

COMPARISON OF LAPAROSCOPIC CHOLECYSTECTOMY WITH AND WITHOUT ABDOMINAL DRAIN: A STUDY IN MTI-LADY READING HOSPITAL PESHAWAR

WAJID, NAEEM H*, KHAN U, NOOR I, SAFIULLAH T, ALAM Z, SHUJA H, GUL N

Department Of General Surgery, Lady Reading Hospital Peshawar, Pakistan

*Corresponding author's email address: hamidnaeem897@gmail.com

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Abstract: Laparoscopic cholecystectomy is the standard treatment for gallbladder disease. The role of abdominal drainage in this procedure remains controversial, with concerns about its impact on pain, infection rates, and recovery time. **Objective:** This study aimed to compare the outcomes of laparoscopic cholecystectomy performed with and without abdominal drainage. **Methodology:** This was conducted in the surgical ward of MTI Lady Reading Hospital, Peshawar, from January 2024 to July 2024. One hundred twenty patients undergoing elective laparoscopic cholecystectomy for gallbladder disease were randomly allocated into two groups: Group A (with drain, n=60) and Group B (without drain, n=60). Postoperative outcomes including pain, wound infection, nausea, and hospital stay were assessed. **Results:** The mean age was 49.12 ± 18.56 years for Group A and 51.70 ± 13.69 years for Group B. Postoperative pain scores (VAS) were higher in Group A (4.75 ± 1.62) than to Group B (3.63 ± 1.10 , $p=0.0001$). Wound infections were more frequent in Group A (15%) than in Group B (3.3%, $p=0.02$). Postoperative nausea and vomiting occurred in 25% of Group A patients versus 8.3% in Group B ($p=0.01$). Hospital stay was considerably longer in Group A (3.13 ± 1.50 days) compared to Group B (2.15 ± 0.84 days, $p=0.0001$). **Conclusion:** Laparoscopic cholecystectomy without abdominal drainage had better postoperative outcomes than with drainage.

Keywords: Laparoscopic Cholecystectomy, Abdominal Drainage, Postoperative Pain, Wound Infection, Hospital Stay

Introduction

Laparoscopic cholecystectomy has become a surgical procedure characterised by its minimally invasive approach (1). Laparoscopic cholecystectomy is currently indicated for the treatment of various conditions (2). Gallbladder cancers are typically most effectively managed through open cholecystectomy. About 20 million individuals in the US are affected by gallstones. Annually, approximately 300,000 cholecystectomies are performed among this population. A percentage ranging from 10% to 15% for population is found to have asymptomatic gallstones. Among these cases, 20% present with symptoms, specifically biliary colic. Among the 20% of individuals who exhibit symptoms, approximately 1% to 4% may develop complications such as gallstone pancreatitis, acute cholecystitis, and choledocholithiasis. The occurrence of gallstones rises with advancing age, and females exhibit a higher propensity for gallstone formation compared to males. Approximately 20% of women and 5% of men aged 50 to 65 have gallstones. Cholesterol constitutes 75% of gallstones, while the remaining 25% are classified as pigmented (3-6).

The majority of patients undergoing laparoscopic cholecystectomy are now managed as day care cases. Consequently, placing a drain in every instance would only serve to delay the patient's discharge (7, 8). Drains can cause significant discomfort for certain patients undergoing cholecystectomy, potentially leading to increased morbidity, shoulder pain, and in some instances, a higher risk of infectious complications. The utilisation of drains in open cholecystectomy remains an unresolved issue. The

same issue arises in a laparoscopic cholecystectomy, where there is a lack of evidence supporting the usefulness of a drain. Surgeons exhibit varying practices regarding drain placement; some opt for selective drainage while others refrain from using drains altogether, depending on their personal experiences and beliefs (9-12).

The application of abdominal drains after laparoscopic cholecystectomy continues to be a contentious issue, as it is conventionally believed to aid in preventing the buildup of bile, blood, or fluid, which may lower the likelihood of complications such as infections or bile leaks. This study evaluates clinical outcomes, complication rates, and recovery times in patients undergoing laparoscopic cholecystectomy with and without abdominal drains. The goal is to determine the necessity and efficacy of drain use, contributing to evidence-based practices for optimising patient care and surgical outcomes.

Methodology

This study was conducted as a randomized controlled trial in surgical ward MTI Lady Reading Hospital, Peshawar from January 2024 to July 2024 after taking ethical approval. One hundred twenty patients were enrolled and equally divided into two groups: Group A (with abdominal drainage, n=60) and Group B (without abdominal drainage, n=60). Randomization was achieved using blocked randomization method. Patients aged 18–75 years diagnosed with gallbladder disease and scheduled for elective laparoscopic cholecystectomy were selected with

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consent. Patients with acute cholecystitis, obstructive jaundice, and intraoperative complications requiring conversion to open surgery, and those undergoing additional surgical procedures were not included.

Surgeries were performed under standard conditions using the four-port laparoscopic technique. For Group A, a closed suction drain was placed in the subhepatic space at the end of the surgery, while no drain was used for Group B. Postoperative assessments included pain levels, assessed by visual analog scale (VAS), wound infections, postoperative nausea and vomiting, and duration of hospital stay.

Data were analyzed statistically by SPSS 24. Statistical significance was determined using the t-test and the chi-square test, with a p-value <0.05 considered statistically significant.

Results

The study compared two groups: Group A (with abdominal drain) and Group B (without abdominal drain). The mean age in Group A was 49.12 ± 18.56 years, while in Group B, it was 51.70 ± 13.69 years. The mean BMI was similar between the groups, recorded as 25.30 ± 1.40 kg/m² for Group A and 25.34 ± 1.31 kg/m² for Group B. The overall combined mean age was 50.41 ± 16.29 years, and the overall BMI was 25.32 ± 1.35 kg/m². The gender

distribution and comorbid conditions are presented in table 1.

Clinical outcomes showed that Group A had a longer hospital stay (3.13 ± 1.50 days) compared to Group B (2.15 ± 0.84 days, $P = 0.0001$). Postoperative pain scores were higher in Group A (4.75 ± 1.62) compared to Group B (3.63 ± 1.10 , $P = 0.0001$). Wound infections were observed in 9 patients (15%) in Group A and 2 patients (3.3%) in Group B ($P = 0.02$). Postoperative nausea and vomiting were reported in 15 patients (25%) in Group A and 5 patients (8.3%) in Group B ($P = 0.01$).

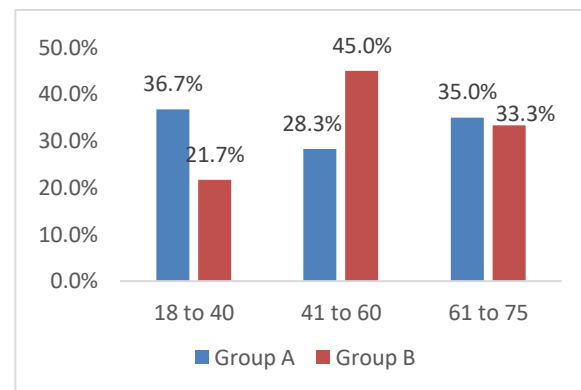


Figure 1 Age distribution (Years).

Table 1 Baseline characteristics

		Groups			
		Group A (With drain)		Group B (No drain)	
		N	%	N	%
Gender	Male	32	53.3%	35	58.3%
	Female	28	46.7%	25	41.7%
Hypertension	Yes	17	28.3%	27	45.0%
	No	43	71.7%	33	55.0%
Diabetes	Yes	22	36.7%	25	41.7%
	No	38	63.3%	35	58.3%

Table 2 Comparison of outcomes between both groups

Outcomes	Group A (With drain) n = 60	Group B (Without drain) n = 60	P value
Hospital stay (Days)	3.13±1.50	2.15±0.84	0.0001
Postoperative pain (VAS)	4.75±1.62	3.63±1.10	0.0001
Postop wound infection	9 (15%)	2 (3.3%)	0.02
PONV	15 (25%)	5 (8.3%)	0.01

Discussion

Laparoscopic cholecystectomy is a widely accepted standard for the treatment of benign gallbladder diseases, particularly due to its minimally invasive nature and associated benefits like reduced recovery time. The necessity of postoperative abdominal drainage has been extensively debated, with numerous studies examining its implications for patient outcomes.

Our results indicated that patients in the drainage group experienced longer hospital stays and significantly higher postoperative pain levels than those without drainage. These findings align with those reported by Sarkar et al., where the drainage group had a prolonged hospital stay of 4.06 days compared to 2.26 days in the no-drain group (13). Similarly, the meta-analysis by Yang et al. supports the observation of

shorter hospital stays and reduced pain scores in patients without drainage (9). In terms of pain assessment, our study highlighted higher VAS scores in the drainage group, consistent with the observations by Shah et al., who noted that pain intensity was more pronounced in patients with drainage (14).

Postoperative complications were also more prevalent in the drainage group in our study, including wound infections and nausea. These findings align with the systematic review by Yang et al., which demonstrated a higher incidence of wound infections in patients with drains (9). Furthermore, Shah et al. reported no significant reduction in postoperative nausea and vomiting with the use of drains, corroborating our findings that drainage does not mitigate these symptoms effectively (14). Interestingly, our study and others, such as El-Labban et al., also noted increased operative times for the

drainage group, further questioning its utility in uncomplicated laparoscopic cholecystectomy cases (15). The incidence of intra-abdominal collections was comparable between the groups, which resonates with conclusions from studies like those of Yang et al. and Sarkar et al., emphasizing that routine drainage does not significantly prevent such complications.^{9, 13} Instead, the presence of a drain may contribute to additional discomfort and a higher likelihood of infection, as evidenced by Shah et al. and El-Labban et al (13, 15).

Our study supports the growing body of evidence advocating against the routine use of abdominal drains following uncomplicated laparoscopic cholecystectomy. By demonstrating advantages such as shorter hospital stays, reduced pain, and lower complication rates in the no-drain group, our findings align with contemporary practices favoring a no-drain approach for enhanced patient recovery and comfort.

Conclusion

Our study highlights that laparoscopic cholecystectomy without abdominal drainage leads to better patient outcomes in uncomplicated cases. Those who underwent surgery without a drain reported less pain, fewer complications like infections and nausea, and shorter hospital stays. These results suggest that routine drainage may not be necessary, offering a more patient-friendly approach that supports quicker recovery and reduces the overall strain on healthcare resources. This shift away from traditional practices reflects the evolving standards in minimally invasive surgery.

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-TCHL-0232/23)

Consent for publication

Approved

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Conflict of interest

The authors declared absence of conflict of interest.

Author Contribution

WAJID (Resident Surgeon)

Coordination of collaborative efforts.

Study Design, Review of Literature.

HAMID NAEEM

Conception of Study, Development of Research Methodology Design, Study Design, Review of manuscript, final approval of manuscript.

Conception of Study, Final approval of manuscript.

UZAIR KHAN

Manuscript revisions, critical input.

Coordination of collaborative efforts.

ISLAM NOOR

Data acquisition, analysis.

Manuscript drafting.

TAHMEEDAH SAFIULLAH

Data entry and Data analysis, drafting article.

ZEESHAN ALAM

Data acquisition, analysis.

Coordination of collaborative efforts.

HAMZA SHUJA

Manuscript drafting.

Coordination of collaborative efforts

Manuscript revisions, critical input.

NAILA GUL

Data acquisition, analysis.

Data entry and Data analysis, drafting article.

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