

# Clinical Trial of Early vs Delayed Laparoscopic Cholecystectomy After CBD Stone Clearance

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## Abstract

**Background:** The aim is to compare early vs delayed laparoscopic cholecystectomy after CBD stone clearance. **Subjects and Methodology:** 68 adult patients who underwent ERCP for concomitant gallstones and CBD stones were divided into 2 groups of 34 each. Group I was early cholecystectomy group underwent surgery within 72 hours of ERCP and in group II, the delayed group underwent surgery after 6 weeks of ERCP. **Results:** There were 22 males in group I and 20 in group II and 12 females in group I and 14 in group II. In group I and group II, the mean operative time was 46.3 minutes and 67.2 minutes respectively. Nassar scale was grade 1 in 20 and 7, grade 2 was seen in 10 and 4, grade 3 was seen in 3 and 15, grade 4 was seen in 1 and 8 respectively ( $P < 0.05$ ). Adhesion grade 1 was seen in 15 and 6, grade 2 was seen in 10 and 8, grade 3 was seen in 5 and 9 and grade 4 was seen in 4 and 11 respectively. Cholecystitis was seen in 26 and 12, dissection difficulty was seen in 8 and 19 and bleeding was seen in 4 and 11 respectively. The mean hospital stay was 32.4 hours in group I and 40.2 hours in group II, back to work was 14.2 days in group I and 17.6 days in group II, pain on numerical rating scale was 4.3 in group I and in group II was 4.9. Fever was present was 2 in group I and 4 in group II and wound complication was present in 1 in group I and 3 in group II. **Conclusion:** Early laparoscopic cholecystectomy after ERCP is better treatment option as compared to delayed cholecystectomy in terms of less operative time, less intraoperative difficulties.

**Keywords:** Laparoscopic Cholecystectomy, Operative Time, CBD clearance

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## Introduction

Cholelithiasis is a common disease that affects about 20% of the population. It has been estimated that about 15–20% of patients with gallbladder stones have concomitant choledocholithiasis.<sup>[1]</sup> Choledocholithiasis is one of the most common complications of gallstones.<sup>[2]</sup>

When encountered with concomitant calculi in the gall bladder along with biliary tree, most clinicians in the current Indian scenario resort to the rather safe approach of Common Bile Duct clearance by ERCP followed by a laparoscopic cholecystectomy to eliminate the so-called factory of gallstones.<sup>[3]</sup> Attempting to treat any pathology detected in one clinical visit is crucial in a scenario where patient follow-up is not as strong as the Western set-up, even if the chances of complications are a number not strong enough to warrant aggressive intervention in other set-ups.<sup>[4,5]</sup>

Some studies found that LC after ERCP was more difficult than LC for an uncomplicated biliary system. The high

conversion rate to open cholecystectomy can be attributed to the adhesions and inflammation around the gallbladder and in Calot's triangle.<sup>[6]</sup> The inflammation and adhesions were believed to be from the bacterial colonization and reflux of bile after sphincterotomy in ERCP. Some authors preferred delaying LC after ERCP so that the inflammation involving Calot's triangle after ERCP had the time to subside.<sup>[7]</sup> The present study was conducted to compare early vs delayed laparoscopic cholecystectomy after CBD stone clearance.

## Subjects and Methods

The present study comprised of 68 adult patients of either gender, aged between 18 and 65 years who underwent ERCP for concomitant gallstones and CBD stones. All were informed regarding the study and their written consent was obtained.

Demographic data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 34 each. Group I was early cholecystectomy group underwent surgery

within 72 hours of ERCP and in group II, the delayed group underwent surgery after 6 weeks of ERCP. Operative parameters such as operative time, the grading of adhesions, the difficulty of dissection in Calot's triangle, bleeding, and conversion to open cholecystectomy was recorded. Nassar scale for grading of operative difficulty in laparoscopic cholecystectomy was used. Results thus obtained were compared.

## Results

There were 22 males in group I and 20 in group II and 12 females in group I and 14 in group II.

In group I and group II, the mean operative time was 46.3 minutes and 67.2 minutes respectively. Nassar scale was grade 1 in 20 and 7, grade 2 was seen in 10 and 4, grade 3 was seen in 3 and 15, grade 4 was seen in 1 and 8 respectively ( $P < 0.05$ ). Adhesion grade 1 was seen in 15 and 6, grade 2 was seen in 10 and 8, grade 3 was seen in 5 and 9 and grade 4 was seen in 4 and 11 respectively. Cholecystitis was seen in 26 and 12, dissection difficulty was seen in 8 and 19 and bleeding was seen in 4 and 11 respectively. The difference was significant ( $P < 0.05$ ) [Table 2].

The mean hospital stay was 32.4 hours in group I and 40.2 hours in group II, back to work was 14.2 days in group I and 17.6 days in group II, pain on numerical rating scale was 4.3 in group I and in group II was 4.9. Fever was present was 2 in group I and 4 in group II and wound complication was present in 1 in group I and 3 in group II [Table 3, Figure 1].

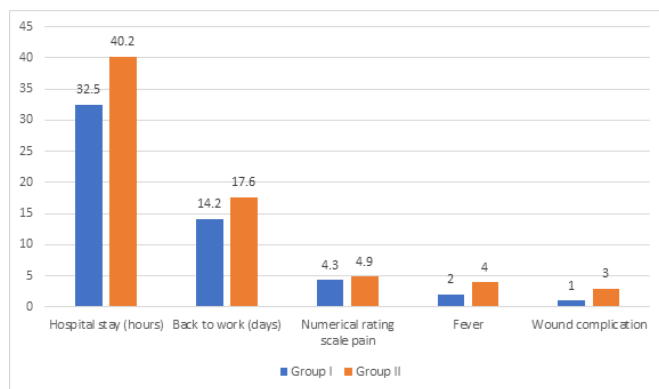


Figure 1:

## Discussion

In present study compare early vs delayed laparoscopic cholecystectomy after CBD stone clearance. There were 68 patients in our study.<sup>[8]</sup> Most clinicians practice operating on the gall bladder within 72 hours as a means of fast-tracked

management of the entire spectrum of gall stone disease affecting the patient.<sup>[9]</sup> However, there is a significant chunk of surgeons who believe that handling a biliary system that has been subjected to an insult and a breach of sterility is better at a delayed stage after the inflammation settles.<sup>[10]</sup> There is a debate as to whether the handling of acutely inflamed gall bladder and duct is worth the heroics and whether it is easier to just handle the adhesions that are encountered in interval surgery.<sup>[11]</sup> In cases where there is a high-risk of cholangitis (as assessed by preop and intra ERCP factors), a stent is placed within the CBD and a check cholangiogram is done. Therein lies the divarication of roads for laparoscopic cholecystectomy. It is standard practice to follow up CBD clearance with laparoscopic cholecystectomy but the timing is very clinician oriented.<sup>[12]</sup>

In our study, there were 22 males in group I and 20 in group II and 12 females in group I and 14 in group II. Pavan et al,<sup>[13]</sup> found that 43 had index admission surgery after ERCP (Group 1) while 43 (Group 2) had surgery in the next sitting. 42 patients had their surgery within 72 hours while one patient had to wait 7 days due to logistical issues. Jaundice was noted in 19 patients. Findings of the Classical Charcot's triad for cholangitis was noted in only 3 patients. However, 16 patients were diagnosed to have cholangitis by laboratory and ERCP findings. There is no statistical difference between the Two Groups related to age, sex, body mass index, co-morbidities, initial leucocyte count, initial total and direct bilirubin, initial CBD size and Initial alkaline phosphatase level. 16 out of 43 patients in the Early Group were stented whereas 27 out of 43 patients were stented in the Delayed Group. Even though there are more number of patients with CBD stent in the Delayed Group, there was no statistically significant difference between the Two Groups ( $p = 0.083$ ).

We observed that in group I and group II, the mean operative time was 46.3 minutes and 67.2 minutes respectively. Nassar scale was grade 1 in 20 and 7, grade 2 was seen in 10 and 4, grade 3 was seen in 3 and 15, grade 4 was seen in 1 and 8 respectively ( $P < 0.05$ ). Adhesion grade 1 was seen in 15 and 6, grade 2 was seen in 10 and 8, grade 3 was seen in 5 and 9 and grade 4 was seen in 4 and 11 respectively. Cholecystitis was seen in 26 and 12, dissection difficulty was seen in 8 and 19 and bleeding was seen in 4 and 11 respectively. Ali et al,<sup>[14]</sup> compared early and delayed laparoscopic cholecystectomy after ERCP for concomitant gallbladder stones and common bile duct stones using unique parameters like the Nassar scale with clarification of the benefits of the appropriate timing. The early cholecystectomy group underwent surgery within 72 h of ERCP while the delayed group underwent surgery after 6 weeks of ERCP. Operative parameters included the operative time, the grading of adhesions, the difficulty of dissection in Calot's triangle, bleeding, and conversion to open cholecystectomy. The delayed cholecystectomy group was

**Table 1: Patients distribution**

Groups	Group I (34)	Group II (34)
Method	Early cholecystectomy	Delayed cholecystectomy
M:F	22:12	20:14

**Table 2: Assessment of parameters**

Parameters	Variables	Group I	Group II	P value
Operative time (mins)		46.3	67.2	0.03
Nassar scale	Grade 1	20	7	0.02
	Grade 2	10	4	
	Grade 3	3	15	
	Grade 4	1	8	
Adhesion	Grade 1	15	6	0.06
	Grade 2	10	8	
	Grade 3	5	9	
	Grade 4	4	11	
Cholecystitis		26	12	0.03
Dissection difficulty		8	19	0.02
Bleeding		4	11	0.01

**Table 3: Postoperative follow-up**

Parameters	Group I	Group II	P value
Hospital stay (hours)	32.5	40.2	0.05
Back to work (days)	14.2	17.6	0.04
Numerical rating scale pain	4.3	4.9	0.09
Fever	2	4	0.04
Wound complication	1	3	0.05

associated with significantly higher rates of acute cholecystitis while waiting for surgery, higher grades of the Nassar scale, more adhesions, more operative difficulties, difficult dissection of Calot’s triangle, and longer operative time.

El Nakeeb et al,<sup>[15]</sup> reported that recurrent biliary events would be decreased if LC was performed early within 1 week from ERCP, and thus hospital stay would decrease. Akaraviputh et al,<sup>[16]</sup> concluded that same-day surgery after ERCP is preferred for CBD stones as it is a safe management with good results. Mann k et al,<sup>[17]</sup> used the long operative time as an alternative marker of the difficult operation. This long operative time was associated with a high rate of complications in LC. The operative difficulty has multiple factors like the surgeon’s experience, technical support, patient factors, and anatomical variations.

### Conclusion

Early laparoscopic cholecystectomy after ERCP is better treatment option as compared to delayed cholecystectomy in

terms of less operative time, less intraoperative difficulties.

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