Interval cholecystectomy as compare to Emergency cholecystectomy



**Figure 3: Distribution of acute cholecystitis cases according to post operative complications**

- Post operative complications the most common complication was Urinary tract infection (URTI) 11patients (18.3%) in all cases, in group-A in 5patients (16.7%) and in Group-B in 6patients (20.0%)
- Wound infection were seen in Group-A in 2 patients(6.7%) and wound infection were seen more in Group-B in 6patients (20.0%).



**Figure 4: Time taken to return to work in days**

- The mean time taken to return to work in Emergency cholecystectomy was 11.34 days and in Interval cholecystectomy was 13.45 days
- The mean time taken to return to work in days in Interval cholecystectomy was significantly higher as compare to Emergency cholecystectomy



**DISCUSSION**

- In the early years of laparoscopic surgery, acute cholecystitis was considered a relative contraindication to laparoscopic cholecystectomy. Recently it has been shown that laparoscopic cholecystectomy is feasible and safe for acute cholecystitis
- Various studies have reported higher conversion rates, ranging from 6% to 35 % for emergency cholecystectomy used to manage acute cholecystitis. The higher conversion rates obviates the advantages of early laparoscopic cholecystectomy
- It is therefore argued that if delayed laparoscopic cholecystectomy leads to a technically easier surgery with a lower conversion rate , it may be a better treatment option for acute cholecystitis. Adam et al [1947] was of the opinion that surgical treatment should be carried within 26 -72 hours of onset of symptoms<sup>5</sup>. Zinnizer [1934],Mentzer [1936],Wright et al [1960],Ahmed [1992] all favoured emergency cholecystectomy<sup>6,7</sup>.
- However, there is an increased risk of gallstone related morbidity during the waiting period for cholecystectomy
- The general belief that initial conservative treatment increases the chance of successful laparoscopic cholecystectomy at a later date probably is not true, as borne out by this study. In our study both early and delayed groups had similar difficulty in identifying calot's triangle
- Our study supports the belief that inflammation associated with acute cholecystitis creates an edematous plane around the gallbladder ,thus facilitating its dissection from the surrounding structure
- R.A. Pyne in his study found that the average duration of hospital stay was 16 days for delayed cholecystectomy and around 10 days for the early group .8 I.Ahmed [1992] in his study found that the average duration of hospital stay in emergency cholecystectomy group was up to ten days . The total hospital stay was shorter by 5.50 days in the early group when compared to 6.37days in delayed group. This may result from more treatment and therapies given following intraoperative and post-operative complications.<sup>9</sup>
- Waiting for the inflammation to settle down allows maturation of the surrounding inflammation and results in organization of the adhesions , leading to scarring and contraction ,which makes the dissection more difficult
- The inflammation in early stages may not necessarily involve the calot's triangle , chronic inflammation often scars and distorts calot's triangle ,making dissection in this area more difficult
- The difference in operating time was significant (0.013) , in the interval group required a longer operative time than early group. This may be due to adhesions and scarring occurred in the inflammation process
- Emergency cholecystectomy is safe and also it shortens hospital stay and reduces the risk of repeated cholecystitis. Emergency cholecystectomy was found to decrease complications during the waiting period for elective laparoscopic cholecystectomy<sup>10</sup>
- This study showed that the duration of stay was lower in emergency cholecystectomy group. This may be due to a shorter hospitalization duration and lack of conservative treatment in emergency laparoscopic cholecystectomy. Emergency cholecystectomy is therefore advantageous when compared to Interval cholecystectomy

**CONCLUSION**

- Emergency cholecystectomy is better as it reduces mean duration of hospital stay and time taken to return to work in patients with

acute cholecystitis. However, caution should be exercised when selecting patients for early operation.

- Emergency cholecystectomy is feasible and safe for acute cholecystitis and should be preferred by surgeons for treatment of acute cholecystitis with the advantage of reduced intra operative complications, post operative morbidity and shorter hospital stay.

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