

IS LAPAROSCOPIC CHOLECYSTECTOMY A SAFE TREATMENT OPTION IN EMPYEMA OF GALL BLADDER?

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ABSTRACT

Objective: To find out the effectiveness and safety of laparoscopic cholecystectomy for treatment of empyema gallbladder.

Study Design: Quasi-experimental study.

Place and duration of study: PNS Shifa Karachi and CMH Lahore, Pakistan from January 2010 to August 2013.

Material and Methods: Out of 493 patients who underwent laparoscopic cholecystectomy (LC) by a single consultant surgeon during the study period, 40 patients who had empyema gall bladder on laparoscopic findings were included in the study. All patients with diagnosis of acute cholecystitis (n=117) who had no pus present in gall bladder and patients with diagnosis of biliary colic or chronic cholelithiasis (n=336) were excluded from the study.

Results: Forty patients were diagnosed to have empyema gall bladder. LC was successfully completed in 39 patients (97.5%). In one patient (2.5%) the procedure was converted to open cholecystectomy (OC) due to finding of cholecystoduodenal fistula on laparoscopy. Mean operating time was up to 58.62 ± 26.33 minutes. Postoperative complications occurred in 3 (7.5%) of the operated patients. Mean duration of hospital stay was 1.7 ± 2.09 days. One patient with co-morbidity of diabetes mellitus died of septicemia resulting in a mortality rate of 2.5%.

Conclusion: In laparoscopy for empyema gallbladder the complications are related to the advanced disease process and not to the approach. In skilled hands, laparoscopic cholecystectomy can be performed successfully in patients with diagnosis of empyema gallbladder.

Keywords: Empyema gall bladder, Laparoscopic cholecystectomy, Morbidity.

INTRODUCTION

The laparoscopic cholecystectomy (LC) has revolutionized the management of empyema gall bladder. Acute cholecystitis in the presence of bacteria-containing bile may progress to suppurative infection in which the gallbladder fills with purulent material, a condition referred to as empyema of the gallbladder. The clinical history of a patient with empyema of the gallbladder is quite similar to that of a patient with acute cholecystitis¹. During the clinical course, severe pain and associated high fever, chills, and even rigors may be reported. Patients with diabetes or immunosuppression may exhibit few signs and symptoms². For fear of complications, empyema gallbladder used to be a contraindication for laparoscopic cholecystectomy³⁻⁵. There is increased incidence of complications during laparoscopic cholecystectomy for empyema of gallbladder.

The complications are related to the advanced disease process and not to the approach. In skilled hands, no increase in the incidence of complications is observed in laparoscopic surgery for empyema of the gallbladder^{6,7}. It is also considered to be one of the common reasons for conversion to open. Thus, despite the higher incidence of conversion to an open procedure (20-40%), it is quite reasonable to initially proceed with a laparoscopic procedure^{8,9}. There can be various reasons and factors which can however, lead to conversion. Obscured local anatomy, uncontrolled bleeding and damage to nearby vital structures are the common factors responsible for conversion¹⁰. This study aimed to find out effectiveness and safety of LC in empyema gallbladder.

MATERIAL AND METHODS

This prospective experimental study was conducted in department of surgery, PNS Shifa Karachi and CMH Lahore during January 2010 to August 2013. Out of 493 patients who underwent laparoscopic cholecystectomy by a single consultant surgeon during the study

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period, 40 patients who had empyema gall bladder on laparoscopic findings were included in the study. The LC was done by three port technique and 4th port was used optionally wherever required. In case of thick pus the gallbladder was incised and the suction cannula directly introduced into gall bladder to aspirate pus. In case of spillage of stones and pus due to perforation of gall bladder during laparoscopic surgery, all the stones were retrieved and thorough peritoneal lavage with 1–2 L of normal saline was done and drain was placed wherever necessary. Follow up was done in out-patient department on 5th, 10th and 11th post-operative days. Data of each patient was recorded on a data form including demographic details, co-morbidities, operative findings, intraoperative complications, postoperative complications and duration of hospitalization. The results were analyzed on SPSS version 15. A well-informed written consent was taken from each patient prior to surgery. Descriptive statistics were used to describe the results.

RESULTS

Forty patients of empyema of gallbladder were identified and included in the study population who underwent laparoscopic cholecystectomy. The age ranged from 22 years to 75 years with a mean of 50.67 ± 12.47 years. There were 7 (17.5%) males and 33 (82.5%) females in the study population with male to female ratio of 1:4.7. The major co-morbidities in our study population were diabetes mellitus (10%) hypertension (20%) and 6 (15%) patients had co-existent hypertension and diabetes mellitus (15%). According to the American Society of Anesthesiologists (ASA) scale, 14 (35%) patients were ASA-I, 10 (25%) patients were ASA-II and 16 (40%) patients were ASA-III. All of these patients were operated laparoscopically. The 3-port technique was used in 33 patients (82.5%) while 7 patients (17.5%) were operated using the 4-port technique when required. In 39 (97.5%) patients LC was completed successfully while in 1 (2.5%) patient the procedure was converted to OC due to finding of cholecystoduodenal fistula on laparoscopy. Total operating time from skin incision for insertion of Veress needle or open

technique for establishing pneumoperitoneum to closure of skin wound ranged from 30 to 150 minutes with a mean of 58.62 ± 26.33 minutes. The diagnosis of empyema gall bladder was made on aspiration of frank pus from the gall bladder. The gall bladder was perforated during laparoscopy in 31 patients (77.5%). However, a thorough peritoneal lavage was done in every patient who had intraoperative perforation after retrieving all the spilled stones. Intraoperative complications like CBD injury, duodenal perforation and bleeding was not encountered in any case. Postoperative complications occurred in 3 (7.5%) patients. These included ARDS (n=1), umbilical port infection (n=1) and septicemia (n=1) which resulted in death of one patient. Postoperative stay in hospital ranged from 1 to 4 days with a mean stay of 1.77 ± 2.09 days. Trocar related complications such as bowel injury and major vessel injury were not seen.

DISCUSSION

Due to its obvious advantages including less pain, better cosmesis, a shorter length of hospital stay, early recovery, return to work and cost effectiveness, LC has become a preferred and acceptable alternative to open cholecystectomy even in the most difficult situations associated with complicated gallstone disease^{11,12}. A number of encouraging reports concerning the safety and efficacy of LC in complicated gall stone disease has persuaded more and more laparoscopic surgeons to perform early LC in empyema gall bladder as suggested by Hunter "to get it while its Hot"¹³. Very few reports have specifically assessed safety of LC in empyema of the gallbladder. This study presents the details of 40 LC performed in empyema gallbladder. The reported conversion rate in other studies is 20 to 40%¹⁴. The overall conversion rate in this study is 2.5% which is much lower than reported in the literature. The one case in which conversion was necessary was due to finding of cholecystoduodenal fistula on laparoscopy. The rate of major intraoperative complications is not significant in current study as to preclude the laparoscopic approach in this condition but there should always be a word of caution while

operating on such difficult condition which is consistent with the findings of Hobbs et al¹⁵ claiming that increased risk of complications with LC has decreased. The gall bladder was perforated during laparoscopy in about 77% patients. However every patient was thoroughly washed with 1-2 L of normal saline after retrieving all spilled stones. Perforation of gall bladder is not considered a complication. No complication occurred due to spillage of stones in this study¹⁶. Previous studies have reported an increased risk of intraoperative complications like CBD injury and duodenal perforation during laparoscopic cholecystectomy^{14,17}. These operative complications did not occur in our study. Trocar related complications such as bowel injury and major vessel injury were not seen in our series. Postoperative complications like ARDS, septicemia, umbilical port infections, bile leaks, sub-hepatic abscess etc. can occur after laparoscopic surgery for empyema gallbladder. The postoperative complication rate in open cholecystectomy is 20% as reported in literature¹⁸. Empyema is particularly dangerous in the elderly in whom septicaemia is commonly occult, and who may be less able than younger patients to resist the infection. In one study of 32 cases of empyema gallbladder, 5 patients died postoperatively due to septicaemia¹⁷. In present study, one elderly patient died of septicaemia with comorbidity of diabetes mellitus. The mean duration of hospitalization in our patients was 1.77 days which is also considerably less than reported in the literature. The analysis of our study and literature review has shown that this procedure was associated with less intraoperative blood loss, shorter hospital stay, less wound infection and less postoperative pain and can be safely performed in cases of empyema gallbladder.

CONCLUSION

The LC is a safe and acceptable option in empyema of gallbladder. There are, however, significant technical difficulties but these can be overcome with the surgeon's experience. In laparoscopy for empyema gallbladder the complications are related to the advanced disease process and not to the approach. In

skilled hands, no increase is observed in the incidence of laparoscopic surgical complications with empyema of the gallbladder.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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