

Comparison of Patients' Satisfaction Between Same Day Versus Preoperative Day Admission of Laparoscopic Cholecystectomy

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ABSTRACT

Objective	To compare the satisfaction levels of patients who were admitted on the same day for laparoscopic cholecystectomy (LC) with those who were admitted the day before the scheduled surgery.
Study design	Cross sectional comparative study.
Place & Duration of study	Department of Surgery Liaquat National Hospital Karachi, from May 2025 to September 2025.
Methods	Patients diagnosed with symptomatic cholelithiasis and scheduled to undergo laparoscopic surgery under general anesthesia were recruited. The patients were divided into two groups: those who were admitted on the same day of surgery (Group A) and those admitted the day before surgery (Group B). Patients' satisfaction was assessed through a 10-item validated questionnaire. The satisfaction was defined as a score of 70% or higher. Demographics, satisfaction level, operative time, and length of hospital stay were recorded. The differences in satisfaction level among groups were analyzed using Chi square / Fisher's exact test with $p < 0.05$ regarded as statistically significant.
Results	A total of 138 patients, divided equally between Group A and Group B, who underwent LC were included. There were 110 females and 28 male patients. All patients were in class I and II of ASA. The length of hospital stay for patients in Group A was lower than patients in Group B. Patients' satisfaction was 95.7% for Group A and 98.6% for Group B ($p=0.619$).
Conclusion	Patients' satisfaction after laparoscopic cholecystectomy was high regardless of admission timing. Since same-day admission shortens the hospital stay without affecting the quality of care this may be considered as appropriate mode of admission.
Key words	Hospital admission, Laparoscopic cholecystectomy, Patients' satisfaction.

INTRODUCTION:

Gallstone disease is frequently encountered in surgical practice. Cholecystectomy is advised in these patients.

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This procedure as well as other commonly performed surgical interventions requires considerable resources. For its execution the healthcare system requires an efficient protocol so that operations are performed safely, efficiently, and cost-effectively¹. In a multicenter randomized controlled study conducted a modified enhanced recovery after surgery (ERAS) protocol was developed specifically for patients with acute cholecystitis who underwent laparoscopic cholecystectomy.² Most laparoscopic cholecystectomy procedures are carried out as an elective day case, and patients are discharged home from the hospital on the same day.³

The laparoscopic cholecystectomy procedure carries several risks and complications during surgery and in the postoperative period. The complications include minor or major hemorrhage, bile leak, injuries to adjacent anatomical structures, wound infections and others.⁴ With minimally invasive approach like LC these complications can be reduced.⁵

Patients' satisfaction was defined by Larson et al as the evaluation performed by patients regarding the care they received in comparison to their expectations. The encounters that patients have with the healthcare system are referred to as the patient experience.⁶ The patients' satisfaction (PS) can be related to the outcome of the care, the surgical treatment and/or to the perception of the process of care.⁷ A meta-analysis compared the inpatient laparoscopic cholecystectomy to ambulatory laparoscopic cholecystectomy and the findings showed that the latter can be successfully performed in some patients at a low cost and with a high level of patients' satisfaction.^{8,9} This study was conducted at our institution to find out if two different protocols of pre procedure admission affect the patients' satisfaction.

METHODS:

Study design, place & duration: This cross-sectional comparative study was conducted in the General Surgery Department of Liaquat National Hospital and Medical College Karachi, from May 2025 to September 2025.

Ethical considerations: The study was approved by the Institutional Ethical Review Committee (ERC NO: 1200-2025-LNH-ERC). Informed written consent was obtained from all the study participants.

Inclusion and exclusion criteria: Individuals of either sex, between 20 and 50-years of age with symptomatic gallstones disease confirmed by ultrasound were included. Patients with acute cholecystitis, obstructive jaundice, prior upper abdomen surgeries, comorbid conditions, ASA IV and above class and pregnancy were excluded.

Sample size estimation: The World Health Organization's sample size calculator was used to determine the sample size, assuming a 95% confidence level and a 5% level of significance (Alpha=0.05), pilot data indicating satisfaction levels of 70% for same-day admissions and 46.66% for preoperative-day admissions was used. The sample size calculated was 138.

Study protocol: Non-probability consecutive sampling was used to select study participants with symptomatic gallstones disease. The SNOSE (sequentially numbered opaque sealed envelope) method was used for randomization into two study groups, where Group A was assigned same-day admission and Group B preoperative-day admission. Laparoscopic cholecystectomy was performed under general anesthesia. Group A patients were admitted and discharged on the same day within 24-hours. Group B patients were admitted one day prior to the surgery to facilitate the preoperative workup and to get to meet the members of surgical and anesthesia teams.

Baselines demographic and clinical characteristics like age, gender, education status, duration of symptoms and comorbid conditions like diabetes mellitus and hypertension, smoking status, ASA class, length of hospital surgery, and duration of hospital-stay were entered in a structured form. Patients' satisfaction was measured at the time of discharge by a validated 10-item post-cholecystectomy satisfaction questionnaire developed by Aleid et al.¹⁰ The satisfaction scores range from 6 to 32, and a score > 224 (70% the maximum score of 32) is considered as the patient having a satisfactory experience.

Statistical analysis: Data were analyzed using SPSS version 25.0. Quantitative variables were reported as mean \pm standard deviation. In order to compare the qualitative variables, frequencies and percentages were used. To examine the satisfaction between groups the Chi-square test or Fisher's exact tests were used. Age, gender, comorbid conditions and ASA class were used as potential confounders for stratification. Same statistical tests were used for post-stratification comparisons. A p-value of <0.05 was considered as statistically significant.

RESULTS:

A total of 138 patients were included with 69 in each group. There were 110 females and 28 male patients. The baseline demographic and perioperative characteristics of the study population are summarized in table I. Overall, females constituted the majority in both admission groups, and most participants resided in urban areas. Comorbid conditions were infrequent in both groups. ASA class I was the predominant category in both the cohorts. Postoperative hospital stay was generally shorter among same-day admissions.

Comparison of Patients' Satisfaction Between Same Day Versus Preoperative Day Admission of Laparoscopic Cholecystectomy

Table I: Distribution of Patients' Demographics and Perioperative Variables

Variables	Same Day Admission (Group-A)	Preoperative Day Admission (Group-B)
Gender		
Male	15 (21.7%)	13 (18.8%)
Female	54 (78.3%)	56 (81.2%)
Residence		
Urban	65 (94.2%)	57 (82.6%)
Rural	4 (5.8%)	12 (17.4%)
Comorbid Conditions		
Diabetes Mellitus		
Yes	4 (5.8%)	8 (11.6%)
Hypertension		
Yes	4 (5.8%)	7 (10.1%)
Smoking Status		
Current Smokers	3 (4.3%)	0 (0.0%)
Ex-Smokers	1 (1.4%)	2 (2.9%)
Non-Smokers	65 (94.2%)	67 (97.1%)
ASA Class		
Class - I	68 (98.6%)	63 (91.3%)
Class - II	1 (1.4%)	6 (8.7%)
Age Groups		
<35 years	31 (44.9%)	26 (37.7%)
>35 years	38 (55.1%)	43 (62.3%)
Duration of Symptoms		
<30 days	39 (56.5%)	48 (69.6%)
31-90 days	14 (20.3%)	9 (13.0%)
>90 days	16 (23.2%)	12 (17.4%)
Duration of Procedure		
<1 hour	34 (49.3%)	26 (37.7%)
>1 hour	35 (50.7%)	43 (62.3%)
Duration of Hospital Stay		
<24 hours	54 (78.3%)	65 (94.2%)
24 - 48 hours	15 (21.7%)	4 (5.8%)

The details related to the age, duration of symptoms, duration of operation and hospital stay and patients' satisfaction scores are presented in table II. The mean age was similar between groups and patients' satisfaction scores were also comparable. The association between admission timing and patients' satisfaction showed that most of the patients in both the groups achieved satisfaction levels above 70%. The values for Group A was (n=66 - 95.7%) and

Group B (n=68 - 98.6%). However, there was no significant statistical difference found between the two admission strategies (p=0.619).

Stratified analysis exploring satisfaction across demographic and perioperative variables is detailed in table III. Satisfaction remained uniformly high across gender for satisfaction level (males - >0.05, females - 0.491), residence (urban - >0.05 -

Table II: Comparison of Clinical and Satisfaction Parameters

	Mean \pm SD	Min-Max	Median	IQR
Group A (Same Day Admission)				
Age (years)	36.17 \pm 8.41	20.00-50.00	37.00	13.00
Duration of Symptoms (days)	113.49 \pm 203.60	2.00-912.00	30.00	55.00
Duration of Procedures(hours)	1.39 \pm 0.51	0.75-2.00	1.25	1.00
Length of Hospital Stay (hours)	24.42 \pm 2.10	23.00-38.00	24.00	0.00
Patients' Satisfaction Score	30.20 \pm 2.93	18.00-32.00	32.00	2.50
Patients' Satisfaction %	94.38 \pm 9.16	56.25-100.0	100.00	7.81
Group B (Preoperative Day Admission)				
Age (years)	37.62 \pm 8.40	20.00-50.00	38.00	14.00
Duration of Symptoms (days)	60.49 \pm 97.30	1.00 - 365.00	15.00	53.00
Duration of Procedures(hours)	1.51 \pm 0.48	0.75 - 2.00	1.5	1.00
Length of Hospital Stay (hours)	48.34 \pm 4.76	30.00-72.00	48.00	0.00
Patients' Satisfaction Score	29.81 \pm 2.84	22.00-32.00	31.00	4.00
Patients' Satisfaction %	95.12 \pm 7.85	68.75-100.00	96.87	12.50

SD=Standard Deviation IQR=Interquartile Range

Table III: Association of Patient's Satisfaction With Admission Timings Different Variables

			Same Day Admission (Group-A)	Preoperative Day Admission (Group-B)	Total	p-value
Duration of Symptoms Groups	<30 days	Satisfied	37(94.9%)	47(97.9%)	84	0.585
		Unsatisfied	2 (5.1%)	1 (2.1%)	03	
	31-90 days	Satisfied	13 (92.9%)	9 (100.0%)	22	>0.05
		Unsatisfied	1 (7.1%)	0 (0.0%)	01	
	>90 days	Satisfied	16 (100.0%)	12 (100.0%)	28	>0.05
		Unsatisfied	0 (0.0%)	0 (0.0%)	00	
Duration of Procedure Groups	<1 hour	Satisfied	31 (91.2%)	26 (100.0%)	57	0.251
		Unsatisfied	3 (8.8%)	0 (0.0%)	03	
	>1 hour	Satisfied	35 (100.0%)	42(97.7%)	77	>0.05
		Unsatisfied	0 (0.0%)	1 (2.3%)	1	
Duration of Hospital Stay Groups	<24 hours	Satisfied	53 (98.1%)	0 (0.0%)	53	>0.05
		Unsatisfied	1 (1.9%)	0 (0.0%)	1	
	24-48 hours	Satisfied	13 (86.7%)	64 (98.5%)	77	0.089
		Unsatisfied	2 (13.3%)	1 (1.5%)	3	
	>48 hours	Satisfied	0 (0.0%)	4 (100.0%)	4	>0.05
		Unsatisfied	0 (0.0%)	0 (0.0%)	00	

rural-0.250), diabetes mellitus (present >0.05) hypertension (>0.05), smokers (>0.05), ASA class I (0.620), and ASA class II (>0.05). Others variables are given in table III.

DISCUSSION:

This study provided evidence about the management

protocol for a commonly performed laparoscopic cholecystectomy procedure in general surgery practice which is a standard of care all over the world. A high level of satisfaction was expressed by patients who were admitted as a day case as well as one day prior to the surgery. Laparoscopic cholecystectomy initially was recommended for

patients with simple gallstone disease. However, currently it is also recommended for complex cases as well.^{11,12}

The findings of the study conducted by Kaman and colleagues revealed that 51.32% of their patients underwent laparoscopic cholecystectomy as day care cases. Same was the experience of other surgeons as reported in literature. This helps in managing more patients as beds and slots are available for surgery for other patients suffering from different surgical conditions.^{13,14} After evaluating 383 patients with gallstones, Bal et al found that 313 of them were candidates for day care laparoscopic cholecystectomy. Furthermore, they found that 92% of patients were discharged between two to eight hours of the surgery.¹⁵ According to the findings of another study, 98.5% of patients were discharged after six to eight hours of surgery and only 1.42% of patients required 24-hour supervision. The number of patients who had successful daytime laparoscopic cholecystectomy was reported to be 92% by Ali et al. In a study it was concluded that some patients would prefer to remain in the hospital overnight even if they were suitable for discharge.¹⁶

Overnight stay may be offered to those with comorbid conditions as they need nursing care more in comparison with other patients. Some patients might prefer staying overnight as it gives them psychological satisfaction and may be for myths that they carry with them. Our data is consistent with the findings of other studies that demonstrated the safety and practicability of protocols that we followed for two modes of admission. Therefore, maintaining high satisfaction levels while reducing hospital stay suggests that same-day admissions allow for more efficient use of healthcare resources without compromising the treatment outcomes.

Limitations of the study: This study was carried out in a single tertiary care facility that may limit its generalizability.

CONCLUSION:

Patients' satisfaction after laparoscopic cholecystectomy remained consistently high whether patients were admitted on the same day of surgery or a day prior. Same day admission resulted in a shorter hospital stay. However, similar satisfaction scores were noted for both the protocols. This reflected that quality of care was uniform.

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 Syed Sheeraz Ur Rehman: Study supervision, methodological guidance, critical review, and final approval of the manuscript. Both authors have revised the manuscript and are responsible for its content.

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