Laparoscopic Cholecystectomy in 2,750 Cases in a Teaching Hospital in Kuwait

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Key Words

Laparoscopic cholecystectomy · Acute cholecystitis ·
Endoscopic retrograde cholangiopancreatography ·
Common bile duct injury · Operative cholangiogram

Abstract

Objective: To retrospectively analyse all laparoscopic cholecystectomies performed between April 1992 and May 1999. **Methods:** Medical records of 2,750 patients, clinically diagnosed with gall bladder disease, were reviewed. We analysed the operative time, length of postoperative hospital stay, conversion rate, intra- and postoperative complications as well as management outcome. **Results:** The mean operative time was 59.2 min, and the mean postoperative hospital stay was 1.46 days. However, the majority of our patients (66.8%) were discharged after 1 day. The conversion rate was 3.8%, which was mainly due to acute gall bladder pathology. The postoperative complication rate was 4.6%; all cases were managed successfully with no mortality or delayed morbidity. **Conclusion:** Our findings indicate that laparoscopic cholecystectomy appears to be a safe and effective

procedure with low morbidity and no mortality. Therefore, it should be considered as the procedure of choice for patients with gall bladder disease.

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Introduction

Laparoscopic cholecystectomy has become the procedure of choice for management of gall bladder disease and has likewise gained worldwide acceptance [1, 2]. It was introduced in Kuwait in 1992, where the first centre to perform the procedure was Al-Amiri Hospital. However, concerns remain about its safety, owing to isolated reports of fatal complications [3, 4] and controversies concerning the management of common bile duct stones in the era of laparoscopic cholecystectomy [5, 6]. Consequently, we decided to analyse all laparoscopic cholecystectomies performed between April 1992 and May 1999 to determine operative time, conversion rate and its causes, length of postoperative hospital stay, and complications related to morbidity and mortality.

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Subjects and Methods

The medical records of 2,750 patients clinically diagnosed with gall bladder diseases at Al-Amiri Hospital, Kuwait between April 1992 and May 1999 were retrieved. There were 715 males and 2,035 females, ranging in age from 6 to 96 years (mean 40.2 years). Gall bladder disease was diagnosed on the basis of clinical history and ultrasound examination. The major indications for surgery included chronic calculous cholecystitis in 2,216 cases, acute calculous cholecystitis in 292 cases, biliary pancreatitis in 86 cases, and obstructive jaundice in 100 cases. Other indications are shown in table 1.

Laparoscopic cholecystectomy was performed electively in 2,343 cases, and on an urgent basis in 352 cases (during the same hospitalization and on the first operation list, while in 55 cases, the operation was done on an emergency basis (within 24 h from hospital admission); 330 patients had previous abdominal surgery, mainly appendectomies and caesarean sections.

Prophylactic antibiotics (cephalosporins) were given to all patients immediately before the induction of anaesthesia, and a nasogastric tube was inserted routinely in all patients during the perioperative period. Laparoscopic cholecystectomy was performed according to the standard technique as described elsewhere [7, 8], basically using four ports with insufflation of CO₂ through the umbilicus to establish the pneumoperitoneum. Exposure of the Calot's triangle as well as dissection of the gall bladder was done using a curved hook with monopolar electrocautery coagulation current, as previously described [9, 10].

As intraoperative cholangiogram was not done routinely in our practice, it was done only in 32 cases either when raised liver enzymes were present and endoscopic retrograde cholangiopancreatography (ERCP) could not be done or for training purposes. ERCP was performed pre-operatively in 299 cases when common bile duct stones were suspected because of elevated liver enzymes or a dilated common bile duct was detected by ultrasound. Common bile duct stones in 155 cases were removed by endoscopic sphincterotomy.

Results

The operative time ranged from 18 to 310 min (mean 59.2 min). The prolonged time was due to difficult procedure, especially in cases of acute cholecystitis. The postoperative hospital stay ranged from 1 to 40 days (mean 1.46 days). Our policy aimed to discharge patients on the 1st postoperative day. This was achieved in 1,838 patients (66.8%), and 495 patients (18%) were discharged after 2 days. The remaining 417 were discharged on the 3rd day or later following surgery, except for only 1 patient who had bile leakage that required recurrent percutaneous aspirations as well as ERCP; he was hospitalized for 40 days and eventually fully recovered. The reasons for prolonged hospital stay are shown in table 2.

We achieved an overall success rate of 96.2%, with a conversion rate of 3.8%. The reasons for conversion are shown in table 3: the leading cause was severe gall bladder pathology, including acute cholecystitis and empyema

Table 1. Indications for laparoscopic cholecystectomy

	Cases
Chronic calculous cholecystitis	2,216
Acute calculous cholecystitis	292
Biliary pancreatitis	86
Obstructive jaundice	100
Gall bladder polyps	35
Acalculous cholecystitis	7
Mucocele of the gall bladder	7
Cholangitis	1
Adenomyosis	2
Porcelain gall bladder	2
Gall bladder dyskinesia	2

Table 2. Reasons for prolonged hospital stay (more than 1 day)

Reason	Cases	
	n	%
Conversion	106	3.8
Gall bladder pathology	177	6.4
Patient's request	157	5.7
Major complications	39	1.4
Others (minor complications, medical illness, concomitant procedure, anaesthesia complications, etc.)	433	15.7

Table 3. Reasons for conversion

Reason for conversion	Cases
Gall bladder pathology	57
Adverse anatomy	30
Bile leak and stone spillage	21
Abdominal adhesions	20
Cystic artery bleeding	16
Duodenal and small intestine injury	3
Common bile duct injury	3

where the anatomy was obscure and dissection difficult. Conversion, mandatory in 22 cases, was due to uncontrolled bleeding in 16 cases, duodenal and small intestinal injury in 3, and common bile duct injury in 3. The duodenal injury was due to a small laceration caused by the diathermy hook. It was repaired immediately and the patient

Table 4. Postoperative complications

Type of complication	Cases
Wound complications	63
Retained stones	16
Abdominal collection	13
Bleeding	13
Bile leak	11
Pancreatitis	6
Intestinal obstruction	5
Mortality	0

fully recovered. The small intestinal injury was due to port insertion caused by adhesions from previous surgery. The common bile duct injuries, recognized intraoperatively, were minor lacerations that were repaired immediately after converting to open cholecystectomy. All patients did well; they were discharged in good condition and on follow-up had no delayed morbidity.

Our postoperative complications, totalling 127 cases, are shown in table 4. Among the 11 cases of bile leak, the source was cystic duct in 7, liver bed in 1, no identifiable source in 1, failed ERCP in 1, and refusal of ERCP in 1. Re-operation was necessary in 7 cases.

The 13 cases of postoperative bleeding all needed laparotomy. The source of the bleeding was from the cystic artery in 3 cases, gall bladder bed in 5, umbilical port in 4, and no identifiable source in 1. Postoperative wound complications were found in 63 cases in the form of minor infections, haematomas, and keloid formation. Incisional hernia at the umbilical port was found in 12 cases.

Postoperative ERCP was done in 36 cases, mainly to deal with complications such as bile leakage, pancreatitis and retained stones; all were successfully managed by ERCP and papillotomy. We also had 5 cases of intestinal obstruction, 3 of which were due to prolonged ileus. The 2 remaining cases were due to the small bowel knuckled into the umbilical port; 1 was managed by laparotomy and the other by laparoscopy.

Discussion

Laparoscopic cholecystectomy has the major advantage of reducing tissue trauma since the resulting wounds are small, significantly reducing length of hospital stay as well as postoperative analgesia and complications. In our practice, 66% of the patients were discharged after 1 day

and another 18% after 2 days consistent with a previous report [11]. Pain control was achieved by NSAIDS in the majority of cases and few required stronger analgesia.

However, since laparoscopic cholecystectomy was introduced, questions about its safety remain concerning serious complications and increased common bile duct injuries [12, 13]. In our practice, the major complication rate was 1.7%, attributable to 3 cases of minor common bile duct injury. This low rate, consistent with that in the literature [13–15], reflects our policy of meticulously dissecting the junction between the cystic duct and Hartman's pouch of the gall bladder to ensure that the anatomy of the Calot's triangle is clearly visible; if the anatomy remains obscure, we immediately convert [16].

We did not do routine intraoperative cholangiogram as this involves additional expense and increased operating time, as previously reported [17]. Instead, we relied basically on ERCP to diagnose and manage suspected common bile duct stones both pre- and postoperatively as well as to manage postoperative complications such as bile leak, retained stones and pancreatitis, as done by others [18–20].

Conclusion

In our experience, laparoscopic cholecystectomy appears to be a safe and effective procedure, with a low rate of morbidity and no mortality. Therefore it should be the procedure of choice in managing gall bladder disease.

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