

*Original Article*

# CONVERSION OF LAPAROSCOPIC TO OPEN CHOLECYSTECTOMY

**Sumaya Taher H Draa***Head of surgical department, Faculty of Medicine, Zawia University-Libya**E.mail address: [S.draa@zu.edu.ly](mailto:S.draa@zu.edu.ly)*

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**Abstract**

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**Background:** Globally, gallstone disease (GS) is a significant health issue, especially for adults although cholecystitis is common, there is an evidence of variance in its diagnosis and course of therapy, including surgery. In place of open cholecystectomy, laparoscopic cholecystectomy is now the preferred course of treatment for symptomatic cholelithiasis. In situations where laparoscopic cholecystectomy is dangerous; a surgeon may be forced to change from laparoscopy to an open procedure. The aim of the study was to clarify the benefits and role of minimally invasive surgery in comparison to the open conventional method of cholecystectomy, with a focus on the postoperative phase and to compare the ratio of Laparoscopic and open cholecystectomy between male and female genders. **Methods:** 185 Patients of cholecystitis aged between 10 years to 80 years (86.5% males and 13.5% females) were presented to Zawia Medical Center during the period from March 2005 till April 2006 that randomly get an open or laparoscopic cholecystectomy. They were divided into open and laparoscopic Cholecystectomy group. **Results:** In this study, a total of 185 patients were included: 160 females (86.5% of the total) and 25 males (13.5% of the total). Whereas, 86 females (53.7%) were operated on by laparoscopic cholecystectomy, and 74 females (46%) were operated on by open cholecystectomy. In comparison, of a total of 25 males, 12 (48%) underwent laparoscopic cholecystectomy and 13 (52%) underwent open cholecystectomy. The conversion rate was eight cases (8.2%) due to technical, bleeding, or massive adhesion. **Conclusion:** From this study, we concluded that the laparoscopic cholecystectomy versus open cholecystectomy ratio (female: male ratio) was 86.5% to 13.5% of the total 185 patients, and laparoscopic cholecystectomy appears to be a safe procedure with quick recovery, early discharge from the hospital, and less postoperative pain as compared to open cholecystectomy.

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**Keywords:** Laparoscopic cholecystectomy, open cholecystectomy, gall bladder stones, cholelithiasis.

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**Introduction**

Cholelithiasis, often known as gallstone disease, is a prevalent gastroenterological

condition that is linked to substantial morbidity and rising expenses. In Europe and

America, the estimated prevalence is between 10% and 20%. (1) A disruption in the physical-chemical makeup of bile leads to gallstones. (2) For the majority of those who have gallstones, symptoms are rarely present. However, cholecystitis, cholangitis, and biliary pancreatitis are indications for treatment, as are symptoms of biliary colitis. (3)

Antibiotics, antiemetic drugs, and analgesics are used in the medical management of acute cholecystitis with the goal of reducing symptoms. Surgery is still the most effective treatment option, despite debates over when to have it done. (3, 4) Cholecystectomy is one of the most common surgical procedures carried out in the Western world, and is widely recognized as the preferred treatment for symptomatic gallstone disease. (5) In 1882, Langenbuch carried out the first successful surgery. (6) In order to lessen discomfort and speed up healing, surgical techniques have gradually improved. Large open surgeries were therefore abandoned, and the number of incisions was reduced. (7) In 1982, Dubois developed the small incision cholecystectomy. This minimally invasive approach gained popularity in the 1980s, and other programs detailing alternate methods were produced after. (8) Prof Dr Med Erich Mühe of Böblingen, Germany, performed the first laparoscopic cholecystectomy on September 12, 1985. (9) Laparoscopy was originally developed at the end of the 1980s. (10) Laparoscopy is the preferred method of treatment for cholecystectomy, and as experience grows, more patients have received treatment using this approach. (11) Male patients appear to have greater difficulty with LC than female patients. In male patients, the surgery appears to take a longer time. Male patients also appear to convert to open surgery at a higher incidence. (12)

## Materials and Methods

This study was conducted at the Zawia Medical Center in Zawia City, Libya, from March 2005 to April 2006. All the surgeries were performed by our surgical team. Demographic properties (age and sex), previous abdominal operations, intraoperative and postoperative reasons for conversion to open surgery in the patients of each groups were analyzed. A randomization of 185 participants was conducted to determine whether they would get an open or laparoscopic cholecystectomy. Male or female, young or old, acute or chronic, hydrops or empyema gall bladder patients were chosen based on the ultrasound results. Exclusion criteria included the patient's preference for a certain surgery, gallbladder empyema, and jaundice. Tables 1 show that the smallest patient to have a laparoscopic cholecystectomy was a 9-year-old child, while the oldest patient was 80 years old.

## Results

There were 185 patients altogether, of which 160 were female (86.5%) and 25 were male (13.5%). In contrast, 86 females (53.7%) underwent laparoscopic cholecystectomy, while 74 females (46%) underwent open cholecystectomy. In contrast, out of 25 male in total, 12 (48%) had laparoscopic cholecystectomy and 13 (52%) had open cholecystectomy. laparoscopic to open cholecystectomy ratio was (53%: 47%). Eight cases (8.2%) resulted in conversion because of significant adhesion, hemorrhage, or technical issues (conversion rate = 8.2 %). one of these patients was converted to cholecystectomy due to congenital abnormality. Moreover, two patients underwent conversion because of manageable cystic artery hemorrhage. Also due to severe hydrops gall bladder, which indicated empyema gall bladder, two patients had to be converted. The remaining three individuals underwent conversion due to extensive adhesions surrounding the gall

bladder and mostly porta hepatitis.

**Table 1:** Age distribution

Age in years	Number of Laparoscopic cholecystectomy	Number of open cholecystectomy	Total Number
< 10	01	00	01
11-20	02	02	04
21-30	15	11	26
31-40	25	16	41
41-50	24	15	39
51-60	19	22	41
61-70	09	11	20
71-80	02	10	12
> 80	01	00	01
Total	98 (53%)	87 (47%)	185

**Table 2:** Sex distribution (Ratio of Laparoscopic cholecystectomy and Open cholecystectomy)

Gender	Laparoscopic cholecystectomy	Open cholecystectomy	Ratio
Female	86	74	160 (86.5%)
Male	12	13	25 (13.5%)
Ratio	98 (53%)	87 (47%)	

## Discussion

The current gold standard for surgical management of gallbladder stones is laparoscopic cholecystectomy (LC). (13) Due to its minimal invasiveness, safety during the procedure, decreased risk of problems thereafter, quicker recuperation, and noticeably shorter hospital stay than a traditional cholecystectomy (CC), the LC is used more frequently than CC in several facilities worldwide. (14, 15) The results of this study cover 98 individuals who had laparoscopic cholecystectomy and 87 patients who had open cholecystectomy within a year. With laparoscopic cholecystectomy, there was no death. Two post-operative deaths following open cholecystectomy were attributed to the complex condition of jaundice. When treating

acute cholecystitis, laparoscopic cholecystectomy yields comparable outcomes to open cholecystectomy, including almost identical outcomes for hospital discharge following surgery. A shorter duration of surgery was linked to the open method, while a shorter postoperative stay was connected with the laparoscopic approach. (16) Anyway cholecystectomy for acute cholecystitis can be performed either, laparoscopically or open techniques without any major clinically relevant differences in the postoperative outcome. Both techniques show low morbidity and rapid postoperative recovery, with no appreciable variations in the result of the surgery that are clinically significant. High surgical recovery and little morbidity are

features of both methods. (17, 18) Based on the analysis of the outcome of the laparoscopic cholecystectomy for acute cholecystitis, 10–30% of patients with acute disease develop life-threatening complications such as hydrops cholecystitis, empyema, gangrene, and perforation. It was therefore classified as complicated acute cholecystitis, and male sex was found to be a risk factor; nevertheless, there was no significant difference in the outcome of laparoscopic cholecystectomy between men and women. (19, 20) Dragos et al., in 2021 showed that laparoscopic cholecystectomy in acute cholecystitis is feasible and safe and results in a reduced hospital stay. (21) The introductions of laparoscopic techniques in the last 20 years have had a phenomenal impact on modern surgery. No surgical procedure is without potential complications, as one of the commonly performed intra-abdominal procedures. The possible complications of the laparoscopic cholecystectomy are usually injuries caused by needle or trocar insertion, mechanical injuries caused by laparoscopic instruments, and thermal and

pneumoperitoneal complications. (22)

Some of the patients converted to open cholecystectomy and performed some postoperative imaging investigations when they were needed. The available imaging modalities may aid in the diagnosis of postoperative laparoscopic cholecystectomy or even open cholecystectomy complications, such as abdominal ultrasonography, CT scans, ERCPs, MRCPs, and even radio-isotope scintigraphy. The list of absolute and relative contraindications to the performance of the laparoscopic cholecystectomy is reduced with increased experience in the use of this procedure. (23, 24)

## Conclusion

Compared to an open cholecystectomy, a laparoscopic technique seems to be safer, resulting in a quicker recovery, an earlier hospital discharge, and less pain following surgery. However, in complex cases of cholelithiasis, conventional open cholecystectomy continues to be a major treatment option.

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