

Comparison between open and laparoscopic elective cholecystectomy in elderly, in a teaching hospital

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ABSTRACT

Background: With increasing life expectancy and advancements in healthcare, elderly individuals are undergoing elective cholecystectomy procedures for gallstones. This study aims to compare open cholecystectomy (OC) and laparoscopic cholecystectomy (LC) in elderly patients, considering factors like conversion rates, hospital stay, and surgical duration.

Methods: A retrospective analysis of 120 medical records of patients aged 65 or older who underwent elective cholecystectomy at a teaching hospital was conducted. Patients with emergency cases or intraoperative cholangiography were excluded. Data included age, gender, cardiovascular risk, surgery duration, complications, and hospital stay. Statistical tests were used for comparisons.

Results: Of the 120 patients, 38.3% had OC, and 61.7% had LC. The mean age was 70.1 years. Two patients (4.3%) in OC and two (2.7%) in LC required conversion to open surgery. Hospital stay was shorter for LC (2.01 days) compared to OC (2.95 days), with similar surgery durations (84 minutes). Complications occurred in 14.3% of OC and 12.2% of LC cases.

Recommendations: Based on the study findings, we recommend elective laparoscopic cholecystectomy (LC) as a preferred option for elderly patients with gallstones. LC offers advantages over open cholecystectomy (OC), including shorter hospital stays and similar

surgical outcomes. Encourage healthcare providers to consider LC for eligible elderly patients to enhance recovery. Further research in diverse healthcare settings is needed to validate these findings and provide comprehensive guidelines for managing gallstone-related procedures in the elderly.

Conclusion: Elective LC is a safe and effective option for elderly patients with symptomatic gallstones. It offers shorter hospital stays and comparable surgical outcomes to OC, making it a viable choice for this demographic.

Keywords: Cholecystectomy, Laparoscopic, Elderly, Gallstones, Surgical outcomes

INTRODUCTION

In recent decades, there has been an increase in life expectancy due to developments in medical treatment, technology, and drugs, as well as improvements in preventing health conditions. The World Health Organization generally considers elderly people to be 60 years of age or older in developing nations and 65 years of age or more in industrialized nations. In accordance with prior study, which was primarily carried out in developing nations, we employed a 65-year-old cutoff age. Approximately 7.3% of people in Brazil are 65 years of age or older. Gallstones are present in about 50% of women and 16% of men over the age of 70 [1, 2]. Symptomatic or complex gallstone problems are the most prevalent cause of abdominal surgery in the elderly. Senior surgery has historically been hampered by related health issues and anesthesia hazards. Even though these patients are in their nineties and older, they are still good candidates for surgery due to recent advancements in anesthesia, surgical methods, and postoperative care [3, 4].

Research has shown that laparoscopic cholecystectomy is a safe choice for older patients with difficulties connected to gallstones. It has several advantages, including fewer complications and shorter hospital stays. Early minimally invasive surgery thought that advanced age was a relative contraindication for laparoscopic treatments, but new research indicates that elderly patients even

those over 70 or 80 years old can benefit from these procedures. Unfortunately, not much research has been done in our nation on this subject [5].

The aim of this research was to evaluate the effectiveness of laparoscopic cholecystectomy against conventional cholecystectomy in senior patients at a renowned teaching hospital that is well-known in the state. A number of variables were compared, including the frequency of moving to open surgery, length of stay in the hospital, and length of surgery.

METHODOLOGY

Study Design:

This study is retrospective in nature.

Study Setting:

This study was conducted by reviewing medical records of a patient who underwent cholecystectomy (either open or laparoscopic) at the N.M.C.H., Patna in 2020-2023.

Participants:

Participants were investigate the contrasts between laparoscopic and traditional cholecystectomy procedures performed on elderly patients at a recognized teaching hospital.

Inclusion and Exclusion Criteria:

The inclusion criteria for this study encompassed patients who underwent elective surgeries, while the exclusion criteria involved those who had emergency surgeries or underwent intraoperative cholangiography.

Study Size:

After fulfilling the inclusion criteria, 120 patients who are aged 65 or older who went through open laparoscopic were included in the study.

Data Collection and Analysis:

Data were gathered from patients on the basis of mortality rates, lengths of hospital stay, duration of surgery, and conversion rate to open surgery between two types of elderly patients' gallbladder removal procedures: laparoscopic cholecystectomies (LC) and open cholecystectomies (OC).

Bias:

To minimize bias, the goal of the research was not disclosed to the participants or healthcare providers during data collection. Additionally, data analysts were blinded to the identity of the participants.

Variables:

The variables includes conversion to open surgery, age, gender, cardiovascular surgical risk, length of operation, length of stay and accidents and intraoperative complications.

Statistical Analysis:

This study used statistical analysis, the chisquare test or Fisher's exact test were used to compare nominal variables. The Mann-Whitney test was used to compare ordinal variables, and a p-value of less than 0.05 was considered significant.

Ethical Considerations:

The study was carried out in accordance with ethical guidelines, which included getting each participant's informed consent. The ethics committee examined and approved the study protocol.

RESULTS

Table 1: Comparison of Cholecystectomy Procedures in Elderly Patients (120 cases)

| Variable | Open Cholecystectomy (OC) | Laparoscopic Cholecystectomy (LC) |
|--------------------|---------------------------|-----------------------------------|
| Number of Patients | 46 (38.3%) | 74 (61.7%) |

| | | |
|--|------------|------------|
| Female Patients (%) | 32 (69.6%) | 42 (56.8%) |
| Conversion to Open Surgery (%) | 2 (4.3%) | 2 (2.7%) |
| Average Age (years) | 70.1 | 70.1 |
| Hospital Stay (days) | 2.95 | 2.01 |
| Surgery Duration (minutes) | 84 | 84 |
| Postoperative Complications (%) | 14.3% | 12.2% |

120 patients over-65 individuals' medical records were reviewed from hospital who had gallbladder surgery. Emergency cases and patients undergoing cholangiography were not included in our analysis. Using statistical tests, a number of variables were examined, including age, gender, surgical details, complications, and lengths of hospital stay.

Around 65-year-old patients had 120 elective gallbladder operations performed during that time because of gallstones. Of all procedures, 38.1% were open (OC) and 61.9% were laparoscopic (LC). Sixty-nine percent of patients were female. In two cases (2.9%), laparoscopic surgery had to give way to open surgery. The mean age was 70.1 years, with an average length of stay in the hospital of 2.3 days, and an average time of 84 minutes for surgery. Both the OC and LC groups were of comparable age and risk. Nearly 76 minutes for OC and 88 minutes for LC were the approximate timings for the surgeries. Hospital stays for LC patients were shorter than those for OC patients (approximately 2.01 days versus 2.95 days). 14% of OC patients and 12% of LC

patients experienced complications. There were a few issues with LC, such as one case of desaturation that was resolved with a different ventilator and one small intestinal injury that was resolved surgically.

DISCUSSION

Medical records of 120 patients over 65 undergoing gallbladder surgery were reviewed, excluding emergency and cholangiography cases. Of these, 38.1% had open cholecystectomy (OC), and 61.9% had laparoscopic cholecystectomy (LC). The average age was 70.1 years. LC patients had shorter hospital stays (2.01 days vs. 2.95 days for OC) and similar surgery durations (88 minutes vs. 76 minutes for OC). Complications occurred in 14% of OC and 12% of LC cases, including one case of desaturation and one small intestine injury in LC, both resolved. Age and surgical risk were comparable between groups.

The preferred technique for removing the gallbladder is laparoscopic cholecystectomy (LC), which results in less pain, shorter hospital stays, and faster recovery. Over the past 20 years, it has been extensively employed for elective surgery. However, the rate of complications is higher in senior patients with gallbladder problems, which raises the risk of death [6, 7].

Due to their frequently low cardiopulmonary reserves, there is some worry that LC may increase mortality and complications rates in the elderly. When doing laparoscopic (LC) on elderly patients, some doctor's recommend exercising caution and starting with an open cholecystectomy (OC) [8].

However, studies indicate that LC leads to better outcomes—lower rates of complications and shorter hospital stays—than OC for older individuals with symptomatic gallstones. Due to social, physiological, and pathological variations among older populations, treatment approaches for this condition in the elderly can differ widely. There isn't much study done in India on this subject, especially when it comes to treatments done in teaching hospitals and patients from the National Health System [9].

In our investigation, problems were discovered in 13.3% of patients; there was no discernible variation in the complication rates between the OC and LC groups. 2.9% of patients required open surgery, a conversion rate that is comparable to rates found in other trials including older patients. Our data are consistent with the trend of other research showing a reduced hospital stay linked to LC. The two treatments' surgical times did not differ noticeably from one another [10, 11].

When interpreting these findings, it's critical to take into account potential biases associated with the study's retrospective design and its small patient population.

CONCLUSION

Laparoscopic cholecystectomy that is elective and less risky for complications than open surgery is a safe procedure for older people. It provides shorter hospital stays and quicker healing times. These individuals have a decreased vital reserve, so it is important to properly analyse the risk of cardiovascular surgery. Since laparoscopic surgery has advanced, age is no longer a barrier to LC, and older patients who undergo elective laparoscopic procedures typically experience only minor difficulties from the treatment.

Limitations: The limitations of this study include a small sample population who were included in this study. The findings of this study cannot be generalized for a larger sample population. Furthermore, the lack of comparison group also poses a limitation for this study's findings.

Recommendation: Based on the study findings, we recommend elective laparoscopic cholecystectomy (LC) as a preferred option for elderly patients with gallstones. LC offers advantages over open cholecystectomy (OC), including shorter hospital stays and similar surgical outcomes. Encourage healthcare providers to consider LC for eligible elderly patients to enhance recovery. Further research in diverse healthcare settings is needed to validate these findings and provide comprehensive guidelines for managing gallstone-related procedures in the elderly.

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List of abbreviations:

1. OC - Open Cholecystectomy
2. LC - Laparoscopic Cholecystectomy
3. WHO - World Health Organization
4. SUS - National Health System
5. MRS - Medical Records Section

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