

Potential Consequences of Laparoscopic Cholecystectomy in Iraqi Patients in Salah Al-Din Hospitals

Nashwan Mohammed Rajab*

General Surgery Department, Tikrit Teaching Hospital, Salah Al-Din Health Directorate, Iraq

ABSTRACT

Laparoscopic cholecystectomy (LC) is undoubtedly the key for management of patients with cholecystitis. This study aimed to estimate potential intra-operative complications of LC approach in patients suffered from cholecystitis (acute or chronic). The current retrospective investigation was included about 90 patients, who underwent laparoscopic cholecystectomy in private hospitals in Salah al-Din Governorate (Iraq) between January 2023 and February 2024. The data recorded in the hospitals were used to approve the diagnosis of cholecystitis. The results confirmed that among the 90 patients studied, 7 (8%) had intraoperative complications, bleeding (3%), biliary tract injuries (2%), bowel injuries (1%), and bile leakage (1%). Also, 6 patients (7%) were converted to open surgery. It was concluded that LC approach for patients with cholecystitis is safe and appropriate.

KEYWORDS: Laparoscopic cholecystectomy, cholecystitis ,complications, bleeding.

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INTRODUCTION

Laparoscopic surgery is one of the greatest advances in surgery, with its high diagnostic and therapeutic potential through the use of technological revolution in surgical practice [1-3]. It has significantly outperformed open surgery in patient recovery time and improved surgical quality [4,5] . In the early 1980s, Semm and Muhe developed laparoscopic surgery from a purely diagnostic approach to a surgical intervention for treatment as well [6,7]. In general, it is considered a technique that is applied in a wide range of indications, as it is the key standard for many organ surgeries [8,9], especially the digestive system such as cholecystectomy [10]. Laparoscopic cholecystectomy (LC) is the procedure of choice in the management of cholecystitis, as it provides cosmetic advantages, and reduces the consequences of surgical operations that cannot be overlooked [11,12]. In contrast, cholecystitis is the most prominent indication for abdominal surgery, due to the increasing frequency of gallstone problems at all ages [13,14]. There are still concerns raised by laparoscopic surgeons about the safety of cholecystectomy outcomes [15]. Despite some reservations regarding the feasibility of this surgical approach in cholecystitis, it is used with remarkable success in the majority of patients undergoing it [16], and the main role is due to experience of surgeons in addition to advanced techniques in equipment used [17]. This research articles was designed to estimate the LC approach in terms of intra-operative complications in patients with cholecystitis undergoing this surgery in Salah Al-Din, Iraq.

PATIENTS AND METHODS

In this retrospective study, the medical records were analyzed for (90) patients diagnosed with cholecystitis (acute or chronic) undergone laparoscopic cholecystectomy in some private hospitals in Salah Al-Din (Iraq), between January 2023 and February 2024. The diagnosis of cholecystitis, whether acute or chronic, was confirmed for all surgically extracted gallbladder specimens by pathologists. Patients who had undergone previous abdominal surgery were excluded from the study. Intraoperative and postoperative complications were evaluated for both genders, aged between (18-75) years, participated. This study included 55 females (61%) versus 35 males (39%) as clarified in Figure (1).All participated patients were set into 2 groups by their ages, the first one included 64 patients (71%) from the age group (≤ 50) with a mean age of 36 years old, and the second group included 26 patients (29%) from the age group (> 50) with a mean of 66 years as shown in Figure (2).Descriptive statistical analysis of the results was performed using the approved statistical program SPSS. The data were tabulated as frequencies and percentages

(%).In accordance with the appropriate approval from the local health directorate regarding the ethical principles of medical research, the study was completed.

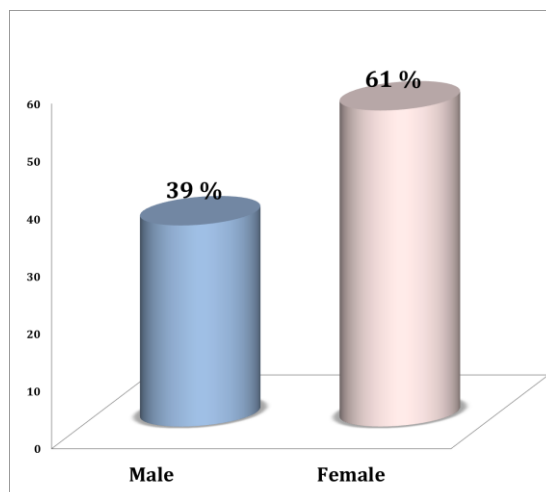


Figure 1: Proportion of patients by gender.

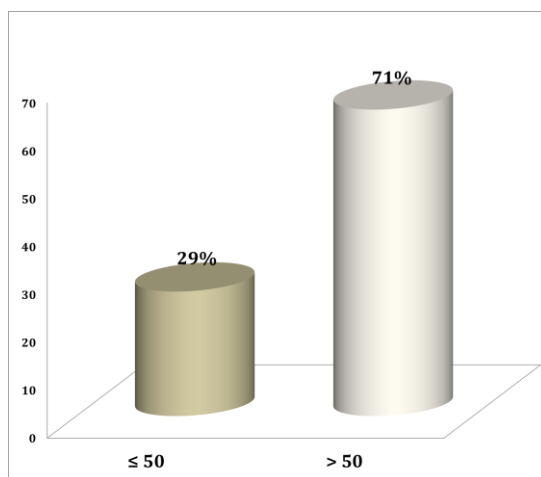


Figure 2: Proportion of patients by age group.

SURGICAL STEPS

All patients were under general anesthesia, a transverse incision was made above the umbilicus and a pneumoperitoneum was formed with accomplice of a Veress needle. Along with successful fixation, this needle was devoted to the insufflator. Carbon dioxide insufflation was gradually super fat to higher rate intra-abdominal pressure up 12 mmHg. It is worth noting that 3 more forceps were inserted under visual auspices (Figure 1). All studied patients were evaluated on 1st day and discharged from hospital, and then they were followed up on the 7th day and 2 months after surgery.

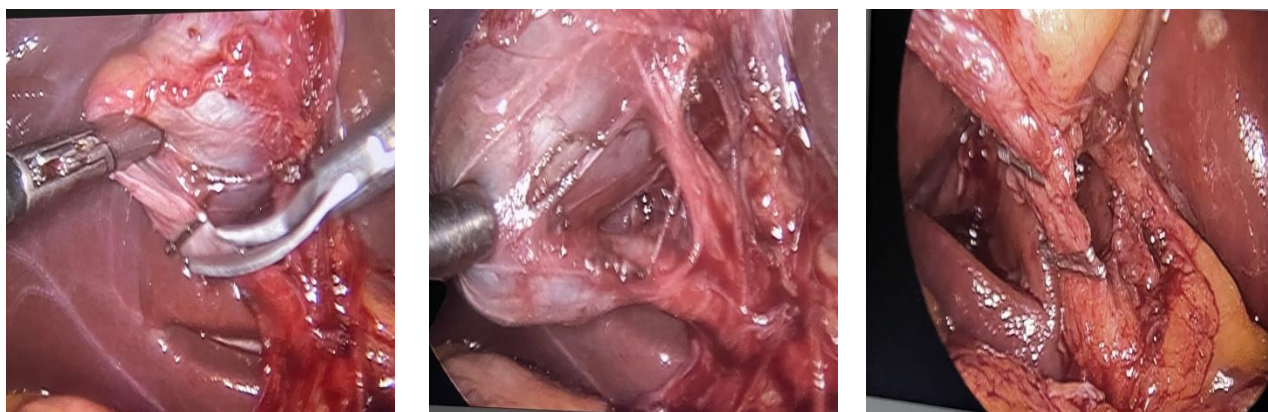


Figure 1: Surgical LC in studied patients.

RESULTS

Among 90 patients studied, 7 patients (8%) had intra-operative complications as shown in Table (1). The most common complications observed were: Bleeding in 3 patients (3%), biliary tract injuries in 2 patients (2%), bowel injuries and bile leakage occurred in only one patient (1%). No mortality was recorded.

Table 1: Intra-operative complications in studied patients.

Intraoperative complications		Frequency N=90	%
Biliary injuries	Yes	2	2
	No	88	98
Bleeding	Yes	3	3
	No	87	97
Bowel injuries	Yes	1	1
	No	89	99
Bile leakage	Yes	1	1
	No	89	99
Mortality	Yes	0	0
	No	90	100

In Table (2) the results of conversion to open cholecystectomy for patients in both groups are demonstrated. Out of 90 patients, 5 (8%) were converted to open surgery in (> 50) group versus 1 (4%) in (≤ 50) age group.

Table 2: Conversions to open in studied patients.

Conversions to open	Age group		Total
	(≤ 50) N=26	(> 50) N=64	
Yes	1 (4%)	5 (8%)	6 (7%)
No	25 (96%)	59 (92%)	84 (93%)

DISCUSSION

Although cholecystectomy surgery is common, older adults face different risks than younger patients, due to their higher potentially of age-related chronic diseases and the possibility of worsening infection during surgery [18,19]. Nowadays, laparoscopy is indispensable in surgical practice as this minimally invasive approach has been adopted by most surgeons as the main management of many abdominal diseases requiring surgical intervention [20,21]. It has been recognized as the gold standard in the treatment of cholecystitis [22]. On the other hand, this approach still raises concerns and controversy; laparoscopic procedures are fraught with risks because laparoscopic access is a potentially problematic procedure for patients [23]. Therefore, creation of a pneumoperitoneum has been considered the most important step in the laparoscopic procedure, and may cause surgical complications. Also, it is considered a major challenge in the procedure [24]. Intraoperative injury associated with laparoscopic practicability during entrance to peritoneal cavity remains a trouble for many specialist surgeons [25,26]. Some studies have shown that creation of pneumoperitoneum is related to several disadvantages of abdominal viscera and blood vessels [27]. In this study, 2 (2%) of 90 patients developed biliary tract injury, similar results have been reported in other previous studies as well. In a meta-analysis by Yang et al. (2022), they confirmed that patients aged 40 years and older, with acute and sub-acute cholecystitis and complicated gallstones were closely linked with biliary injury in LC surgery. Therefore, knowing these risk factors contributes to increasing attention to hazard associated with this surgery and thus reducing or eliminating possibility of bile duct injury [28]. Pesce et al.(2023) had confirmed that lose blood complications from vascular injuries were significant reason of morbidity and mortality, particularly when faced with severe hemorrhage intra-operative, so the resulting conversion rate to open surgery was 1.9%, with a mortality rate of about 0.02%. Therefore, controlling bleeding is a technical challenge for experienced surgeons [29]. In this regard, Ahmad and Faulx (2020) documented that the most common complications with laparoscopic cholecystectomy were bile duct injury reached (0.5%) and bile leakage (1.1%), emphasizing the important role of endoscopy in the diagnosis and management of biliary complications [30].

CONCLUSION

It was concluded that laparoscopic cholecystectomy for patients with cholecystitis is safe and appropriate, although there is a slight proportion of manageable complications.

REFERENCES

- 1) Li J, Chen P. Current status and prospects of minimally invasive hepatobiliary surgery. *Intelligent Surgery*. 2024 Jul 18.
- 2) AL-majmaie AA, Salman AL, Alkadem DH, Ghareeb OA. Indications of Tracheostomy in Patients Attending Baquba Teaching Hospital in Diyala, Iraq: A cross Sectional Study. *Texas Journal of Medical Science*. 2023 Aug 22;23:44-50.
- 3) Faiq TN, Al-Qadiri AM, Ghareeb OA, Mostafa AM, Al Dabbagh HK. Endoscopic Transethmoid Drainage of Frontal Lobe Brain Abscess: Rare Case Report. *SAS J Med*. 2025 Mar;3:222-6.
- 4) Habash MM, Thabet RF, Abood AM, Ghareeb OA. Comparative Study between Open and Laparoscopic Appendectomy in Acute Appendicitis. *The Egyptian Journal of Hospital Medicine*. 2022 Oct 1;89(2):7567-7570.
- 5) Abi Antoun M, Etrusco A, Chiantera V, Laganà AS, Feghali E, Khazzaka A, Stabile G, Della Corte L, Dellino M, Sleiman Z. Outcomes of conventional and advanced energy devices in laparoscopic surgery: a systematic review. *Minimally Invasive Therapy & Allied Technologies*. 2024 Feb 1;33(1):1-2.
- 6) Cuesta MA. Minimally Invasive Surgery (MIS) in Spain and Its Diffusion to the World. In *Spain's Journey in Medicine: From Moorish Surgery to Modern Research 2026* Jan 22 (pp. 555-570). Cham: Springer Nature Switzerland.
- 7) Habash M, Sultan A, Ghareeb O. Surgical Outcomes of LigaSure Bipolar Device versus Conventional Technique in Total Thyroidectomy. *Journal of Natural Science, Biology and Medicine*. 2022 Jan;13(2):119-23.
- 8) Bayraktar TN, Ghareeb OA. A prospective study on indications for tonsillectomy in childhood in Kirkuk. *Medical Journal of Babylon*. 2023 Dec 1;20 (Supplement 1):S6-10.
- 9) Yang J, Zhang B, Hu C, Jiang X, Shui P, Huang J, Hong Y, Ni H, Zhang Z. Identification of clinical subphenotypes of sepsis after laparoscopic surgery. *Laparoscopic, Endoscopic and Robotic Surgery*. 2024 Mar 1;7(1):16-26.
- 10) Odogwu S, Morris S, Addison S, Abbott S. Laparoscopic cholecystectomy performed by a surgical care practitioner: a review of outcomes. *The Annals of The Royal College of Surgeons of England*. 2024 Apr 25.
- 11) Baron TH, Jorge I, Husnain A, Benias PC, Reames BN, Bhanushali A, Docimo Jr S, Bloom M, Salem R, Murphy P, Singh H. Comprehensive Review of the Management of Patients with Acute Cholecystitis Who Are Ineligible for Surgery. *Annals of surgery*. 2026 Jan 1;283(1):72-81.
- 12) Cherng N, Achebe I, Winkie M, Thomann J, Then E, Marya NB. Approaches to Cholecystitis: Surgical, Endoscopic, and Percutaneous Management. *Journal of Intensive Care Medicine*. 2024 Aug 2;08850666241267262.
- 13) Sultan AI, Saadi RK, Habash MM, Ghareeb OA. Outcomes of symptomatic gallstone disease in pregnant women: A retrospective study. *Journal of Population Therapeutics and Clinical Pharmacology*, 2023; 11, 30(2): e1–e7.
- 14) Taher GN, Ghareeb OA. Assessment of Hepatic Biochemical Indices in Patients with Acute Cholecystitis. *Eurasian Medical Research Periodical*. 2022 Oct 14;13:94-100.
- 15) Edergren Å, Sandblom G, Franko M, Agustsson T, Cengiz Y, Jaafar G. Safety of cholecystectomy performed by surgeons who prefer fundus first versus surgeons who prefer a standard laparoscopic approach. *Surgery Open Science*. 2024 Jun 1;19:141-5.
- 16) Grüter AA, Daams F, Bonjer HJ, van Duijvendijk P, Tuynman JB. Surgical quality assessment of critical view of safety in 283 laparoscopic cholecystectomy videos by surgical residents and surgeons. *Surgical Endoscopy*. 2024 May 20:1-6.
- 17) Baron TH, Jorge I, Husnain A, Benias PC, Reames BN, Bhanushali A, Docimo Jr S, Bloom M, Salem R, Murphy P, Singh H. Comprehensive Review of the Management of Patients with Acute Cholecystitis Who Are Ineligible for Surgery. *Annals of surgery*. 2026 Jan 1;283(1):72-81.
- 18) Ng AP, Hadaya JE, Sakowitz S, Gao Z, Wu J, Benharash P. Age-stratified trends and outcomes of inpatient cholecystectomy for acute cholecystitis in the United States. *Surgery Open Science*. 2025 Jan 1;23:24-9.
- 19) Fan H, Wang D, Liu H, Pei Z, Wang J, Zhang J, Wang S, Wang G. Sarcopenia independently predicts acute cholecystitis in older patients with gallstones: a retrospective cohort study. *Frontiers in Medicine*. 2026 Apr 13;13:1804441.
- 20) Sultan AI, Ali SH, Ghareeb OA. Potential Port Site Consequences in Laparoscopic Cholecystectomy Using an Open versus Closed Approach of Pneumoperitoneum: A Comparative Study. In: *Perspective of Recent Advances in Medical Research Vol. 11*. B P International, pp. 71-82.
- 21) Edebo A, Andersson J, Gustavsson J, Jivegård L, Ribokas D, Svanberg T, Wallerstedt SM. Benefits and risks of using laparoscopic ultrasonography versus intraoperative cholangiography during laparoscopic cholecystectomy for gallstone disease: a systematic review and meta-analysis. *Surgical Endoscopy*. 2024 Jul 17:1-2.
- 22) Alius C, Serban D, Bratu DG, Tribus LC, Vancea G, Stoica PL, Motofei I, Tudor C, Serboiu C, Costea DO, Serban B. When critical view of safety fails: A practical perspective on difficult laparoscopic cholecystectomy. *Medicina*. 2023 Aug 19;59(8):1491.
- 23) Sultan AI, Ali SH, Ghareeb OA. Port Site Consequences After Laparoscopic Cholecystectomy Using an Open Versus Closed Approach of Pneumoperitoneum. *Cureus*. 2022 Jul 1;14(7).

- 24) Naqvi AZ, Balasubaramaniam V, Raza W, Rai L, Whiteley GS. Systematic review on techniques for the creation of pneumoperitoneum in laparoscopic surgeries. *Asian Journal of Medical Sciences*. 2024 May 1;15(5):253-9.
- 25) Faiq TN, Ghareeb OA. A Clinical Study of Cauterization of Sphenopalatine Artery for Idiopathic Refractory Posterior Epistaxis. *Research Highlights in Disease and Health Research* Vol. 1, 7 February 2023 , Page 1-10
- 26) Watrowski R. Complications of Gynecological Laparoscopy. In *Advances in Minimally Invasive Gynecologic Reproductive Surgery* 2021 Jul 25 (pp. 24-45). CRC Press.
- 27) Recknagel JD, Goodman LR. Clinical perspective concerning abdominal entry techniques. *Journal of minimally invasive gynecology*. 2021 Mar 1;28(3):467-74.
- 28) Yang S, Hu S, Gu X, Zhang X. Analysis of risk factors for bile duct injury in laparoscopic cholecystectomy in China: A systematic review and meta-analysis. *Medicine*. 2022 Sep 16;101(37):e30365.
- 29) Pesce A, Fabbri N, Feo CV. Vascular injury during laparoscopic cholecystectomy: An often-overlooked complication. *World Journal of Gastrointestinal Surgery*. 2023 Mar 3;15(3):338.
- 30) Ahmad DS, Faulx A. Management of postcholecystectomy biliary complications: a narrative review. *Official journal of the American College of Gastroenterology| ACG*. 2020 Aug 1;115(8):1191-8.