Original Article

Laparoscopic cholecystectomy: conversion rate and its causes at Isra University Hospital, Hyderabad

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ABSTRACT

Objective: To determine the conversion rate of laparoscopic cholecystectomy (LC) and its causes at Isra University Hospital, Hyderabad, Pakistan.

Methods: This was a retrospective study carried out at Isra University Hospital, Hyderabad from July 2005 to June 2007. All patients who were scheduled for LC for symptomatic gall stones were included in the study. Those with history of pancreatitis, jaundice, common bile duct dilatation, choledocholithiasis and gall bladder mass were excluded.

Results: A total of 216 patients underwent LC during the study period. The mean operating time was 45 minutes and average hospital stay was two days. The conversion rate was 4%, with commonest cause being dense adhesions.

Conclusion: Laparoscopic cholecystectomy was a safe method of treatment with very low conversion rate. (Rawal Med J 2008;33:159-161).

Key words: Laparoscopic cholecystectomy, gall stones, conversion, cholelithiasis.
INTRODUCTION

Gall stones are a major health problem in many parts of the world, and its incidence increases with age.\textsuperscript{1} Laparoscopic cholecystectomy (LC) has become the treatment of choice in symptomatic cholelithiasis even if there is no scientific evidence for the assumed superiority compared to a small incision approach. LC was first introduced by Muhe in 1986, and has now evolved to the point where it has replaced the open technique.\textsuperscript{2} Perceived advantages of LC, compared with the open technique, include earlier return of bowel motility, less post operative pain, better cosmetic results, shorter hospital stay resulting in equal or lower hospital costs and early return to work.\textsuperscript{2} Emergency LC for the management of acute cholecystitis is conventionally considered to be associated with more complications and increased risk of common bile duct injury.\textsuperscript{3} With improvement in expertise and progression of learning curve, some surgeons have recommended LC as preferred treatment of acute cholecystitis.\textsuperscript{4} The aim of this study was to determine the conversion rate of LC and its causes at Isra University Hospital, Hyderabad.

PATIENTS AND METHODS

This retrospective study was carried out at Isra University Hospital, Hyderabad from July 2005 to June 2007. Medical records of all patients who underwent LC were reviewed. Data recorded included demographic information, past medical history, indication for operation, duration of operation, operative findings, reason for conversion and post operative complications. Patients having history of jaundice, common bile duct dilatation (>8 mm in diameter on ultrasound), choledocholithiasis, pancreatitis and mass in gall bladder were excluded from the study.
Table 1. Indications of laparoscopic Cholecystectomy (n= 216).

<table>
<thead>
<tr>
<th>No</th>
<th>Indications</th>
<th>No. of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acute calculous cholecystitis</td>
<td>42</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Symptomatic gall stones</td>
<td>174</td>
<td>80</td>
</tr>
</tbody>
</table>

Preoperative work up included a complete blood count, blood urea, blood sugar, electrolytes, liver function tests, hepatitis profile, X-ray chest and ultrasound of abdomen. The operation was performed with standard four port technique, using carbon dioxide for peritoneal cavity insufflation. The Veres technique was used to obtain pneumoperitoneum. Cystic artery and cystic duct were skeletonized and clamped with metallic clips separately. Following gall bladder removal, drain was placed selectively in difficult cases with risk of postoperative bleeding. Antibiotic prophylaxis was ensured with three intravenous doses of first generation cephalosporin. All patients had oral liquids and were encouraged to proceed with food in the evening after operation, provided there was no nausea and vomiting.

RESULTS

Out of 216 patients, 183 (84.7%) were women and 33 (15.3%) men. The mean age was 35 years (range 20-70). Symptomatic gallstones were most common indication for LC (table 1). Nine (4%) patients required conversion to open procedure.

Table 2. Reasons for the Conversion to open Cholecystectomy (n=9).

<table>
<thead>
<tr>
<th>NO</th>
<th>REASON</th>
<th>NO OF PATIENTS</th>
<th>PERCENTAGE %</th>
</tr>
</thead>
</table>
The most common cause for conversion was dense adhesions around gall bladder making dissection around the Calot’s triangle difficult (table 2). The mean operation time was 45 minutes with the range of 30 to 90 minutes. The average length of hospital stay was two days.

DISCUSSION

No operation has exploded upon the surgical scene quite like LC. It has rejuvenated general surgery and, in a very short time, has become the gold standard operation for conditions of the gall bladder. Born in secrecy and developed under an atmosphere of skepticism and hostility, LC triumphed and was ultimately quite acceptable. Conversion to open technique is considered a major morbidity of LC as it loses its supremacy over open technique once the conversion takes place. The conversion rate in this study was 4% and this is comparable to the conversion rate of 3.6% to 13.9% reported in literature.\(^5\)\(^6\)\(^7\)\(^8\)\(^9\)\(^10\) However, the rate of conversion is high amongst studies from the Asian countries as compared to those from western world.\(^11\) In most cases, dense adhesion around the gall bladder and bile leakage, as well as uncontrolled bleeding and bowel injury during insertion of Veres needle or dissection of dense adhesions were the main reasons for conversion to the open procedure. In this study, one (0.4%) patient had colonic injury, which was recognized during operation and procedure was converted to open and primary colonic repair was done.

<table>
<thead>
<tr>
<th></th>
<th>Dense adhesions (inadequate exposure)</th>
<th>6</th>
<th>66.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Bile duct injury</td>
<td>2</td>
<td>22.3</td>
</tr>
<tr>
<td>3</td>
<td>Colonic Injury</td>
<td>1</td>
<td>11.1</td>
</tr>
</tbody>
</table>
Table 3. Comparison of Rates of Conversion

<table>
<thead>
<tr>
<th>STUDY</th>
<th>PLACE</th>
<th>YEAR</th>
<th>NO: OF CASES</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dholia et al 7</td>
<td>Larkana</td>
<td>2005</td>
<td>443</td>
<td>11.5</td>
</tr>
<tr>
<td>Vecchio et al 11</td>
<td>USA</td>
<td>1998</td>
<td>114005</td>
<td>2.2</td>
</tr>
<tr>
<td>Butt et al 13</td>
<td>Lahore</td>
<td>2006</td>
<td>300</td>
<td>4</td>
</tr>
<tr>
<td>Guraya et al 15</td>
<td>Saudi Arabia</td>
<td>2004</td>
<td>549</td>
<td>2.9</td>
</tr>
<tr>
<td>Tarcoveanu 16</td>
<td>Romania</td>
<td>2005</td>
<td>6985</td>
<td>3.2</td>
</tr>
<tr>
<td>Lim et al 18</td>
<td>Singapore</td>
<td>2005</td>
<td>149</td>
<td>11.5</td>
</tr>
<tr>
<td>Magee et al 19</td>
<td>UK</td>
<td>1996</td>
<td>443</td>
<td>10</td>
</tr>
<tr>
<td>Current study</td>
<td>Hyderabad</td>
<td>2007</td>
<td>216</td>
<td>4</td>
</tr>
</tbody>
</table>

Jaffary et al in their study of 93 patients undergoing LC found a conversion rate of 7.53%, instrumental failure being the commonest cause and instruments that failed during surgery included insufflators, camera, monitor and clip applicator failure. In another large study of 549 patients undergoing LC, the conversion rate was 2.9%, difficult dissection being the commonest cause followed by excessive bleeding, suspected duodenal and colonic injury. The identification of factors that reliably predict the likely need to convert LC to open procedure would decrease the incidence of intraoperative complications and help in patient counseling about LC before surgery. In one study history of acute attack for more than 72 hours was a strong predictor of conversion even if patient has minimal signs and symptoms.

Most conversions happen after a simple inspection or a minimum dissection, and the decision to convert should be considered as a sign of surgical maturity rather than a failure. Conversion should be opted for in the beginning and at the time of recognition of a difficult dissection rather than after the occurrence of complication. It is vital for the surgeons and patients to appreciate that the decision to go for conversion is not
failure but rather implies safe approach and sound surgical judgment. It is, therefore, mandatory to explain the patients about possibility of conversion to open technique at the time of taking consent for LC. In conclusion, LC is a safe and minimally invasive technique, with only 4% conversion rate and the commonest cause of conversion in this study was the presence of dense adhesions.

REFERENCES

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