Laparoscopic Cholecystectomy is Safe in the Elderly Patients

Mohend AN Alshalah

Department of Surgery, College of Medicine, Babylon University, Babylon, Iraq

Abstract

Background: The aim of this review was to evaluate the rate of laparoscopic surgery in elderly patients with gallstones and to compare it with their younger counterparts, also to study the safety and efficacy of laparoscopic cholecystectomy in elderly patients by comparing the results with open cholecystectomy (OC).

The relation between ages, comorbid diseases, mean operative time, hospital stay, the incidence of major postoperative complications and the rate of conversion were also evaluated.

Content: Twenty studies evaluated laparoscopic cholecystectomy in the elderly. Compared with open cholecystectomy, elderly patients undergoing the laparoscopic procedure had a lower incidence of complications and a shorter hospitalization. Advanced age with its concomitant comorbid conditions may be associated with increased postoperative laparoscopic cholecystectomy (LC) complications and more frequent conversion to open cholecystectomy (OC).

Material and methods: An electronic search using the Midline and the search engine Google, Springer link and Highwire press databases was performed using the term *laparoscopy cholecystectomy in elderly patients.* Literature published in the English language in the past 9 years was reviewed. Relevant surgical textbooks were also reviewed.

Methods literature searches were conducted to identify: (1) comparative studies which reported (LC) outcomes in elderly Compared with open cholecystectomy and; (2) Studies comparing outcomes of (LC) in elderly with their younger age group (3) Also comparing the outcome of elderly patients presented electively and urgently.

Conclusions: Underlying cardiopulmonary diseases, individuals older than 65 years tolerate laparoscopic cholecystectomy well. Postoperative complications and hospitalization are lower than in open cholecystectomy. Laparoscopic cholecystectomy is a safe procedure in gall bladder diseases.

Laparoscopic cholecystectomy is a safe procedure for acute Cholecystitis in elderly patients, resulting in fewer complications and shorter hospital stay than open cholecystectomy. Emergency LC surgery in elderly patients have higher rate of morbidity and mortality but less than in OC.

Keywords: Laparoscopic cholecystectomy, open cholecystectomy, elderly, safe.

INTRODUCTION

As our population ages, outcomes analysis of surgical treatment strategies become increasingly important in elderly patients who represent the fastest growing segment.[17] Although they currently comprise only one-eighth of the population, the elderly already account for nearly one-third of surgical patients.

Cholecystectomy is the most commonly performed surgical procedure in elderly individuals.[15] Life expectancy has been progressively increasing during the past few decades.

Improvements in primary prevention, advances in acute medical care, and progress in pharmaceutical and biomedical technology may be the cause for that demographic change.[17]

The term 'elderly' is used in the medical literature to describe people older than 65 years. With an increasing life expectancy of more than 65 years, it is becoming harder to define the real 'old' and therefore 'high-risk' group of patients from the viewpoint of modern medicine.[17]

The advances in minimally invasive surgery over the past decade have benefited patients undergoing a variety of surgical procedures. For the elderly, who often are less able to withstand the trauma and stress of open abdominal surgery, the advantages of a laparoscopic approach may be especially important.[16]

(LC) is now the gold standard treatment of symptomatic gallstones and is the commonest operation performed laparoscopically world-wide.[8]

Our aim was to evaluate the rate of laparoscopic surgery in elderly patients with gallstones and to compare it with their younger counterparts. The relation between age and the rate of conversion, risk factors associated with prolonged postoperative hospitalization were also evaluated, and comparing with the results of (OC).

MATERIAL AND METHODS

A literature search was performed using the Midline and the search engine Google, Springer link and Highwire press databases was performed using the term laparoscopy in elderly patients. Literature published in the English language in the past 10 years was reviewed. Relevant surgical textbooks were also reviewed.

965 citation found in total, selected papers were screened for further references.

Criteria for selection of literatures were the number of cases (excluded if less than 20), method of analysis (statistical or non-

statistical), operative procedure (only universal accepted procedures were selected) and the institution where the study was done (specialized institution for laparoscopic surgery).

CONTENT

The Incidence of Cholelithiasis

The incidence of cholelithiasis increases with age, and among those *80 years of age, rates as high as 38 to 53%* are reported with 50% of women and 15% of men.[10,14]

LC is the treatment of choice for elderly patients with symptomatic cholelithiasis since the outcomes are better than those of OC in terms of lower morbidity rate and shorter hospital stay.[11,17]

Patients older than 70 years had a 2-fold increase in complicated biliary tract disease.[4]

Patient > 80 years have higher gall bladder cancer than younger age group.

Laparoscopic versus Open Cholecystectomy

For the elderly, who are generally considered to have diminished cardiopulmonary reserves and are therefore often less able to withstand the trauma and stress of open abdominal surgery, the advantages of a laparoscopic approach are obvious.

Morbidity in LC in elderly patients demonstrated from 5-15% ,while in OC 23 -28%.

Mortality in LC in elderly patients demonstrated from 0-1% while in OC 1.5-2%.[11]

There was only a 14% incidence of cardiopulmonary complications in those undergoing LC compared with 43% in patients who underwent OC although both procedures were completed in a similar operative time.

Hospital Stay

The average hospital stay was 3 to 4 days.[5,10] The laparoscopic approach was associated with a *shorter hospitalization and fewer* postoperative complications than the open procedure.[16] However, elderly patients may have an increased risk for conversion.[10, 14-17, 20]

Urgent or Emergent LC

In extremely elderly age group presentations with urgent or emergent surgery more common than younger age group.[15,16]

Emergency surgery on older patients with gallstones may have fatal outcome due to increased co morbidities and decreased functional reserve.[10,16]

Major postoperative complications may occur in emergency surgery in elderly patients.

Conversion rate 8% less than 65 years, and reach 22%in more than 65 years due to increased inflammation and fibrosis.

In acute cholecystitis, higher rate of morbidity and mortality unrelated to surgical site when compared with younger age group, so stronger selection of elderly patients for surgery is needed.[19]

Pulmonary disease is associated with increased risk of major complication.[18]The management of acute cholecystitis in the extremely elderly should be considered for laparoscopic approach (except contraindication) before the development of complications.[5,16]

Conversion Rates

The conversion rate to open cholecystectomy varies from 3-22% and is higher in extremely elderly patients (more than 80 years) than in younger age group (between 65-79 years old).[5,10,11,14]

Conversion in complicated gall stone is 22% while 2.5% in chronic cholecystitis.[4]

Thus, elective surgery with acceptable morbidity and mortality should be the preferred choice over emergency procedures.[10,16]

The main surgical reasons for this conversion in the selected articles are acutely inflamed gallbladder with evidence of perforation, gangrene, chronic inflammation around the gallbladder with fibrosis and adhesions; unclear anatomical features; previous abdominal surgery, bleeding; and unexpected CBD stones.[10, 16, 19] But the higher incidence of co-morbidities, and acute cholecystitis are the main reasons for the poorer outcome in elderly patients.

Risk of Anesthesia

The extremely elderly patients had a significantly higher mean American society of anesthesiology (ASA) class as compared with younger age group, and a much greater percentage of extremely elderly patients were ASA class 3 or 4.[4 ,7,9,11,15]

42% of elderly patients have already cardiopulmonary diseases.[12,19]

For LC for patients with an ASA 3 and 4 risk for anesthesia, no significant adverse effects could be attributed to CO_2 pneumoperitoneum.[10,12,13]

Gradual abdominal insufflations to 12 mm Hg followed by 10° head up tilt associated with cardiovascular stability in elderly ASA III patients.[2,12]

For high-risk patients, preoperative preparation and active perioperative monitoring are essential for safe anesthesia for LC with or without CO_2PP.[13]

Regional and international variation in the practice of LC for acute cholecystitis.[17] The use of LC for elderly patients with acute cholecystitis in New England, US, varies widely from 30.3 to 75.5%.[6] Reflection of the technical difficulty of the procedure, concern about increased risks. The likelihood of elderly patients with acute cholecystitis receiving LC depends strongly on where they live.[1]

DISCUSSION

Laparoscopic cholecystectomy has gained a lot of attention around the world. However, the role of (LC) in elderly, remain controversial.

Several controlled trials have been conducted, some are in favour of laparoscopy, others not .The goal of this review was to as certain that if the (LC) in elderly is safe and superior to the conventional, and if so what are the benefit and how it could it be instituted more widely.

Emergency surgery on older patients with gallstones may have fatal outcome due to increased co morbidities and decreased functional reserve. Thus, elective surgery with acceptable morbidity and mortality should be the preferred choice over emergency procedures.[16]

LC in elderly patients suffering from acute cholecystitis is feasible and effective. It is associated with a higher rate of morbidity unrelated to the surgical site and mortality in elderly compared with younger patients. Stronger selection of elderly patients for surgery is needed.[3,16]

Increased technical experience with LC favorably affected outcomes over time. Early diagnosis and treatment prior to onset of complications are necessary for further improvement in the outcomes of elderly patients undergoing LC.[4,6]

Cardiovascular stability in elderly ASA III patients can be maintained by gradual abdominal insufflations to 12 mm Hg followed by 10° head up tilt.

For LC for patients with an ASA 3 and 4 risk for anesthesia, no significant adverse effects could be attributed to CO_2 pneumoperitoneum.[10,12,13] For high-risk patients, preoperative preparation and active perioperative monitoring are essential for safe anesthesia for LC with or without CO_2PP.[13]

For safe LC in this high-risk population and to reduce regional variation, Efforts should be focused on disseminating techniques.

CONCLUSION

Even elderly patients are more likely to present with disease in more advanced state, LC is safe and should be regarded gold stander for elderly patients with cholelithiasis.

Early elective LC should be encouraged. Emergency surgery in elderly group carries more morbidity than younger age group. For high-risk patients, good preoperative preparation and perioperative monitoring are essential for safe anesthesia.

Surgeons need to inform primary care physicians of the excellent result of laparoscopic procedures in the elderly to encourage earlier referrals.

REFERENCES

1. William S Laycock, Andrea E Siewers. Christian M Birkmeyer, David E Wennberg, John D Birkmeyer. Variation in the use of Laparoscopic Cholecystectomy for Elderly Patients with Acute Cholecystitis: Arch Surg 2000;135:457-62.
2. Dhoste K, Lacoste L, Karayan J, Lehuede MS, Thomas D, Fusciardi J. Haemodynamic and ventilatory changes during laparoscopic cholecystectomy in elderly ASA III patients: Canadian Journal of Anesthesia/Journal canadien d'anesthésie: Volume 43, Number 8/August, 1996.
3. Shih-Ping Cheng, Yuan-Ching Chang, Chien-Liang Liu, Tsen-Long Yang, Kuo-Shyang Jeng, Jie-Jen Lee and Tsang-Pai Liu: Factors associated with prolonged stay after laparoscopic cholecystectomy in elderly patients: Surgical Endoscopy Volume 22, Number 5/May, 2008.
4. Juliane Bingener, Melanie L Richards, Wayne H Schwesinger, William E Strodel, Kenneth R Sirinek. Laparoscopic Cholecystectomy for Elderly Patients Gold Standard for Golden Years? Arch Surg 2003;138:531-36.
5. Sánchez BJ, Gil-Albarellos PS, Moreno MN, Monsalve LE, García SCE. Indications, morbidity and results of laparoscopic treatment of cholelithiasis in the elderly people: Rev Mex Cir Endoscop 2007;8(2):79-84.
6. Kirshtein B, Bayme M, Bolotin A, Mizrahi S, Lantsberg L. Laparoscopic Cholecystectomy for Acute Cholecystitis in the Elderly: Is it Safe? Surgical Laparoscopy, Endoscopy and Percutaneous Techniques 2008; 18(4):334-39.
7. Macrý A, Scuderi G, Saladino E, Trimarchi G, Terranova M,Versaci A,C. Famulari : Acute gallstone cholecystitis in the elderly. Treatment with emergency ultrasonographic percutaneous cholecystostomy and interval laparoscopic cholecystectomy: Surgical Endoscopy, Volume 20, Number 1/January 2006.
8. Alfred Cuschieri. How I do it, Laparoscopic cholecystectomy: JR Coll Surg Edinb 44, June 1999;187-92.
9. Yoshito Nagashima, Song H, Kim I, Tetsutaro Otagiri. Anesthesia for laparoscopic cholecystectomy in an elderly patient with emphysematous bullaemcombined general and epidural anesthesia with spontaneous respiration and abdominal wall-left method: Journal of Anesthesia,Volume 9, Number 4/December 1995.
10. A Hon Kwon, Yoichi Matsui. Laparoscopic Cholecystectomy in Patients Aged 80 Years and Over: World Journal of Surgery, Volume 30, Number 7/July, 2006.
11. Annamaneni RK, Moraitis D, Cayten CG. Laparoscopic Cholecystectomy in the Elderly: Journal of the American Geriatrics Society, May 2008;56(5):962-63.
12. Pessaux P, Tuech JJ, Derouet N, Rouge C, Regenet N, Arnaud JP. Laparoscopic cholecystectomy in the elderly. A prospective study: Surgical Endoscopy, Volume 14, Number 11/ November, 2000.
13. AM Koiv usalo, Pere P, Valjus M, Scheinin T. Laparoscopic cholecystectomy with carbon dioxide pneumoperitoneum is safe even for high-risk patients:Surg Endoscopy, 22/(1), Jan/ 2008.
14. Andrew L Tambyraja, Sudhir Kumar, Stephen J Nixon. Outcome of Laparoscopic Cholecystectomy in Patients 80 Years and Older: ANZ Journal of Surgery Published Online: 22 Jun 2005;75(7):550-52.

15. Alexandor Polychronidis,Sotirios Botaitis: Laparoscopic cholecystectomy in elderly patients: J Gastrointestinal Liver disease, September/2008;17(3):309-13.
16. Oskay KAYA,Alper ÖZKARDEfi,Fatih ÖZDEM‹R,Gaye E. fiEKER,Mehmet TOKAÇ,M. Mahir ÖZMEN Laparoscopic Cholecystectomy in the Elderly: Turk J Med Sci 2006;36 (6):357-60.
17. CH Chau, CN Tang, WT Siu, JPY Ha, MKW Li (Edin: Laparoscopic cholecystectomy versus open cholecystectomy in elderly patients with acute cholecystitis: 394 Hong Kong Med J Vol 8, No 6, December 2002.
18. Cheng SD, Chien YC, Liu CL, et al. Factors associated with prolonged stay after laparoscopic cholecystectomy in elderly patients: Surgical Endoscopy, Volume 22, Number 5/ May, 2008.
19. Hyung Ook Kim, Jung Won Yun, Jun Ho Shin, Sang Il Hwang, Yong Kyun Cho, Byung Ho Son, Chang Hak Yoo, Yong Lai Park, Hungdai Kim: Outcome of laparoscopic cholecystectomy is not influenced by chronological age in the elderly: World J Gastroenterol 2009 February 14;15(6):722-26.
20. Diana Marie Weber. Laparoscopic Surgery An Excellent Approach in Elderly Patients: Arch Surg 2003;138:1083-88.