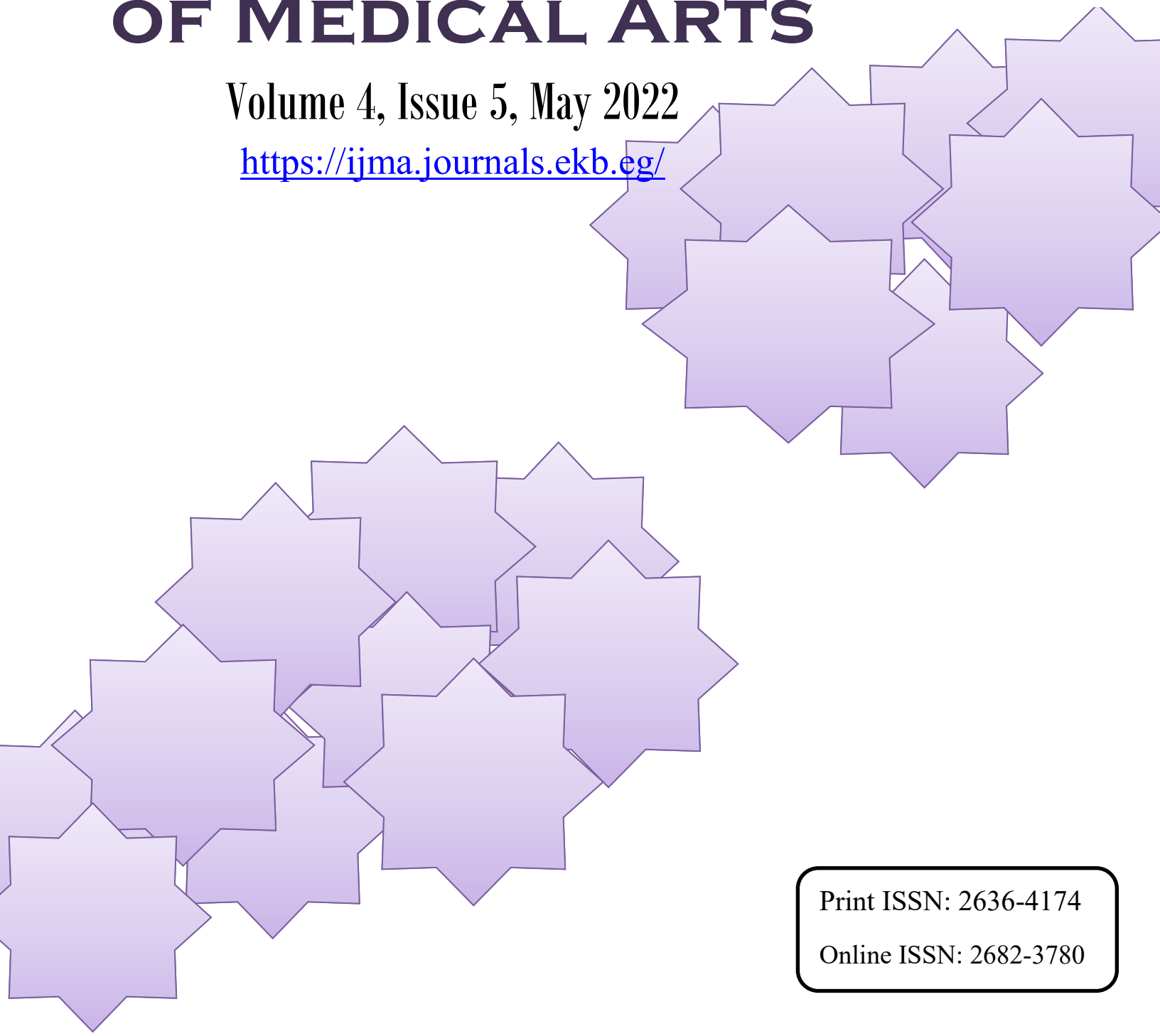
International Journal of Medical Arts

Volume 4, Issue 5, May 2022

https://ijma.journals.ekb.eg/



Print ISSN: 2636-4174

Online ISSN: 2682-3780

Available online at Journal Website
https://ijma.journals.ekb.eg/
Main Subject [Surgery]

Original Article

Assessment of Laparoscopic Cholecystectomy Outcome among Different Age Groups for Treatment of Acute Cholecystitis

Srinivasalu YP, Vidyasri S*

Department of General Surgery, The Oxford Medical College, Yadavanahalli, Karnataka, India

Article information

Received: 01-04-2022

Accepted: 11-06-2022

DOI: 10.21608/IJMA.2022.130911.1445

*Corresponding author

Email: svidyasri79@gmail.com

Citation: Srinivasalu YP, Vidyasri S. Assessment of Laparoscopic Cholecystectomy Outcome among Different Age Groups for Treatment of Acute Cholecystitis. IJMA 2022 May; 4 [5]: 2345-2350. doi: 10.21608/IJMA.2022.130911.1445.

ABSTRACT

Background: In the mid-1980s, laparoscopic cholecystectomy [LC] was introduced to Europe as a replacement option to open cholecystectomy [OC], a surgery that had been used for almost a century. This technique has quickly achieved general acceptance as the treatment of choice for symptomatic cholelithiasis patients.

Objective: To review the experience and understanding with LC in patients with benign gallbladder diseases and to compare the results as per different adult age groups [18-30 years, 31– 45 years and 46-60 years].

Patients and Methods: The research was a retrospective review of 150 patients with elective LC for benign gallbladder disease. According to their ages, the patients were split into three groups: Group A [18-30 years, n = 34], Group B [31–45 years, n = 76], and Group C [46-60 years, n = 40]. A four-port approach was employed to conduct LC.

Results: A total of 150 patients were involved in our study, with Group A [18-30 years, n = 34], Group B [31–45 years, n = 76], and Group C [46-60 years, n = 40] being the three age groups. Males numbered 90, while females numbered 60. In Groups A, B, and C, the mean ages were 24.60±3.14, 38.99±8.06, and 51.32±5.06, respectively. All three groups had statistically significant co-incidental biliary diseases [p=0.03914]. The majority of individuals with acute cholecystitis can have a laparoscopic cholecystectomy. However, compared to normal cholecystectomy, the complication incidence appears to be modest in laparoscopic cholecystectomy.

Conclusion: LC is an effective and safe treatment for individuals with benign gallbladder illnesses, especially those who are elderly. However, surgeons should be aware of these disorders and use caution in these instances both before and after surgery.

Keywords: Laparoscopy; Acute Cholecystitis; Cholecystectomy.

INTRODUCTION

The gallbladder is a tiny organ responsible for storing and concentrating bile. It is located underneath the liver. Bile is a digestive fluid that the liver produces and releases into the small intestine. Gallstones are solid bile fragments that form as a result of changes in bile composition and concentration caused by dietary changes, medicines, hormones, or rapid weight reduction or gain. Gallstone disease affects almost 6 million men and 14 million women in the United States, with Native and Hispanic Americans seeing greater incidence of the condition. Gallstones can cause pain abdomen, bloating sensation of abdomen, nausea, and vomiting in a few percentage of people, particularly after eating [1].

Gallstones can sometimes move out of the gall bladder, blocking healthy bile flow and inducing infection and inflammation in the gallbladder. Cholecystitis is a condition that causes intense, persistent pain abdomen, as well as fever, nausea, and vomiting. If gallstones are not causing any complications, they don't need to be addressed. Patients with cholecystitis or gallstone symptoms are treated with cholecystectomy, which is the surgical removal of the gallbladder. Laparoscopic cholecystectomy [LC], also referred as minimally invasive cholecystectomy, is a technique that incorporates creating four minute incisions and removing the gallbladder using long instruments using a camera to observe the inside of the abdomen [1].

The majority of patients return home the day of surgery or the next day following surgery. Patients can resume their normal dietary habits at home. For a few days, mild to moderate discomfort is usual and may be managed with pain medicines as indicated. The wounds' dressings may usually be removed the day following surgery, after which patients can resume normal showering, however certain incisions may require extra attention as directed by the surgeon. After cholecystectomy, a few patients may develop diarrhea, which usually goes away after a few weeks or months [1].

Complications with laparoscopic cholecystectomy are uncommon, but when tissues around the gallbladder are injured, they can be significant. The common bile duct, which is the major duct that empties bile from the liver and gallbladder to the small intestine, is one of these structures. Damage to the common bile duct or other biliary ducts can lead to bile leakage or blockage, resulting in abdominal pain, fever, and skin yellowing [jaundice]. A gallstone that has been lodged in the bile duct might also induce the same symptoms [1].

Laparoscopic cholecystectomy [LC] has quickly achieved broad acceptance as the regimen of preference for symptomatic cholelithiasis patients [1].

Compared to OC, LC offers several advantages, covering a shorter hospital stay and a quicker return to regular activities [2]. However, consequences after laparoscopic surgeries, particularly bile duct damage, have been observed in few cases [3].

After laparoscopic cholecystectomy, a range of additional complications, such as vascular injury, retained gallstones, and abscess development, might occur [4–10]. The standard treatment for acute cholecystitis is LC [11, 12].

It is recommended to conduct an early cholecystectomy in patients hospitalized for acute cholecystitis rather than waiting until the acute phase has passed, because an early treatment intervention has been shown to reduce postoperative hospital stay and hospital care costs [13, 14].

Gallbladder illness is one of the most prevalent reasons for adult hospitalization for acute abdomen and the most common reason for abdominal surgery in the elderly [15, 16].

When LC is deemed hazardous, the surgeon might have to change to an open surgery. In LC for acute cholecystitis, the chance of conversion is greater than in an elective surgery [17].

The following criteria have all been linked to the risk of conversion in patients undergoing LC for acute cholecystitis- age, gender [male], a non-palpable gallbladder, previous endoscopic retrograde cholangiopancreatography [ERCP], gangrenous inflammation, elevated C-reactive protein [CRP] and white blood cell count [WBCC] [18-21]. Standard antibiotic therapy and postponing the surgery until after the acute period have demonstrated no difference in conversion as well as complication rates [22].

Symptomatic cholelithiasis and cholecystitis are the most prevalent reasons for LC. Only about 5% of gallbladder lesions are benign polypoid lesions or malignant tumors [23,24]. The result of LC in young patients has been the subject of a few reports in the literature [30 years and younger]. The majority of them reported LC as a result of a hematological problem such as rheumatological disease or sickle cell disease [25-27].

THE AIM OF THE STUDY

We looked back on our experience with benign gallbladder LC in patients and compared the outcomes with various adult age groups [18-30 years, 31–45 years, and 46-60 years].

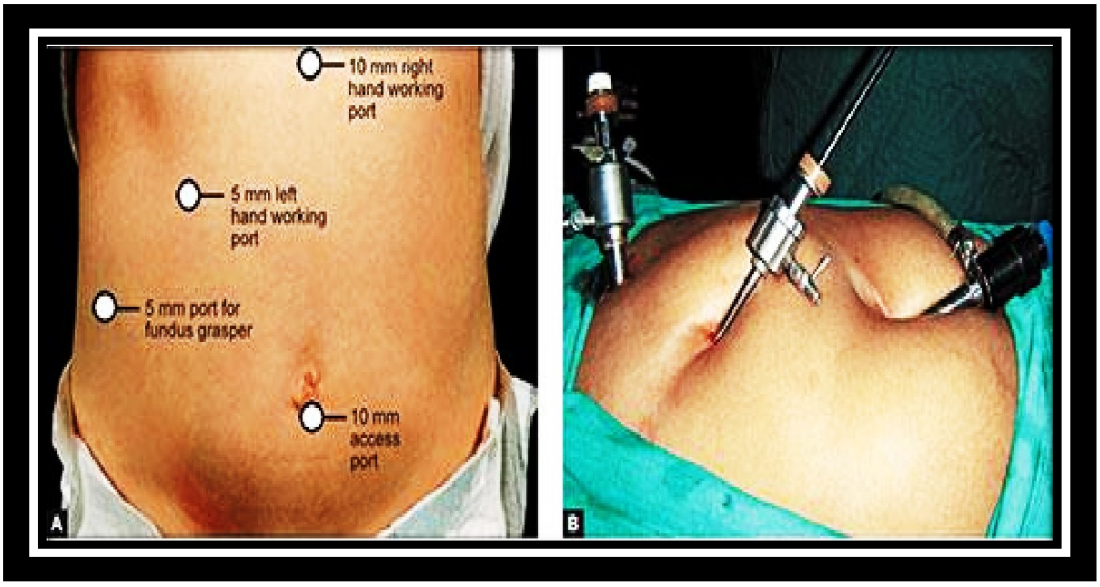


Figure [1]: Laparoscopic cholecystectomy *Source: Jaypee digital ebook

PATIENTS AND METHODS

The research was a retrospective assessment of individuals who had had urgent cholecystectomy. Our team performed elective LC for benign gallbladder disease on 150 patients at Oxford Medical College Hospital in Bangalore, Karnataka. The Medical Faculty was assessed between March 2018 and February 2020.

Group A [18-30 years, n = 34], Group B [31–45 years, n = 76], and Group C [46-60 years, n = 40] were the age groups. A typical four-port laparoscopic cholecystectomy was conducted. Procedure codes for LC and OC, as well as International Classification of Diseases codes for acute cholecystitis, were used to identify 150 patients from the operating theater database.

Stones evident during gallbladder removal, preoperative imaging as well as indicators of acute cholecystitis noted by the surgeon during the surgery, were characterized as acute calculous cholecystitis. Clinical indicators of acute cholecystitis [fever, Murphy's sign, tenderness in right upper quadrant], laboratory results [elevated WBC and CRP], and radiological indications of acute cholecystitis on imaging all contributed to the preoperative diagnosis of acute cholecystitis [abscess, stones, thickened gallbladder wall, edema, enlarged gallbladder].

Greater than 70 variables were obtained manually or directly from the patient records, including biographical information, laboratory, clinical, radiographic, and intraoperative results, technique, and potential consequences.

The complete complication index was generated after complications were graded using the Clavien-Dindo classification [28]

There was also information on the complications and how they were handled. The hospital review board granted appropriate clearance to perform the study.

Statistical analysis

SPSS Statistics v.22 was used to do the data analysis. Applying any Chi-square test, the P-value was calculated. Variables having a P-value of less than 0.05 were considered statistically significant and included in the multivariate analysis. At a 0.05 significance level, a sequential forward conditional technique of binary logistic regression was employed to identify both complications and risk factors for conversion.

RESULTS

In our study a total of 150 patients were included and divided into three groups Group A [18-30 years, n = 34], Group B [31 – 45 years, n = 76], Group C [46-60 years, n = 40]. Male were 90 and 60 were female. The mean ages were 24.60 ± 3.14, 38.99 ± 8.06 and 51.32 ± 5.06 in the Groups A, B, C respectively.

Acute cholecystitis and other probable risk factors including acute cholecystitis attack in last month, obstructive jaundice, biliary anomalies, and history of abdominal surgery were found 16, 5 and 3 patients in the Group A, B, C respectively. Co-incidental biliary pathologies were statistically significant in all the groups [p=0.03914].

Table [1]: Gender wise distribution

		No. of patients	Percentage [%]
Gender	Male	90	**60**
	Female	60	**40**
	Total	150	**100**
Age group [years]	Group A [18-30]	34	**22.67**
	Group B [31-45]	76	**50.67**
	Group C [46-60]	40	**26.67**
	Total	**150**	**100**

Table [2]: Pre-operative diagnosis

	Diagnosis		Total	p value
	Acute Cholecystitis	Acalculous Cholecystitis		
Group A [n=34]	25	9	34	**0.0241**
Group B [n=76]	59	17	76	**0.019**
Group C [n=40]	34	6	40	**0.04**

Table [3]: Co-incidental biliary pathology

	Group A	Group B	Group C	No of patients
Episodes of acute Cholecystitis	5	7	4	16
Obstructive jaundice	2	2	1	5
Biliary abnormalities	1	1	1	3
Past history of abdominal surgery	6	8	5	19

Table [4]: Postoperative complications

Complications	Group A	Group B	Group C	Total
Yes	3	6	4	13
No	31	70	36	137
Total	34	76	40	150

DISCUSSION

LC has taken over OC as the gold standard for benign gallbladder disease over the last two decades. Better postoperative recovery, less postoperative pain, shorter postoperative hospital stay, and faster return to normal activities are all benefits of LC versus OC [29, 30].

The effects of LC on elderly people have been described in several studies. Furthermore, various clinical investigations [31-34] support the use of LC in aged patients. A total of 150 patients were involved in our study, with Group A [18-30 years, n = 34], Group B [31–45 years, n = 76], and Group C [46-60 years, n = 40] being the three age groups. Males totaled 90, while females totaled 60. In Groups A, B, and C, the mean ages were 24.60±3.14, 38.99±8.06, and 51.32±5.06, respectively.

According to another research by Yetim *et al.* [35], the average ages in Groups A, B, and C were 25.60 ±3.64, 47.99 ±9.06, and 70.32± 5.06, respectively.

Acute calculous cholecystitis [118 patients] and acute acalculous cholecystitis [32 patients] were found to be the most common preoperative diagnoses in our research. Also in the same research the author [35] identified acute calculous cholecystitis [51 patients] and acute acalculous cholecystitis [17 patients] as preoperative diagnosis.

Preoperative diagnostic and Co-Incidental biliary pathology were shown to be statistically significant differences between the groups. Emergency cholecystitis and other potential risk factors, such as an acute cholecystitis episode in the previous month, obstructive jaundice, biliary abnormalities, and a history of abdominal surgery, were observed in 16, 5, and 3 patients in Groups A, B, and C, respectively.

All of the groups had statistically significant co-incidental biliary diseases [p=0.03914]. Acute cholecystitis and other likely risk factors, such as acute cholecystitis episode in the previous month, obstructive jaundice, biliary abnormalities, and history of abdominal surgery, were observed in 34, 32, 5, 17, and 35 patients in Group A, B, and C, respectively. All of the groups had similar co-incidental biliary diseases and a history of abdominal surgery [p>0.05]. In Groups A, B, and C, postoperative complications were detected in 3, 6, and 4 patients, respectively.

Conclusions

Majority of individuals with acute cholecystitis can have a laparoscopic cholecystectomy. However, compared to normal cholecystectomy, the incidence of complication appears to be modest. As a result, LC is a safe and effective treatment for individuals with benign gallbladder diseases, especially in elderly.

Conflicting Interest: NIL

REFERENCES

1. Wu JS, Dunnegan DL, Luttmann DR, Soper NJ. The evolution and maturation of laparoscopic cholecystectomy in an academic practice. J Am Coll Surg. 1998 May; 186[5]: 554-60; discussion 560-1. doi: 10.1016/s1072-7515[98]00052-0.
2. Gadacz TR, Talamini MA. Traditional versus laparoscopic cholecystectomy. Am J Surg. 1991; 161[3]:336-8. doi: 10.1016/0002-9610[91]90591-z.
3. Kaman L, Sanyal S, Behera A, Singh R, Katariya RN. Comparison of major bile duct injuries following laparoscopic cholecystectomy and open cholecyst-ectomy. ANZ J Surg. 2006 Sep;76[9]:788-91. doi: 10.1111/j.1445-2197.2006.03868.x.
4. Deziel DJ, Millikan KW, Economou SG, Doolas A, Ko ST, Airan MC. Complications of laparoscopic cholecyst-ectomy: a national survey of 4,292 hospitals and an analysis of 77,604 cases. Am J Surg. 1993; 165[1]:9-14. doi: 10.1016/s0002-9610[05] 80397-6.
5. Azurin DJ, Go LS, Arroyo LR, Kirkland ML. Trocar site herniation following laparoscopic cholecystectomy and the significance of an incidental pre-existing umbilical hernia. Am Surg. 1995 Aug; 61[8]:718-20. PMID: 7618813.
6. Wherry DC, Marohn MR, Malanoski MP, Hetz SP, Rich NM. An external audit of laparoscopic cholecyst-ectomy in the steady state performed in medical treatment facilities of the Department of Defense. Ann Surg. 1996 Aug;224[2]:145-54. doi: 10.1097/ 00000658- 199608000-00006.
7. Shea JA, Healey MJ, Berlin JA, Clarke JR, Malet PF, Staroscik RN, Schwartz JS, Williams SV. Mortality and complications associated with laparoscopic cholecystectomy. A meta-analysis. Ann Surg. 1996 Nov; 224 [5]:609-20. doi: 10.1097/00000658-199611000-00005.
8. Richardson MC, Bell G, Fullarton GM. Incidence and nature of bile duct injuries following laparoscopic cholecystectomy: an audit of 5913 cases. West of Scotland Laparoscopic Chole-cystectomy Audit Group. Br J Surg. 1996 Oct;83[10]:1356-60. doi: 10.1002/bjs.1800831009.
9. Z'graggen K, Wehrli H, Metzger A, Buehler M, Frei E, Klaiber C. Complications of laparoscopic chole-cystectomy in Switzerland. A prospective 3-year study of 10,174 patients. Swiss Association of Laparoscopic and Thoracoscopic Surgery. Surg Endosc. 1998 Nov; 12[11]:1303-10. doi: 10.1007/s004649900846.
10. Hjelmqvist B. Complications of laparoscopic chole-cystectomy as recorded in the Swedish laparoscopy registry. Eur J Surg Suppl. 2000; [585]:18-21. PMID: 10885551.
11. Coccolini F, Catena F, Pisano M, Gheza F, Fagiuoli S, Di Saverio S, *et al*. Open versus laparoscopic chole-cystectomy in acute cholecystitis. Systematic review and meta-analysis. Int J Surg. 2015 Jun; 18:196-204. doi: 10.1016/j.ijsu.2015.04.083.
12. Ansaloni L, Pisano M, Coccolini F, Peitzmann AB, Fingerhut A, Catena F, *et al*. 2016 WSES guidelines on acute calculous cholecystitis. World J Emerg Surg. 2016 Jun 14;11:25. doi: 10.1186/s13017-016-0082-5.
13. Gurusamy K, Samraj K, Gluud C, Wilson E, Davidson BR. Meta-analysis of randomized controlled trials on the safety and effectiveness of early versus delayed laparoscopic cholecystectomy for acute cholecystitis. Br J Surg. 2010 Feb;97[2]:141-50. doi: 10.1002/bjs. 6870.
14. Wilson E, Gurusamy K, Gluud C, Davidson BR. Cost-utility and value-of-information analysis of early versus delayed laparoscopic cholecystectomy for acute cholecystitis. Br J Surg. 2010 Feb; 97[2]:210-9. doi: 10.1002/bjs.6872.
15. Miettinen P, Pasanen P, Lahtinen J, Alhava E. Acute abdominal pain in adults. Ann Chir Gynaecol. 1996; 85[1]:5-9. PMID: 8739926.
16. Ukkonen M, Kivivuori A, Rantanen T, Paajanen H. Emergency Abdominal Operations in the Elderly: A Multivariate Regression Analysis of 430 Consecutive Patients with Acute Abdomen. World J Surg. 2015; 39[12]:2854-61. doi: 10.1007/s00268-015-3207-1.
17. Giger UF, Michel JM, Opitz I, Th Inderbitzin D, Kocher T, Krähenbühl L; Swiss Association of Laparoscopic and Thoracoscopic Surgery [SALTS] Study Group. Risk factors for perioperative complications in patients undergoing laparoscopic cholecystectomy: analysis of 22,953 consecutive cases from the Swiss Association of Laparoscopic and Thoracoscopic Surgery database. J Am Coll Surg. 2006 Nov;203[5]:723-8. doi: 10.1016/j. jamcollsurg. 2006.07.018.
18. Domínguez LC, Rivera A, Bermúdez C, Herrera W. [Analysis of factors for conversion of laparoscopic to open cholecystectomy: a prospective study of 703 patients with acute cholecystitis]. Cir Esp. 2011 May;89[5]:300-6. Spanish [English Abstract]. doi: 10.1016/j.ciresp.2011. 01.009.

19. Hobbs MS, Mai Q, Knuiman MW, Fletcher DR, Ridout SC. Surgeon experience and trends in intraoperative complications in laparoscopic cholecystectomy. Br J Surg. 2006 Jul; 93[7]:844-53. doi: 10.1002/bjs.5333.

20. Wevers KP, van Westreenen HL, Patijn GA. Laparoscopic cholecystectomy in acute cholecystitis: C-reactive protein level combined with age predicts conversion. Surg Laparosc Endosc Percutan Tech. 2013 Apr;23 [2]:163-6. doi: 10.1097/SLE. 0b013-e31826d7fb0.

21. Eldar S, Sabo E, Nash E, Abrahamson J, Matter I. Laparoscopic cholecystectomy for acute cholecystitis: prospective trial. World J Surg. 1997 Jun;21[5]:540-5. doi: 10.1007/pl00012283.

22. Gutt CN, Encke J, Köninger J, Harnoss JC, Weigand K, Kipfmüller K, *et al*. Acute cholecystitis: early versus delayed cholecystectomy, a multicenter randomized trial [ACDC study]. Ann Surg. 2013 Sep;258[3]:385-93. doi: 10.1097/SLA. 0b013e3182a1599b.

23. Lee KF, Wong J, Li JC, Lai PB. Polypoid lesions of the gallbladder. Am J Surg. 2004 Aug;188[2]:186-90. doi: 10.1016/j.amjsurg.2003.11.043.

24. Terzi C, Sökmen S, Seçkin S, Albayrak L. Polypoid lesions of the gallbladder: report of 100 cases with special reference to operative indications. Surgery. 2000;127[6]:622-7. doi: 10.1067/msy. 2000.105870.

25. Vecchio R, Cacciola E, Murabito P, Gambelunghe AV, Murabito R, Cacciola RR, Di Martino M. Laparoscopic cholecystectomy in adult patients with sickle cell disease. G Chir. 2001 Jan-Feb;22[1-2]:45-8.

26. Marakis G, Pavlidis TE, Ballas K, Rafailidis S. Laparoscopic cholecystectomy in adult patients with beta-thalassemia or sickle cell disease. Surg Endosc. 2005;19[12]:1668-9. doi: 10.1007/s00464-005-0373-5.

27. Gorgun E, Ozmen V. Acalculous gangrenous cholecystitis in a young adult: a gastrointestinal manifestation of polyarteritis nodosa. Surg Laparosc Endosc Percutan Tech. 2002 Oct;12[5]:359-61. doi: 10.1097/00129689-200210000-00011.

28. Dindo D, Demartines N, Clavien PA. Classification of surgical complications: a new proposal with evaluation in a cohort of 6336 patients and results of a survey. Ann Surg. 2004 Aug;240[2]:205-13. doi: 10.1097/01.sla.0000133083.54934.ae.

29. Yano H, Kinuta M, Iwazawa T, Kanoh T, Monden T. Laparoscopic cholecystectomy for asymptomatic cholelithiasis. Digest Endosc. 2003 Jul;15[3]:190-5. doi:10.1046/j.1443-1661.2003.00243.x.

30. Ludwig K, Lorenz D, Koeckerling F. Surgical strategies in the laparoscopic therapy of cholecyst-olithiasis and common duct stones. ANZ J Surg. 2002 Aug;72 [8]:547-52. doi: 10.1046/j.1445-2197.2002. 02480.x.

31. Tambyraja AL, Kumar S, Nixon SJ. Outcome of laparoscopic cholecystectomy in patients 80 years and older. World J Surg. 2004 Aug;28[8]:745-8. doi: 10.1007/s00268-004-7378-4.

32. Majeski J. Laparoscopic cholecystectomy in geriatric patients. Am J Surg. 2004 Jun;187[6]:747-50. doi: 10.1016/j.amjsurg.2003.11.031.

33. Kauvar DS, Brown BD, Braswell AW, Harnisch M. Laparoscopic cholecystectomy in the elderly: increased operative complications and conversions to laparotomy. J Laparoendosc Adv Surg Tech A. 2005 Aug;15[4]:379-82. doi: 10.1089/lap.2005.15.379.

34. Bingener J, Richards ML, Schwesinger WH, Strodel WE, Sirinek KR. Laparoscopic cholecystectomy for elderly patients: gold standard for golden years? Arch Surg. 2003 May;138[5]:531-5; discussion 535-6. doi: 10.1001/archsurg.138.5.531.

35. Yetim İ, Dervişoğlu A, Karaköse O, Büyükkarabacak Y, Bek Y, Erzurumlu K. Laparoscopic cholecyst-ectomy results in patients with different age groups. J Clin Anal Med. 2011;2[3]:75-8. doi: 10.4328/JCAM. 403.

5/2022

International Journal of Medical Arts

https://ijma.journals.ekb.eg/
Print ISSN: 2636-4174
Online ISSN: 2682-3780