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

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

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

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 1–7 days, mean stay being 1.63 days. 90% of cases discharged on 2nd postoperative day and 10% cases discharged upto 1 week.

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 al\(^{13}\) and Raza et al\(^{14}\), 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 al\(^{13}\) and Raza et al\(^{14}\), 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 S\(^{19}\) 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

### 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 their studies that complications are little higher in training institutes at our part of the world.\(^{10,11,12}\)

<table>
<thead>
<tr>
<th>Status of Gall Bladder</th>
<th>No. of Patients</th>
<th>%</th>
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<tbody>
<tr>
<td>Acute cholecystitis</td>
<td>145</td>
<td>72.5</td>
</tr>
<tr>
<td>Chronic cholecystitis</td>
<td>25</td>
<td>12.5</td>
</tr>
<tr>
<td>Mucocele</td>
<td>5</td>
<td>2.5%</td>
</tr>
<tr>
<td>Empyema</td>
<td>5</td>
<td>2.5%</td>
</tr>
<tr>
<td>Normal</td>
<td>20</td>
<td>10%</td>
</tr>
</tbody>
</table>

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

### Figure-2. Hospital stay
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.

<table>
<thead>
<tr>
<th>Rate of Conversion</th>
<th>%</th>
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<tbody>
<tr>
<td>Raza et al14</td>
<td>11.1</td>
</tr>
<tr>
<td>Saeed et al22</td>
<td>3.20</td>
</tr>
<tr>
<td>Bhopal et al23</td>
<td>7.50</td>
</tr>
<tr>
<td>Tarcoveanu et al24</td>
<td>16.00</td>
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<tr>
<td>Elder et al25</td>
<td>12.00</td>
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<tr>
<td>Bilal Ahmed (author)</td>
<td>10.00</td>
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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.

REFERENCES


“Compassion is no substitute for justice.”

Rush Limbaugh

**AUTHORSHIP AND CONTRIBUTION DECLARATION**

<table>
<thead>
<tr>
<th>Sr. #</th>
<th>Author-s Full Name</th>
<th>Contribution to the paper</th>
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<tbody>
<tr>
<td>1</td>
<td>Dr. Gulshan Ali Memon</td>
<td>Methodology</td>
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<td>2</td>
<td>Dr. Bilal Ahmed</td>
<td>Results</td>
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<td>3</td>
<td>Dr. Syed Kashif Ali Shah</td>
<td>Discussion + Statistical</td>
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