

Surgical Results of Cholecystectomy in Iraq

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Abstract: Background: Gallbladder disease, or cholecystitis, is a highly complex pathology with a proclivity for increased prevalence due to sedentary lifestyles and poor dietary habits. It represents one of the most prevalent diseases worldwide. **Objective:** The aim of this study was to determine and evaluate the impact of laparoscopic cholecystectomy on patients' quality of life following surgery. **Patients And Methods:** To achieve the study objective, we collected pathological and clinical data of patients with gallbladder disease from hospitals in Baghdad - Iraq. During the period from January 2022 to October 2023, 77 patients who underwent laparoscopic cholecystectomy were recruited. This study determined diagnostic data for patients' gallstones. In addition, patients' surgical data, mortality rate, pain rate, hospitalization, and postoperative quality of life of patients were recorded. **Results:** The current outcomes revealed that individuals aged 60 years and above constituted most participants, accounting for 42.86% of cases. There were 23 male cases and 54 female cases. Concomitant disease was present in 71 patients, while the poor diet was identified in 81.82% of patients. A family history of gallstones was reported in 16 patients, and the operation time was mean operative time was 80.50 ± 30.15 minutes, with a mean blood loss of 72.46 ± 21.33 millilitres. Seven cases (9.5%) exhibited postoperative bleeding. The mean postoperative hospital stay was 4.7 ± 1.1 days, with three cases (4.2%) requiring admission to the intensive care unit. Concomitant bile duct stones were present in 11 patients (15.3%). Based on the results of the quality of life (QOL) health questionnaires completed during the follow-up period, the current findings indicated significant improvements in the QOL of patients after laparoscopic cholecystectomy. There were notable improvements in physical mobility (91.25 ± 5.93), emotional well-being (89.71 ± 2.84), and pain levels (80.52% of patients reported lower pain scores). **Conclusion:** Laparoscopic cholecystectomies represent one of the most prevalent forms of laparoscopic surgery globally and are regarded as a highly standardised and secure procedure.

Keywords: Laparoscopic cholecystectomy surgery; Gallbladder disease; postoperative complications; Health quality of life; and post-operative hospitalization time.

INTRODUCTION

A gallbladder disease is a highly complex pathology that shows a tendency to increase due to a sedentary lifestyle and poor eating habits; it represents one of the most incident diseases worldwide, maintaining an estimated prevalence of 10-15% in the adult population [Peery, A. *et al.*, 2012]. An incidence of cholelithiasis of 10% was found in one hospital nationwide. In addition, up to 50% of patients with gallstones have no symptoms; however, in the event of any complication, the patient deserves intervention through laparoscopic cholecystectomy. [Portincasa, P. *et al.*, 2006]

The latter has become the preferred therapy for symptomatic patients with calculous diseases of the gallbladder because, being a less invasive procedure, there is an expectation of less pain, reduced risk of wound infection, fewer thromboembolic difficulties and shorter hospital stay; however, it has a certain percentage of error due to its complexity. [National Institute for Clinical Excellence, 2010]

The prevalence of – asymptomatic or symptomatic - concrements of the gallbladder is reported in

Germany at 10.5 to 24.5% of women and 4.9 to 13.1% of men, i.e., it can be assumed that more than ten million German citizens are carriers of gallstones. Values of 10-15% are described for North America. In Africa and Asia, they occur much less frequently, at 4-10%. With age, the prevalence increases [Devlin, N. *et al.*, 2010]. For men and women under the age of 30, it is well below 10% and then steadily increases to values of about 35% for 80-year-old men and 60% for 80-year-old women. Women have about twice as high a risk compared to men in every age group. [Berwick, D, 1997]

As with any invasive procedure, complications that tend to be rare may occur after surgery. However, they can pose a risk to the patient's life, including bleeding, bile duct injury, nausea, vomiting, jaundice, and omoalgia [Chow, A. *et al.*, 2009]. Over time, the practice of this procedure has shown innovations in favor of patient satisfaction. Therefore, techniques have been described that show advantages among themselves; in the case of total laparoscopic cholecystectomy performed in subjects with difficult cholecystectomy, it

represents a high risk of lesions at the level of the bile ducts in contrast to cholecystectomies performed on non-inflamed vesicles; while subtotal laparoscopic cholecystectomy provides a certain level of safety for the prevention of ductal lesions, however bile leakage, collections, and retained stones are frequent. [National Institute for Clinical Excellence, 2012]

It is clear that laparoscopic cholecystectomy is one of the most frequently used operations for the correction of pathologies of the gallbladder; during this procedure, it is of vital importance to preserve the integrity of the bile ducts, for this, the correct anatomical identification of the key structures is imperative, as well as the appropriate choice of the surgical technique to be practiced and, finally, the completion of the surgery should be considered when the recognition of the anatomical structures is not feasible. Given this and the impossibility of completing the laparoscopic total cholecystectomy, the rescue procedure is usually the subtotal fenestrant cholecystectomy. [Janssen, M. *et al.*, 2013 – Kennedy, G. *et al.*, 2014]

Laparoscopic operations have triggered a revolution in visceral surgery over the past two decades and have continuously led to enormous medical and technical progress. The modern video endoscopy systems and the laparoscopic instruments allow a significant reduction in the trauma of the surgical procedure, not only by reducing the size of the access path to the abdominal cavity but also by excellent exposure of the anatomy with the possibility of a subtle dissection. [Vetthus, M. *et al.*, 2005 – Van Boxel, G. *et al.*, 2012]

The advantages associated with this emerged relatively quickly and could be proven in many comparative studies between laparoscopic and conventional procedures. These include a significant reduction in postoperative pain symptoms, a lower rate of wound healing disorders, a positive effect on the immune system with a reduced local and systemic inflammatory response, as well as less impairment and rapid recovery of lung function. [Mazor, K. *et al.*, 2002; Barron, D. *et al.*, 2014]

PATIENTS AND METHODS

The presence of gallstones and bile duct stones were identified prior to surgery by ultrasonography, computed tomography, as well as magnetic resonance cholangiography. The disorders linked to gallstones of this study were

hypertension, diabetes, hyperlipidemia, nephropathy, and hepatopathy. These disorders were classified as those necessitating hospitalization. Endoscopists commonly used endoscopic cholangiography to treat the majority of bile duct stones prior to cholecystectomy.

A cross-sectional study was conducted for all patients with gallstone disease who presented for cholecystectomy, which included 77 patients in Baghdad hospitals - Iraq, whose ages ranged between 30 - 70 years in the period from January 2022 to October 2023.

Relying on the clinical and diagnostic data of patients, we conducted diagnoses for patients participating in cholecystectomy surgery, where they were diagnosed with CT scan, ultrasound, and magnetic resonance imaging, which included demographic data that included age, gender, body mass index, comorbidities, and other characteristics such as surgical data, length of hospital stay, and complications. Postoperative, postoperative in-hospital mortality, histopathological status of the gallbladder, and rate of associated bile duct stones.

For laparoscopic cholecystectomy data, we collected pathological and clinical data for patients with gallbladder disease from hospitals in Baghdad, Iraq. During the period from January 2022 to October 2023, 77 patients who underwent laparoscopic cholecystectomy were recruited. In addition, patients' surgical data, mortality rate, pain rate, hospitalization, and postoperative quality of life of patients were recorded. This study evaluated the clinical outcomes of patients based on describing the health-related quality of life of patients after laparoscopic cholecystectomy.

The Nottingham Health Profile (NHP) can be a commonly employed tool for evaluating individuals' subjective health state and evaluating their health-related quality of life where the questionnaire has 38 inquiries distributed across six categories: physical mobility, pain, energy, sleep, emotion, as well as social isolation, which the ratings for each domain exhibit a range, with higher scores correspond to lower health-related quality of life, as well as the overall score can vary from 0 to 100, with higher values indicating a poorer state of health.

The General Psychological Well-Being (PGWB) Index has a 22-item self-report questionnaire specifically created to assess an individual's overall psychological well-being. Where the

measure includes six measurements: anxiety, depression, positive well-being, self-control, overall health, and vitality. Which the ratings for the PGWB scale might vary across different scoring systems, as well as the PGWB scale can yield scores ranging from 0 to 110, where higher scores correspond to greater degrees of psychological well-being.

RESULTS

Our results show that people with ages who older than 60 years were the most participants which, include 42.86% of cases; males had 23 cases and females 54 cases; the most symptoms prevalent were biliary colic with 32 cases and cholecystitis with 21 cases, where these findings can be clarify in **Table 1**.

Table 1: Identify preoperative parameters of patients with gallstone diseases.

Variables	No. Patients [77]	Percentage [%]
Age		
30 – 39	10	12.99%
40 – 49	14	18.18%
50 – 59	20	25.97%
60 - 70	33	42.86%
Sex		
Men	23	29.87%
Women	54	70.13%
BMI, Kg/m2		
18.5 – 24.9	5	6.49%
25 – 29.9	32	41.56%
30.0 – 34.9	40	51.95%
ASA		
ASA 1	30	38.96%
ASA 2	35	45.45%
ASA ≥ 3	12	15.58%
Symptoms		
Biliary colic	32	41.56%
Cholecystitis	21	27.27%
Gallstone pancreatitis	10	12.99%
Abdominal pain	5	6.49%
Fever	4	5.19%
Jaundice	3	3.90%
Bloating	2	2.60%
Comorbidities		
Hypertension	60	77.92%
Diabetes	36	46.75%
Hyperlipidemia	70	90.91%
Kidney diseases	10	12.99%
Liver disease	33	42.86%
Others	14	18.18%
Income status, \$		
400 – 800	40	51.95%
801 - 1000	24	31.17%
> 1000	13	16.88%

According to outcomes in **Table 2**, the diagnostic findings shown previous gallstone attacks got 70 patients, concomitant disease had 71 patients, a poor diet had 81.82% of patients, family history of gallstones had 16 patients, where all patients had

undergone to examine which are Imaging tests that consist of CT scan with 68 cases, Ultrasound scan with 50 cases, and Magnetic resonance imaging with 20 cases.

Table 2: Determine the diagnoses findings of patients

Variables	No. of patients [77]	Percentage [%]
Previous gallstones attacks (%)		
Yes	70	90.91%
No	7	9.09%
Previous surgeries		
Yes	32	41.56%
No	45	58.44%
Smoking status		
Yes	20	25.97%
No	57	74.03%
Previous hospitalisation for gallstone disease (%)		
Yes	18	23.38%
No	59	76.62%
Concomitant disease		
Yes	71	92.21%
No	6	7.79%
Poor diet		
Yes	63	81.82%
No	14	18.18%
Family history of gallstones		
Yes	16	20.78%
No	61	79.22%
Imaging tests		
CT scan	68	88.31%
Ultrasound	50	64.94%
Magnetic resonance imaging	20	25.97%

In terms of laparoscopic cholecystectomy outcomes, our study found Operation time was 80.50 ± 30.15 min, blood loss was 72.46 ± 21.33 mL, the Number of cases had bleeding were 7 cases, postoperative hospital stays had 4.7 ± 1.1

days, admission ICU with 3 cases, concomitant bile duct stones with 11 patients, and postoperative complications was 8 cases, where postoperative hospital death with 0 patients, where all outcomes can be shown in the **Table 3**.

Table 3: Enroll main parameters of laparoscopic cholecystectomy data.

Variables	No. of patients [77]	Percentage [%]
Operation time, min	80.50 ± 30.15	
Blood loss, mL	72.46 ± 21.33	
No. of cases, bleeding.		
Yes	7	9.09%
No	70	90.91%
Postoperative hospital stays, days	4.7 ± 1.1	
Admission ICU		
Yes	3	3.90%
No	74	96.10%
Postoperative hospital death		
Yes	0	0.00%
No	77	100%
Concomitant bile duct stones		
Yes	11	14.29%
No	66	85.71%
Postoperative complications		
Yes	8	10.39%
No	69	89.61%

Infection at the surgical site	3	3.90%
Bleeding	0	0.0%
Bile leakage	1	1.30%
Injury to surrounding organs	0	0.0%
Blood clots	0	0.0%
Respiratory problems	1	1.30%
Incisional hernia	1	1.30%
Bowel injury	1	1.30%
Gallstone spillage	1	1.30%

Based on QOL health questionnaires during the follow-up period, the current findings of QOL indicated to significant improvements of patients after laparoscopic cholecystectomy operative, where it noticed that physical Mobility with 91.25

± 5.93 , emotion with 89.71 ± 2.84 , anxiety with 97.35 ± 6.58 , depression with 92.16 ± 4.43 , and higher score better of pain got 80.52% of total patients, which these variables can be more clarify in **Table 4**.

Table 4: Conducting multiple questionnaires describing the health quality of life of patients after laparoscopic cholecystectomy.

Items	QOL details
Nottingham Health Profile, [0 – 100]	
Physical Mobility	91.25 ± 5.93
Pain	86.48 ± 4.92
Energy	82.10 ± 5.60
Sleep	87.66 ± 5.23
Emotion	89.71 ± 2.84
Social Isolation	77.60 ± 6.53
Psychological General Well-Being, [0 – 110]	
Anxiety	97.35 ± 6.58
Depression	92.16 ± 4.43
Positive well-being	86.33 ± 9.35
Self-control	90.14 ± 5.58
General Health	85.35 ± 4.93
Vitality	82.19 ± 5.77
Visual Analogue Pain Score, mm, [0 – 10]	
Excellent, [0 – 2]	62 [80.52%]
Moderate, [3 – 5]	9 [11.69%]
Fair, [6 – 8]	4 [5.19%]
Poor [9 – 10]	2 [2.60%]

DISCUSSION:

Monitoring the results of the most prevalent surgical operations in elderly patients is becoming increasingly crucial due to the shift in age distribution. Cholecystectomy is the prevailing method of surgery used in this particular age range, and age is a distinct factor which forecasts a more unfavourable result after cholecystectomy. The results of our study showed that a significant proportion of patients belonged to an older age category. Additionally, the number of male participants was lower compared to female patients. [Cohen, G, 1996; Sørli, T. *et al.*, 2002]

In addition, although our study did not assess the duration of preoperative symptoms in the patients,

we believe that a significant number of them had recurrent gallstone symptoms for an extended period, leading to the development of chronic cholecystitis. The chronic gallbladder disorders in elderly patients in the present research resulted in lengthier surgeries and a worse prognosis. Conversely, the duration of the operation differed between the patients of different ages [Bowling, A. *et al.*, 2002 – Lill, S. *et al.*, 2011].

The frequency of laparoscopic cholecystectomy operations rose in correlation with advancing age. One potential explanation for this is the increased frequency of laparoscopic cholecystectomy for older people. The death rate among patients in the hospital after surgery was around 0%. The

prevalence of simultaneous bile duct stones significantly rose with advancing age, with almost 40% of patients aged 80 years or older with concomitant bile duct stones. The majority of these elderly individuals had a protracted history of gallstones from middle age. [Visser, A. et al., 2014 – Jones, K. et al., 1998]

Several studies showed that the prolonged presence of gallstones significantly raises the likelihood of stones moving from the gallbladder into the bile duct. Therefore, it is projected that people with silent gallstones will have an increased chance of getting bile duct stones once they reach their eighties. The deteriorating outcomes associated with aging contribute to rising healthcare expenses in older people. In addition, the extended duration of hospitalization, the elevated incidence of postoperative complications, as well as the increased occurrence of bile duct stones directly resulted in escalated medical expenses among the elderly participants in this research. Indeed, the medical expenditure per patient aged 80 years was twice as high as that per patient aged. The respondents in our study reported an overall pain rate of 80.52% following cholecystectomy, which is similar to the rates of 88% or higher found in other studies for cholecystectomy patients [Edwards, P. et al., 2002; Scarpa, M. et al., 2011; Jaunoo, S. et al., 2010; Lamberts, M. et al., 2013].

CONCLUSION:

Laparoscopic cholecystectomy is one of the most prevalent minimally invasive surgical procedures in visceral surgery, having become a particularly standardised and safe procedure with a low intervention burden. For many years, it has been regarded as the gold standard for the treatment of symptomatic cholelithiasis. The reduced surgical burden of laparoscopic cholecystectomy is reflected by several positive effects on the patient's recovery. From the reduction of the access route to the abdominal cavity with minimal trauma to the abdominal wall and superior cosmetic outcomes to a notable decrease in postoperative pain symptoms, a low incidence of wound healing complications, a shorter hospitalisation period, and a more rapid convalescence with a faster return to everyday and professional activities.

REFERENCES:

1. Peery, A., Dellon, E. & Lund, J, et al. "Burden of gastrointestinal disease in the United States: 2012 update." *Gastroenterology*, 143 (2012): 1179–1187.
2. Portincasa, P., Moschetta, A. & Petruzzelli, M, et al. "Gallstone disease: Symptoms and diagnosis of gallbladder stones." *Best Practice & Research Clinical Gastroenterology*, 20 (2006): 1017–1029.
3. National Institute for Clinical Excellence Interventional procedure guidance 508: Single-incision laparoscopic cholecystectomy, London, National Institute for Clinical Excellence, (2010).
4. Devlin, N. & Appleby, J. "Getting the most out of PROMS." *The King's Fund*, (2010).
5. Berwick, D. "Medical associations: guilds or leaders?" *BMJ*, 314 (1997): 1564–1565.
6. Chow, A., Mayer, E.K., Darzi, A.W. & Athanasiou, T. "Patient-reported outcome measures: the importance of patient satisfaction in surgery." *Surgery*, 146 (2009): 435–443.
7. National Institute for Clinical Excellence Patient experience in adult NHS services: improving the experience of care for people using adult NHS services: clinical Guidance 138, National Institute for Clinical Excellence, (2012).
8. Janssen, M., Pickard, A. & Golicki, D, et al. "Measurement properties of the EQ-5D-5L compared to the EQ-5D-3L across eight patient groups: a multi-country study." *Quality of Life Research*, 22 (2013): 1717–1727.
9. Chen, T., Landmann, M. & Potter, J, et al. "Questionnaire to aid priority and outcomes assessment in gallstone disease." *ANZ Journal of Surgery*, 76 (2006): 569–574.
10. Lill, S., Rantala, A. & Karvonen, J, et al. "Elective laparoscopic cholecystectomy for symptomatic uncomplicated gallstone disease: Do the symptoms disappear?" *Surgical Endoscopy*, 28 (2014): 1816–1820.
11. Gupta, D., Lis, C. & Rodeghier, M. "Can patient experience with service quality predict survival in colorectal cancer?" *Journal of Healthcare Quality*, 35 (2013): 37–43.
12. Gurland, B., Merlino, J. & Sobol, T, et al. "Surgical complications impact patient perception of hospital care." *Journal of the American College of Surgeons*, 217 (2013): 843–849.
13. Kennedy, G., Tevis, S. & Kent, K. "Is there a relationship between patient satisfaction and favorable outcomes?" *Annals of Surgery*, 260 (2014): 592–600.
14. Vetrhus, M., Berhane, T. & Soreide, O, et al. "Pain persists in many patients five years after removal of the gallbladder: Observations from

- two randomized controlled trials of symptomatic, noncomplicated gallstone disease and acute cholecystitis." *Journal of Gastrointestinal Surgery*, 9 (2005): 826–831.
15. Lamberts, M., Den Oudsten, B. & Gerritsen, J, et al. "Prospective multicentre cohort study of patient-reported outcomes after cholecystectomy for uncomplicated symptomatic cholelithiasis." *British Journal of Surgery*, 102 (2015): 1402–1409.
 16. Van Boxel, G., Hart, M. & Kiszely, A, et al. "Elective day-case laparoscopic cholecystectomy: A formal assessment of the need for outpatient follow-up." *Annals of the Royal College of Surgeons of England*, 95 (2013): 561–564.
 17. Harrison, E., O'Neill, S. & Meurs, T, et al. "Hospital volume and patient outcomes after cholecystectomy in Scotland: Retrospective, national population-based study." *BMJ*, 344 (2012): e3330.
 18. Mazor, K., Clauser, B. & Field, T, et al. "A demonstration of the impact of response bias on the results of patient satisfaction surveys." *Health Services Research*, 37 (2002): 1403–1417.
 19. Barron, D., West, E. & Reeves, R, et al. "It takes patience and persistence to get negative feedback about patients' experiences: A secondary analysis of national inpatient survey data." *BMC Health Services Research*, 14 (2014): 153.
 20. Cohen, G. "Age and health status in a patient satisfaction survey." *Social Science & Medicine*, 42 (1996): 1085–1093.
 21. Sørli, T., Sexton, H. & Busund, R, et al. "Predictors of satisfaction with surgical treatment." *International Journal for Quality in Health Care*, 12 (2000): 31–40.
 22. Bowling, A. "An 'inverse satisfaction law'? Why don't older patients criticise health services?" *Journal of Epidemiology & Community Health*, 56 (2002): 482.
 23. Mort, E., Guadagnoli, E. & Schroeder, S, et al. "The influence of age on clinical and patient-reported outcomes after cholecystectomy." *Journal of General Internal Medicine*, 9 (1994): 61–65.
 24. Lill, S., Rantala, A. & Vahlberg, T, et al. "Elective laparoscopic cholecystectomy: The effect of age on conversions, complications, and long-term results." *Digestive Surgery*, 28 (2011): 205–209.
 25. Visser, A., Ubbink, D. & Gouma, D, et al. "Surgeons are overlooking post-discharge complications: A prospective cohort study." *World Journal of Surgery*, 38 (2014): 1019–1025.
 26. Asch, D., Jedrzejewski, M. & Christakis, N. "Response rates to mail surveys published in medical journals." *Journal of Clinical Epidemiology*, 50 (1997): 1129–1136.
 27. Jones, K., Burney, R. & Peterson, M, et al. "Measuring health-status improvement after surgery: Experience with the SF-36." *Seminars in Nurse Management*, 6 (1998): 139–143.
 28. Edwards, P., Roberts, I. & Clarke, M, et al. "Increasing response rates to postal questionnaires: Systematic review." *BMJ*, 324 (2002): 1183–1185.
 29. Scarpa, M. "Health-related quality of life outcomes after cholecystectomy." *World Journal of Gastroenterology*, 17 (2011): 4945–4951.
 30. Jaunoo, S., Mohandas, S. & Almond, L. "Postcholecystectomy syndrome (PCS)." *International Journal of Surgery*, 8 (2010): 15–17.
 31. Lamberts, M., Lugtenberg, M. & Rovers, M, et al. "Persistent and de novo symptoms after cholecystectomy: A systematic review of cholecystectomy effectiveness." *Surgical Endoscopy*, 27.3 (2013): 709–718.

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