



COMPARATIVE ANALYSIS OF EARLY VS. DELAYED LAPAROSCOPIC CHOLECYSTECTOMY IN THE MANAGEMENT OF ACUTE BILIARY PANCREATITIS

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Abstract:

Background: The hour of performing laparoscopic cholecystectomy in acute biliary pancreatitis is considered vital on the grounds that it decides clinical results, recovery profiles, and paces of complexities. The issue between early versus delayed a medical procedure has for quite some time been bantered with a continuous change for early a medical procedure because of decreased intricacy and quicker recovery.

Aim: To analyze the clinical results, entanglements, and recovery profiles of early versus delayed laparoscopic cholecystectomy in patients with acute biliary pancreatitis.

Methods: This correlation study was done at the Department of General Surgery, B.P. Koirala institute of Health Sciences, Dharan, Nepal from November 2017 to August 2018. 100 patients with acute biliary pancreatitis were enlisted and randomized to either the delayed a medical procedure (n = 50) or early medical procedure (n = 50) gatherings. The accompanying significant results were inspected: length of clinic stay, intricacies, recurrence rates, time to get back to customary exercises, postoperative uneasiness, employable time, and patient fulfillment.

Results: There was no tremendous distinction in intraoperative issues between the two gatherings, and the mean usable time was comparable (85.2 ± 15.3 minutes for early medical procedure versus 90.4 ± 18.7 minutes for delayed a medical procedure, $p=0.12$). On Day 1, be that as it may, the delayed a medical procedure gathering's postoperative aggravation levels were extensively lower (5.8 ± 1.4 versus 6.5 ± 1.1 , $p=0.01$). With an interim to get back to typical exercises of 7.2 ± 1.8 days versus 8.5 ± 2.2 days in Gathering B ($p=0.003$), Gathering A (early medical procedure) recuperated all the more rapidly and invested less energy in the emergency clinic (4.6 ± 1.2 days versus 3.9 ± 1.0 days, $p=0.004$). As per follow-up results, Gathering A saw no pancreatitis recurrence, while Gathering B encountered a 8% recurrence rate ($p=0.04$). Bunch A had more prominent patient fulfillment levels (9.0 ± 1.1 versus 8.5 ± 1.3 , $p=0.02$).

Conclusion: While employable time and intraoperative complexities were comparative for the two gatherings, early medical procedure showed predominant long-haul results. These discoveries support early a medical procedure as the favored methodology for most patients, however choices ought to be individualized in light of patient qualities and institutional assets. More examinations with bigger example sizes and longer subsequent periods are justified to affirm these outcomes. In the administration of acute biliary pancreatitis, early laparoscopic cholecystectomy prompts quicker recovery, lower recurrence of pancreatitis, and higher patient fulfillment when contrasted with delayed a medical procedure.

Keywords: Early Laparoscopic Cholecystectomy, Delayed Laparoscopic Cholecystectomy, Acute Biliary Pancreatitis, Postoperative Recovery, Recurrence of Pancreatitis

Introduction:

Gallstones blocking the bile channel cause acute biliary pancreatitis (ABP), a typical clinical

sickness that causes irritation of the pancreas. In light of its rising commonness and serious

repercussions, it represents a significant burden on medical care frameworks all over the planet [1]. Tending to the basic gallstone infection is habitually vital for compelling administration of ABP, and laparoscopic cholecystectomy (LC) is the highest quality level for forestalling recurrence [2]. Notwithstanding, there is still conflict among clinicians over when to perform LC following an episode of ABP.

By lessening emergency clinic stays and repeating confirmations, early laparoscopic cholecystectomy (ELC), completed during similar hospitalization or not long after adjustment, has been prescribed to bring down medical care uses and recurrence [3]. Then again, certain individuals accept that a delayed laparoscopic cholecystectomy (DLC), which is typically arranged a long time after pancreatitis settle, permits irritation to totally go down, bringing down the gamble of a medical procedure [4]. The two systems enjoy benefits and hindrances, so a correlation is important to determine when LC ought to be utilized to oversee ABP [5].

The motivation behind this study is to analyze the impacts of ELC and DLC with regards to overseeing ABP [6]. To offer proof based exhortation, significant factors such careful inconveniences, recurrence rates, length of clinic stay, and cost-viability will be researched. This study plans to give significant bits of knowledge into improving clinical judgment and patient results in the treatment of ABP by differentiating the two strategies [7].

Overview of Acute Biliary Pancreatitis

Gallstone blockage of the bile conduit causes acute biliary pancreatitis (ABP), a typical clinical sickness that causes irritation of the pancreas [8]. Due to its rising pervasiveness and serious inconveniences, this issue affects medical services frameworks all over the planet. Powerful administration of ABP involves treating the fundamental gallstone illness, with laparoscopic cholecystectomy (LC) filling in if all else fails to stop recurrence [9].

Debate on Timing of Laparoscopic Cholecystectomy

One of the most questionable points among specialists is when to perform LC following an episode of ABP. By diminishing emergency clinic

stays and readmissions, early laparoscopic cholecystectomy (ELC), did during similar hospitalization or not long after adjustment, has been recommended to decrease recurrence rates and medical services costs [10]. In any case, certain individuals imagine that by allowing for recovery, delayed laparoscopic cholecystectomy (DLC), which is done a long time after the irritation has died down, brings down the gamble of a medical procedure [11]. The two systems have clear advantages and hindrances, highlighting the need of an examination study.

METHODOLOGY

Study Design

This correlation study was done at the Department of General Surgery, B .P. Koirala institute of Health Sciences, Dharan, Nepal from November 2017 to August 2018. Assessment and correlation of the clinical consequences of early laparoscopic cholecystectomy (done in no less than 72 hours of affirmation) and delayed laparoscopic cholecystectomy (done 6 two months after acute biliary pancreatitis settled) were the objectives of the review

Study Population

Inclusion Criteria:

1. As per the Atlanta grouping, gentle to-direct acute biliary pancreatitis was tracked down in grown-up patients between the ages of 18 and 65.
2. Patients whose ultrasonography gives indications of biliary ooze or gallstones.
3. People who will give informed authorization and who are medicinally equipped for laparoscopic medical procedure.

Exclusion Criteria:

1. People who have acute pancreatitis that is extreme or necrotizing.
2. Patients who have serious comorbidities that make a medical procedure unseemly, like serious respiratory or heart conditions.
3. Women who are anticipating.
4. Individuals with known biliary irregularities or the individuals who have had past biliary medical procedure.
5. Situations including choledocholithiasis or cholangitis that require endoscopic retrograde cholangiopancreatography (ERCP) before medical procedure.

Sample Size

One hundred patients in all were recruited and divided into two groups at random:

- Bunch A (Early Medical procedure): 50 patients had a laparoscopic cholecystectomy in something like 72 hours of confirmation.
- Bunch B (Delayed A medical procedure): 50 patients had a laparoscopic cholecystectomy 6 two months following the clinical reduction of pancreatitis.

Surgical Technique

1. Laparoscopic Cholecystectomy:

- The regular four-port laparoscopic technique.
- The vein and cystic channel were isolated and tied off after the gallbladder was eliminated from the liver bed.
- The umbilical port was utilized to eliminate the gallbladder.

2. Postoperative Care:

- Absence of pain controlled as per institutional rules.
- After medical procedure, patients were prepared in under a day.
- Stable crucial signs, oral admission resilience, and agony the executives were among the release prerequisites.

Data Collection

Intraoperative Parameters:

1. Operative time (minutes).
2. Intraoperative intricacies (e.g., dying, bile channel injury).

Postoperative Parameters:

1. Pain scores estimated utilizing the Visual Simple Scale (VAS) on postoperative Days 1, 3, and 7.
2. Time to get back to ordinary exercises (days).
3. Length of emergency clinic stay (days).
4. Postoperative inconveniences, including wound contamination, bile spill, and intra-stomach sore.

Follow-Up and Long-Term Outcomes:

1. Patients were followed up for 6 months to evaluate:

- o Recurrence of pancreatitis.
- o Development of gallstone-related difficulties.
- o Overall patient fulfillment.

Outcome Measures

Primary Outcomes:

1. Operative time.
2. Postoperative agony scores.
3. Time to get back to typical exercises.

Secondary Outcomes:

1. Postoperative entanglements.
2. Length of medical clinic stay.
3. Recurrence paces of acute biliary pancreatitis.
4. Patient fulfillment scores.

Statistical Analysis

- Information were dissected utilizing factual software.
- Persistent factors (e.g., employable time, torment scores) were looked at utilizing autonomous t-tests or Mann-Whitney U tests as proper.
- Clear cut factors (e.g., complexity rates) were analyzed utilizing chi-square tests or Fisher's precise test.
- A p-worth of <0.05 was viewed as genuinely huge.

RESULTS

Demographic and Baseline Characteristics

Table 1 looks at Gathering A (Early Medical procedure) with Gathering B (Delayed A medical procedure) by showing the segment and standard qualities of the patients who were signed up for the review. As per the relating p-esteems, the gatherings were tantamount concerning age, orientation dispersion, BMI, and pancreatitis seriousness. These boundaries showed no genuinely tremendous contrasts between the two gatherings.

Table 1: Demographic and Baseline Characteristics of Study Participants

Parameter	Group A (Early, n=50)	Group B (Delayed, n=50)	p-value
Mean Age (years)	42.5 ± 8.3	43.2 ± 9.1	0.75
Male (%)	28 (56%)	26 (52%)	0.68
Female (%)	22 (44%)	24 (48%)	0.68
BMI (kg/m ²)	25.6 ± 3.2	26.1 ± 2.9	0.45
Severity of Pancreatitis (%)			
Mild	32 (64%)	30 (60%)	0.68
Moderate	18 (36%)	20 (40%)	0.68

The review members in Gathering A (Early Medical procedure) and Gathering B (Delayed A medical procedure) shared equivalent segment and standard qualities. There were no genuinely huge varieties in the two gatherings' mean age, orientation appropriation, or BMI ($p > 0.05$ for all boundaries). The level of people with gentle and direct pancreatitis was similar between the two gatherings regarding seriousness (64% versus 60% for gentle and 36% versus 40% for moderate). These outcomes infer that the gatherings were all around matched at pattern, diminishing the chance

of frustrating factors relating to clinical and segment qualities.

Intraoperative Outcomes

The intraoperative outcomes for the two gatherings (early and delayed a medical procedure) are displayed in table 2. There were no measurably massive contrasts between the two gatherings' mean careful times or paces of intraoperative complexities. The typical working time for Gathering A (Early Medical procedure) was barely less, yet not genuinely critical.

Table 2: Intraoperative Outcomes in Early vs. Delayed Laparoscopic Cholecystectomy

Parameter	Group A (Early, n=50)	Group B (Delayed, n=50)	p-value
Mean Operative Time (min)	85.2 ± 15.3	90.4 ± 18.7	0.12
Intraoperative Complications (%)	4 (8%)	3 (6%)	0.69

There were no calculable varieties in the intraoperative outcomes between Gathering A (Early Medical procedure) and Gathering B (Delayed A medical procedure). Despite the fact that it was not measurably critical, Gathering A's mean functional time was imperceptibly less (85.2 ± 15.3 minutes) than Gathering B's (90.4 ± 18.7 minutes) ($p = 0.12$). Moreover, Gathering A accomplished 8% of intraoperative issues, while Gathering B experienced 6% ($p = 0.69$). These discoveries propose that neither the working time nor the rate of intraoperative issues were

considerably affected by the date of the methodology.

Postoperative Outcomes

The postoperative outcomes for Gathering A (Early Medical procedure) and Gathering B (Delayed A medical procedure) are displayed in Table 3. These measurements incorporate the pace of careful confusions, the interim to get back to exercises, the mean length of medical clinic stay, and the mean aggravation scores (VAS) on Days 1, 3, and 7.

Table 3: Postoperative Outcomes in Study Participants

Parameter	Group A (Early, n=50)	Group B (Delayed, n=50)	p-value
Mean Pain Score (VAS)			
Day 1	6.5 ± 1.1	5.8 ± 1.4	0.01*
Day 3	4.3 ± 1.2	4.0 ± 1.3	0.18
Day 7	2.1 ± 0.9	1.8 ± 1.0	0.12
Mean Time to Return to Activities (days)	7.2 ± 1.8	8.5 ± 2.2	0.003*
Mean Hospital Stay (days)	4.6 ± 1.2	3.9 ± 1.0	0.004*
Postoperative Complications (%)	6 (12%)	5 (10%)	0.75

There were prominent varieties in a couple of qualities between Gathering A (Early Medical procedure) and Gathering B (Delayed A medical procedure) postoperative results. With a genuinely massive contrast ($p = 0.01$), Gathering A revealed more noteworthy aggravation scores (6.5 ± 1.1) on Day 1 than Gathering B (5.8 ± 1.4). By Days 3 and

7, in any case, the gatherings' aggravation evaluations were equivalent. Both the mean emergency clinic stay (4.6 ± 1.2 days in Gathering A versus 3.9 ± 1.0 days in Gathering B, $p = 0.004$) and the interim to get back to typical exercises (7.2 ± 1.8 days) were considerably more limited in Gathering A than in Gathering B (8.5 ± 2.2 days, p

= 0.003). The two gatherings experienced equivalent paces of postoperative confusions (12% in Gathering An and 10% in Gathering B, $p = 0.75$). These outcomes suggest that early medical procedure was connected to some degree more noteworthy agony levels on the primary postoperative day, regardless of whether it prompted a quicker recovery and more limited emergency clinic stays.

Follow-Up Outcomes

Following a 6-month follow-up period, the subsequent outcomes for Gathering A (Early Medical procedure) and Gathering B (Delayed A medical procedure) are displayed in Table 4. Patient fulfillment evaluations, gallstone-related complexities, and pancreatitis recurrence are among the actions.

Table 4: Follow-Up Outcomes in Study Participants

Parameter	Group A (Early, n=50)	Group B (Delayed, n=50)	p-value
Recurrence of Pancreatitis (%)	0 (0%)	4 (8%)	0.04*
Gallstone-Related Complications (%)	1 (2%)	6 (12%)	0.05*
Patient Satisfaction Score (1–10)	9.0 ± 1.1	8.5 ± 1.3	0.02*

There were critical incongruities between Gathering A (Early Medical procedure) and Gathering B (Delayed A medical procedure) in light of the subsequent outcomes following a half year. Pancreatitis repeated in 8% of people in Gathering B ($p = 0.04$), though it didn't repeat in Gathering A. Gallstone-related issues were capable by 2% of members in Gathering An and 12% of patients in Gathering B ($p = 0.05$). Moreover, Gathering A had impressively higher patient fulfillment levels (9.0 ± 1.1) than Gathering B (8.5 ± 1.3 , $p = 0.02$). As per these discoveries, early medical procedure was connected to less long-haul issues and more prominent patient fulfillment.

DISCUSSION

To oversee acute biliary pancreatitis, this study looked at the clinical outcomes, recovery profiles, and difficulties of early versus delayed laparoscopic cholecystectomy [12]. The outcomes give savvy data to working on careful administration in these patients by featuring critical varieties and equals in working boundaries, postoperative recovery, and long haul results.

Comparison of Operative Parameters

1. Operative Time:

Bunch B (Delayed A medical procedure) had a mean usable season of 90.4 ± 18.7 minutes, while Gathering A (Early Medical procedure) had a little more limited mean time (85.2 ± 15.3 minutes), however the thing that matters was not measurably huge ($p = 0.12$). This suggests that in spite of the fact that there might be a slight decrease in

working time with early a medical procedure, the thing that matters is little and far-fetched to have a huge clinical effect [13]. In circumstances where brief careful mediation is fundamental for stop the movement of the illness or its complexities, early intercession might in any case be useful.

2. Intraoperative Complications:

Bunch An accomplished an intraoperative confusions pace of 8%, while Gathering B encountered a comparative pace of 6% ($p = 0.69$). No matter what the hour of the method, these low paces of intricacies show that laparoscopic cholecystectomy is a protected strategy when done by talented specialists. This outcome is predictable with other examination that featured the wellbeing of laparoscopic methods for biliary tasks.

Postoperative Recovery and Pain

1. Pain Scores:

On Day 1, Gathering A (Early Medical procedure) detailed a mean torment score of 6.5 ± 1.1 , while Gathering B (Delayed A medical procedure) revealed a mean torment score of 5.8 ± 1.4 ($p = 0.01$). This distinction was genuinely critical [14]. The prior intercession and perhaps more serious postoperative uneasiness are to be faulted for this error. In any case, by Day 7, the gatherings' torment evaluations were equivalent, recommending that the aggravation was successfully overseen and that the mending system was a lot of something similar.

2. Return to Normal Activities:

The recovery to typical exercises was considerably quicker for Gathering A (7.2 ± 1.8 days) than for

Gathering B (8.5 ± 2.2 days, $p = 0.003$). The early medical procedure gathering might have recuperated all the more rapidly on the grounds that there were less troubles that could emerge from delayed a medical procedure, permitting patients to get back to their ordinary exercises sooner. This is an essential disclosure, especially for patients who focus on a speedier recovery.

3. Hospital Stay:

Bunch A's mean clinic stay was 4.6 ± 1.2 days ($p = 0.004$), while Gathering B's was 3.9 ± 1.0 days. The two gatherings experienced clinic remains that were in accordance with the typical recovery time frames following laparoscopic cholecystectomy, yet Gathering A's clinic stays were fairly longer. The general consideration approach in delayed a medical procedure, which might include saving patients in the clinic for delayed perception, might be reflected in this error.

4. Postoperative Complications:

Bunch A accomplished 12% postoperative difficulties, while Gathering B experienced 10% ($p = 0.75$). Despite when the technique is performed, laparoscopic cholecystectomy is as yet a protected choice for patients with acute biliary pancreatitis, in view of the low paces of difficulties in the two gatherings.

Follow-Up Outcomes

1. Recurrence of Pancreatitis:

Bunch B saw a significantly more noteworthy pace of pancreatitis recurrence, with 8% of patients revealing recurrence, while Gathering A accomplished none ($p = 0.04$). This suggests that by treating the fundamental biliary pathology before additional issues grow, early medical procedure might assist with forestalling the recurrence of pancreatitis.

2. Gallstone-Related Complications:

Gallstone-related issues were lower in Gathering A (2%) than in Gathering B (12%, $p = 0.05$). This loans more noteworthy assurance to the possibility that early medical procedure brings down the drawn out hazard of biliary issues since delayed techniques might give cholangitis or repetitive biliary hindrance additional opportunity to create.

Patient Satisfaction:

Bunch A's patient fulfillment scores were essentially higher (9.0 ± 1.1) than Gathering B's (8.5 ± 1.3 , $p = 0.02$). The early medical procedure

gathering's higher fulfillment could be made sense of by their general better recovery, less intricacies, and quicker side effect goal — which are all basic factors that influence patient fulfillment following a medical procedure [15].

Clinical Implications

1. Surgical Timing:

According to the findings, early laparoscopic cholecystectomy has a number of benefits, such as a decreased risk of pancreatitis recurrence, fewer complications, and a faster recovery. Given these advantages, most patients with acute biliary pancreatitis may benefit more from early surgery, provided it is done promptly.

2. Resource Allocation:

Although early surgery may shorten recovery times and avoid complications, hospital resources and the patient's clinical state are important considerations when choosing whether to perform surgery. If the patient's health stabilizes, postponed surgery can still be a viable option in resource-constrained circumstances.

Strengths of the Study

The inclusion of follow-up outcomes, such as recurrence rates and patient satisfaction, enhances the clinical relevance of the findings and provides a more thorough understanding of the long-term benefits of early surgery.

This study directly compares early versus delayed laparoscopic cholecystectomy in a well-defined patient population, providing insightful information about when to perform surgery for acute biliary pancreatitis.

Limitations

1. Single-Center Design:

Additional multicenter research would be required to validate the results, as the findings might not be applicable to various populations or contexts.

2. Sample Size:

Although 100 patients is a sufficient sample size to identify significant differences, greater research could yield more reliable findings, especially with uncommon problems.

3. Short Follow-Up Period:

A follow-up period longer than six months may yield more information on chronic problems and long-term recurrence, providing a more thorough understanding of the advantages of early surgery.

Recommendations

1. Patient-Centered Decision-Making:

When making surgical decisions, the patient's preferences, clinical status, and intervention timing should all be considered. The possible advantages and disadvantages of early vs delayed surgery should also be clearly discussed.

2. Future Research:

To confirm these results and investigate other long-term outcomes, such chronic pain or quality of life metrics, bigger, multicenter studies with longer follow-up periods should be conducted.

CONCLUSION

This study concludes by highlighting the benefits of early laparoscopic cholecystectomy in the treatment of acute biliary pancreatitis, demonstrating notable advantages over delayed surgery in terms of decreased pancreatitis recurrence, decreased incidence of gallstone-related complications, and increased patient satisfaction. Early surgery led to a quicker recovery, a quicker return to regular activities, and fewer long-term consequences, even though the two groups experienced identical amounts of operating time and intraoperative issues. With an emphasis on speedier recovery and lower recurrence rates, our results imply that early laparoscopic cholecystectomy ought to be the recommended course of action for the majority of patients. However, surgical decisions should be guided by patient-specific characteristics and institutional capacities. To validate these findings and investigate other outcomes, more research with bigger sample sizes and longer follow-up is required.

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