



# International Journal of Current Research and Academic Review

ISSN: 2347-3215 (Online) Volume 6 Number 3 (March-2018)

Journal homepage: <http://www.ijcrar.com>



doi: <https://doi.org/10.20546/ijcrar.2018.603.001>

## Study of 200 Laparoscopic Cholecystectomy Cases

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### Abstract

It is a prospective study of 200 cases of lapchole from October 2012 to October 2016. We included sex and age, the comorbidity, single or multiple stones, the postoperative morbidity and mortality incidences, and the type of anesthesia used on the patients operated upon. Some cases were done under epidural and spinal anesthesia in addition to the general type. The study suggested that there was no perioperative complication, particularly the CBD injury or death caused by an operative fault.

### Article Info

Accepted: 28 February 2017  
Available Online: 20 March 2018

### Keywords

Gall stones,  
Laparoscopic cholecystectomy,  
Laparoscopic Cholecystectomy  
Acute cholecystitis Common Bile  
Duct Stone

### Introduction

Gallstones are common and often cause no discomfort. If gallstones get trapped and obstruct the outflow of bile, however, severe colic and inflammation can occur. Almost 10 to 15 percent of the adult population are gallstone carriers, women are about twice as likely as men affected. The disease is particularly prevalent in the western industrialized countries, even more common (60-70%) in the indigenous population of the Americas. It is less common in East Asia, sub-Saharan Africa and African Americans (Shaffer, 2006; Stinton and Shaffer, 2012; Chang *et al.*, 2013).

Gallstones are crystallized, poorly soluble components of bile. They are found either in the gallbladder or in the bile duct. In most cases, gallstones cause no discomfort. But they can also trigger pain in the right upper abdomen to violent bile colic. Women have gallstones more often

than men. Read all important information about gallstones. Depending on the composition of the gallstones, physicians distinguish: Cholesterol stones and mixed stones: They consist of more than 70 percent cholesterol and are colored yellow. Bilirubin (pigment) stones: consist mainly of bilirubin and are colored brown to black (Trotman, 1983; Njeze, 2013). Depending on the location of the gallstones two sites are reported; gallbladder stones and bile duct stones. Whether gallstones need to be treated depends, among other things, on their location and whether they cause discomfort (such as biliary colic). A biliary colic can be treated symptomatically. In addition, their cause, so the gallstone disease, be treated. For gallbladder stones, gallbladder removal surgery, either by laparoscopic or (now rare) conventional surgery (Agabiti *et al.*, 2013; Njeze, 2013). Laparoscopic cholecystectomy is the operation of choice for symptomatic gall stones and has much better results than opened cholecystectomy.

Incidences of CBD injury with laparoscopy were more than opened cholecystectomy by 10 times, i.e.0.3-1 for Lapchole to 0.03-0.1 for opened cholecystectomy. In some studies CBD injury in lapchole procedure is up to 5%.Common bile duct (CBD) injuries result from inappropriate use of electro cautery by surgeons close to the biliary ducts thus resulting to bile leaks. The Critical View of Safety (CVS) method is used to identify the faulty duct and a lapchole procedure is performed on the Calot's triangle (Sankpal 2016). Laparoscopic cholecystectomy represents the treatment of choice, because it has a very low complication rate due to the minimally invasive procedure and definitely remedies the gall bladder stone disease. However, even after the surgical removal of the gallbladder, gallstones may remain in the bile duct or reform and block it. Then an ERCP is recommended (Heuman, 2017).

ERCP with stone extraction and / or dilatation of the duodenal papilla in the duodenum by means of papillotomy with stones trapped in the bile duct. It may be useful to perform these before a cholecystectomy because it is much less invasive(Kim, 2017).

Litholysis: Drug dissolution of the stones with ursodeoxycholic acid (UDCA) or chenodeoxycholic acid(Guarino *et al.*, 2013).

Extracorporeal shockwave lithotripsy (ESWL): smashing the stones with shockwaves, which then go into the intestine - usually with bile duct colic. Again, there is a very high rate of recurrence, as new stones can form again in the left gallbladder (Paumgartner and Sauter, 2005).

## Patients and Method

This was a prospective study of 200 cases of laparoscopic cholecystectomy over a period of almost 4 years from October 2012 up to October 2016 included patients with comorbidity i.e. patient having chronic diseases other than gall stones, the study was performed at different centers during the study period.

## Procedure

The procedure was done under general anesthesia. In 10 cases, intervention was performed under epidural or spinal anesthesia with modification of port sites. In most cases, it was done with 4 ports.

Optical port done under vision (Hasson technique). Veress needle was not used. The whole operation was

given enough time for the dissection of Calot's triangle with identification of the critical view of safety (CVS), which is of paramount importance. In addition, the cystic artery should be clipped and cut before the cystic duct, so that the cystic duct is alone in the field without any hindrance. All 200 cases were operated on without any iatrogenic vital structure injury. With enough time, the meticulous dissection with identification of (CVS), and clipping of the cystic artery are cut first leaving the cystic duct as the only structures in the field (Andrén-Sandberg 2002). In difficult cases, fundus-first approach used. The data were collected during the study period using a pre-constructed data collection case sheet. Patients signed consents were obtained for both the operation and the inclusion in the study, the response rate was almost 95%, where 10 patients reject to be included in the study. Patients who were unfit for surgery, or refused the operation and those with serious co-existing comorbidities were excluded from the study.

The statistical analysis was performed with the aid of expert professional biostatistician. Data were analyzed using the statistical package for social sciences (SPSS) version 21 and appropriate descriptive statistical procedures were applied accordingly.

## Results and Discussion

Surgical procedures for the management of cholelithiasis have been increased significantly worldwide in the last decades (Stinton and Shaffer, 2012). Laparoscopic cholecystectomy is a gold standard operation for symptomatic gall stones (Sankpal 2016). It is a minimal invasive approach with quick recovery, less post-operative pain and good cosmetic results (Marshall and Voge, 1984; Kim, 2017). The current study tried to describe the main findings and clinical profile and outcome of laparoscopic management for gallstones, hence a total of 200 patients who were fit for operation were operated on and included in the study. The mean age of the studied group was 41.8 (range 13 – 72) years, additionally, almost 60% of the patients aged 31 – 60 years, indicated that incidence increased with advancing age particularly in the 4<sup>th</sup> and 5<sup>th</sup> decade of life (Table 1).

Females were dominant and represented 76% of the cases with a female to male ratio of 3.2, (Figure 1), these findings are consistent with the epidemiological profile of gallstones (Shaffer, 2006; Stinton and Shaffer, 2012; Chang *et al.*, 2013; Njeze, 2013)

**Table.1** Age distribution of the studied group

Age (year)	Number of cases	%
≤ 20	8	4.0
21-30	28	14.0
31-40	47	23.5
41-50	59	29.5
51-60	32	16.0
>60	26	13.0
<b>Total</b>	<b>200</b>	<b>100.0</b>

**Table.2** Comorbidities reported among the studied group

Comorbidity	Number of cases	%
Cardiovascular diseases	37	18.5
Diabetes mellitus	24	12.0
Sickle cell anemia	1	0.5
None	154	77.0
<b>Total</b>	<b>200</b>	<b>100.0</b>

**Table.3** Postoperative complications reported among the studied group (N = 200)

Complications	Number of cases	%
Retained CBD	4	2.0
Pain and or Jaundice	2	1.0
Bile leak	2	1.0
Postoperative bleeding	1	0.5
Mortality	4	2.0

Fig.1 Gender distribution of the studied group (N = 200), Female to male ratio = 3.2

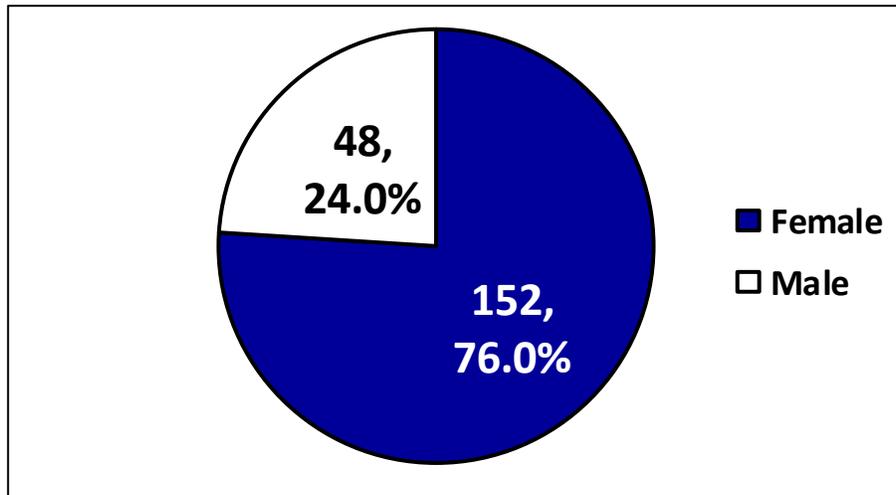


Fig.2 Hospital stay of the patients (N = 200)

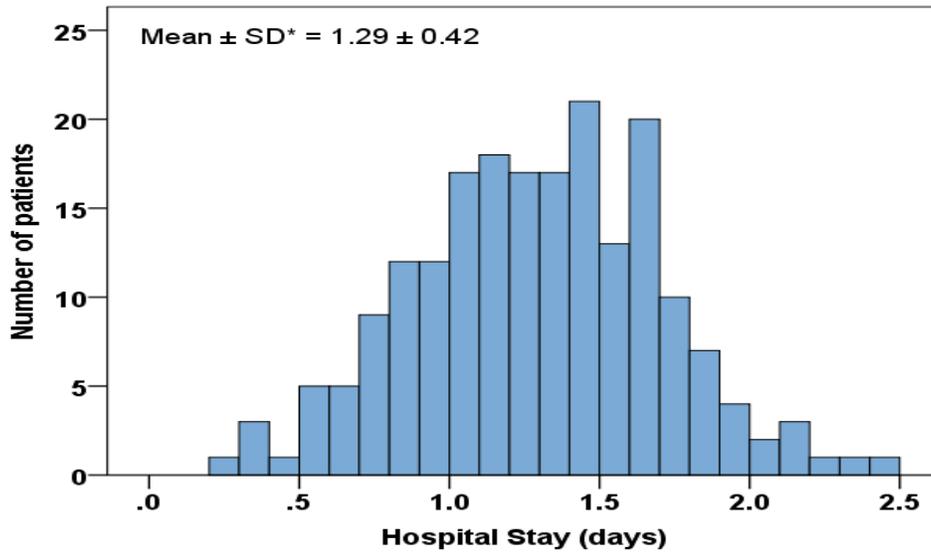
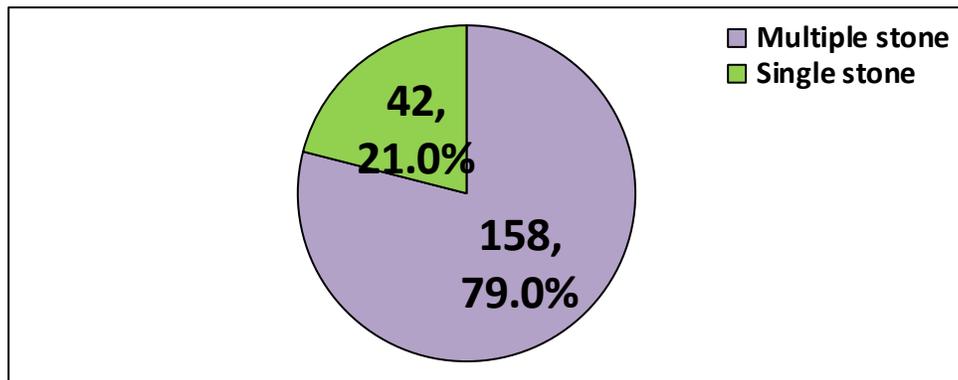


Fig.3 Distribution of studied group according to the number of stones they did have



Comorbidities that reported among the studied group are shown in (Table 2), where Cardiovascular diseases were more frequent comorbidities account for 18.5%, diabetes mellitus account for 12% and only one patient with sickle cell anemia, however, some patients had combined diabetes mellitus and cardiac disease.

The duration of hospital stay of the studied group ranged 1-2.5 days with a mean of  $1.2 \pm 0.4$  days, (Figure 2). Almost, 79% (158/200) of the studied group had multiple stones giving a rate of multiple stone to single stone status of 3.76, (Figure 3)

Conversion to open procedures was occur in only 4 cases giving a conversion rate of 2%. in fact there are different factors that having potential role on the conversion rate, the conversion rate reported in our study was close to that reported in previous studies, however, the most common cause for conversion to open cholecystectomy is adhesions due to inflammation and fibrosis of Calot's triangle (Genc *et al.*, 2011).

### Complications

Retained CBD stones in 4 cases (2%); pain or Jaundice in two cases (1%), were treated by ERCP and sphincterotomy. Furthermore, bile leak was reported in two cases (1%), one of these two cases with bile leak, caused by an accessory bile duct recovered spontaneously after inserting a drain tube (Banerjee, 2016).

Postoperative bleeding occur in one case, however that patient was on current use of aspirin, he did not tell the surgeon before operation about his use of aspirin, however, conservative treatment solved the problem. Generally, the total morbidity cases were reported in 6cases (3.0%) only, with regard that one patient had developed two complications simultaneously, (Table 4). Fortunately, no other complications were reported.

### Mortality

Unfortunately, we lost 4 of our patients, 3 males and one female, giving a mortality rate of (2%), however, these mortalities were not due to technical errors or medical mistakes, Three of the 4 mortalities were patients already had cardiovascular diseases and were on treatment, the other one case.had a pulmonary embolism despite the low dose of low molecular weight Heparin therapy, however, (Scollay *et al.*, 2011; Agabiti *et al.*, 2013; Sandblom *et al.*, 2015)

No iatrogenic injury to the main vessel or bowel injury was reported. Furthermore, no CBD injury was reported. This is because of the enough time provided for the operation, clarification of the critical view of safety, cystic artery clipping and cutting before cutting the cystic duct (as done by most surgeons) while avoiding any mistake with the CBD (Kumar 2017).

Lapcholecan be done under epidural or spinal with port sites modification. Pregnancy is not contraindicated to laparoscopic cholecystectomy (Women's Health Medicine 2:4 (July – August 2005) Self-appraisal 2005).

Laprosopic cholecystectomy is gold standard operation for symptomatic gall stones. It is minimal invasive approach with quick recovery, less post-operative pain and good cosmetic results. Lapchole could be done under epidural or spinal with port sites modification. Pregnancy is not contraindicated to laparoscopic cholecystectomy.

### Acknowledgment

Authors greatly appreciate the all the assistant operation staff and all participating patients. Author would like to thank dr. Hameed Al-Hadrawi, community medicine and biostatistics specialist physician, Al-Sader medical City, for his kind support and preparation of this article for publishing.

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**How to cite this article:**

Alaa A. K. Mohammed. 2018. Study of 200 Laparoscopic Cholecystectomy Cases. *Int.J.Curr.Res.Aca.Rev.* 6(3), 1-6. doi: <https://doi.org/10.20546/ijcrar.2018.603.001>