

LAPAROSCOPIC CHOLECYSTECTOMY IN CIRRHOTIC PATIENTS

ORIGINAL
PROF-1911

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ABSTRACT... Objective: It was conducted to evaluate laparoscopic cholecystectomy in cirrhotics in terms of procedural safety and better outcome with decreased morbidity. **Study Design:** A retrospective, multicenteric study. **Setting:** Surgical Unit-III and IV DHQ Faisalabad. **Period:** Jan 2000 to Dec 2009. **Methods:** 2610 patients undergoing laparoscopic cholecystectomy from January 2000 to December 2009 for cholecystitis and symptomatic gallstone disease. 61 of the patients being cirrhotics falling in child's class A&B. Evaluation of results was done by analyzing the data in SPSS V-17. **Results:** of the 2610 patients who underwent laparoscopic cholecystectomy, 61(2.3%) were cirrhotic. Of these 61, 47(77%) belonged to Childs group A and 14(23%) were group B. Hepatitis C was the major cause of cirrhosis (72%). Morbidity in cirrhotics was 11.4% in the form of ascities leakage (57%) and port site infection (43%). Mean hospital stay was 2 ± 1 days and the mean operative time as 60 ± 20 minutes in cirrhotics. **Conclusions:** Laparoscopic cholecystectomy offers a better post op recovery and decreased morbidity in Childs group A & B cirrhotics as it does in non cirrhotic patients.

Key words: Laparoscopic cholecystectomy, cirrhotics,

INTRODUCTION

Gallstone disease is a common presentation in surgical outpatient departments throughout the world with a prevalence of about 20% of adult population in western world. Because of high prevalence of Hepatitis B (6%) and Hepatitis C(14%) infection, cirrhosis of liver is becoming a major problem in our community. Cirrhotic patients have two times more incidence of having gall stones as compared to noncirrhotic patients¹ most probably because of high bilirubin and low bile salts concentration of bile and altered gallbladder (GB) motility^{2,3}.

Cirrhotic patients may also have other complications like bleeding disorders, platelet deficiency, hypo-albuminaemia, ascities and portal hypertension. Also the liver may be enlarged or shrunken with fibrosis making it harder and difficult to retract.

Coagulopathy and portal hypertension, both, increase the amount of blood loss during gallstone surgery in cirrhotic patients. In cirrhotic patients almost all surgical procedures in general and abdominal surgery in particular are associated with more complications like excessive blood loss, ascities leakage, wound sepsis/disruption, renal & hepatic failure than surgery in non cirrhotic patients¹.

Without any doubt laparoscopic cholecystectomy (LC) is considered a "gold standard" in treating benign GB diseases⁴⁻⁷. Although initially a contra-indication,⁸ LC is considered by many authors to be a procedure safer than open cholecystectomy in patients with cirrhosis of liver, with complication rate not significantly greater than LC in non cirrhotic patients⁹.

Present study was designed to see the outcome of LC in cirrhotic patients operated at our center and compare it with experience of other people doing LC in cirrhotic patients.

Objectives

To study the safety of LC in cirrhotic patients and the difficulties encountered in these patients.

Study design

Retrospective case series

Settings

Surgical unit III (Allied Hospital, Faisalabad) and Surgical unit IV (DHQ Hospital, Faisalabad)

Duration of study

9 years (January 2000 to December 2009)

METHODS AND MATERIAL

During this period (Jan 2000 to Dec 2009) 2610 patients underwent LC in our unit by well trained surgical team. In this, were also included the cases operated at private hospital (Saad surgimed hospital, satiana road, Faisalabad) by the same team during this period. Out of these patients 61 patients were cirrhotic, diagnosed pre-operatively with ultrasonography (49) or per-operatively (12) when having a nodular liver.

All patients were worked up pre-operatively and had different lab investigations including complete blood examination, blood sugar, blood urea, serum electrolytes, liver function tests (LFT's), serum albumin and prothrombin time (PT). patients having PT > 20sec(normal being 14sec) were given Vitamin K ± fresh frozen plasma (FFP) and surgery was done once PT was corrected.

Only patients in Child-Pugh class A&B were operated. Child-Pugh class C patients were referred to physician for management.

LC was performed with standard 4 port technique. Pneumoperitoneum was introduced mostly by veress needle except in few patients with previous abdominal surgery where open technique was used.

In cases where dissection from GB fossa was difficult subtotal cholecystectomy was performed (5), leaving the posterior wall and the mucosa was cauterized by electrocautry.

Patients' information along with duration of surgery, per-operative and post-operative complications was recorded.

RESULTS

Out of 2610 patients, 61 cirrhotic patients who underwent LC, 47 patients were in Child-Pugh Class A and 14 patients were in Child-Pugh Class B. 42 patients were female and 19 patients were male. 44 patients were having cirrhosis because of Hepatitis C, 13 patients were having cirrhosis because of Hepatitis B and 2 patients were having cirrhosis because of both Hepatitis B and C. In 2 patients the cause was not known.

Table-I. Patient's demographics (n=2610)

| | |
|--------------------|----------|
| Cirrhotics | 61 |
| Non cirrhotics | 2549 |
| Mean age | 43 years |
| Sex | |
| Male | 451 |
| Female | 2159 |
| Child Pugh Class A | 47 |
| Child Pugh Class B | 14 |
| Hepatitis B | 18 |
| Hepatitis C | 62 |
| Hepatitis B & C | 03 |

Mean operative time was 60±20 minutes. 34 patients were having chronic cholecystitis, 13 were having acute cholecystitis and 14 patients were having gallstones with normal GB. 56 patients had complete cholecystectomy and 5 had subtotal cholecystectomy.

7 patients had bleeding from GB fossa, among these, 5 were managed laparoscopically with electrocautry and spongiston/surgicell, and 2 patients required conversion to open surgery. Another 2 were converted to open because of massive adhesions and difficult dissection making a total of 4(6.5%) patients converted to open cholecystectomy.

Although liver was difficult to retract as compared to non cirrhotic liver but posed no problem in dissection at Calot's Triangle.

Slight disturbance in LFT's for a short period was observed in 42 cirrhotic patients.

13 patients had post-operative ascities with leakage through the port site (mostly umbilical port site) in 4 patients. All were managed with the help of physician by diuretics and spiranolactone. Only 1 patient was given salt free albumin.

1 patient had an unusual complication. She failed to recover out of anesthesia after an easy and straight

Table-II. Status of liver * post operative LFT's Crosstabulation

| | | Post operative LFT's | | Total |
|-----------------|---------------|----------------------|---------------------|-------|
| | | Disturbed | Within normal range | |
| Status of liver | Cirrhotic | 42 | 19 | 61 |
| | Non cirrhotic | 10 | 2539 | 2549 |
| Total | | 52 | 2558 | 2610 |

Table-III. Hepatitis status on screening * intra operative type of cholecystectomy done Crosstabulation

| | | Intra operative type of cholecystectomy done | | Total |
|-------------------------------|-------------|--|--------------------------|-------|
| | | Complete Cholecystectomy | Subtotal Cholecystectomy | |
| Hepatitis status on screening | Hep B+ve | 13 | 05 | 18 |
| | Hep C +ve | 61 | 01 | 62 |
| | Hep B&C +ve | 03 | - | 03 |
| | None | 2526 | 01 | 2527 |
| Total | | 2603 | 07 | 2610 |

forward surgery that lasted 30 minutes. Patient was in Child-Pugh Class A with normal LFT's. She remained on ventilator for 14 hours and then recovered completely leaving many speculations with anesthetist but no definitive reason.

Post-operatively 17 patients had bruise at port site and 3 patients had minor sepsis at epigastric port site through which the GB was delivered. Although there was no case of major sepsis, peritonitis, bile leak, reactionary haemorrhage and renal or hepatic failure. There was no mortality.

DISCUSSION

Different studies have shown that the frequency of cholelithiasis in patients with cirrhosis is almost 30% that

Table-IV. Surgery outcome (n=61)

| | |
|------------------------------------|-------|
| Operative time (minutes) | 60±20 |
| Hospital stay (days) | 2±1 |
| Conversion to open | 4 |
| Bleeding from GB fossa | 7 |
| Time to start oral feeding (hours) | 8-12 |

Table-V. Causes of morbidity (n=61)

| | |
|---------------------|----|
| Trocar site bruise | 17 |
| Ascities | 13 |
| Ascities leakage | 04 |
| Port site infection | 03 |
| LFT's derangement | 42 |

is more than twice in the non cirrhotic patients,¹⁰⁻¹¹ most probably because of hypersplenism, increased levels of estrogen and increased intravascular hemolysis with reduction in GB motility¹².

Open surgery in cirrhotic patients is always associated with more complications like blood loss, wound sepsis, ascities leakage and post-operative renal and hepatic failure as compared to non cirrhotic patients.

LC is the gold standard procedure for cholelithiasis in non cirrhotic patients and is now also considered a safe procedure in cirrhotic patients¹³.

In cirrhotic patients because of portal hypertension and direct drainage of GB venous blood to liver, there is more risk of bleeding specially while dissecting through GB fossa as compared to non cirrhotic patients.

This can be prevented by keeping the dissection close to the GB, judicious use of electrocautry or harmonic dissector and in some cases by subtotal cholecystectomy that is by leaving the posterior wall of GB behind^{12,13}.

If bleeding occurs it can be managed laparoscopically in

Table-VI. Descriptive statistics

| | N | Range | Minimum | Maximum | Mean | Std. Deviation |
|---------------------------|-----------|-----------|-----------|-----------|-----------|----------------|
| | Statistic | Statistic | Statistic | Statistic | Statistic | Std. Error |
| Operation time in minutes | 61 | 40.0 | 40.0 | 80.0 | 60.885 | 1.1123 |
| Valid N (list wise) | 61 | - | - | - | - | - |

most of the patients with spongistion or sometimes by conversion to open procedure. Rarely blood loss is sufficient enough to require blood transfusion. In different studies it was found that average blood loss with open cholecystectomy is almost double to LC.

In our study in 2 patients it was not possible to control bleeding laparoscopically and was converted to open. Both required post operative blood transfusion.

In some patients either cirrhotic or non cirrhotic it is technically difficult to have safe dissection of GB with laparoscope and one has to convert it to open cholecystectomy. In this study 2 patients were converted to open procedure because of difficult dissection and conversion rate was almost same or even lesser than reported in many studies and it was not significantly different from conversion rate of non cirrhotic LC.

Laparoscopic surgery is also associated with fewer adhesions as compared to open surgery and it may be of further advantage in cirrhotic patients who may need to have liver transplant in future.

Hepatitis C virus was the main culprit for cirrhosis of liver in our study as it is in many parts of the world. In developed world a major reason of cirrhosis of liver is alcohol.

Mean operative time in our study was 60 ± 20 minutes. Almost similar results were shown in other studies. Post operative deterioration in LFT's was noted in 42 patients although transiently but had no affect on morbidity.

Most of the patients were discharged from the hospital after 24 hours with mean hospital stay of 2 ± 1 days.

Post operative oral diet took almost 2.5 times more time

to start in open versus LC.

Post operative complication rate is also more than 2 times in open than LC.

Hospital stay after open cholecystectomy is almost 3 times than LC.

One of the post operative complications in cirrhotic patients is leakage of ascities which can be difficult to control after open surgery. But after laparoscopic cholecystectomy in cirrhotic patients ascities leak was easy to control and can be managed with medical treatment especially in Child-Pugh Class A and B patients.

Wound complications after LC in cirrhotic patients are not significantly greater than after LC in non cirrhotic patients, but are significantly low when compared with open cholecystectomy.

In our study like many other studies mortality was zero percent as all patients were in Child-Pugh Class A and B and many authors take Child Pugh Class A as non cirrhotic because of similar rate of complications. While some studies claim up to 83.3% mortality after open cholecystectomy.

CONCLUSIONS

LC in Child-Pugh Class A and B cirrhotic patients is safer and complication rate is not more than that of LC in non cirrhotics but significantly lower than open cholecystectomy.

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Article received on: 06/01/2012

Accepted for Publication: 10/03/2012

Received after proof reading: 10/05/2012

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Article Citation:

Sajid M, Misbah J. Laparoscopic cholecystectomy in cirrhotic patients. Professional Med J Jun 2012;19(3): 364-368.

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