ISSN: 2457-0400

Impact Factor: 6.711

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

www.wjahr.com

Volume: 10, Issue: 2

Page N. 69-74

Year: 2026

Original Article

Coden USA: WJAMA3

DAY-SURGERY VERSUS OVERNIGHT STAY SURGERY FOR LAPAROSCOPIC CHOLECYSTECTOMY

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Article Received: 26 December 2025 **Article Revised:** 15 January 2026 **Article Published:** 1 February 2026

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DOI: https://doi.org/10.5281/zenodo.18440608

How to cite this Article: *[1]Dr. Chya Mohammed Azeez, [2]Dr. Sadiq Aziz Sadiq, [3]Dr. Mohammed Majeed Abdulwahid (2026). Day-Surgery Versus Overnight Stay Surgery For Laparoscopic Cholecystectomy. World Journal of Advance Healthcare Research, 10(2), 69–74.

ABSTRACT

Background: Laparoscopic Cholecystectomy became the gold standard for symptomatic gall stone disease. This procedure can be done as day-case surgery. There is some controversy over whether performing laparoscopic cholecystectomy as day-surgery is safe or not. The aim of the study is to assess the impact of day-surgery versus overnight stay laparoscopic cholecystectomy on patient-oriented outcomes such as mortality and severe adverse events. **Patients and Methods:** This is a prospective study, conducted between January 2016 to January 2017. Participants included 164 patients who underwent laparoscopic cholecystectomy for gallstone disease in Rizgary Teaching Hospital in Erbil. The patients were divided in to two groups; first group as Day-case surgery and second group: overnight stay group. The patients were evaluated regarding their age, sex, per-operative injuries, use of drain, time of discharge from the hospital and complications. **Results:** Sixty three patients were discharged at the same day from the hospital (38.41 %), postoperative complication occurred in 9 of them (14.3%), whereas 101 patients (61.58 %) stayed the night after operation in the hospital, only 24 of them (23.8%) developed postoperative complication, there was no significant difference in developing complication between the two groups. **Conclusions:** Day-surgery appears just as safe as overnight stay surgery in laparoscopic cholecystectomy. Our results show there is no significant difference between the time of discharge and incidence of complications.

KEYWORDS: Participants Included 164 Patients Who Underwent Laparoscopic Cholecystectomy for Gallstone Disease In Rizgary.

INTRODUCTION

Only 2% to 4% of people with gallstones become symptomatic with biliary colic, acute cholecystitis, obstructive jaundice, or gallstone pancreatitis in a year.[1]

Biliary colic is one of the symptoms related to gallstones.[2] Every year 1.5 million cholecystectomies are performed in the US and 60,000 in the UK.[3,4] Approximately 80% of the cholecystectomies are performed laparoscopically[5] and uncomplicated biliary colic is the commonest indication for cholecystectomy.[6] The first laparoscopic cholecystectomy (LC) was performed by Muhe in 1985.[7] Since then LC skills have progressively improved, and it has become the gold standard treatment for gallstone disease.[8]

Day-surgery is defined as patient admission and discharge within the same day, with day-surgery as the intended management.[9] Recent reports have demonstrated the safety and feasibility of day-case (DC) LC for selected patients.[10-13] Advantages of DCLC over inpatient LC include early return to the community and work[10], lower cost[13], avoiding complications associated with hospital stay.[13]

However, this trend should not jeopardize the safety of the procedure because of early patient discharge.[11] There are many concerns in treating surgeons mind embarking on DCLC.[10] Bleeding and bile duct injuries are the main serious complications after laparoscopic cholecystectomy.[14] The serious complication of bleeding is usually detected at the time of surgery whereas[10] bile duct injury, if not detected intra-operatively, manifests few days later.

The safety of DCLC has been demonstrated in older and high risk patients (ASA grade III) in some reports[15], while other studies have concluded that a previous diagnosis of acute cholecystitis, acute biliary pancreatitis, and ASA >II were highly predictive of a hospital admission.[16] Adequate pain relief is an important aspect of short-stay surgery.[10] Post-operative nausea and vomiting are other factors that can influence the post-operative discharge and hospital stay.[17]

The routine use of prophylactic anti-emetic agents such as metocloperamide[10] and preemptive analgesia with non-steroidal anti-inflammatory drugs[18] may reduce the incidence of postoperative nausea and vomiting. It is to assess the impact of Day-surgery versus overnight stay laproscopic cholecystectomy on patient-oriented outcomes such as mortality and severe adverse events.

Patients And Methods

The study design

This is a Prospective Randomized controlled study of 164 patients who were admitted for elective laparoscopic cholecystectomy for having gallstones. Both verbal and written consent were taken.

We divided the patients into (2) two groups**.** The first group was those who were discharged from the hospital at the same day of operation and were referred to as day-case surgery patients (DCS). The second group was those that stayed the night after operation in the hospital and referred to as over-night stay patients (ONS). We followed up the patients postoperatively for complications in both groups.

Place of the study

This study was performed in Rizgary Teaching Hospital, Erbil city, Kurdistan –region/Iraq.

2.3. Time of the Study

This study was conducted between (January 2016 to January 2017).

- Inclusion criteria

All adult patients operated on for laparoscopic cholecystectomy in the study period in Rizgary Teaching Hospital.

- Exclusion criteria

1- Patients with jaundice.
2- Patients with acute cholecystitis.
3- Psychiatric patients.
4- very obese patients.
5- Elderly co morbid patients.

Ethical considerations

The ethics approval had taken by KBMs, this study was conducted according to standard of ethics. Both verbal and written consent were taken. All the patients had the right to withdraw from the study at any stage.

The procedure

All patients operated on under general anesthesia with endotracheal intubation. Laparoscopic cholecystectomy was done for all of them. The operation details were checked to determine whether any abnormal anatomy was noted, whether acute cholecystitis or an empyema was present and occurrence of any intraoperative complications such as bleeding from trochar site, perforation of gallbladder or bleeding from gallbladder bed, injury to CBD or bowel and use of drains were documented. When there was no evidence of gallbladder wall thickening, edema and/or omental or visceral adhesion, the finding of 'grossly normal' was made. The length of operation (from incision till skin closure) data was obtained from the surgeon or the assistant at the time of surgery.

In the post-operative period, proper intravenous fluid, pain-killers and antibiotics were given to the patients, early mobilization was encouraged few hours later as well as enteral intake of fluid and light diet .The time of discharge was used to calculate the length of stay. We followed up the patients in the outpatient clinic or by phone after 1 week, 1 month and 3 months postoperatively.

Statistical Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS, version 24). Chi square test of association was used to compare between proportions. Student's t test was used to compare between means of two groups. A p value of ≤ 0.05 was considered statistically significant.

RESULTS

This study included 164 patients, 27 males and 137 females, as shown in figure (1). Male to female ratio1:5 who underwent laparoscopic cholecystectomy.

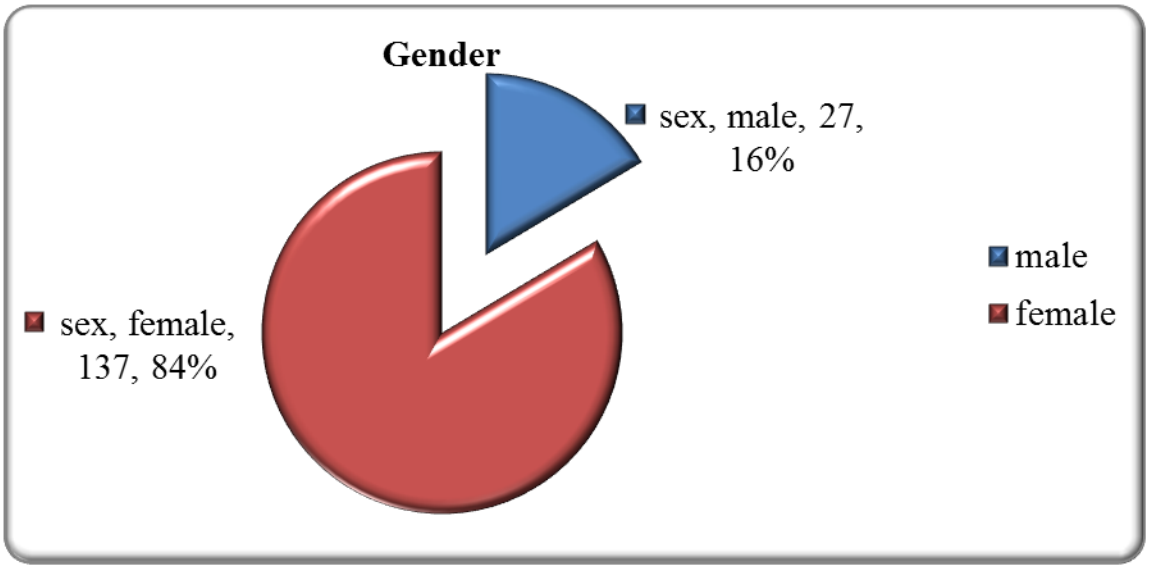

Figure (1): Gender distribution between the DCS and ONS groups.

Sixty three patients were discharged at the same day from the hospital (38.41 %) and were 9 males and 54 females, whereas 101 (18 male, 83 female) stayed the night after operation in hospital (61.58 %) (Figure 2).There was no significant difference in sex between the two groups of patients (p= 0.358).

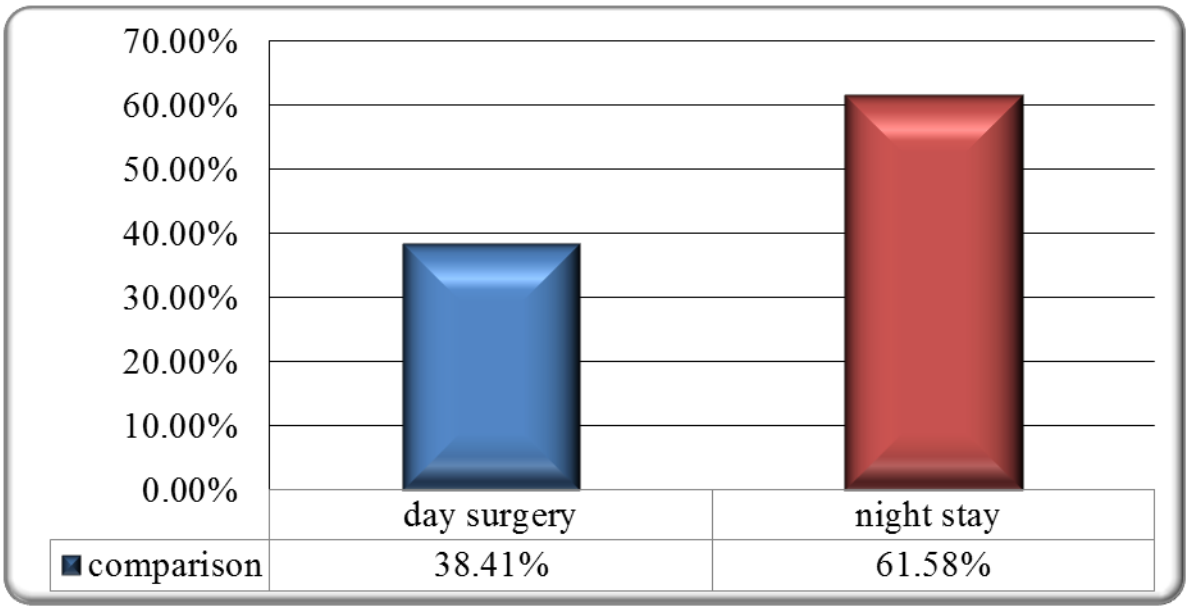

Figure 2: Percentages of DCS and ONS patients.

The overall mean age was 39.75 years with a range of 19-64 years. The mean± SEM age for ONS patients was 39.83±1.065 whereas for DCS patients this was 39.63 ± 1.31 (P= 0 .720), as shown in table (1).

Table 1: Age distribution between DCS and ONS groups.

Group	No.	Age		
		Mean	Std. Deviation	Std. Error Mean
ONS	101	39.8317	10.71081	1.06577
DCS	63	39.6349	10.47470	1.31969

During the operation, 6 patients developed bleeding from trochar site. All of them stayed overnight in the hospital. Sixty six patients developed bleeding from GB bed (40.2%), 9 of them were from the DCS group. Perforation of the GB occurred in 35 patients (21.34 %), only 4 of them were discharged from the hospital at the same day of operation, while the rest stayed the night at the hospital as shown in table (2).

Table 2: Perioperative injuries in DCS and ONS.

Perioperative injuries	DCS		ONS	
	No.	%	No.	%
Bleeding trochar site	0	0.0	6	5.9
GB bed bleeding	9	14.3	57	56.9
Perforation of GB	4	6.3	31	30.7
Total	63	100.0	101	100.0

The duration of operation ranged from 20-70 minutes with average of 36 minutes.

Mean difference = 7.81, P = 0.005. Tube drain was put in 29 patients (17.68 %), all of them stayed the night at the hospital ,and time of drain removal ranged from 24-72 hours with average of 43 hours, (P= 0.000). The time of stay in the hospital ranges from minimum of 4 hours to a maximum of 48 hours, the time of stay in DCS group was 4-10 hr. while in ONS group was 24-48 hr. (mean difference =17.7, P= 0.48), as shown in table (3).

Table 3: Comparison of the variables between DCS and ONS groups.

Variables	Mean difference	P value
Age	0.196	0.720
Duration of operation /hr	7.819	0.005
Time of stay /hr	17.77	0.048
Time of drain removal/hr	9.247	0.000
*Independent t-test		

Only 13 patients developed postoperative vomiting in the day of operation, all of them received anti-emetic injection, 4 of them (2.38%) were in the ONS group while the others (5.3%) were discharged the same day from the hospital.

Postoperative complication occurred in 33 patients, 9 of them were discharged in the same day (14.3%) and 24 of them in the ONS patients (23.8%). These complications include postoperative pain and port site infection, while no cases developed postoperative jaundice, bile leak, trochar wound bleeding or hematoma, intra-abdominal bleeding and DVT. In the 1st week postoperative pain developed in 7 patients (11.1%) who were discharged in the same day, and in 17 ONS patients (16.8%), all of them received analgesic injections at home. Port site infection developed in 15 patients, 3 of them were in the DCS group and the remaining 12 were in the ONS patients. (P value =0.1), as shown in table (4).

Table 4: Postoperative Complication between the two groups.

No. %	DCS	ONS	Total	P-value*
Postoperative complications	9(14.3)	24(23.8)	33(20.1)	0.100
Pain	7(11.1)	17(16.8)	24(14.6)	0.540
Port site infection	3(4.8)	12(11.9)	15(9.1)	0.101
Total	63(100.0)	101(100.0)	164(100.0)	
*Chi square test				

DISCUSSION

The first LC performed as a day-case without overnight admission was reported in 1990.[19] Since then, many studies have documented the safety of DCLC.[10-13]

Routine LC performed on a day-case basis without specific patient selection has resulted in higher admission rate.[20] In addition to patient selection, educating the patients regarding the expected postoperative pain, nausea, and vomiting that might occur has an important impact on the success rate of DCLC.[21]

The overriding issues in performing DCLC are safety, selection of the appropriate patients, grade and experience of the operating or supervising surgeon, perioperative and postoperative analgesia, stay in time and re-admission after discharge from hospital.[22]

In this study, the main reason for stay in the hospital was the use of drain, because all drains were placed in ONS group. The same result was demonstrated by kasem et al.[23] in which the admission to hospital following DCLC can be reduced by avoiding the use of drains either by achieving hemostasis during surgery in cases complicated by oozing from the gallbladder bed or providing adequate lavage in the presence of bile spillage.

The time of stay in the hospital in the study by kasem et al.[23] ranged from 4-12 hr , while in this study it was from 4-48 hr.

No significant difference in the number of postsurgical complications was found between the DCS group and the ONS group and none of complications manifested during

the hospital stay. The same result was seen by Gurusamy et al.[10] These results implied that the hospital stay did not reduce the detection and subsequent consequences of complications. Therefore, 8 h of observation after LC appears to be sufficient after follow up for at least 1week.

There was no significant difference in the pain reported between the two groups in this study, the same result seen by Barthelsson et al.[24] which also suggested that future trials are unlikely to show clinically significant difference in pain between the two groups.

Adequate pain relief is essential in day case surgery. In this study, the routine use of analgesics such as non-steroidal anti-inflammatory drugs or opioids like tramadol combined with prophylactic anti-emetic agents such as metocloperamide used to reduce the incidence of postoperative pain and vomiting since Hilvering et al.[25] reported that combined subcutaneous and intraperitoneal administration of levobupivacaine did not influence postoperative abdominal pain after LC.

It is important to identify risk factors for admission preoperatively to avoid the disappointment and disruption of an unexpected admission.[21] This study demonstrated that DCS appears just as safe as ONS in laparoscopic cholecystectomy. Since Day-surgery does not seem to result in improvement in any patient-oriented outcomes such as return to normal activity or earlier return to work. This is also shown by Dirksen et al.[26]

CONCLUSION

We have observed statistically that there is no significant difference between day-case surgery patients and over-night stay patients following laparoscopic cholecystectomy regarding postoperative complications. Day-case elective laparoscopic cholecystectomy seems to be safe and cost saving.

Recommendation

Further randomized clinical trials are necessary to compare day-case and overnight stay laparoscopic cholecystectomy to assess patient anxiety and satisfaction using specifically designed questionnaires and to exclude seldom, but important differences between the two discharging practices.

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