Audit of Laparoscopic Cholecystectomy: 5 years Experience in a University Hospital

S Y GURAYA G E A KHAIRY K R MURSHID
The Division of General Surgery, Department of Surgery, King Khalid University Hospital, King Saud University, Riyadh, Saudi Arabia.
Correspondence to: Dr. Gamal Eldin A Khairy Associate Professor and Consultant Surgeon. E. mail: gkhairy@ksu.edu.sa

All patients, who underwent laparoscopic cholecystectomy for cholelithiasis, from September 1998 to September 2003 were retrospectively reviewed. There were 549 patients and out of those, 507 were female and 42 male subjects. The age ranged from 17-71 years for females and 18-69 years for male patients: median age 41.4 years. 476(86.7%) cases presented with chronic cholecystitis, 63(11.4%) acute cholecystitis, 6(1%) mucocele of the gallbladder and 2(0.4%) had empyema of the gallbladder. Sixteen cases were converted to open cholecystectomy (conversion rate of 2.9%) with a success rate of 97% for laparoscopic cholecystectomy. The reasons for conversion were found to be 8(1.4%) difficult dissection, 4(0.7%) bleeding from cystic artery, 2(0.3%) suspected duodenal injury, 1(0.1%) suspected colonic injury and 1(0.1%) Mirizzi's syndrome. Postoperative hospital stay ranged from 1-13 days (mean 1.23). Atelactasis was reported to be the most frequent complication found in 9(1.6%) patients followed by deep vein thrombosis and subumbilical wound infection noted in 6(1%) cases each (P<0.00). Four patients had common bile duct injury and one case sustained common hepatic duct injury. All these patients had successful Roux-en-Y hepaticojejunostomy. There was no mortality in this series. Laparoscopic cholecystectomy is a safe and feasible procedure and should be the first line of treatment for symptomatic cholelithiasis.

Key words: Laparoscopy, cholecystectomy, acute cholecystitis, chronic cholecystitis

Laparoscopic cholecystectomy (LC) has replaced open cholecystectomy (OC) as the preferred therapeutic modality for the gallstone disease[1]. LC has gained immense popularity since its introduction in the late 1980s and presently the indications for LC are the same as OC: symptomatic gallstones and gallstone complication (cholecystitis, pancreatitis, mucocele and empyema of the gallbladder)[2]. This study presents a retrospective audit of the laparoscopic cholecystectomies performed at a Teaching Hospital, Saudi Arabia over a period of 5 years.

Patients and methods:

This retrospecticve study included all patients who underwent LC for various gallbladder affections, from September 1998 to September 2003 at King Khalid University Hospital, King Saud University, Riyadh, Saudi Arabia. Data analyzed included the demographic information, clinical presentation, initial surgical approach, final outcome, morbidity and mortality and the postoperative stay in the hospital. LC was performed using the standard four trocar technique described by Reddick and Olsen[3] with veresse needle. If the gallbladder was found to be tense, then the fundus was punctured and aspirated. The epigastric port was usually used to extract the gallbladder and was extended if necessary. All patients were given Cefuroxime 1.5gram interavenously at the time of induction. Postoperative stay was calculated as postoperative number of nights spent in the hospital. The data was analyzed using the SPSS software package and a p value of <0.05 was assigned to establish significance.

Results:

Of 549 patients, 507 were females (age range 17-71, mean 42.6years) and 42 males (age range 18-69 years, mean 41.3 years). 476 (86.7%) cases presented with chronic cholecystitis (CC) and 63(11.4%) patients had acute cholecystitis (AC) as shown in Table 1. Conversion to OC was carried out in 7(1.2%) patients with CC and in 9(1.6%) with AC: over conversion rate of 2.9% (P<0.00). The causes of conversion to OC are outlined in Table 2. Postoperative stay ranged from 1-13 days (mean and standard deviation of 1.23±0.7 days). Histopathology results of the subjected specimen revealed 427(77.7%) CC, 74(13.4%) cholesterolosis, 39(7.1%) AC and 9(1.6%) adenocarcinoma of the gallbladder.

Table 1. Mode of presentation of gallstone disease (n=549)

Clinical presentation	n=	%age
Chronic cholecystitis	476	86.7
Acute cholecystitis	63	11.4
Mucocele of gallbladder	6	1
Empyema of gallbladder	2	0.4
Gangrenous cholecystitis	1	0.2
Mirizzi's syndrome	1	0.2

Table 2. Reasons of conversion to open cholecystectomy (n=549)

Causes	n=	%age
Difficult dissection and obscure anatomy	8	1.4
Bleeding from cystic artery	4	0.7
Suspected duodenal injury	2	0.3
Suspected colonic injury	1	0.1
Mirizzi's syndrome	1	0.1

There was no mortality in this series. Four patients had common bile duct while one sustained common hepatic duct injury and all of them underwent Roux-en-Y hepaticojejunostomy (Table 3). Three patients developed subphrenic biliary collection, managed successfully by ultrasound guided aspirations. One subject had slipped cystic duct clip which was dealt with a stent during endoscopic retrograde cholangiopancreaticography. This study demonstrated an overall morbidity rate of 6%.

Table 3. Morbidity of laparoscopic cholecystectomy (n=549)

Complications	n=	%age
Atelactesis	9	1.6
Subumbilical wound infection	6	1
Deep vein thrombosis	6	1
Injury to common bile duct	4	0.7
Ileus	3	0.5
Subphrenic bile collection	3	0.5
Common hepatic duct injury	1	0.1
Slipped cystic duct clip	1	0.1

Discussion:

The present series elaborates the established role of LC in the surgical management of gallstones. Since the early reports on the procedure from France and America[4], LC has been found to be superior to OC with less morbidity and mortality[5].It is well recognized, however, that in AC, there is an increased rate of conversion to OC when compared to CC[6,7,8]. In this series, conversion rate was found to be 1.4% in CC and 14.2% in AC (P<0.00). At the same time, its worth mentioning that conversion should not be considered as a complication but as a safety net[7]. Cases of lost stones have been documented in upto 40% of LC[9] but only 0.08% develop stone-related complaints[10], which include intraperitoneal abscess, cutaneous umbilical sinus, systemic infection, adhesions and fistulas[11,12]. In the present study, no such problems have been reported. In a review of 114,005 cases, MacFayden et al[13] have published an overall LC-related mortality of 0.06% whereas there was no mortality in this series. With the growing experience of LC, the incidence of bile duct injury during LC or OC is not statistically significant[7]. In a multicenter study, the incidence of bile duct injury ranged from 0.0%-0.5% while in LC it ranged from 0%-18% with a mean of 0.3%[14]. Our study reported 0.7% incidence of bile duct injury which is in accordance with the published figures and signifies the safety profile of LC. The mean postoperative hospital stay after LC was 1.2 days which is comparable with 1.3-1.6 days reported in two separate studies[15,16]. Fifteen percent of the patients undergoing cholecystectomy are known to harbour stones in common bile duct[17]. Preoperative ultrasonography is not sensitive enough to exclude ductal stones with confidence although a dilated duct makes stones more likely. In our patients, preoperative ERCP was performed if there was a history of jaundice, cholangitis, pancreatitis, deranged liver function tests or a dilated bile duct. This was required in 58(10.5%) patients, only 13 of whom had ultrasound detected ductal stones. Currently, laparoscopic cholangiography can be accomplished with a 90% success rate[18] although it adds 10-20 minutes to the operative time.

Conclusion:

LC is feasible in the majority of patients with gallstone disease. Better cosmesis, less wound pain, shorter convalescence, earlier mobilization and cost effectiveness are the outright benefits of LC. This should be offered to all patients undergoing cholecystectomy before resorting to open surgery.

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