

**OUTCOMES OF LAPAROSCOPIC CHOLECYSTECTOMY IN ELDERLY PATIENTS: A
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ABSTRACT

In the current era, laparoscopic cholecystectomy (LC) is the preferred option for treating cases of cholelithiasis, so objective of our research was to estimate the efficacy of LC in elderly patients with cholelithiasis to determine the Interest of a more conservative technique for them. A retrospective investigation of 120 patients with cholelithiasis, aged (60-80), who underwent laparoscopic cholecystectomy in surgical wards in private hospitals in Diyala and Kirkuk (Iraq) between January 2023 and March 2024, were included. Data recorded in hospitals were relied upon to approve the diagnosis of cholelithiasis. According to the results, out of 120 patients studied, 12 (27%) of them were converted to open cholecystectomy in group (70-80) compared to 7 (9%) in age group (60-69). Also, patients in the group (70-80) had more bleeding during the operation (7%) compared to the (60-69) group (3%). There were no bile leaks and no deaths were reported in both groups. Complications of laparoscopic cholecystectomy were higher among patients (70-80), especially with regard to conversion to open cholecystectomy compared to patients (60-69) years old. It was concluded that laparoscopic cholecystectomy in older ages was generally safe and effective, although there were few patients required conversion to open cholecystectomy.

KEYWORDS: Cholecystectomy, laparoscopic, cholelithiasis, bile leaks, bleeding.**INTRODUCTION**

Laparoscopic surgery has revolutionized modern surgery since 1910 when Hans Christian Jacobaeus realized the tremendous diagnostic and curative potentiality of laparoscopic surgery, as well as its difficulties and limitations.^[1-3] Thus, it has been exercised to recouped many medical conditions, especially incurable ones.^[4-6] In general, laparoscopic cholecystectomy (LC) is considered key criterion for cholecystitis or symptomatic gallstones cases.^[7] It is known that gallstone disease is one of the most prominent indications for abdominal surgery for all ages and for both genders.^[8,9] In spite of the fact that gallstones occur in all ages, from newborns to elderly, but their incidence raise significantly with age, as aging is a factor in increasing the frequency of gallstone problems.^[10,11]

Although surgical intervention raises ongoing concerns in patients with comorbidities, as well as in the elderly, cholecystectomy for the treatment of calculous cholecystitis has become more popular abdominal operations in the elderly patients.^[12,13] Surgical risks are increased due to comorbidities, and are accompanied by

a decrease in physiological reserve in the elderly due to the effects of aging.^[14] Therefore, there is a constant need to evaluate and confirm the safety of LC for elderly people in particular. Patients older than 60 years are more potential to have cholecystitis, more likely to have perioperative morbidity, longer postoperative hospital stays and possible subsequent complications.^[15] Through many studies on laparoscopic approach, it has been proven to be an effective and safe manner versus to conventional open surgical method and its effectiveness has been confirmed due to the absence of serious complications and low mortality rate.^[16,17] On the other hand, studies that have evaluated the outcomes of LC in elderly individuals are insufficient to make an accurate decision on their surgical treatment approach.^[18] For elderly patients, there is a trend among surgeons to subject them to the arthroscopic approach for safety issues, as surgical methods are minimally invasive for the elderly and thus a quick return to their basic physical condition, achieving a better quality of life.^[19] Therefore, the object of our research was to appreciate the effectiveness of LC in elderly patients aged (60-80) years

by monitoring the complications of this surgical approach.

PATIENTS AND METHODS

Approximately (120) elderly patients diagnosed with cholelithiasis participated in the present retrospective study undergoing elective or emergency laparoscopic cholecystectomy in surgical and emergency wards in private hospitals in Diyala and Kirkuk governorates (Iraq), during the period between January 2023 and March 2024. All patients were from both genders and aged (60 – 80) years old, and note that the study was initiated after acquisition ethics committee permission from local health directorate. The study included 65 females (54%) and 55 males (46%) as in Figure (1), and

their age (60 – 80) years old. The studied patients were set into two groups based on their ages as shown in figure (2). The first group included 75 patients (62%) from the age group (60 - 69) with mean age of 64 years (35 males and 40 females). The second group included 45 patients (38%) aged between (70 - 80 years) with mean of 76 years (20 males and 25 females). Exclusions criteria were patients of other ages and those suffering from terminal diseases. The interest outcome measures included intra-operative bleeding, site infection, hematoma in gallbladder fossa, conversion to open, bile leakage, and mortality. Descriptive statistics for the data were performed using IBM SPSS program; quantitative variables were expressed in ranges, while results were expressed in frequencies, percentages (%), and tabulated.

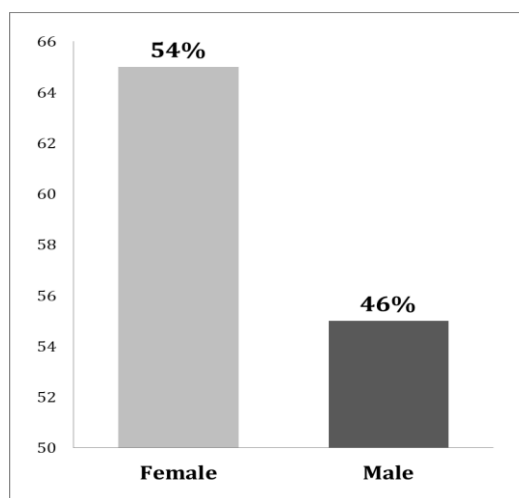


Figure 1: Proportions of studied patients according to gender.

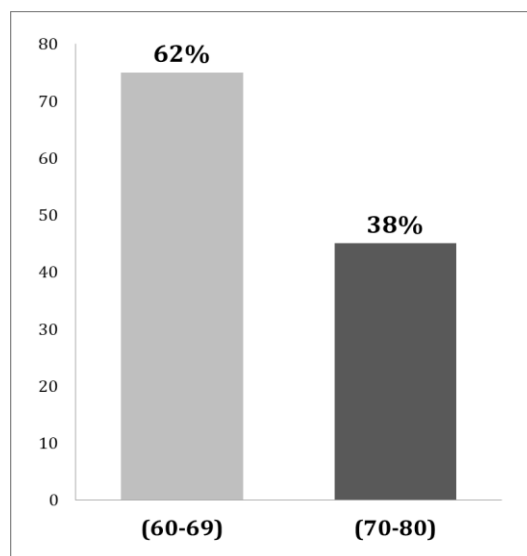


Figure 2: Proportions of studied patients according to age group.

Surgical procedures

Surgical laparoscopic cholecystectomy (Figure 1) was performed under general or epidural anesthesia in the reverse Trendelenburg position. Before surgery, they were given antibiotics. A Verres needle was used to induce CO₂ pneumoperitoneum up to 12 mm Hg, and

three extra ports were administered at the epigastric area and right side of the abdomen. The procedure was then completed in the classical manner, which was converted to an open version, and the operation was accomplished via a right subcostal incision. Most cases were discharged home the next day.

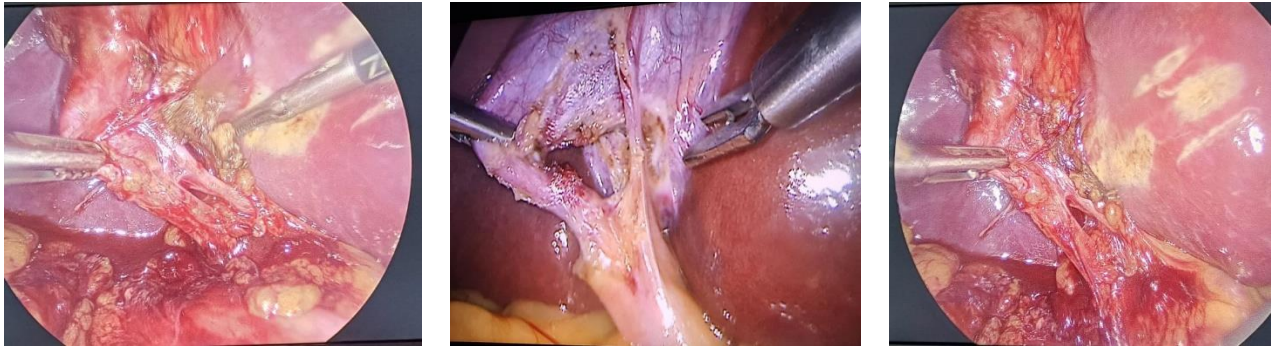


Figure 1: Laparoscopic Cholecystectomy in elderly patient.

RESULTS

According to the results, all elderly patients had a history of chronic diseases, and arterial hypertension was most common co-morbidity (73%), while chronic lung problems were the least common (51%) among the group of patients in age group (60-69). On the contrary, diabetes mellitus (78%) was most common among the group of patients in age group (70-80) as demonstrated in table (1).

Table 1: Proportions of co-morbidity of participated patients.

| Co-morbidity | Age group | |
|------------------------|-----------------|-----------------|
| | (60-69) N=75 | (70-80) N=45 |
| Diabetes mellitus | 45 (60 %) | 39 (78 %) |
| Arterial hypertension | 55 (73 %) | 34 (76 %) |
| Cardiovascular disease | 40 (53 %) | 30 (67 %) |
| Chronic kidney disease | 47 (63 %) | 28 (65 %) |
| Chronic lung disorders | 38 (51 %) | 25 (56 %) |

In Table (4), the results of laparoscopic cholecystectomy for studied patients in both groups are presented. Of 120 studied patients, 12 (27%) of them were converted to open cholecystectomy in group (60-69) versus to 7 (9 %) in age group (70-80). Also, (70-80) group patients had more intraoperative bleeding (7%) and hematoma in gallbladder fossa (2 %) than (60-69) group (3% and 1 %). There were no bile leaks and no deaths were reported in both groups.

Table 2: Surgical outcomes for the study groups.

| Outcomes | Age group Frequency (%) | |
|-------------------------------|----------------------------|-----------------|
| | (60-69) N=75 | (70-80) N=45 |
| Intraoperative bleeding | 2 (3 %) | 3 (7%) |
| Surgical site infection | 3 (4 %) | 2 (4 %) |
| Hematoma in gallbladder fossa | 1 (1 %) | 1 (2 %) |
| Conversion to open | 7 (9 %) | 12 (27 %) |
| Bile leaks | 0 (0 %) | 0 (0 %) |
| Postoperative mortality | 0 (0 %) | 0 (0 %) |

DISCUSSION

Laparoscopic cholecystectomy is treatment of choice for cholithiasis, but there is no doubt that surgical treatment

raises constant concerns in patients with comorbidities, as well as in the elderly.^[20] This technique is characterized by faster postoperative recovery, minimal pain, and best cosmetic outcome.^[21] Nevertheless, laparoscopic technique poses risks. Possible sequelae include intraoperative visceral and vascular injuries, postoperative complications as wound infection, hematoma, and hernia.^[22,23] The generally rising age of the population around the world is increasing the prevalence of gallstone problems. Thus, it was observed that cholecystectomy was a widespread surgery in elderly patients.^[24] Older age is linked with greater comorbidity and restricted functional reserve, accounting for an increased complication rate.^[25] The main purpose of elderly therapeutic is to supply best probable quality of life with minimal physiological damage.^[26] Based on our results, among 120 patients with cholelithiasis with laparoscopic cholecystectomy, we found that a large percentage of them in age group (70-80) had more complications than younger age group (60-69), such as bleeding and hematoma in gallbladder fossa, as well as requiring conversion to open method. This is consistent with other similar studies, Ghanem et al (2023) estimate 200 cases of elderly patients aged 60 years or older, concluded that laparoscopic cholecystectomy can be applied in elderly patients with low mortality rates despite the comorbidity of pulmonary and cardiac disorders and diabetes.^[27] Yokota and colleagues (2019) demonstrated in their evaluation of 351 patients with acute cholecystitis that the surgical outcomes of cholecystitis in older ones (≥ 80 years) were similar to those in younger ones. They noted that postoperative consequences and length of hospital stay were not remarkably various between them.^[28] It has been reported that most elderly patients with laparoscopic cholecystectomy had good outcomes, but when compared with younger ones, they had higher rates of conversion to open surgery and more complications. Finally, the conversion proportion concerns to the surgeon's relative experience with the procedure and on individual patient factors or choice.^[29]

CONCLUSIONS

Depending on results, it was concluded that laparoscopic cholecystectomy for patients at older ages was generally safe and effective, although there were a few cases that

required conversion to open cholecystectomy, especially for patients aged (70 - 80) years.

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