■ ***Original Article***

Laparoscopic cholecystectomy: an experience of university hospital in eastern Nepal

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Abstract

Background: Laparoscopic cholecystectomy has become the standard treatment for symptomatic gall stones disease. **Objective:** To assess the safety of this procedure, to audit the conversion and bile duct injury rates and the factors which influence these. **Methods:** Demographics and ethnic group, conversion to open operation and bile duct injury recorded. Pre operative, operative and the relevant data collected prospectively. The X2 test to determine significance of any differences between subgroups. **Results:** A total of 346 laparoscopic cholecystectomy over a six months period (15 April 2010- 14October 2010), male to female ratio 1:4. The most common indication for surgery was biliary colic/dyspepsia (51%),cholecystitis (chronic- 49.4%, acute-12%), pancreatitis, gallbladder polyp, history of recurrent attacks 16.5%,obesity 19.1%. 128 were operated by consultant, 170 by junior consultants, 48 were by senior residents. There were no statistically significant difference found in the duration of surgery between consultants and junior consultants (P=0.264), however significant between consultants and senior residents (P=<0.001). Over all open conversion rate 2.9%, there was a single case of bile duct injury equating to a bile duct injury rate 0.3%. **Conclusion:** Despite limited resources, laparoscopic cholecystectomy is feasible and safety procedure for gallstones disease even in developing country like Nepal.

Keywords: cholecystectomy, laparoscopic, minimally invasive, surgical procedure**.**

Introduction

Gallstone disease is one of the most common conditions encountered in general surgical practice. Laparoscopic cholecystectomy, since its introduction in the late 1980s has grown quickly in its acceptance and has now become the standard treatment for symptomatic gallstones disease. Despite this, it remains a procedure with an inherently steep learning curve, with the potential for serious complications. The present study aims first to assess the safety of this procedure at the Department of Surgery, B P Koirala Institute of Health Sciences, Dharan, Nepal. Secondly, it seeks to audit the conversion and bile duct injury rates among the laparoscopic cholecystectomies performed by the department, and the factors which influence these.

Methods

B P Koirala Institute of Health Sciences is a teaching hospital in Eastern Nepal. Clinical and operative notes of all patients who underwent laparoscopic cholecystectomy from 15 April 2010- 14October 2010 (6months) were reviewed prospectively. Demographics such as age, sex were recorded. Included all patients who will undergo laparoscopic cholecystectomy for symptomatic gall stones disease, asymptomatic gall stones and children below 10 years were excluded from this study. All cases of conversion to open operation and bile duct injury were identified and the reasons for each recorded. The X2- test is used to determine significance of any differences between the subgroups.

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Results

A total of 346 patients underwent laparoscopic cholecystectomy in the 6 months period. Two hundred and eighty five (82.4%) were female and 61 (17.6%) male. The age of the patients ranged from 13 to 78 mean 41years. Table 1 shows the breakdown of the cases according to indication for surgery. Duration of symptoms to the patient ranged from 1 month to 10

years with mean 10.25 months, history of jaundice was found in 5 patients. Fifty seven patients had history of recurrent attack, episode ranged from 1 to 6 attacks, obesity found in 66 (19.1%) of patients and history of previous surgery found in 42 (12%). One hundred twenty eight (37%) patients were operated by consultant surgeons, 170 (49.1%) by junior consultant surgeons, while 48 (13.9%) were by senior residents. There were no statistically significant difference found in the duration of surgery between consultants and junior consultants (P=0.264), however significant between consultants and senior residents (P=<0.001). Surgery performed by Consultant with mean 55.82 min with range of 20-180 min, with junior consultant mean of 59.18 min range of 20-270 min, while with senior resident mean duration of laparoscopic cholecystectomy 70.10 min with range of 30-160 minutes.

Table 2 shows details of operative findings during laparoscopic cholecystectomies. Intraoperative laparoscopic findings like adhesions were present in 117 (33.8%) patients, spillage of bile while in 109 (31.5%), rupture of gall bladder in 32 (9.2%), spillage of stone in 27, bleeding in 35 patients and there was a single case of bile duct injury among 346 cases, giving us a bile duct injury rate 0.3%. This occurred in a 43 years female who underwent an elective laparoscopic cholecystectomy for biliary colic due to abnormal anatomy of biliary system (severely contracted GB with fused cystic duct). However the injury was recognized intra-operatively and the procedure converted to open operation. The injury was then repaired by doing hepatico-jejunostomy. The patient had a uncomplicated postoperative course and was followed up for 6 months postoperatively and doing well. Need open conversion in 10 (2.9%) female 8, male 2 of the patients, between sub groups among Consultant 4, junior consultant 5 and senior resident number of 1 patient need for open conversion. Table 3 shows number of and reasons for conversion.

Table 1: Cases according to indication for surgery

Indication	No. patients (%)
Cholecystitis	213 (52%)
Acute cholecystitis	42
Chronic cholecystitis	171
Colic/ dyspepsia	178 (44%)
Gall bladder polyp	11 (3%)
Pancreatitis	3 (1%)

Table 2: Operative findings

		No. patients (%)
Gallbladder	Distended Contracted Normally distended	310 (89.6%) 34 (9.8%) 2 (0.6%)
Wall thickness	Normal Thickened	279 (80.6%) 67 (19.4%)
Calot's triangle	Normal Abnormal Frozen Adhesions others	318 (91.9%) 28 (8.1%) 14 11 3
Cystic duct	Normal Abnormal (short, long, wide)	313 (90.5%) 33 (9.5%)
Common bile duct	Normal Abnormal (dilated)	342 (98.8%) 4 (1.2%)

Table 3: Numbers of and reasons for conversion

Reason for conversion	No. patients
Anatomical (inability to visualize calot's triangle)	5
Bleeding	1
Bile duct injury	1
Cholecystogastric fistula	1
Gall bladder fundal growth	1
Transverse colon adhered with GB	1

Discussion

There is a significant variation in the published conversion rates (from 3.6 to 13.9%) and bile duct injury rates (from 0.32 to 0.6%) for laparoscopic cholecystectomies performed worldwide.[1-4] This is probably caused by differences in patients selection as well as differences in institutional and individual practice. At our institution, the overall conversion and bile duct injury rates are 2.9% and 0.3% respectively. These rates are comparable to those published in other international studies. Thus, we can conclude that our institutional laparoscopic cholecystectomies for gall stones disease is the procedure effectively and safely to our patients.

The most important factor that influenced conversion rates was not surprisingly, the indication for surgery. It is interesting to note that the most common reasons for conversion, namely, inability to visualize Calot's triangle, bleeding and are both attributable to a large extent to inflammation around the gallbladder. It is also important to note that in our institution, as would be expected elsewhere, the cases which are expected to

be difficult would be operated on by more experienced surgeons. Thus, this would have bearing on the conversion rate for Consultants cases as well.

Interestingly the conversation rate was significantly higher in female (8 vs 2 patients) compare to men. However usually conversion rate is higher in males compare to female which was observed by Tarcoveanu et al 5 in a study published in 2002. So present study alone cannot account for the conversion rate among our female patients being more than four times than of the male ones.

Conclusion

The present study has shown that despite limited resources, laparoscopic cholecystectomy is feasible and procedurally safe for gallstones disease even in developing country like Nepal.

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