



CHOLECYSTECTOMY; REASONS AND RATES IN CONVERSION FROM LAPAROSCOPIC TO OPEN CHOLECYSTECTOMY

Dr. Gulshan Ali Memon¹, Dr. Bilal Ahmed², Dr. Syed Kashif Ali Shah³

1. Professor and Dean Surgery and Allied, Department of General Surgery, PUMHS, Nawabshah.
2. Postgraduate Trainee, Department of General Surgery, PUMHS, Nawabshah.
3. Senior Registrar, Department of General Surgery, PUMHS, Nawabshah.

Correspondence Address:

Dr. Gulshan Ali Memon
Professor and Dean Surgery and Allied,
Department of General Surgery,
PUMHS, Nawabshah.
dr.gulshanalimemon@yahoo.com

Article received on:

01/01/2017

Accepted for publication:

25/04/2017

Received after proof reading:

06/05/2017

ABSTRACT... Introduction: Gallstones patients are mostly asymptomatic, but yet, it adds considerable burden to health care system as only in United States more than 600000 laparoscopic cholecystectomies are performed annually. The introduction of day care with laparoscopic (LC) surgery in the late 1980s increased the rate of cholecystectomy for about 20%. This new intervention introduced changes in indications of cholecystectomy and put further impact on health care system. After the introduction of LC, many studies have highlighted and discussed the importance of adequate surgical skills in order to improve the timing and outcome of surgery. The aim of this study was to see the conversion from laparoscopic to open surgery in symptomatic patients. **Study Design:** Descriptive Cross Sectional Study. **Period:** January 2013 to 2015. **Setting:** Surgical unit I of Peoples Medical College Hospital Nawabshah. **Methods:** Study population consists of two hundred cases having non probability consecutive patients of cholelithiasis who were eligible on inclusion criteria. **Results:** The conversion rate was 10 %, seven (3.5%) patients had biliary injury, six (3%) had adhesions, four (2%) patient had vascular injury, two (1%) patients had gut injury, one (0.5%) patient had dilated common bile duct. **Conclusion:** Proper pre-operative assessment and proper anatomical recognition of Calot's triangle reduce the rates in conversion from laparoscopic to open surgery.

Key words: Gall Stones, Laparoscopic cholecystectomy, Open cholecystectomy

Article Citation: Memon GA, Amed B, Shah SKA. Cholecystectomy; reasons and rates in conversion from laparoscopic to open cholecystectomy. Professional Med J 2017;24(5):697-701. DOI: 10.17957/TPMJ/17.3965

INTRODUCTION

The Babylonians first explain the bile duct system and reports on gall stone diseases were mentioned as early as in 2000 BC.¹ John Bobbs in the United States introduced surgical treatment in 1867, with removal of gallstones without doing cholecystectomy.²

Cholelithiasis patients are mostly asymptomatic, but yet, it adds considerable burden to health care system as only in United States, more than 600000 laparoscopic cholecystectomies are performed annually.³

The introduction of day care with laparoscopic (LC) surgery in the late 1980s increased the rate of cholecystectomy for about 20%. This new intervention introduced changes in indications of cholecystectomy and introduced new acumen in the field of surgery.⁴

After the introduction of LC, many studies have

highlighted and discussed the importance of adequate surgical skills in order to improve the timing and outcomes of surgery. While open cholecystectomy comparisons, with or without minimal incision, have also been discussed.⁵

Symptomatic gallstone disease patients mostly benefit from cholecystectomy, but post operatively most of the patients do observe the continues vague pain in upper abdomen and needs the medical treatment with prokinetic and proton pump inhibitors.⁶

Gallstone disease may results in many unwanted complications, viz: acute or chronic inflammation of gallbladder, common bile duct and pancreas and obstruction in biliary channels per se, and some times these could be very fatal.⁷

The aim of this study was to see the conversion from laparoscopic to open surgery in symptomatic

patients.

PATIENTS & METHODS

Study Design

Descriptive Cross Sectional Study

Setting

In Surgical unit I of Peoples Medical College Hospital Nawabshah.

Duration of Study

From January 2013 to 2015

Sampling Size

Two hundred cases

Sampling Technique

Non probability consecutive patients of cholelithiasis

Inclusion criteria

Patients with cholelithiasis proven by ultrasonography with at least 1 attack of upper abdominal pain, nausea and dyspepsia, fit for elective cholecystectomy with the age above of 14 and below the age of 70 years will be included in the study and those who are not included in the exclusion criteria.

Exclusion Criteria

Unfit to tolerate general anesthesia, Pregnancy, Acute cholangitis, Jaundice, Severe bleeding disorder, Doubt of malignancy, Upper abdominal surgery, Above the age of 70, Severe uncompensated DM, not willing for the procedure and refusal or withdraw from participation in study

Objectives of this study

1. Period of hospitalization.
2. Complications (Per operative & postoperative during hospitalization).
3. Conversion to open procedure.

Data Collection Procedure

All the cholelithiasis patients as per inclusion criteria will be recruited after taking the informed written consent from the patient undergoing laparoscopic cholecystectomy in all surgical units

of PMC hospital.

Data Collection Tool

Designed proforma according to this study.

Data Analysis

Data was be analyzed by using the SPSS version 16.

RESULTS

This study included 200 patients of ages (14-7) from both men and women with 180 (90%) and 20 (10%) respectively putting the ratio of 10:1. Twenty one (10.5%) patients had diabetes mellitus, twenty five (12.5%) had hypertension, five (2.5%) had ischemic heart diseases and one hundred forty nine (74.5%) were ASA Grade-I according to American Society of anesthesia. 160 (80%) patients were found with more than one stones, 35 (17.5%) were having solitary stone in their gallbladders, 5 (2.5%) patients were with polyp (s) in their Gall Bladder. 41 (20.5%) patients have their gall bladders adherent to adjacent organs. In clinical presentation 20 (10%) patients were having pain in upper abdomen and were radiating to back and sub scapular region. 25 (12.5%), pain associated with nausea and vomiting 50 (25%), strong and severe pain provoked by fatty meal 15 (7.5%), pain associated with fever & localized tenderness (Murphy's positive) 70 (35%), other GIT symptoms acid regurgitation, heart burn and bloating were 20 (10%).

The conversion rate was 10 %, seven (3.5%) patients had biliary injury, six (3%) had adhesions, four (2%) patients had vascular injury, two (1%) patients had gut injury, one (0.5%) patients had dilated common bile duct. Biliary injury in 4 patients, the CBD was clipped as it was erroneously believed to be the cystic duct and other 3 cases the CBD injury occurred by use of electro-cautery during dissection. Out of seven patients of biliary injury, 6 patients were managed by T-tube placement and 1 Patient was managed by primary repair. After two weeks, T-tube cholangiogram was done showing free flow of contrast in duodenum with normal CBD caliber and then the T-tube was removed. The post operative recovery was smooth and uneventful.

145(72.5%) patients were subjected for drainage through sub hepatic space. The post-operative hospital stay was 1–7days, mean stay being 1.63 days. 90 % of cases discharged on 2nd postoperative day and 10 % cases discharged upto 1 week.

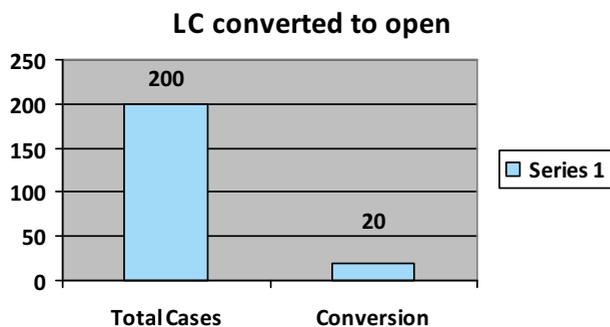


Figure-1. Laparoscopic cholecystectomy (LC) converted to open colecystectomy

2. HOSPITAL STAY

- 90 % of cases discharged on 2nd postoperative day.
- 10 % cases discharged after 1 weeks.

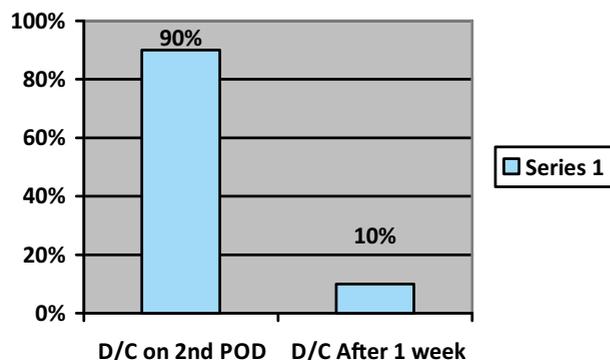


Fig-2. Hospital stay

Status of Gall Bladder	No. of Patients	%
Acute cholecystitis	145	72.5
Chronic cholecystitis	25	12.5
Mucocele	5	2.5%
Empyema	5	2.5%
Normal	20	10%

Status of gall bladder in this study

DISCUSSION

Well with the trail blazing innovation of laparoscopic removal of gall bladders, the great no of surgeries have been decreased since 1987, while keeping

good clinical outcomes like post operative pain, hospital stay, blood loss and cosmetic scar, the laparoscopic cholecystectomy is considered as the Gold Standard Procedure.^{8,9}The laparoscopic procedure brings several benefits at the expense of higher rate of complication especially in training institutes.⁹ The procedure is not so common in developing countries like Pakistan because of constrained funds and restrained expertise, the same are the observations by many researchers in there studies that complications are little higher in training institutes at our part of the world.^{10,11,12}

International and national data review shows the conversion rate of 3 % to 16% in multiple studies. When compared from the developed countries the conversion rate is higher in developing countries, when comparison of multiple studies is done. In our study data shows good results as compared to Lim et al¹³ and Raza et al¹⁴, while bleeding in less number of cases reported in other multiple studies.^{15,16}

No surgical procedure is without having complications. Iatrogenic bile duct injuries have long been matter of concern and debate. Laparoscopic cholecystectomy has been associated with an increase in the incidence of operative bile duct injuries, biliary obstruction and dropped stones.¹⁷ Open surgery is the main alternative to ERCP in cases of persistent leaks, some author have recommended ERCP as the first line treatment for such patients in an effort to avoid the increased morbidity associated with open surgery.¹⁸

In our study complications were, 4 cases (2%) hemorrhage occurred during surgery, bleeding could not be controlled laproscopically required conversion to open method. In our study data shows good results as compared to Lim et al¹³ and Raza et al¹⁴, while bleeding in less numbers of cases reported in other multiple studies.^{15,16} Perforation of the gall bladder occurs in 25 cases (12.5%) during surgery in our study. Khan S¹⁹ reported the perforation of gall bladder in 0.98%. The perforation of the gall bladder is handled by holding the site of perforation with grasper and

by applying liga clip. Infection of the Port site occurred in 5 cases (2.5%). In the literature the port site infection is reported 2.3%¹⁹ and 1.73%.²⁰ No special treatment was required for port site infection except dressing.²¹

Following table shows the conversion rate from LC TO open cholecystectomy in our study comparable with other series.

Rate of Conversion	%
Raza et al ¹⁴	11.1
Saeed et al ²²	3.20
Bhopal et al ²³	7.50
Tarcoveanu et al ²⁴	16.00
Elder et al ²⁵	12.00
Bilal Ahmed (author)	10.00

CONCLUSION

Proper pre-operative assessment and proper per-operative anatomical recognition of Calot's triangle reduce the rates in conversion from laparoscopic to open surgery.

Copyright© 25 Apr, 2017.

REFERENCES

1. Davis CJ. **A history of endoscopic surgery.** Surg Laparosc Endosc 1992;2:16-23.
2. Van Gulik TM. **Langenbuch's cholecystectomy, once a remarkably controversial operation.** Neth J Surg 1986;38:138-41.
3. Shaffer EA. **Epidemiology and risk factors for gallstone disease: has the paradigm changed in the 21st century?** Curr Gastroenterol Rep 2005;7:132-40.
4. Escarce JJ, Chen W, Schwartz JS. **Falling cholecystectomy thresholds since the introduction of laparoscopic cholecystectomy.** Jama 1995;273:1581-5.
5. Shamiyeh A, Wayand W. **Current status of laparoscopic therapy of cholecystolithiasis and common bile duct stones.** Dig Dis 2005;23:119-26.
6. Peterli R, Schuppisser JP, Herzog U, Tondelli PE. **Prevalence of postcholecystectomy symptoms: long-term outcome after open versus laparoscopic cholecystectomy.** World J Surg 2000;24:1232-5.
7. Konsten J, Gouma DJ, von Meyenfeldt MF, Menheere P. **Long-term follow-up after open cholecystectomy.** Br J Surg 1993;80:100-2.

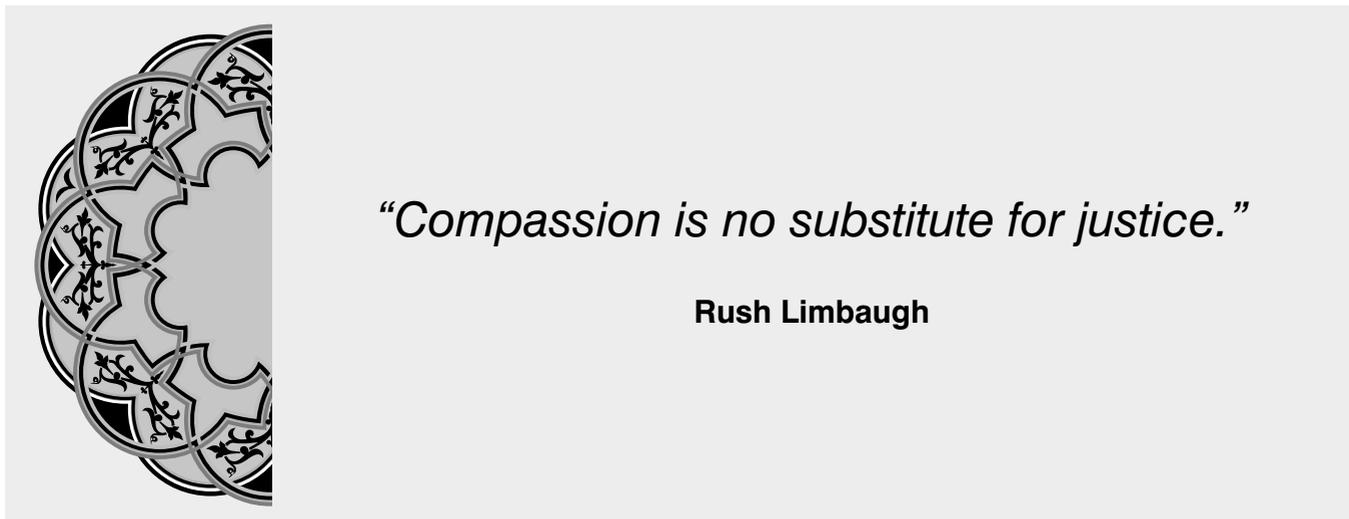
8. Cawich SO, Mitchell DI, Newnham MS, Arthurs M. **A comparison of open and laparoscopic cholecystectomy done by a surgeon in training.** West Indian Med J 2006;55(2):103-9.
9. Al-Salamah SM. **Out come of laparoscopic cholecystectomy in acute cholecystitis.** J Coll Physicians Surg Pak 2005;15(7):4003.
10. Iqbal J, Ahmed B, Iqbal Q. **Laparoscopic cholecystectomy vs open cholecystectomy, morbidity comparison.** The Professional 2002;9(3):226-34.
11. Abbassi SA, Azami R, Haleem A. **An audit of Laparoscopic cholecystectomy performed at PNS Shifa.** Pak Armed Forces Med J 2003;53(1):51-8
12. Raza M, Wasty WH, Habib L, Saria MS, Sarwar M et al. **An audit of Cholecystectomy.** Pak J Surg 2006;23(2):100-3.
13. Lim SH, Saleh I, Poh BK. **Laparoscopic Cholecystectomy: an audit of training programme.** Aust NZ J Surg 2005;75(4):231-3.
14. Raza M, Wasty WH, Habib L, Saria MS, Sarwar M et al. **An audit of Cholecystectomy.** Pak J Surg 2006;23(2):100-3.
15. Shamim M, Dhari MM, Memon AS. **Complications of Laparoscopic cholecystectomy.** Pak J Surg 2006;22(2):70-5.
16. Roviario GC, Macioco M, Rebuffat C, Varoli F et al. **Complications following cholecystectomy.** J Roy Coll Surg Edinb 1997;42:324-8
17. Ishiazaki Y, Miwa K, Yoshimoto J, **Conversion of laparoscopic to open cholecystectomy between 1993 and 2004.** Br J Surg 2006;93(8):987-91.
18. Walker AT, Shapiro AW, Brooks DC, Braver JM, Tumeik SS. **Bile duct disruption and biloma after laparoscopic cholecystectomy.** AJR 1992; 158:785-789.
19. Khan S, Zakiuddin G, Oonwala. **An audit of Laparoscopic Cholecystectomy.** Pak J Surg Jun 2007;23(2):100-3.
20. Arain GM, Hassan A, Randhawa MH, Malik SA. **Laparoscopic Cholecystectomy and its complications: a study of 1100 cases.** Pak J Gastroentrol 1998;12(1-2):29-35.
21. Neri V, Fersini A, Ambrosi A, Tartaglia N, Valentino TP. **Umbilical port-site complications in laparoscopic cholecystectomy: role of topical antibiotic therapy.** JOURNAL-SOCIETY OF LAPAROENDOSCOPIC SURGEONS. 2008 Apr 1;12(2):126.

22. Saeed T, Zarin M, Mahmud Aurangzeb, Aziz Wazir et al. **Comparative study of Laparoscopic versus open Cholecystectomy.** Pak J Surg Jun 2007;23(2):96-9.

23. Bhopal FG, Rai MA, Iqbal MA. **A comparative study of morbidity in laparoscopic and open cholecystectomy.** J Surg Pak. 1998;3(3):2-7

24. Tarcoveanu E, Niculesce D, Georgescu S, Bradea C et al. **Conversion in Laparoscopic cholecystectomy.** Chirugia. 2005;100(5):437-44.

25. Eldar S, Kunin J, Chouri H, Sabo E, Matter I, Nash E, Schein M. **Safety of laparoscopic cholecystectomy on a teaching service: a prospective trial.** Surgical Laparoscopy Endoscopy & Percutaneous Techniques. 1996 Jun 1;6(3):218-20.



AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Gulshan Ali Memon	Methodology	
2	Dr. Bilal Ahmed	Results	
3	Dr. Syed Kashif Ali Shah	Discussion + Statistical	