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RESEARCH ARTICLE

EARLY VS. DELAYED LAPAROSCOPIC CHOLECYSTECTOMY FOR ACUTE CHOLECYSTITIS

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Acute cholecystitis, laparoscopic cholecystectomy, early surgery, delayed surgery, conversion rate, complications, morbidity.

Abstract

Background: Acute cholecystitis, an inflammation of the gallbladder, is a common surgical emergency that requires prompt intervention. Laparoscopic cholecystectomy (LC) is the gold standard treatment. However, the optimal timing of surgery—whether early laparoscopic cholecystectomy (ELC) performed within 72 hours of symptom onset or delayed laparoscopic cholecystectomy (DLC) after conservative management—remains a subject of debate.

Objective: This study aims to compare the outcomes of early versus delayed laparoscopic cholecystectomy in acute cholecystitis, focusing on parameters such as operative time, complication rates, conversion to open surgery, hospital stay duration, and overall patient morbidity.

Methods:A prospective comparative study was conducted at a tertiary care center, including patients diagnosed with acute cholecystitis. Patients were divided into two groups: ELC (surgery within 72 hours) and DLC (surgery after conservative management for 6–8 weeks). Operative and postoperative outcomes were recorded and analyzed statistically.

Results: The mean operative time was shorter in the ELC group (45 ± 10 min) than in the DLC group (60 ± 15 min). The rate of conversion to open cholecystectomy was higher in the DLC group (15%) compared to the ELC group (5%). Postoperative complications, including bile duct injuries and wound infections, were more common in the DLC group. The total hospital stay was significantly lower in the ELC group (4.5 ± 1.2 days) than in the DLC group (10.2 ± 2.3 days).

Conclusion: Early laparoscopic cholecystectomy is associated with shorter hospital stays, lower conversion rates, and reduced morbidity compared to delayed surgery. Based on these findings, ELC should be the preferred approach for managing acute cholecystitis.

Introduction:-

Acute cholecystitis is one of the most common causes of acute abdominal pain requiring hospital admission and surgical intervention. It is primarily caused by gallstones obstructing the cystic duct, leading to bile stasis, inflammation, and infection. Symptoms include right upper quadrant pain, fever, nausea, and vomiting. If left untreated, it can progress to complications such as gallbladder perforation, abscess formation, and sepsis.

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Laparoscopic cholecystectomy (LC) is widely accepted as the standard treatment for symptomatic gallstone disease, replacing open cholecystectomy due to its minimally invasive nature, reduced postoperative pain, and faster recovery. However, the optimal timing of surgery remains controversial.

The two main approaches include:
• Early Laparoscopic Cholecystectomy (ELC): Performed within 72 hours of symptom onset, aiming to remove the gallbladder before inflammation leads to extensive adhesions.
• Delayed Laparoscopic Cholecystectomy (DLC): Initially managed conservatively with antibiotics and fluid resuscitation, followed by elective LC after 6–8 weeks when inflammation has subsided.
This study compares the two approaches by analyzing their impact on operative difficulty, complications, length of hospital stay, and overall patient outcomes.

Methods:-

Study Design:-
This is a prospective observational study conducted at a tertiary care center over two years, evaluating the outcomes of early versus delayed laparoscopic cholecystectomy in acute cholecystitis.

Patient Selection:-
Inclusion Criteria:-
• Patients aged 18–75 years with a clinical and radiological diagnosis of acute cholecystitis (based on Tokyo Guidelines 2018).
• Patients with an ASA (American Society of Anesthesiologists) score of I-III (low-to-moderate surgical risk).
• Patients consenting to laparoscopic cholecystectomy.

Exclusion Criteria:-
• Gallbladder perforation, emphysematous cholecystitis, or suspected malignancy.
• Severe comorbid conditions contraindicating surgery (ASA IV-V).
• Pregnancy or contraindications to laparoscopic surgery.

Data Collection:-
Patients were categorized into two groups:
• ELC Group: Underwent laparoscopic cholecystectomy within 72 hours of symptom onset.
• DLC Group: Received initial conservative management with antibiotics and fluid therapy, followed by LC after 6–8 weeks.

Key outcomes assessed:
• Operative time
• Conversion rate to open surgery
• Intraoperative complications (bleeding, bile duct injury, gallbladder perforation)
• Postoperative complications (infection, bile leak, ileus)
• Total length of hospital stay

Observations and Results:-

1. Operative Time:-
• ELC group: 45 ± 10 minutes
• DLC group: 60 ± 15 minutes
The DLC group had significantly longer operative times due to increased adhesions and fibrosis.

2. Conversion Rate to Open Surgery:-
• ELC group: 5% (5 out of 100 cases)
• DLC group: 15% (15 out of 100 cases)
The higher conversion rate in the DLC group was attributed to difficult dissection due to chronic inflammation.

3. Intraoperative Complications:-
Complication ELCGroup DLC Group Bleeding 4% 8%

Bile duct injury	1%	3% Gallbladder perforation 3%	5%

4. Postoperative Complications:-

Complication	ELC Group	DLC Group	Wound infection	3%	7%
Bile leak	2%	5%	Postoperative ileus	4%	6%

5. Length of Hospital Stay:-

- ELC group: 4.5 ± 1.2 days
- DLC group: 10.2 ± 2.3 days

The DLC group had a longer total hospital stay due to initial conservative treatment and a second admission for elective surgery.

Discussion:-

1. Timing of Surgery and Operative Difficulty

The findings suggest that early surgery prevents chronic inflammation and adhesion formation, making dissection easier and reducing operative time.

2. Risk of Recurrence in DLC

Approximately 20–30% of DLC patients experienced recurrent cholecystitis, requiring emergency surgery before their planned elective procedure.

3. Cost-Effectiveness

ELC is more cost-effective as it reduces hospital visits, readmissions, and overall healthcare costs associated with delayed surgery.

4. Current Guidelines and Recommendations

International guidelines (Tokyo Guidelines 2018, Society of American Gastrointestinal and Endoscopic Surgeons) now support ELC as the preferred approach for acute cholecystitis in most cases.

Conclusion:-

This study demonstrates that early laparoscopic cholecystectomy is superior to delayed surgery for acute cholecystitis, offering shorter operative time, reduced conversion rates, lower complication rates, and a significantly shorter hospital stay. These findings support the growing consensus that ELC should be the standard of care for acute cholecystitis.

References:-

1. Gurusamy KS, Davidson BR. Early versus delayed laparoscopic cholecystectomy for acute cholecystitis. Cochrane Database Syst Rev. 2013;(6):CD005440.
2. Yokoe M, Takada T, Strasberg SM, et al. Tokyo Guidelines 2018: Management of acute cholecystitis. J Hepatobiliary Pancreat Sci. 2018;25(1):55-72.
3. Gutt CN, Encke J, Köninger J, et al. ACDC trial: Early vs. delayed cholecystectomy in acute cholecystitis. Ann Surg. 2013;258(3):385-393.
4. Tazuma S, Unno M, Igarashi Y, et al. Evidence-based clinical practice guidelines for cholelithiasis 2016. J Gastroenterol. 2017;52(3):276-300.
5. de Mestral C, Rotstein OD, Laupacis A, et al. A population-based analysis of the clinical course of 10,304 patients with acute cholecystitis. Ann Surg. 2013;257(1):180-187.
6. Papi C, Catarci M, D'Ambrosio L, et al. Timing of cholecystectomy for acute calculous cholecystitis: A meta-analysis. Am J Gastroenterol. 2004;99(1):147-155.
7. Cao AM, Eslick GD, Cox MR. Early laparoscopic cholecystectomy is superior to delayed surgery for acute cholecystitis: A meta-analysis. J Gastrointest Surg. 2015;19(5):848-857.
8. Pisano M, Allievi N, Gurusamy K, et al. 2020 World Society of Emergency Surgery guidelines for the diagnosis and treatment of acute calculous cholecystitis. World J Emerg Surg. 2020;15(1):61.
9. Ambe PC, Weber SA, Wassenberg D, et al. Is early cholecystectomy for acute cholecystitis less complicated than delayed surgery? A meta-analysis of case-control studies. SurgEndosc. 2015;29(10):2803-2813.
10. Johansson M, Thune A, Blomqvist A, et al. Management of acute cholecystitis in the laparoscopic era: Results of a prospective, randomized clinical trial. J Gastrointest Surg. 2003;7(5):642-645.