Original Article

Laparoscopic Cholecystectomy in Cirrhotic Patients

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Background: Laparoscopic cholecystectomy (LC) has become the procedure of choice in symptomatic gallstones. However its safety and efficacy in cirrhotic patients is less well documented. This study was conducted to compare the results of LC in cirrhotics and non cirrhotics.

Methods: Between January 2001 to Dec 2007, a total of 488 Laparoscopic Cholecystectomies were performed, among them 52 patients were cirrhotic who had well compensated disease (Child's class A or B) with symptomatic gallstones and were not responding to conservative treatment. Postoperative complications and conversion rate was analyzed in both cirrhotic and non cirrhotic patients who underwent LC.

Results: There was no operative mortality and no intraoperative or postoperative complication seen. However the rate of conversion from LC to open Cholecystectomy was higher (i.e; 8%) in cirrhotic patients than non cirrhotics (4%). The average time for surgery in cirrhotic patients was 83 minutes while in non cirrhotics was 60 minutes. The mean hospital stay is almost same i.e; 2 days.

Conclusion: Laparoscopic Cholecystectomy is as safe in cirrhotic patients as in non cirrhotics especially of Child's class A & B. These patients had the same recovery time and mean hospital stay; moreover complications can be nil in experienced hands.

Key Words: Cholecystectomy, Laparoscopic Cholecystectomy, Cholelithiasis.

Introduction

Liver cirrhosis due to viral Hepatitis B & C is one of the commonest cause of morbidity and mortality amongst Pakistani population.[1,2] Patients suffering from chronic liver disease have been associated with gallstones and their frequency is 4 to 5 times higher than general population.[3] This increased incidence of cholelithiasis in patients with cirrhosis is due to intravascular haemolysis and functional alterations of gallbladder.[4] Laparoscopic cholecystectomy is the first line surgical treatment of symptomatic gallstones.[5] Previous studies have reported the benefits of laparoscopic cholecystectomy in non cirrhotic patients but its advantage in cirrhotic patients is less well documented. The aim of this study was to review our experience with LC performed in patients with cirrhosis and to evaluate its benefits and risks in comparison with a group of non cirrhotic patients.

Patients and Methods

Between January 2001 to December 2007, a total of 488 laparoscopic cholecystectomies were performed; among them 52 were cirrhotic and 436 were non cirrhotic. All patients who underwent LC were divided in two groups; group A included cirrhotic patients while group B had non cirrhotic patients. Among 52 cirrhotic patients 48 (92%) were females and 4 (8%) males with mean age of 58.45 (range 37 to 77 years). The etiology of cirrhosis was post hepatitis C in 50 (96%) patients and post hepatitis B in 2 (4%) patients. The diagnosis of cirrhosis was based preoperatively on clinical criteria such as presence of ascites and ultrasonographic findings of portal hypertension with laboratory evidences of chronic liver disease. The diagnosis of viral infection was defined by positive tests for antibodies against HCV and Hepatitis B surface antigen respectively by Enzyme Immunoassay.

All cirrhotic patients who were selected for laparoscopic cholecystectomies had symptomatic gallstones not responding to conservative treatment. These patients had compensated liver disease; according to Child Pugh classification 20 were class A and 6 were of class B. Their coagulation screen was normal with mean INR 1.20 (normal range 0.85-1.25). The platelet count was <100,000/mm3 in 10 patients. The anaesthesia risk was evaluated preoperatively according to the American Society of Anaesthesiologists (ASA) scoring system; in 36 patients the ASA score was II, and in 16 patients was III. Cefuroxime was the antibiotic therapy used over a 24 hours period.

All laparoscopic cholecystectomies were performed by one surgeon using standard 4 ports and two hands

technique. The abdomen was insufflated with CO_2 gas under a preset pressure of 11 to 12 mmHg via a Verrese needle placed into abdomen through an infra umblical transverse incision. A 10 mm trocar was introduced through this site leaving the sheath in the abdominal cavity. A laparoscope attached to a video camera was introduced through this sheath to visualize the abdominal viscera and monitor the introduction of three other accessory trocars. The 5 mm ports were inserted into right iliac fossa and right hypochondrium to hold the gallbladder fundus and ampulla respectively. The fourth trocar (10 mm) was inserted in epigastric position, slightly to right of midline to avoid the falciform ligament. Through this port site the instruments for dissection in Calot's triangle and separating the gallbladder from gallbladder fossa were passed. Drain was placed in Morrison's pouch in 36 (70%) patients for 24 hrs and patient was discharged after removing the drain. Routine follow up was done at 5 days, 2 weeks and 3 months after surgery.

Results

There was no intra or post-operative mortality in both groups (A&B). Moreover there was no intra operative complication like injury to common bile duct, duodenum or colon, bleeding from liver bed or cystic artery. Operating time, duration of hospital stay and rate of conversion of laparoscopic cholecystectomy to open cholecystectomy were compared in both groups (A&B). The average operating time in group A (cirrhotic) was 83 minutes and in group B (non-cirrhotic) was 60 minutes. The mean hospital stay was almost same in both groups i.e; 2 days. However the conversion rate was more in group A i.e; 8% while in group B it was 4%. The reasons of conversion were unclear anatomy at Calot's triangle due to adhesions in both groups while enlarged liver blocking the view and fibrosed hard gallbladder bed in cirrhotic patients.

Discussion

The incidence of gallstones is higher in cirrhotic patients than in general population;[7,8] however the evaluation of pain in the right upper quadrant and of jaundice can often be difficult in cirrhotic patients due to the intrinsic hepatocellular disease. Once the diagnosis has been made, the indication of surgery is still controversial because of the high morbidity and mortality rate.[9,10] Hepatic function impairment causes coagulation disorders, hypoproteinemia, metabolic disturbances, portal hypertension and ascites, which in turn reflect in a mild to severe bleeding tendencies, prolonged wound healing, oesophageal varices, dilatation of anterior abdominal wall veins, etc. Therefore indications for surgery must be weighed against liver function, which means that patient selection and preoperative preparation are very important. Some authors report quite good prognosis in cirrhotic patients submitted to gallstone surgery.[11,12,13] There is general agreement that the introduction of laparoscopic cholecystectomy is a step forward in the surgical management of gallstone disease, allowing for improved care of symptomatic patients. However the major controversy regarding laparoscopic cholecystectomy is how effective the procedure is in liver cirrhosis. According to some authors the important factors determining the grade of liver impairment, such as prolonged prothrombin time or presence of ascites are dubious.[9,12] Meticulous dissection of the gallbladder can be done owing to the magnification properties of videoscope, thus ensuring good hemostasis of liver bed. The main limitation of LC is the retraction of firm cirrhotic liver and the impossibility of hemorrhage control.

To elucidate the impact of new era in surgery, we designed a prospective protocol to study the results of LC in cirrhotic patients and comparing with non cirrhotic patients. Surgical indications can be assessed by several criteria such as clinical findings, laboratory tests and ultrasonography. We included those patients with liver cirrhosis for LC who were having severe symptoms due to gallstones not responding to medical therapy and had Child class A or B.

In this study we have compared the results of LC in cirrhotic patients with non cirrhotic patients in regard to operative time, duration of stay in hospital, operative complications and conversion rate. Our results are almost similar or rather better than some studies as our operative time was less than other studies and we had no operative complications.[6,14,15] Our better results might be due to good patient selection and surgical expertise, as all operations were done by the same surgeon expert enough in laparoscopy.

Conclusion

Laparoscopic cholecystectomy in cirrhotic patients is as safe as in non cirrhotic patients; although the conversion rate is more in cirrhotic patients, the ultimate outcome is almost the same.

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