OUR FIRST HUNDRED LAPAROSCOPIC CHOLECYSTECTOMIES

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ABSTRACT

Hundred patients with symptomatic gallstone disease underwent laparoscopic cholecystectomy between June 1996 and August 1997. There were 78 females and 22 males, with a mean age of 46.2 (SD 17.8; range 21 to 85) years. The common presentations were right upper abdominal pain (n=66), acute cholecystitis (n=8) and history of jaundice (n=11). Sixteen patients underwent ERCP for suspected CBD stones. Endoscopic papillotomy and basketing cleared the CBD of all calculi in 12. Three patients required conversion to open cholecystectomy because of dense adhesions (n=2) and to control intraoperative haemorrhage (n=1). Mean operating time was 67.2 (SD 39.2; range 22 to 186) minutes. The mean requirement of analgesics was 2.8 (SD 1.3; range 2 to 5) doses and post-operative hospital stay was 1.6 (SD 1.4; range 1 to 7) days. All patients resumed normal activity within 14 days of operation and are well and satisfied with their operation at a median follow up of 8.6 months.

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KEYWORDS : Choledocholithiasis; Cholelithiasis; Laparoscopic cholecystectomy.

Introduction

Laparoscopic cholecystectomy is now being considered the new "Gold Standard" for the treatment of symptomatic gallstone disease in the west since 80-90 per cent of their patients are being operated by this technique [1-4], and a number of reports have shown that even patients with acute cholecystitis, Mirizzi's syndrome, cholecystocolic fistulae and pregnancy can be safely operated upon by this technique [5-8]. A higher rate of complications and conversion to open operation are reported to occur early in the learning curve, mostly during a surgeon's first dozen laparoscopic cholecystectomies, and in hospitals which have done less than a 100 procedures [9-10]. We present our experience of performing the first 100 laparoscopic cholecystectomies at Army Hospital (R&R), Delhi.

Material and Methods

All consecutive patients with symptomatic gallstone disease referred between June 1996 to August 1997 were considered for cholecystectomy by the laparoscopic technique. The diagnosis of gall stones was confirmed by ultrasound scan (USS). An endoscopic retrograde cholangiopancreatography (ERCP) was performed if the patient gave history of jaundice, the serum alkaline phosphatase was elevated or USS revealed a dilated common bile duct (CBD). An endoscopic papillotomy (EPT) and extraction of the stone was attempted if ERCP confirmed the presence of a CBD calculus of less than one cm in diameter.

Patients with previous upper abdominal operations, ongoing jaundice, acute pancreatitis, portal hypertension, a right upper abdominal lump (pericholecystic phlegmon), those with CBD calculi larger than one cm and suspicion of gallbladder malignancy were

not taken up for laparoscopic cholecystectomy. However, early pregnancy, acute cholecystitis, obesity, a lower abdominal scar, associated medical illness or advanced age was not considered a bar for the laparoscopic procedure.

The operative procedure was explained to the patient and informed consent obtained to convert to open cholecystectomy, if needed. All patients were operated under general anaesthesia with continuous monitoring of the EKG, arterial blood pressure and end-tidal carbon dioxide. Pneumoperitoneum was created by insufflating carbon dioxide through the Verres' needle inserted into the peritoneal cavity, through a transverse supra-umbilical incision and maintained at a pressure of 12-14 mmHg. The ports used were supraumbilical, epigastric (10mm each), right upper quadrant and right lumbar (5mm each) in that sequence; only the first trocar entry being blind.

The cystic duct and artery were carefully dissected free and divided between medium large titanium clips. The gallbladder was then dissected off its liver bed by blunt and sharp dissection and extracted through the epigastric port, dilating the opening in the linea alba if needed. In case any stones or bile spilled into the peritoneal cavity due to an inadvertent tear in the gallbladder, efforts were made to suck out all the bile and debris. Larger stones were picked up individually or placed in a sterile plastic bag and removed from the abdomen, after the gallbladder had been extracted.

A negative suction drain was left in the sub-hepatic space if, there had been spillage of bile or pus, or if extensive dissection had been done. All patients were given 4 mg of ondansetron (Emset/Zofer) diluted in 500 ml of intravenous fluid at the end of the operation, to prevent the severe nausea which is common after a pneumoperitoneum. A nasogastric tube was passed only if on laparoscopy the stomach or duodenum were found to obscure the operating field and was removed at the time of endotracheal extubation.

The patients were given one dose of intravenous ciprofloxacin and metronidazole pre-operatively and continued till next morning

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or till intravenous fluids were continued, whichever was later. Par-enteral diclofenac sodium was used for analgesia, on demand. The patients were permitted to have oral fluids in the evening of the operation if they did not have nausea and encouraged to walk to the toilet. They were discharged from hospital when independently ambulant and accepting semisolid diet and called for review in the OPD eight days after surgery for suture removal and 21 days later, to assess return to routine pre-operative activity.

The intraoperative difficulties and post-operative complications were noted. Post-operative morbidity was assessed by the number of doses of analgesics required and the duration of post-operative ileus. The duration of hospital stay and number of days taken to return to normal work were recorded.

Results

One hundred and twenty three consecutive patients with symptomatic gallstone disease were referred to us from June 1996 to August 1997. Of them 100 underwent laparoscopic cholecystectomy. The reasons for not performing the laparoscopic operation in 23 patients are detailed in Table 1. There were 78 females and 22 males. The mean age was 46.2 (SD 17.8; range 21 to 85) years. The commonest clinical presentation was right upper abdominal pain (n=66). Nine patients had clinical and USS features of acute cholecystitis and 11 had past history of jaundice.

TABLE 1
Reasons for not performing laparoscopic cholecystectomy in 23/123 patients

Reason	n	(%)
Jaundice	12	(52)
CBD calculi > 1 cm in diam	3	(22)
Failure of EPT and basketing	2	
Gall bladder mass (suspected malignancy)	6	(26)
Total	23/123	(19)

Sixteen patients underwent ERCP for suspected CBD stones. Endoscopic papillotomy and basketing cleared the CBD of all calculi in 12; in two (12.5%) no stones were found in the CBD. All 14 later underwent laparoscopic cholecystectomy. In two patients (14%) however, endoscopic basketing failed to clear the CBD of all the calculi and they underwent conventional cholecystectomy and choledocholithotomy.

Sixty one of the 100 patients had one or more associated medical illness besides gallstone disease and 37 had a lower abdominal scar of a previous pelvic operation; tubectomy (n=15), lower segment caesarean section (n=10) and hysterectomy (n=12).

The operative findings are detailed in Table 2. Intraoperative difficulties were encountered in 26 patients. Eleven had a distended gallbladder containing mucous or pus which required aspiration before it could be grasped. Five patients had bleeding from the cystic artery or its branch to the cystic duct and two had a spurter from the liver bed. In 6 the bleeding could be controlled by clipping or cautery, however, one patient required conversion to open laparotomy to control haemorrhage from the cystic artery. Dense adhesions were found in 8 patients, 2 of whom had to be converted to open cholecystectomy. One had undergone ERCP for suspicion of CBD calculi. Although no calculi were found in the CBD, he developed post ERCP infection. Laparoscopy after seven days of antibiotics revealed a thick walled gallbladder with dense peri-cholecystic adhesions containing thick pus. The gallbladder

was nicked in 18; discharging mucopus in 8 and all its contents in 10. Twelve patients required tube drainage for 24 hours post-operatively.

TABLE 2
Operative finding in 100 laparoscopic cholecystectomies

Findings	n
Thin walled gall bladder, multiple stones	72
Thick walled contracted gall bladder	12
Mucocele	7
Acute cholecystitis	5
Empyema	4

Five patients had ileus lasting for more than 48 hours. All 5 had chronic cholecystitis with thick walled gallbladder which were difficult to dissect off the liver bed. In 3 the gallbladder had been inadvertently perforated spilling stones and bile/mucous. One patient developed hypotension and tachycardia 24 hours after surgery. Ultrasound revealed a subphrenic collection. On exploration the clips on the cystic duct stump were found to have slipped off. The stump was ligated, following which she had an uneventful recovery.

The mean operation time was 67.5 (SD 39.2; range 22 to 186) minutes. The mean requirement of analgesics was 2.8 (SD 1.3; range 2 to 5) doses. The mean post-operative hospital stay of the patients undergoing a successful laparoscopic procedure was 1.6 (SD 1.4; range 1 to 7) days.

All patients except those who underwent conversion to the open procedure, resumed their normal pre-operative activity within 14 days of discharge from hospital. Eightyseven have been followed up for a median period of 8.6 (range 1 to 16) months. All patients have remained well and are satisfied with the outcome of surgery. One patient had persistent port site infection which settled after dressings for one month. Twelve patients complained of persistent epigastric port site pain on review and three had pain referred to the shoulder tip.

Discussion

We, in our initial experience of the first 100 procedures have had only one serious post-operative complication, and have had to convert to an open cholecystectomy in 3 patients, inspite of not following any preoperative case selection criteria except to exclude patients with portal hypertension, large CBD stones, ongoing jaundice, pancreatitis, or suspicion of malignancy which are considered contraindications for the laparoscopic procedure [2]. Most of the intraoperative problems of bleeding and spilled stones that we faced could be overcome without conversion.

The mean operating time, the duration of hospital stay and the time to return to normal activity in our patients and that reported in other series [11-14] is comparable (Table 3). These good results may be because the number of procedures done are few, although complications occur more commonly early in the learning curve, mostly during a surgeon's first

dozen or so laparoscopic cholecystectomies and in hospitals which have done less than a 100 procedures [9,10]. This was perhaps because we were extremely aware of the possibility of such an occurrence leading to adverse publicity and were particularly careful in avoiding blind clipping and indiscriminate use of electrocautery close to the CBD, which are considered the usual causes of bile duct injury; the commonest and most morbid complication of laparoscopic cholecystectomy [10].

TABLE 3
Comparison of morbidity/mortality data following laparoscopic cholecystectomy

Factors	[7]	[8]	[9]	[10]	Present study
No. of patients	1,518	800	375	78,748	100
Conversion rate (%)	4.7	2.3	5.0	5.3	3
Operation time (min)	90	86	102	89	68
Complications (%)	5.1	3.1	3.5	4.6	1
Mortality (%)	0.07	0.13	0.3	0.15	Nil
Post-op hospital stay (d)	1.2	0.89	1.3	1.6	1.6
Return to activity (d)	< 10	8.4	7	NG	< 14

NG - not given

The rate of conversion to the open procedure is higher in patients with a palpable mass in the right upper abdomen, a contracted thick walled gallbladder, in the male [15,16] and during the learning curve of the surgeon [17,18]. However, with experience in the handling of instruments and better co-ordination between members of the operating team, most gallbladders can be safely removed by this technique.

Fairly strict guidelines for training, credentialling and privileging have been laid down by the Abington Memorial Hospital, Philadelphia [19]. We should perhaps suitably modify these criteria to ensure that our surgeons are well trained, so as to minimise the incidence of complications.

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