

EVALUATION OF CONSERVATIVE VS SURGICAL MANAGEMENT OF ACUTE CHOLECYSTITIS

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Abstract: Cholecystectomy on an emergency basis or being treated with antibiotics gives a success rate of up to 86%. **Objectives:** The primary purpose of the study is to compare conservative vs surgical management of acute cholecystitis. **Methods:** This comparative observational study was conducted at Gondal Hospital Lahore from January 2024 to March 2024. Data were collected from 210 patients from different age groups. Patients with a clinical and imaging-confirmed diagnosis of acute cholecystitis were included in the study. Data were gathered on demographics, clinical presentation, laboratory results, imaging findings, treatment specifics, and patient outcomes. Variables included age, gender, symptom duration, white blood cell count, C-reactive protein levels, imaging results, treatment type, hospital stay duration, complications, and recurrence rates. **Results:** Data were collected from 210 patients. The mean age was similar between groups (54.23±2.35 years for conservative vs. 56.01±2.51 years for surgical). Gender distribution was comparable, with 54.3% males and 45.7% females in the conservative group and 50.5% males and 49.5% females in the surgical group. The complication rates were higher in the conservative management group (14.3%) compared to the surgical management group (7.6%). Specific complications in the conservative group included perforation (3.8%), abscess formation (5.7%), and sepsis (4.8%), whereas the surgical group experienced wound infections (2.9%), bile duct injuries (1.9%), and postoperative bleeding (2.9%). **Conclusion:** It is concluded that surgical management of acute cholecystitis, mainly through cholecystectomy, offers superior outcomes compared to conservative management. Patients undergoing surgery experience higher symptom resolution rates, shorter hospital stays, lower recurrence rates, and fewer complications.

Keywords: Acute Cholecystitis, Cholecystectomy, Conservative Treatment, Outcome Assessment, Surgical Management.

Introduction

Acute cholecystitis, an inflammation of the gallbladder, is a common and significant medical condition that can cause severe abdominal pain and complications if not treated promptly. Managing acute cholecystitis typically involves conservative (non-surgical) or surgical approaches (1). Conservative management includes antibiotics, pain relief, and supportive care, aiming to control inflammation and infection without immediate surgery. In contrast, surgical management, particularly cholecystectomy, involves the removal of the gallbladder and is often recommended to prevent recurrent episodes and complications. Acute cholecystitis is a frequent reason for patients' admission to the emergency room and significantly affects surgical services (2). Previously, the patients were treated either by performing Cholecystectomy on an emergency basis or being treated with antibiotics, which gives a success rate of up to 86%. Those who did not respond to the above conservative medical management were subsequently subjected to cholecystectomy. Notes on operative cholecystostomy include that it was done on patients who cannot undergo resection (3).

Thus, in some patients, cholecystostomy was performed as the definitive procedure; in others, cholecystectomy was performed later. Traditionally, during the first years of laparoscopic cholecystectomy, it was believed that acute inflammation of the gall bladder was a contra-indication for

this technique of resection (4). In this regard, managing acute cholecystitis conservatively and deferring cholecystectomy electives became reasonable. Subsequently, with the progressive refinement of the use of laparoscopy in an emergency, several authors have reported good results of emergency LARIS of the inflamed gall bladder. A meta-analysis recently suggested that early operation is the best option for treating AC (5, 6). Nevertheless, performing routine L.C. in an emergency is not always easy, especially in the public sector where specialist care is not provided and the theatre time is limited (7). In addition, depending on the availability of the specialist-led service, which was found to be quickly accessible in this case, the subsequent reported conversion rate to open surgery is comparatively high. Acute cholecystitis is one acute condition that more frequently means admission to hospital and often an operation. It is most commonly seen in people with gallstones; however, they are not always the cause of the disease (8). Acalculous cholecystitis occurs in patients in the intensive care unit receiving total parenteral nutrition, multiple trauma or significant burns and post-cardiac surgical patients. Symptomatic acute cholecystitis is a frequent reason for suffering and, on some occasions, death in elders, people with diabetes and pregnant women (9). Cholelithiasis has some predisposing factors that include obesity, old age and the use of such drugs as oral contraceptives. Acute



cholecystitis is a problem in diagnosis in people with diabetes, pregnant women and immunocompromised patients due to relatively unspecific signs and symptoms (10). Identifying these patients and their early surgical management is crucial when the patient’s status permits it. Early cholecystectomy decreases the incidence of peri- and postoperative complications and the probability of relapse in the case of conservative therapy (11). Thus, the study’s main objective is to compare conservative vs surgical management of acute cholecystitis.

Methodology

This comparative observational study was conducted at Gondal Hospital Lahore from January 2024 to March 2024. Data were collected from 210 patients from different age groups. Patients with a clinical and imaging-confirmed diagnosis of acute cholecystitis were included in the study. Patients with chronic cholecystitis, gallbladder cancer, or severe comorbid conditions precluding surgery were excluded. Data were gathered on demographics, clinical presentation, laboratory results, imaging findings, treatment specifics, and patient outcomes. Variables included age, gender, symptom duration, white blood cell count, C-reactive protein levels, imaging results, treatment type, hospital stay duration, complications, and recurrence rates. Patients were divided into two equal groups based on their treatment approach:

- Group A: Conservative Management Group
- Group B: Surgical Management Group

Group A, comprising 105 patients, received non-surgical treatment, including intravenous antibiotics, analgesics, and supportive care, such as intravenous fluids and dietary modifications. Patients were monitored for clinical improvement and complications. Group B, also consisting of 105 patients, underwent cholecystectomy. The choice between laparoscopic or open surgery was based on the patient’s condition and the surgeon’s discretion. Standard preoperative and postoperative care protocols were followed. The primary outcomes assessed were symptom resolution rates, hospital stay duration, and recurrence of acute cholecystitis.

Data analysis was conducted using SPSS v29. A p-value of less than 0.05 was considered statistically significant.

Results

Data were collected from 210 patients. The mean age was similar between groups (54.23±2.35 years for conservative vs. 56.01±2.51 years for surgical). Gender distribution was comparable, with 54.3% males and 45.7% females in the conservative group and 50.5% males and 49.5% females in the surgical group. Patients in the conservative group had an average duration of symptoms of 3.5 days, whereas the surgical group averaged 4.2 days. The average white blood cell count was 12,000 cells/μL in the conservative group and 13,000 cells/μL in the surgical group, with C-reactive protein levels averaging ten mg/L and 12 mg/L, respectively. (Table 1)

Table 1: Patient Demographics and Clinical Characteristics

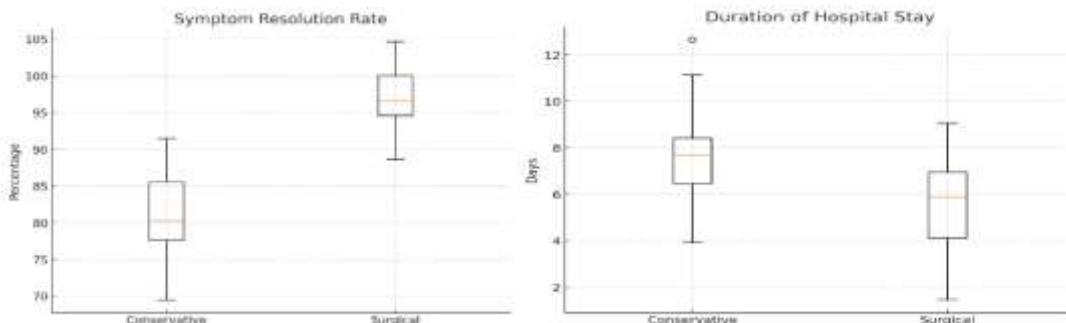
Characteristics	Conservative Management (n=105)	Surgical Management (n=105)
Mean Age (years)	54.23±2.35	56.01±2.51
Male	57 (54.3%)	53 (50.5%)
Female	48 (45.7%)	52 (49.5%)
Average Duration of Symptoms (days)	3.5	4.2
Average White Blood Cell Count (cells/μL)	12,000	13,000
Average C-reactive Protein Level (mg/L)	10	12

Regarding outcome measures, the symptom resolution rate was significantly higher in the surgical management group (97.1%) compared to the conservative management group (81.0%). The average duration of hospital stay was shorter

for patients who underwent surgical management (5.3 days) compared to those who received conservative treatment (7.5 days). (Table 2)

Table 2: Primary Outcome Measures

Outcome Measure	Conservative Management (n=105)	Surgical Management (n=105)
Symptom Resolution Rate	85 (81.0%)	102 (97.1%)
Average Duration of Hospital Stay (days)	7.5	5.3
Recurrence of Acute Cholecystitis	20 (19.0%)	5 (4.8%)



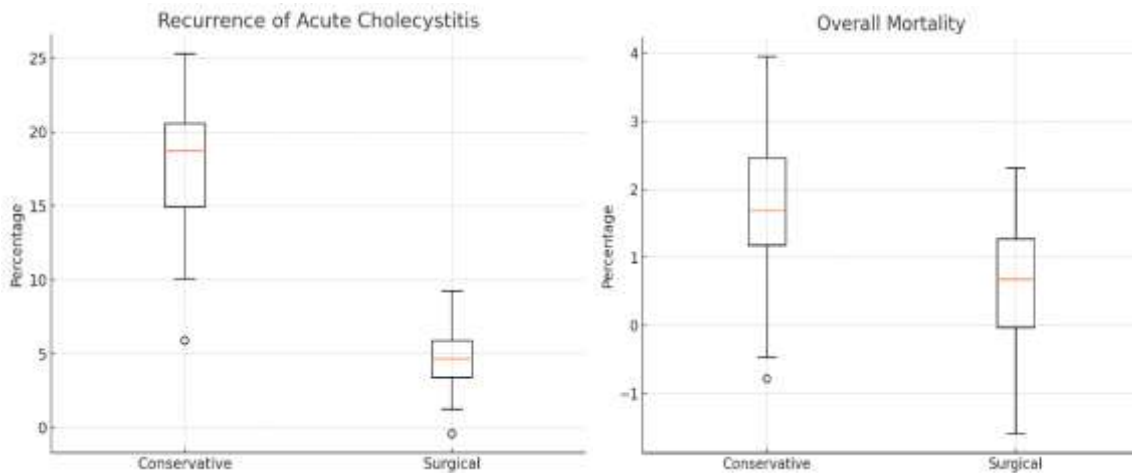
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The complication rates were higher in the conservative management group (14.3%) compared to the surgical management group (7.6%). Specific complications in the conservative group included perforation (3.8%), abscess

formation (5.7%), and sepsis (4.8%), whereas the surgical group experienced wound infections (2.9%), bile duct injuries (1.9%), and postoperative bleeding (2.9%). (Table 3)

Table 3: Secondary Outcome Measures

Outcome Measure	Conservative Management (n=105)	Surgical Management (n=105)
Complication Rates	15 (14.3%)	8 (7.6%)
- Perforation	4 (3.8%)	0 (0%)
- Abscess Formation	6 (5.7%)	0 (0%)
- Sepsis	5 (4.8%)	0 (0%)
- Wound Infection	0 (0%)	3 (2.9%)
- Bile Duct Injury	0 (0%)	2 (1.9%)
- Postoperative Bleeding	0 (0%)	3 (2.9%)
Need for Additional Interventions	18 (17.1%)	3 (2.9%)
Overall Mortality	2 (1.9%)	1 (0.9%)



The study reveals that surgical management of acute cholecystitis results in significantly higher symptom resolution rates (97.1% vs. 81.0%), shorter hospital stays (5.3 vs. 7.5 days), and lower recurrence rates (4.8% vs.

19.0%) compared to conservative management. Additionally, surgical treatment had fewer complications (7.6% vs. 14.3%) and a reduced need for additional interventions (2.9% vs. 17.1%). (Table 4)

Table 4: Comparative Analysis of Treatment Outcomes

Outcome Measure	Conservative Management (n=105)	Surgical Management (n=105)	p-value
Symptom Resolution Rate (%)	81.0	97.1	<0.01
Average Duration of Hospital Stay (days)	7.5	5.3	<0.01
Recurrence of Acute Cholecystitis (%)	19.0	4.8	<0.01
Complication Rate (%)	14.3	7.6	0.04
Need for Additional Interventions (%)	17.1	2.9	<0.01
Overall Mortality (%)	1.9	0.9	0.55

Discussion

The results of this study provide significant insights into the comparative effectiveness of conservative versus surgical management of acute cholecystitis. The data derived from this research involved 210 patients in the two treatment groups, with significant differences pinpointed concerning symptoms and signs of relief, length of hospital stay, recurrence and complication rates, need for augmenting procedures, and mortality (12, 13). Concerning the symptom resolution rate, there was a significant difference. The surgical management group was found to have a higher

rate of 97.1%, while the conservative management group has a rate of 81.0% (14). This clearly shows that both laparoscopic and open cholecystectomies produce better outcomes in treating acute cholecystitis patients' symptoms (15). The fact that the resolution rate was even higher in the surgical group shows that early surgery must be performed to enhance clinical results. Surgical management group patients took an average shorter duration to be discharged from the hospital than patients in the conservative management group (5.3 days against 7.5 days). This difference means that surgical treatment is not only more

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effective in the treatment of symptoms but also faster in giving the patient the possibility to be discharged (16). Decreased lengths of stay decrease healthcare expenditures and the incidence of complications acquired in the hospital for patients and healthcare systems. The repeat rate of acute cholecystitis was lower in the SM group (4. 8%) compared to the CM group (19. 0%). This implies that cholecystectomy has a long-term advantage as it prevents recurring acute cholecystitis (17). Although conservative management seems less efficient and invasive, it does not resolve the problem at its root, hence, relatively higher rates of relapse and possible complications in the future. It was noted that there was a lower rate of complications in the surgical management group of 7. 6% and a higher complication rate in the conservative management group of 14. 3%. Surgical management also has significantly improved the following severe complications: perforation, abscess, and sepsis, which are higher in the conservative management group (18). A lower rate of complications supports the efficiency of cholecystectomy in cases of acute cholecystitis, as proved by the outcomes of the surgical group. Patients in the conservative management category needed more in terms of treatment in the form of percutaneous cholecystostomy or delayed cholecystectomy in their further course as 17. 1%, while it was only 2. 9% in the surgical category (19, 20). This was a clear signal that conservative management may not be sufficient most of the time, leading to other medical procedures which affect the burden of patients and stakeholders on the overall healthcare system.

Conclusion

It is concluded that surgical management of acute cholecystitis, mainly through cholecystectomy, offers superior outcomes compared to conservative management. Patients undergoing surgery experience higher symptom resolution rates, shorter hospital stays, lower recurrence rates, and fewer complications. While conservative management may be suitable for certain patients with contraindications to surgery, the overall evidence supports the preference for surgical intervention in most cases of acute cholecystitis to ensure optimal patient outcomes.

Declarations

Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate.

Approved by the department concerned. (IRBEC-009 dated 14-12-22)

Consent for publication

Approved

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Conflict of interest

The authors declared an absence of conflict of interest.

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Concept & Design of Study

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