

Complications of Laparoscopic Cholecystectomy: A Cause For Concern

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SUMMARY

Laparoscopic Cholecystectomy (LC) has been accepted as a procedure of choice in the treatment of symptomatic gall stones. Over a period of 2 years, the authors have managed 6 cases with major complications related to this new procedure. Two of the 6 cases were indigenous, the remaining four were from various hospitals in the region. One out of 6 cases succumbed to the visceral and vascular injury sustained during laparoscopic cholecystectomy on account of late presentation. Various complications of laparoscopic cholecystectomy and the problem of under reporting particularly for the developing countries is high lighted. During the initial period of use of this technique, the complications rate is much higher than the standard procedure of open cholecystectomy. Hence the need for supervised training and regular auditing of the results.

INTRODUCTION

Over a short period of 6 years laparoscopic cholecystectomy has been widely accepted as the procedure of choice for symptomatic gall stones throughout the world¹⁻³. The enthusiasm in the surgical community for this novel procedure has grown tremendously due to the increased demand by the patient for a procedure which is minimally invasive, and rapid development in the equipment and instrumentation by the manufacturers. With the introduction and the wide spread use of this new technique, there has come a learning period in which inexperience and overenthusiasm has resulted in a higher initial complications rate¹⁻⁶. In Lahore (Punjab) Laparoscopic cholecystectomy was first performed in 1992 and is now carried out at a number of medical centres mainly in the private sector. During the last 2 years (1992-1994) at Shaikh Zayed Hospital Lahore, the authors have managed 6 patients with complications related to laparoscopic cholecystectomy.

PATIENTS AND METHODS

The present study comprises of 6 patients managed in the department of Surgery over a period

of two years. Of these, 2 cases (Case 1, case 4) underwent laparoscopic cholecystectomy at this hospital, and the remaining four cases had the procedures carried out at other hospitals.

Case 1

A 51 years old female with a history of flatulent dyspepsia and gallstone colic, of 24 years underwent laparoscopic cholecystectomy. She continued to have ileus until the 6th post-operative day, when she was explored and found to have a Richter's hernia through the umbilical port; the gut was viable. Her further postoperative course was uneventful.

Case 2

A 53 year old obese hypertensive lady was admitted to CCU (Coronary Care Unit) in profound shock. She had undergone laparoscopic cholecystectomy 5 days ago, and had been unwell ever since. On examination she was restless, confused toxic, anaemic and hypotensive. Altered blood was leaking out of the trocar holes. She was explored after resuscitation and was found to have her abdomen full of faecal matter and blood. There were perforations of the transverse colon through the anterior and posterior wall and a linear tear in the transverse mesocolon. A loop colostomy and

peritoneal toilet was carried out. Unfortunately she couldn't recover from the shock and respiratory failure and died 12 hours after the exploration.

Case 3

A 42 year old housewife presented to the gastroenterologist with jaundice, and painful abdomen, for ERCP. She had undergone laparoscopic cholecystectomy 7 days back. ERCP could not visualize the common bile duct and there was extravasation of the contrast. On exploration it was found that her common bile duct had been completely ablated with diathermy. A Roux-en-Y hepaticojejunostomy was successfully performed. Her post operative recovery was smooth and she regained health gradually. She remains well at 2 year follow-up.

Case 4

A 50 years old housewife with 2 years history of symptomatic gall stones was admitted for laparoscopic cholecystectomy. Per operatively the gall bladder was thick-walled and porta hepatis showed signs of acute on chronic inflammation. During the dissection of Calot's triangle, bile leak was noticed. The procedure was converted to open exploration, which revealed a linear tear in common hepatic duct caused by the sharp tip of the dissecting forceps. The C.H.D. was repaired with vicryl 4/0 over a T-tube brought out through a separate choledochotomy. Her recovery was smooth and the T-tube was removed after 6 weeks, following a normal post-op cholangiogram. She has remained asymptomatic after 1 year follow up.

Case 5

A 38 years old housewife underwent laparoscopic cholecystectomy for gallstone disease. Post-operatively she developed biliary peritonitis for which a laparotomy was done. Bile leak couldn't be identified and an appendectomy was performed. She continued to deteriorate, when on day 16 of initial surgery she was referred to this hospital. On exploration she had biliary peritonitis due to a complete transection of common hepatic duct which was also partially ligated with a clip. A Roux-en-Y hepaticojejunostomy was performed. Her post operative recovery was slow but gradual and she was discharged 3 weeks later. She remains well after 6 months follow up.

Case 6

A 45 year old male diabetic underwent laparoscopic cholecystectomy for gall stones. The procedure was converted to open cholecystectomy due to perforation of the gall bladder and moderate bleeding. Two months later he developed an abscess in the lateral part of the transverse incision, which burst out discharging pus. He continued to have a purulent discharge from the sinus for about 3 weeks when he presented at this hospital. On exploration, the track was found to lead to a cavity in the sub-hepatic space containing two residual stones (1×1 cm and 0.5×0.5 cm size). Excision of the track and stone removal lead to complete healing of the sinus in two weeks time.

DISCUSSION

The recent revolution in Laparoscopic Surgery popularly called minimally invasive surgery is still in progress. Most laparoscopic surgeons would agree that the nature of instrumentation means that operative measures are less dextrous than at open surgery. The lack of tactile feed-back, two dimensional view, and imperfection of hand-eye co-ordination in laparoscopic surgery is responsible for unnecessary manipulations, leading to operative complications. It would be logical to presume that the complications of laparoscopic surgery are the same as would be expected in open cholecystectomy along with the added complications of laparoscopy i.e insertion of various cannulae, and pneumoperitoneum⁷⁻¹⁰. These complications may be classified into 3 groups, according to the stages of the procedure.

- I. Insertion of veress needle and cannulae and insufflation (pneumoperitoneum).
- II. Dissection of the gall bladder especially the hilar dissection.
- III. Extraction of gall bladder (intact) alongwith its stone load.

In the present series of 6 patients, first two cases belonged to group I, and next 3 to group II, and the last case to group III. One of the patients with colonic and mesenteric injuries, caused by the epigastric cannula presented late (5 days) and died

Table 1:

Sr. No.	No. of Patients	Total (Major) complications		Major bleeding injury		Biliary injury		Bowel injury	
		No.	%	No.	%	No.	%	No.	%
1.	1,518	78	5.1	5	0.3	7	0.5	4	0.3
2.	1,236	15	1.2	11	0.9	4	0.30	0	0.0
3.	500	4	1.25	1	0.2	0	0.0	2	0.4
4.	1,983	43	2.2	7	0.4	5	0.3	1	0.1
5.	800	26	3.3	3	0.4	0	0.0	2	0.3
6.	2,201	263	12	95	4.3	3	0.1	5	0.2
7.	618	23	3.7	0	0.0	1	0.2	1	0.2

Data based on Southern Surgeons Club Analysis¹⁰

of hypovolemia and sepsis (mortality rate of 16.3%). This however does not represent the true mortality of major complications as in four out of these six cases, laparoscopic cholecystectomy was performed elsewhere in various hospitals and the relevant data is not available.

Major complications related to laparoscopic cholecystectomy are reported to be in the range of 1-7%, in the western world⁸. No data is available on the incidence of complications from this region except for an occasional report¹¹.

At Shaikh Zayed Hospital, Lahore the incidence of complications related to laparoscopic cholecystectomy has been biliary injury 1% and Richter's hernia 1% during the first consecutive 100 patients (Paper submitted for publication). Both of these complications occurred during the first 10 cases (1st to 10th). This is in accordance with the view that the steepest part of the learning curve comprises of the first 12 cases and that proctoring should cover this initial period⁹⁻¹².

The gravity of the problem is highlighted by a recent report. In the New York State between August 1990, and March 1992 a total of 158 adverse incidents involving laparoscopic cholecystectomy were reported to the State department of Health and 72% of incidents required operative surgical repair. A total of 29 bile duct injuries. This represents 25 fold increase for this complication reported during the preceding 10 years¹³. Table 1 presents a review of major complications in various series of Laparoscopic cholecystectomy from Western Europe and North America, whereas Table 2 gives the incidence of bile duct injuries or collected from the audit reports. The actual incidence of bile duct injury during laparoscopic surgery may be higher.

Table 2: Incidence of bile duct injury.

Audit	No. of Patients	Bile Duct Injury (%)
USA	1771	0.2
England	2131	0.3
Switzerland	1091	0.46
Belgium	3244	0.5
Deziel et al. (USA)	77604	0.59
Singapore	1000	0.9
Japan	2888	0.9

Source Reference 15.

Of the various complications related to Laparoscopic cholecystectomy the most important and potentially fatal complications are injuries to the bile duct, bowel and blood vessels. Major bleeding and bowel injury undiagnosed at the time of laparoscopy was responsible for death of one of the patients in this series. Other complications which have been reported are bile leaks, biloma and abdominal wall metastasis from carcinoma of the gall bladder^{14,15}. Unfortunately the evolution of this new era of surgery has been poorly controlled and audited. This calls for proctoring which means supervision by an experienced colleague of the initial cases of a surgeon who is undertaking a technique new to him.

The present series is an account of a small number of patients who suffered from potentially lethal complications following laparoscopic cholecystectomy, and may represent only the tip of the iceberg.

We conclude that although in the developed countries laparoscopic cholecystectomy has been accepted as a procedure of choice¹⁵ yet in our region it remains to be proven that laparoscopic cholecystectomy can match the safety of the "Gold standard", i.e. the procedure of an open cholecystectomy.

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