

Audit of laparoscopic cholecystectomy Omdurman teaching hospital

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Abstract

Objectives: To review and audit our experience in laparoscopic cholecystectomy [LC] at Omdurman Teaching Hospital, Sudan.

Methods: A prospective study for patients who underwent laparoscopic cholecystectomy in the period, from January 2006 to October 2007. Demographic data, indications for surgery, rate of conversion to open cholecystectomy, morbidity, and mortality rates were noted.

Results: A total of 114 patients underwent LC in 21 months, They were female 100 patients and 14 males, age range from 25 to 70 years, mean age 44 years. Indications for surgery were biliary colic 65.8%, fatty dyspepsia 37.7%, and acute cholecystitis 3.5%. The range of operative time was 25-90 minutes. Conversion rate was (7.9%). The reasons for conversions were bleeding, extensive dense adhesions, severe inflammation.

Conclusion: Our findings were consistent with the literature, demonstrating that LC is a safe minimal invasive technique



Key words: Laparoscopic, cholecystectomy, minimal invasive surgery, surgical audit, Sudan.

Laparoscopic cholecystectomy [LC] was first performed in Lyon, France by Philippe Mouret in 1987^{1,2}. It is now the treatment of choice for symptomatic gallstones. The obvious advantages of LC to patients, surgeons, and hospitals, short hospital stay, early return to daily activities³, less post-operative pain and better cosmetic result⁴. LC was first introduced to Sudan in 1995 by Ibn Ouf and his colleagues⁵

In the developed countries Laparoscopic Cholecystectomy in its early years was associated with high rates of bile duct injury, especially during the learning curve and increased incidence of missed common bile duct stones⁶.

The objective of this study was to audit our experience in laparoscopic cholecystectomy in Omdurman Teaching Hospital.

Methods:

LC equipments became available at Omdurman Teaching Hospital, Sudan in January 2006 and this is a prospective study of the first 114 patients who underwent LC.

The study was performed between Jan. 2006 and Oct. 2007. All patients who underwent laparoscopic cholecystectomy in this hospital were included in the study. The relevant data collected, were demographic details, duration of surgery, length of hospital stay, co-morbidity, reasons of conversion to open cholecystectomy, mortality rate and causes of morbidity. Preoperative assessment consisted of detailed clinical review and investigations (Complete blood count, liver function test, urea, electrolytes, and abdominal ultrasound). Electrocardiography was performed in patients over 50 years of age. The operative details were noted including bile duct injury, intra-operative and post-operative haemorrhage, port haematoma or sepsis, surgical emphysema, bile leak, perforation of the gallbladder, paralytic ileus and small bowel or vascular injury.

Three surgeons performed or attempted LC in this study. The first author is expert in LC, the other two in their learning curve.

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All patients were operated on the supine position, using the standard four ports technique and carbon dioxide for peritoneal cavity insufflation. We used direct insertion technique of first trocar.

Results:

A total of 114 patients underwent LC in 21 months period of time. Females were 100 (87.7%) and 14 (12.3%) were males, with Male: Female ratio 1:7. The mean age for females was 44 ranging from 20-70 years, and for males was 45 ranging from 29-62 years.

Indications for surgery were repeated attacks of biliary colic in 75(65.8%), fatty dyspepsia 35(30.7%) and acute cholecystitis in 4(3.5%) patients.

The average operative time was 70 minutes among the converted cases, versus 42 minutes for laparoscopic completed cases.

Conversion:

The rate of conversion to open cholecystectomy was 9 out of 114 patients (7.9 %). Reasons for conversion are shown in Table 1.

Table 1 Reasons for conversion (n = 9)

Reasons of conversion	Number
Dense adhesions	3 (2.6%)
Intra-operative bleeding	2 (1.8%)
Fibrotic gallbladder	1 (0.9%)
Cholecysto-colonic fistula	1 (0.9%)
Acute inflammatory adhesion	2 (1.8%)
Total	9 (7.9%)

Morbidity

There was no cases of major bile duct injuries in our study. One female patient developed obstructive jaundice two month after surgery. ERCP showed common bile duct [CBD] stricture, where balloon dilatation was done. One patient developed bile leak. ERCP showed, cystic duct leak due to clip slippage, treated with CBD stent. Gallbladder perforation occurred in 14 patients during surgery but none of them developed intra-abdominal sepsis. Table 2 shows the complications.

Mortality:

There was one mortality. This was a 75 years old lady with repeated attacks of acute cholecystitis, diabetes mellitus and ischemic heart disease. It was intra-hospital death due

to cholecysto-colonic fistula, discovered when the patient was converted to open cholecystectomy. It was complicated with sub-phenic abscess, and eventually ended with septicemia and multiple organs failure.

Table 2 Complications of LC

Complication	Number
Gall bladder perforation	14 (12.3%)
common bile duct stricture	01 (0.9%)
Intra-operative bleeding	02 (1.8%)
Bile leak	01 (0.9%)
Port sepsis	01 (0.9%)
Paralytic ileus	01 (0.9%)
DVT	01 (0.9%)

Hospital stay

The average hospitalization period was 36 hours. Fifty three percent of the patients stayed less than 24 hours. This is very much similar to previous report from Sudan⁵.

Discussion

Today laparoscopic cholecystectomy LC is the treatment of choice for symptomatic gallstone disease⁷. In our hospital LC was initially reserved for patients with uncomplicated cholelithiasis. However, as experience was gained, LC was offered for those with acute calculous cholecystitis

The age and gender distribution, in our study were in accordance with others' reports⁷. The common indications for surgery in this study, were biliary colic and fatty dyspepsia, as in the literature^{8,9}.

The average operative time in our study was 42 minutes, which is shorter than reports that showed a range between 70 and 90 minutes⁸⁻¹⁰. This was probably attributed to our selection policy of cases. The recent trend is to discharge patients on the same evening after LC¹¹. Fifty three percent of our patients were discharged home on the first postoperative day without complications or readmissions. This make them candidate for day-case surgery, if this policy was adopted in our hospital.

The conversion rate was 7.8%. This is in keeping with results obtained by other workers¹¹⁻¹⁶. The common causes for conversion in our study were difficulty to delineate the anatomy of Calot's triangle, and

intra-operative bleeding. Bleeding is a known of the complications of cholecystectomy. Clinically significant bleeding was reported to occur in 0.5% of LC¹⁷. In our series, bleeding was observed in two patients, which necessitated conversion to open cholecystectomy. Factors contributing to operative bleeding may include inadequate exposure, acute inflammation, adhesions, coagulopathy, rough technique or portal hypertension⁷. Three patients were converted to open cholecystectomy due to unclear anatomy at the Calot's triangle, and two due to acute cholecystitis. Performance of LC for acute cholecystitis is technically more demanding than elective cases. Extensive inflammation and increased adhesion around calot's triangle obscure the anatomy making dissection difficult and hazardous. In such cases conversion should not be regarded as complication but as an attempt to prevent complications (augmented surgery)¹⁸.

LC has a definite advantage compared to open cholecystectomy, but carries its own risk⁴. Injury to the biliary tract is a particular cause for concern with the laparoscopic technique, varying from 0.2% to 0.9%¹⁹⁻²³. In our study we reported a single case of delayed CBD stricture equating to a rate of [0.9%]. The relatively high incidence of bile duct injury in LC is perceived by many surgeons as the main drawback of the technique. Bile duct injuries are associated with significant morbidity prolonged hospitalization, increased financial burden, potential litigation, and occasional mortality²⁴. However, as surgeons consolidate experience, the frequency of this complication decreases⁶.

One patient developed continuous bile leakage through the drain, for three days. ERCP showed bile leak from cystic duct, due to slipped clip. Endoscopic biliary stent was inserted which resolved her bile leak and symptoms, good outcome.

Intra-operative gallbladder perforation occurred in 14(12.3%) patients. This is similar to the reported incidence of [10% to 32%]⁽²⁵⁾. Bile leak occur mainly during dissection of gallbladder bed, gallbladder retraction, gallbladder extraction from the abdomen, and slippage of cystic duct clips.

The complications of gallbladder perforation and stone spillage were not seen during our short follow up, except one case with port sepsis.

Mortality

Although the mortality rate of LC in large series in the literature was 0.13-0.16%^{9, 15}, in contrast we have a single death (0.9%) of an initially high risk patient.

Conclusion:

Our results were consistent with literature, the complication rates and overall conversion rate are within acceptable limits, demonstrating that LC is a safe minimally invasive technique.

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