Review of laparoscopic cholecystectomy in Nepal Medical College Teaching Hospital

Sunil Shrestha, Giridhar Pradhan, Krishna Bhoomi, Atul Dhital and Chitra Lal Bhattachan

Department of Surgery, Nepal Medical College Teaching Hospital, Jorpati, Kathmandu, Nepal

Corresponding author: Dr Sunil Shrestha, Asst. Professor, Department of Surgery, Nepal Medical College Teaching Hospital Jorpati, Attarkhel, Kathmandu, Nepal

ABSTRACT

Laparoscopic cholecystectomy (LC) is a commonly performed procedure in general surgical practice. The present study aims to highlight the results of LC in our institute. All LC carried out at our institution was prospectively audited. Data were collected regarding indications for surgery, rate of conversion to open operation, co morbid medical conditions and complication rate. One hundred and forty patients underwent LC from March 2005 to December 2006. There were 104 (74.2%) females and 36 (25.7%) males; age range was 18-75 years with a mean of 41 years. Indications for surgery were repeated attacks of biliary colic in 87 (62.0%), symptomatic dyspepsia in 48(34.0%) and asymptomatic gall stone in 5 (4.0%) patients. Operating time was 25-120 minutes with a mean of 71.9 minutes. Conversion was performed in 13 (9.2%) patients because of unclear anatomy due to the dense inflammatory adhesions and chronic cholecystitis. Our results of LC are favorable and comparable with those of published series. We conclude that LC has been successfully introduced in our institution.

Keywords: Laparoscopic cholecystectomy, gall stone, audit, minimal access.

INTRODUCTION

Laparoscopic cholecystectomy (LC) is now the gold standard procedure for symptomatic gallstone disease.[1] The operation of LC began the modern era of minimal access surgery. In 1987, Philip Mouret performed the first LC in France.[2] LC for the treatment of gallstone disease has the advantages include less patient discomfort, shorter postoperative stay, more rapid overall recovery time, better cosmesis and lower cost compared to open Cholecystectomy.[3-5] The procedure has become safer as the worldwide surgical community has gained greater clinical experience and familiarity with laparoscopic technology.[6] A continuous audit is required to ensure LC is performed safely in the surgical community in general. Although this minimally access procedure began in Nepal in the year 1994, we could start this Nobel technique from 2005 onwards.[7] All LC carried out at our institution was prospectively audited. Therefore, this study aims to highlight the results of LC in our institute.

MATERIALS AND METHODS

The records of all patients who underwent laparoscopic cholecystectomy (LC) between March 2005 and December 2006 were reviewed. The clinical data were prospectively collected. Preoperative data recorded included the patients' demography, presentation, and associated co morbid conditions. Intraoperative data were collected on the operating time and complications such as gallbladder perforation, stone spillage, and bile duct and vascular injuries. Post operatively, the type and dosage of antibiotics, analgesics, morbidity, mortality and length of hospital stay were recorded. All patients were followed up routinely after 2 weeks with review of histopathology report. An intravenous third generation cephalosporin was administered at the time of anesthetic induction. LC was performed using the standard four port technique as well as three port using Hasson trocar placed at the umbilicus.

RESULTS

A total number of 140 patients had undergone laparoscopic cholecystectomy (LC) from March 2005 upto December 2006.Thirty six (25.7%) were males and 104 (74.2%) were females. Their mean age was 41 (18-75) years. (Table-1 and Fig 1) Maximum people were in age group of 30-39 years. Regarding gender distribution, in age groups of 20-29 years and 30-39 years, females were significantly higher than males, whereas in 70-79 years males were significantly higher than females.

Indications for LC included biliary colic (62.0%), symptomatic dyspepsia (34.0%), and asymptomatic gall stone (4.0%) (Fig. 2.).

Ultra sonogram were routinely performed in all patients to confirm the clinical diagnosis of cholelithiasis with number of stones, sizes, gallbladder wall thickness, and pericholecystic collection and diameter of common bile duct, results of which are displayed in the figure 3 and 4 as below.

All patients were assigned an American Society of Anesthesiology (ASA) physical status classification: 112 (80.0%) were ASA I, 22 (16.0%) were ASA II and 6 (4.0%) were ASA III. Hypertension, diabetes mellitus, bronchial asthma and cardiac disease were the most common co morbid diseases found in this series (Table 2).Despite the presence of concomitant co morbid conditions, these medical diseases contributed minimally to the morbidity or mortality results for our patients. Standard open technique with Hasson trocar placed at the umbilicus to create the pneumoperitonium. In 76 (54.0%) patients gallbladder could extract with three port approach and 64 (46.0%) patients with conventional four port approach. Operative time in this series ranged from 20 minutes to 115 minutes with mean operating time being 71.9 minutes.

Intra operatively in 74 (52.8%) patients there was flimsy adhesion of the gallbladder which could easily be separated by merry land dissector. In 25 (17.9%), gallbladder wall was found to be thickened whereas in another 12 (8.5%) cases gallbladder looks inflamed. Distended gallbladder with mucocele were found in 12 (8.5%) which were decompressed laparoscopically. 5 (3.6%) patients had pyocele and 4 (2.9%) had gallbladder polyp and another 4 (2.9%) had short cystic duct and each case of contracted gallbladder, accessory cystic artery, dilated cystic duct and elongated and tortuous gallbladder were found (Table 3). Intraoperaive cholangiogram were not performed.

During LC, gallbladder perforation with leakage of bile into the abdominal cavity occurred in 21 (15.0%) cases, and a further 17 (12.1%) cases had spillage of stones. The stones were meticulously extracted in spite of that still few stones were left behind. In this regard while extracting the gallbladder from the umbilical port, gallbladder wall got perforated and the stones were left beneath the parietal wall. And this particular patient came with recurrent seropurulent discharge from the umbilical wound and multiple stones were extracted after reexploration of the wound. Four (2.8%) patients had injury to the cystic artery or its branches leading to profuse bleeding which has been secured by clip application. One patient sustained bowel injury during initial access via umbilical port and it was converted to open surgery. The conversion rate was 9.2% (13/140), and the reasons for conversion to open cholecystectomy mainly were unclear and unsafe anatomy due to dense inflammatory adhesions with history of prior abdominal surgery and chronic cholecystitis.Twenty one patients with intraoperative gallbladder perforation were put on post operative oral antibiotics for 5 days whereas the remaining patients received preoperative intravenous single dose antibiotics. The mean hospital stay was 4.1days (3-9 days).

DISCUSSION

The relatively late introduction of laparoscopic cholecystectomy (LC) in our institution was due to the initial concerns about the safety and efficacy of this procedure.[7] With this newer procedure, it is important to review our experience and compare our results with other published reports of LC to ensure on the safety, rate of conversion, the mortality and the morbidity of the procedure.

Aggregating data across 61 studies showed that on average, the percentage of women in the studies was 76.0%.[8] Likewise in our series 74.2% were females. For the subset of 56 studies that reported the mean age of the patients, weighted by the sample size was 49.0 years,[9] which is comparable to our study, the mean age being 41.0 years. For nearly all (93.0%) of the studies that reported the indications for surgery, was chronic cholecystitis/symptomatic cholelithiasis.[9] In our series we have excluded the cases being diagnosed as chronic calculus cholecytitis with shrunken gallbladder due to our early experience. So the major indication for surgery in our study is symptomatic cholelithiasis i.e. biliary colic (62.0%) and dyspeptic syndrome (34.0%).

The duration of surgery was reported in 47 studies and was variable with a weighted average of 89 minutes.[10] Our mean operating time of 71.9 minutes is similar to other published series. For the 13 studies that provided information on the length of total hospital stay, the over-all weighted mean was 2.0 days and in the 14 studies that provided information on the length of postoperative stay, the average was 1.6 days.[11] The average hospital stay of 4.1days is prolonged in our series as compare to other studies, the reason being inadequate follow up once the patients are discharged earlier.

Gallbladder perforation with leakage of bile and/or gallstone into the abdominal cavity occurred in 15.0% of our cases which is lower than in other reported series. Intraoperative perforation of the gallbladder has not been shown to have any delayed complications in large series, although several

anecdotal reports had implicated spilled bile and lost stones as the cause of delayed complications of abscess formation and small bowel bstruction.[12] Therefore attempts should be made to remove all spilled stones during the operation. The data on bowel injuries suggest that the Hasson technique offers no absolute protection from bowel injury during access to the peritoneal cavity for laparoscopy,[13] as it happened in one of our patient as well.

There is a significant variation in the published conversion rates from 3.6% to 13.9% for LC performed worldwide.[14,15] At our institution, the overall conversion rate is 9.2% which is comparable to those published in other international studies. A major concern in LC is ductal injury, which was reported to have an incidence of 0.3-0.6%.[16] Our incidence of bile duct injury is nil which may be due to the limited number of patients with their inclusion criteria.

With adequate exposure to this procedure, LC could be performed safely. We have successfully adopted this procedure. This study serves as baseline for comparison with future studies.[17]

REFERANCES

1. Soper NJ, Stockman PT, Dunnegan DL, Ashley SW. Laparoscopic Cholecystectomy: the new "gold standard"? *Arch Surg* 1992; 127: 917-23.
2. NIH consensus conference statement on gallstones and laparoscopic cholecystectomy. *Amer J Surg* 1993; 165: 390-8.
3. Cuschieri A, Dubois F, Mouiel J *et al.* The European experience with laparoscopic cholecystectomy. *Amer J Surg* 1991; 161: 385-7.
4. Nathanson LK, Shimi S, Cuschieri A. Laparoscopic Cholecystectomy: the Dundee technique. *Brit J Surg* 1991; 78: 155-9.
5. Bass EB, Pitt HA, Lillemore KD. Cost-effectiveness of laparoscopic Cholecystectomy versus open Cholecystectomy. *Amer J Surg* 1993; 165: 466-70.
6. Majeski J. Laparoscopic cholecystectomy in geriatric patients. *Amer J Surg* 2004; 187: 747-50.
7. McIntyre RC Jr, Zoeter MA, Weil KC, Cohen MM. Comparison of outcome and cost of open cholecystectomy vs laparoscopic cholecystectomy. *J Laparoendosc Surg* 1992; 2: 143-7.
8. Lucas GW. An early review of 800 laparoscopic cholecystectomies at a university-affiliated community teaching hospital. *Amer Surg* 1992; 58: 206-10.
9. Southern Surgeons Club. A prospective analysis of 1518 laparoscopic Cholecystectomy. *New Engl J Med* 1991; 324: 1073-8.
10. Baird DR, Wilson JP, Mason EM *et al*. An early review of 800 laparoscopic cholecystectomies at a university-affiliated community teaching hospital. *Amer Surg* 1992; 58: 206-10.
11. Dunn Ds, Nair R, Fowler S *et al*. Laparoscopic cholecystectomy in England and Wales: results of an audit by the Royal College of Surgeons of England. *Ann Roy Coll Surg Engl* 1994; 76:269-75.
12. Jones DB, Dunnegan DL, Soper NJ. The influence of intraoperative gallbladder perforation on long term out-come after laparoscopic Cholecystectomy. *Surg Endosc* 1995; 9: 977-80.
13. Wherry DC, Rob CG, Marohn MR *et al*. An external audit of laparoscopic cholecystectomy performed in medical treatment facilities of the department of defense. *Ann Surg* 1994; 220:626-34.
14. Scott TA, Zucker KA, Bailey RW. Laparoscopy Cholysystectomy:a review of 2397 patients.*Surg Laparosc Endosc* 1992; 2: 191-8.
15. Peters JH, Krailadsiri W, Incarbone R *et al.* Reasons for conversion from laparoscopic to open cholecystectomy in an urban teaching hospital. *Amer J Surg* 1994; 168: 555-9.
16. Walsh RM, Henderson JM, Vogt DP. Trends in bile duct injuries from laparoscopic Cholecystectomy. *J Gastointest Surg* 1998; 2: 458-62.
17. Nussaum R, Fromm H. Laparoscopic Cholecystectomy – a new procedure in need of further study. *Gastroenterol* 1992; 102: 362-4.

.

Table-1: Laparoscopic Cholecystectomy distribution of cases by age and gender

Age group	Male	Female	Total	P-value*
	No (%)	No (%)	No	
<20	0 (0)	2 (100.0)	2	0.40
20-29	3 (9.6)	28 (90.3)	31	0.02
30-39	5 (13.8)	31 (86.1)	36	0.05
40-49	13 (37.1)	22 (62.8)	35	0.07
50-59	4 (62.8)	13 (76.47)	17	0.82
60-69	2 (25.0)	6 (75.0)	8	0.96
70-79	9 (81.8)	2 (18.1)	11	0.00
Total	36 (25.7)	104 (74.2)	140	

* Between male and female of respective age group

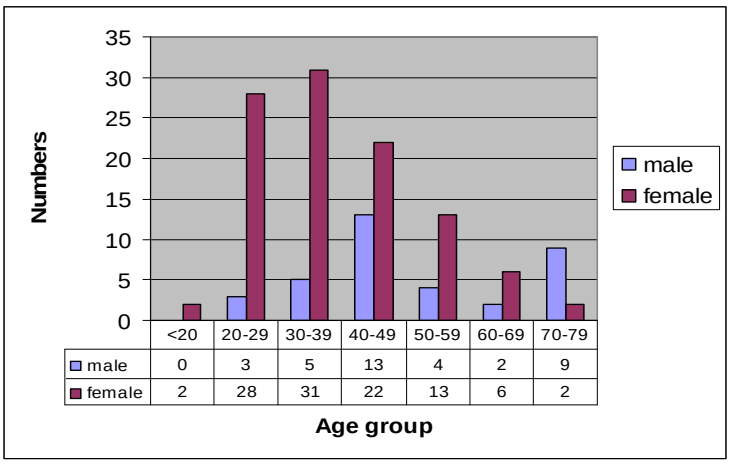

Fig. 1. Laparoscopic Cholecystectomy Distribution of cases by age and gender

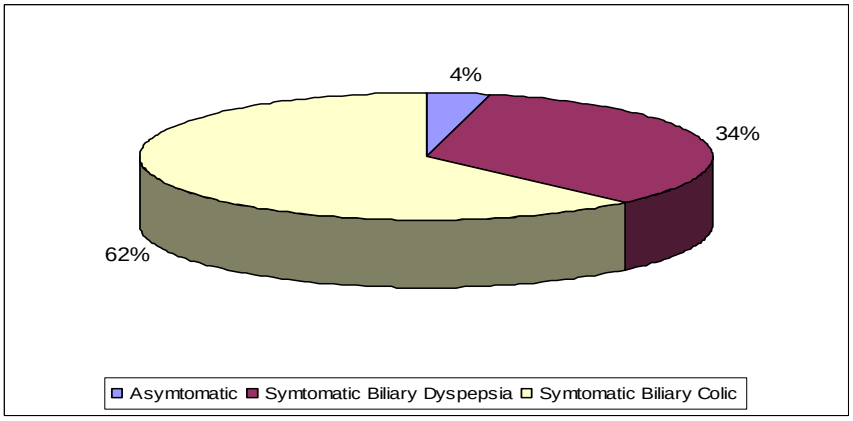

Fig. 2. Clinical presentation

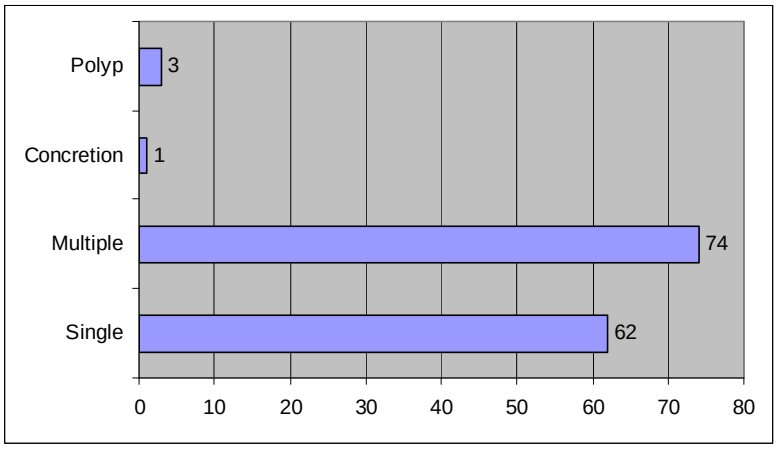

Fig. 3. USG Findings: No. of stones

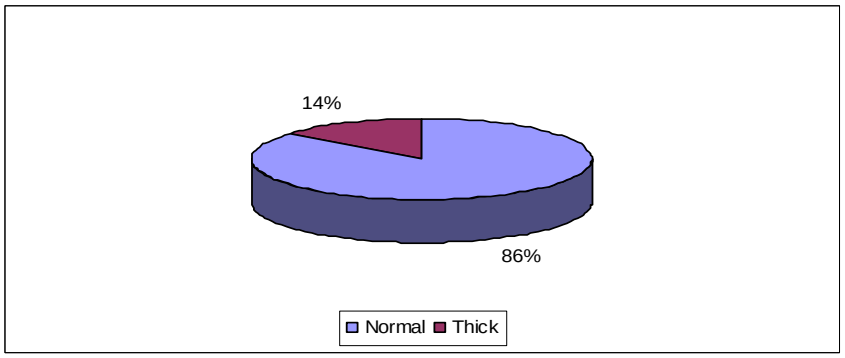

Fig. 4. USG Findings: GB Wall Thickness

Table-2: Associated Medical conditions

SN	Medical conditions	No.	%
1	Bronchial asthma	5	4.8
2	Hypertension	18	17.3
3	Diabetes mellitus	3	2.9
4	Cardiac disease	1	0.9
5	Others	7	6.7
6	None	71	68.3

Table-3: Operative findings

Findings	No.	%
Adhesions	74	52.8
Thickened GB Wall	25	17.9
Inflamed GB	12	8.5
Mucocele	12	8.5
Pyocele	5	3.6
GB Polyp	4	2.9
Short cystic Duct	4	2.9
Others	4	2.9
total	140	100.0