

## LAPAROSCOPIC CHOLECYSTECTOMY IN CIRRHOTIC PATIENTS

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**SUMMARY** – In the beginning, liver cirrhosis was considered a contraindication for laparoscopic cholecystectomy, mostly for the same reasons as for other surgical procedures, i.e. mild to severe bleeding tendency, prolonged wound healing due to hypoproteinemia, and various metabolic disorders. The effect of CO<sub>2</sub> pneumoperitoneum on the cirrhotic liver was also discussed. Results obtained by laparoscopic cholecystectomy in 24 liver cirrhosis patients are presented. The experience acquired since the introduction of laparoscopic procedures at our unit is briefly described. The index of conversion was 4.16% (1/24) and mortality rate 0. The mean length of hospital stay was 2.9 days. The use of laparoscopic cholecystectomy for gallstone disease is proposed in patients with liver cirrhosis as the first choice operative method of treatment.

**Key words:** *Liver cirrhosis – complications; Cholecystectomy, laparoscopic – contraindications; Cholelithiasis – surgery*

### Introduction

The incidence of gallstone disease is twice as high in liver cirrhosis patients as in the general population<sup>1,2</sup>. However, the risk of gallstone surgery in these patients remains increased and depends on liver function. The explosion of laparoscopic techniques in general surgery has entailed an important modification in surgery, which some authors have denoted 'biliary perestroika'<sup>3</sup>.

Since the Bethesda Conference consensus from 1992, laparoscopic cholecystectomy has been the treatment of choice for symptomatic gallstones<sup>4</sup>. Nevertheless, clinical situations in which laparoscopic cholecystectomy used to be contraindicated have gradually become relative contraindications or absolute indications for laparoscopic cholecystectomy. One of these situations is the presence of liver cirrhosis and portal hypertension. This report presents our own experience with laparoscopic cholecystectomy in patients with liver cirrhosis diagnosed before the surgical operation planned.

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### Patients and Methods

Twenty-four liver cirrhosis patients with symptomatic gallstone disease, mean age 56 (age range 39-75) years, underwent laparoscopic operation between May 1992 and September 2001. All patients underwent elective surgery for relapsing bouts of gallstone disease. Liver cirrhosis was diagnosed preoperatively by clinical and histologic examinations. Patient data are shown in Table 1.

*Table 1. General data of patients*

Number of patients	24
Male/female	15/9
Mean age (yrs)	56
Age range (yrs)	39-75

The patients were informed about the various steps and risks of the operative procedure. The procedure was performed in general anesthesia by the operative technique reported by Čala *et al.*<sup>5</sup> All patients received antibiotic prophylaxis (second generation cephalosporin, single dose). No additional surgical procedures were required.

## Results

The mean duration of the operation was 68 (range 35-125) minutes, and proceeded without complications. Immediate conversion to open procedure was required in one (4.16%) patient because of hemorrhage in the liver bed. One patient required blood transfusion. Drains were left in place for 24-48 hours. The mean length of hospital stay was 2.9 days. Eleven patients were hospitalized for 48 hours, eight for 3 days, and one patient for 6 days due to social problems (Table 2). No readmission was recorded.

Table 2. Operative procedure parameters

Number of patients	24
Conversion to open procedure	1 (4.16%)
Blood transfusion	1 (4.16%)
Mean duration of operation (min)	68
Drains left in place (h)	24-48
Mean length of hospital stay (days)	2.9

## Discussion

The incidence of gallstones is higher in cirrhotic patients than in the general population<sup>2,6</sup>, 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 for surgery is still controversial because of the high morbidity and mortality rate<sup>7-9</sup>. Hepatic function impairment causes coagulation disorders, hypoproteinemia, metabolic disturbances, portal hypertension, and ascites, which in turn reflect in a mild to severe bleeding tendency, prolonged wound healing, esophageal varices, dilatation of anterior abdominal wall veins, etc. Therefore, the indications for surgery must be weighed against liver function, which means that patient selection and preoperative preparation are very important. Some authors report on quite a good prognosis in cirrhotic patients submitted to gallstone operation<sup>10-12</sup>.

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, a major controversy regarding laparoscopic cholecystectomy is how effective the procedure is in liver cirrhosis. Yerdel *et al.* have recently reported on 'expanding indications' for laparoscopic cholecystectomy<sup>13</sup>. According to some authors, even the

important factors determining the grade of liver impairment, such as prolonged prothrombin time or presence of ascites, are dubious<sup>7,11</sup>. Meticulous dissection of the gallbladder can be done owing to the magnification properties of videoendoscopy, thus ensuring good hemostasis of the liver bed. The main limitation of laparoscopic cholecystectomy is the impossibility of hemorrhage control after the event; for the time being, immediate conversion to open surgery is needed in such cases.

To elucidate the impact of the new era in surgery, we designed a prospective protocol to study the results of cholecystectomy in cirrhotic patients. Surgical indications can be assessed by several criteria such as symptoms, laboratory tests, and ultrasonography. However, these techniques are inappropriate in patients with suspected common bile duct stones, when the help of endoscopic retrograde cholangiopancreatography (ERCP) is required. This investigation cannot be used routinely to screen the patients with hyperbilirubinemia, which is frequently due to hepatocellular dysfunction<sup>14</sup>. We included all patients with indications for gallbladder surgery in the laparoscopic cholecystectomy protocol, and excluded those with doubtful cause of gallstone disease symptoms. Our results are in agreement with and slightly better than those of Yerdel *et al.*<sup>13</sup>. Based on the data obtained, we believe that laparoscopic cholecystectomy can be a useful surgical procedure for the management of gallstone disease in cirrhotic patients. The technique allows for good visualization of the gallbladder hilus and hemostasis that is probably the most important cause of complications. Another study has also shown that the absolute safety of laparoscopic cholecystectomy cannot be questioned<sup>13</sup>. Laparoscopic cholecystectomy might even be more successful in these patients, however, additional studies are needed to confirm it. Therefore, with conversion to open surgery the morbidity rate and length of hospitalization are similar or even lower than for the laparoscopic management of acute cholecystitis<sup>15,16</sup>.

The advantages of this operation are reduced wound complications and intra-abdominal adhesions. The laparoscopic operation could be technically less aggressive, thus making subsequent liver transplantation a less difficult procedure<sup>13</sup>.

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#### Sažetak

### LAPAROSKOPSKA HOLECISTEKTOMIJA U CIROTIČNIH BOLESNIKA

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U početku razvoja laparoskopskih operacija žučnjaka ciroza jetre opisivala se kao jedna od kontraindikacija, uglavnom iz istih razloga kao i za druge kirurške zahvate kao što su sklonost krvarenju, produženo cijeljenje rana zbog hipoproteinemije, te razni metabolični poremećaji. Neki autori su prikazali i djelovanje CO<sub>2</sub> pneumoperitoneuma na cirotičnu jetru. Ovdje su prikazani rezultati i iskustvo stečeno primjenom laparoskopske holecistektomije u 24 bolesnika s cirozom jetre. Nije bilo smrtnog ishoda. U jednoga je bolesnika učinjena konverzija zbog krvarenja. Prosječno vrijeme hospitalizacije bilo je 2,9 dana. Na osnovi iskustva laparoskopska se holecistektomija preporuča kao metoda izbora u liječenju simptomatske holelitijaze u bolesnika s jetrenom cirozom.

Ključne riječi: *Ciroza jetre – komplikacije; Holecistektomija, laparoskopska – kontraindikacije; Holelitijaza – kirurgija*