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Laparoscopic Cholecystectomy: A 15-years Experience at a Single Centre, Wad Medani, Sudan.

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Background: ***Since 1998, laparoscopic cholecystectomy continues to be the procedure of choice for nonmalignant gallbladder disease in the Gezira Centre for Endoscopic and Laparoscopic Surgery. This study was aimed at analyzing the large series of laparoscopic cholecystectomies and to compare our results with those reported in the literature concerning complications and outcomes.***
Methods: ***The study population consisted of 2842 patients with gallbladder disease who underwent laparoscopic cholecystectomy from September 1998 to September 2013. Clinical data was abstracted from the completed records of the 2842 patients. We analyzed the successfulness of the results, intra-operative and postoperative complications, the conversions to open cholecystectomy, morbidity and mortality rate.***
Results: ***2842 patients underwent laparoscopic cholecystectomy. Intraoperative complications were excessive bleeding necessitating conversion in 0.74 % and biliary ducts injury in 0.31%. Postoperative complications were wound infection in 0.21%, incisional umbilical hernias in 0.28% of patients and the conversion to open cholecystectomy was necessary in 5.13%. The mortality rate was 0.21%.***
Conclusions: ***Our results on large number of patients are more or less similar to other series in the newer literature but the rate of complications should be decreased. The incidence of complications decreases with growing laparoscopic experience.***

Key words: laparoscopic, open, cholecystectomy, conversion

Introduction

Gallbladder diseases are very common disease nowadays. They comprise a large spectrum of disorders caused by alterations in bile composition and biliary function, placing a substantial burden on inpatient and outpatient resources. Complicated gallstone disease (e.g., symptomatic cholelithiasis) represents the most frequent of biliary disorders for which surgery is regularly advocated[1]. Today, cholecystectomy is a standard practice for cholelithiasis, and surgery for complicated gallstone diseases has a significant impact on quality of life (QOL) in developed countries[2]. Over the past two decades, laparoscopic cholecystectomy (LC) has become the gold standard for the surgical treatment of gallbladder disease. A shorter hospital stay (and, thus, a more rapid return to normal activity and work), less postoperative pain, a faster recovery, better cosmoses, and lower cost are some of the advantages of LC over open surgery[3,4].

Patients and Methods:

In this retrospective study we evaluated the medical records of patients with gallstone disease who underwent LC in the Gezira Centre for Endoscopic and Laparoscopic Surgery – Wad Medani, Sudan over the past 15 years. Preoperative data, including patient demographics, indications for cholecystectomy, concomitant diseases were collected. Laparoscopic cholecystectomy was performed using the standard four puncture technique. 5 mm trocars were placed in the right anterior axillary line and the right midclavicular line, and 10 mm trocars were placed in the epigastrium and the umbilicus. Pneumoperitoneum was established by the placement of a Veress needle umbilically. Blunt dissection and limited electrocautery was used to identify the cystic duct and artery. Anterior and lateral traction were applied to the

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infundibulum of the gallbladder during this dissection. The conversion rate to OC, the underlying reasons, and postoperative complications were recorded. Statistical analyses were performed using SPSS (Statistical Packages for Social Sciences) 17 software.

Results

From November 1998 to November 2013, 2842 patients underwent laparoscopic cholecystectomy (Figure 1). Females were 2393 (84.2%) and males were only 449 (15.8 %). Age ranging between 12 to 91 with the mean age of 45.3 years with SD of +/- 13.5. 30.1 % of them are from Wad Medani and the near villages and 60.5% were from the Gezira state and 9.4% were from the other states. The duration of symptoms was weeks in 6.8 %, months in 53.9% and years in 39.3% of patients. The indications for laparoscopic cholecystectomy were found to be due to calculus cholecystitis in 87.01% (n=2473), a calculus cholecystitis in 11.40% (n=324), gallbladder polyps in 1.12% (n= 32) and GB tumor in 0.46% (n=13).

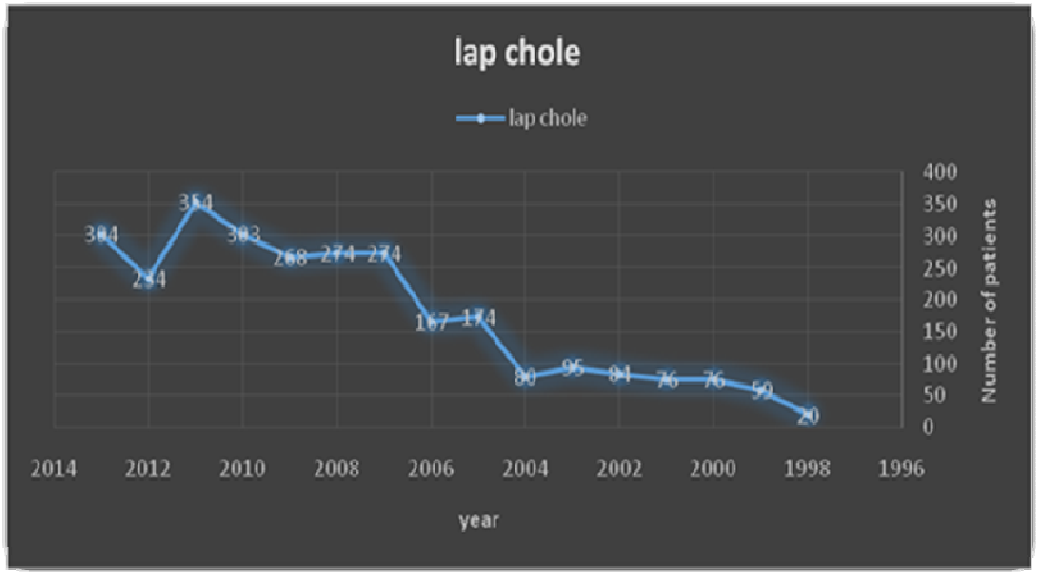

Figure 1. Frequency of Laparoscopic cholecystectomy

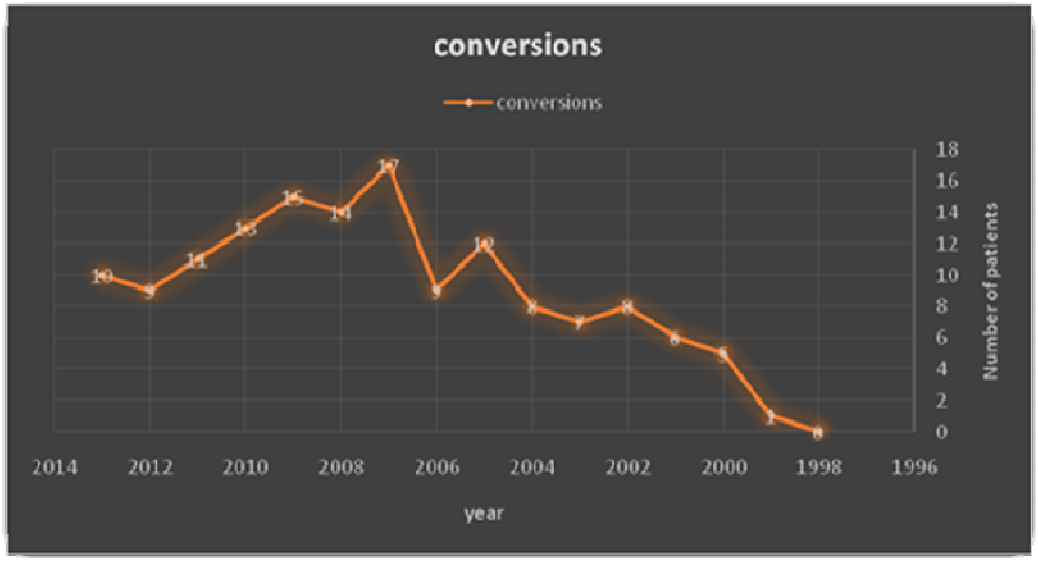

Figure 2. Frequency of Conversion to Open Cholecystectomy

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Table 1. Causes of conversion to open cholecystectomy

Causes of conversion	Number of cases	Percentage from 145 converted cases	Percentage of 2842
Excessive bleeding	21	14.49	0.74
Bile duct laceration			
• **Common bile duct**	4	2.76	0.14
• **Right hepatic duct**	5	3.45	0.17
CBD stone	9	6.21	0.31
GB tumor	11	7.59	0.38
Excessive adhesions	88	60.67	3.10
Electricity failure	1	0.69	0.04
Visceral injuries			
• **Duodenal injuries**	1	0.69	0.04
• **Small bowel injuries**	1	0.69	0.04
• **Liver injuries**	2	1.38	0.07
CBD tumor	2	1.38	0.07
Total	**145**	**100%**	**5.1**

Table 2. Post-operative complications

Postoperative complications	Number	Percentage
Myocardial ischemia/CHF	2	0.07
Umbilical port hernia	8	0.28
Port site infection	6	0.21
DVT/pulmonary embolus	4	0.14
Minor duct leak	12	0.42
CBD injuries	9	0.31
Total	**41**	**1.44**

Intra operative findings were single stone in 20.37%, multiple stones in 63.70%, acalculous cholecystitis in 13.23%, mucocoeles in 2.68% and gallbladder tumour in 0.02%. Intra operative complications included bleeding necessitating conversion to open surgery in 0.74 % and 0.13 % biliary ducts laceration. There were 145 conversions from laparoscopic to open Cholecystectomy, giving a conversion rate of 5.1% over the 15 years under review. The frequency and causes for conversion are shown in the Figure 2 and Table 1. The commonest three reasons for conversion to open cholecystectomy were excessive adhesions (60.7%), excessive bleeding (14.5%) and gallbladder tumour (7.6%). Post-operative complication discovered after the operations are shown in Table 2 and included minor duct leak, CBD injury. Umbilical port hernia and port site infection.

Patients who developed port site hernia were treated with repair, one patient of congestive cardiac failure was managed in the ICU and one with acute massive myocardial infarction died in the ICU. Of the 12 patients with biliary leakage, 7 were treated conservatively while the remaining 5 were treated operatively. All patients with CBD injuries were surgically managed.

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Postoperative infections were treated with dressings and antibiotics. The mortality rate was 0.21%, all 6 deaths were in females, one was due to cystic duct leakage, which soon developed biliary peritonitis and sepsis, one had CBD injures treated with laparotomy and drainage and died with acute myocardial infarction, 4 died postoperatively with massive pulmonary embolism. The duration of laparoscopic cholecystectomy was less than one hour in 92.6% and more than one hour in 7.4 %. Hospital stay was one day in 51.7%, 2 days in 43.9% and 3 days and more in 3.9 %.

Discussion

Since 1998, laparoscopic cholecystectomy continues to be the procedure of choice for nonmalignant gallbladder disease in the Gezira Centre for Endoscopic and Laparoscopic Surgery.

The conversion from laparoscopic cholecystectomy (LC) to open cholecystectomy (OC) results in a significant change in outcome for the patient because of the higher rate of postoperative complications and the longer hospital stay[5]. The conversion rate and complications associated with LC depend on the experience of the surgeon and the degree of difficulty faced during surgery, which can be affected by factors such as a history of previous abdominal surgery, recurrent attacks of cholecystitis, acute cholecystitis, advanced age of the patient or male gender[5-7]. Despite better training for surgeons, better laparoscopic tools, and endoscopic camera equipment, the conversion rate has remained relatively stable over time. Conversion should not be viewed as a complication.

The true complications of LC are haemorrhage, gallbladder perforation, bile leakage, bile duct injury, perihepatic collection, and visceral injury. Conversion may be required in certain situations and could help prevent these possible complications. Furthermore, some rare complications including external biliary fistula, wound sepsis, hematoma, foreign body inclusions, and adhesions have also been reported[8,9]. There are many studies in literature concerning the conversion rate for LC and the reasons for conversion. According to published studies in recent years, the conversion rates vary widely with a range of 2.6% to 7.7%[10 - 12]. In this study, the conversion rate of 5.1% fell within the rates reported in the literature.

As in this study, the literature indicates that the overriding parameter correlated with conversion to open cholecystectomy is the severity of the disease, such as inflammation in the area of the gallbladder, which makes dissection difficult[13,14,15]. In our series, the main reason for conversion was excessive adhesions which accounted for 3.10% and was comparable to what was reported in the study by VolkanGenc.et al[12] who found adhesions causing conversion in 2.05%.

The risk of wound infection following laparoscopic cholecystectomy in literature is less than 1% and the risk of incisional hernia is 0.5 %.[16, 17]. A corresponding wound problem rate of 0.75% was reported by Morgenstern for open cholecystectomy[18]. In this study wound infection was reported in 0.21 % and incisional port site hernia was found in 0.28 % of patients. The mortality rate of 0.21 % in our study is comparable with the 0.13% mortality rate reported by Wherry et al[13] in the department of defense in Maryland. Wherryet al [19] in another study done in the same department recorded a lower mortality rate of 0.04%.

Conclusion

Laparoscopic cholecystectomy in Gezira is a well-established service and it showed increasing popularity among patients and surgeons. A careful patient selection protocol is necessary for an acceptable success rate with minimal complications.

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