ORIGINAL ARTICLE

Role of early laparoscopic cholecystectomy in acute cholecystitis

Mohammad Zarin, Mansoor Khan, Mujeeb-ur-Rehman, Shehzad Akbar, Usra Ahmed, Rooh-ul-Muqim, Aziz Wazir, Muhammad Salman

Abstract:
Objectives: To determine the safety of early laparoscopic cholecystectomy (LC) in acute cholecystitis (AC).
Study design: Quasi Experimental study.
Setting: This study was conducted in Surgical "C" unit, Khyber Teaching hospital, Peshawar from March, 2006 to July, 2009.
Methodology: All cases of acute cholecystitis (both calculus and acalculus) admitted to surgical "C" unit through OPD or Emergency department, were included in the study. Patients with evidence of acute on chronic cholecystitis were also included in the study. Patients with obstructive jaundice and those who refused laparoscopic surgery were excluded from the study.
Results: A total of 428 patients were included in the study including 392 female and 36 male patients. All the patients were operated within 24 to 48 hours of admission. Eleven patients (2.57%) were converted to open surgery. Mean duration of surgery was 50 minutes. Eight cases (1.86%) had post-operative biliary leak, out of which 2 patients had bile duct injury, and 1 patient developed post-operative jaundice due to inadvertent clip ligation of the common hepatic duct. Port site infection was noted in 13 patients. There was post- operative sub-phrenic collection in 3 cases.
Conclusion: Early Laparoscopic cholecystectomy is a safe procedure in acute cholecystitis.

Key words: Laparoscopic cholecystectomy LC, Acute cholecystitis AC, Obstructive jaundice

Department of Surgery (Surgical "C" Unit), Khyber Teaching Hospital, Peshawar N.W.F.P, Pakistan
M Zarin
M Khan
Mujeeb-ur-Rehman
S Akbar
UAhmed
Rooh-ul-Muqim
A Wazir
M Salman

Correspondence:
Dr. Mohammad Zarin
Room No. 86, Old doctor's hostel, Khyber teaching Hospital, Peshawar.
Cell: 03339414477,
drmzarin@yahoo.co.uk

Introduction:

Due to socioeconomic benefits and low morbidity, early cholecystectomy was considered the preferred treatment for acute cholecystitis in the era of open surgery.[1] With the advent of laparoscopic surgery, laparoscopic cholecystectomy has become the gold standard for symptomatic cholelithiasis, but, there has been controversy in its use for AC,[2] because AC is one of the most frequent situations with increased operative risk. AC modifies the local anatomy with increase in the difficulty of identifying the cystic pedicle and CBD. As it is impossible to perform ante-grade cholecystectomy in most such cases, there is a high risk of CBD injury. It is very easy to penetrate the liver parenchyma during dissection as the cleavage plan in the gallbladder bed is lost which can lead to post-operative biliary leak, haemorrhage and sub-hepatic abscess.[3] With the significant progress in technical proficiency and instrumentation, studies have demonstrated LC, a safe and effective procedure in AC.[4, 5, 6-8] There are few studies published in Pakistan on the role of LC for AC which demonstrated its reliability, safety and cost-effectiveness.[9] Despite accumulation of evidence, it remains common practice to treat acute cholecystitis with intravenous (IV) antibiotic therapy and interval LC prefer-

entially.[10] This study was conducted to review our institution's experience with the application of LC for AC.

Methodology:

The study was conducted in Surgical "C" Unit, Khyber Teaching Hospital, Peshawar from March, 2006 to July, 2009. Patients who presented with sudden onset of upper abdominal pain, nausea, vomiting and fatty food intolerance were examined and subjected to investigations. Those who were confirmed to have acute cholecystitis (calculus or acalculus) based mainly on abdominal ultrasonography were admitted. Mode of admission was through outpatient or emergency department.

Inclusion criteria: All patients with acute calculus, acute acalculus and acute on chronic cholecystitis were included in this study.

Exclusion criteria: Patients with obstructive jaundice were excluded.

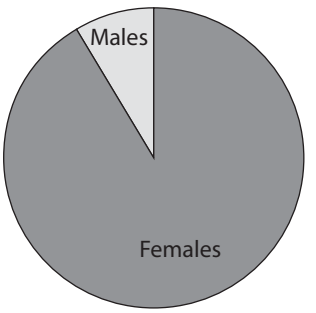
The patients were thoroughly investigated for fitness of anaesthesia and were put on initial management. Second or third generation cephalosporins were administered soon after the admission.

All patients were operated within 24 to 48 hours through standard laparoscopic cholecystectomy procedure. Preoperative findings were noted. Conversion to open cholecystectomy was done in some cases. Subhepatic tube drains were placed in selective cases. Patients were observed during postoperative stay for early complications like haemorrhage, biliary leakage and obstructive jaundice. Cases with uneventful recovery were discharged home and were asked to come for follow up after 2 to 3 weeks time and were looked for complications like wound sepsis and obstructive jaundice. Ultrasonography was performed in selected cases where subhepatic or other abdominal collection was suspected. Data was entered into a proforma and analysed at the completion of the study period.

Results:

A total of 428 patients were included in this study. Out of which 392 (91.59%) were female and 36 (8.41%) were males(Figure 1). Their ages ranged from 18 years to 64 years (mean age was 43 years). During LC eleven patients (2.57%) were converted to open cholecystectomy due to difficult anatomy and bleeding. The time range for the procedure was from 30min to 95 min (mean time was 50 min). Post operatively there was biliary leakage in 8 (1.86 %) cases, out of which the leakage stopped spontaneously in 6 cases while in two cases the leakage continued for more than 1 week. On investigation these two (0.46%) cases were found to have bile duct injury which were missed during initial procedure. In both of these cases re-exploration and hepatico-jujonostomy was done. One patient (0.23%) developed post operative obstructive jaundice due to inadvertent clip application to common hepatic duct. So the over all incidence of bile duct injury in this series was 0.7%.

Figure 1: *Sex distribution*



During the follow up visits, 13 (3.03%) patients developed port site infection which was treated with antibiotics and repeated dressings. Three patients (0.7%) developed subhepatic collection and all of them were treated by ultrasound guided aspiration.

Discussion:

The advent of new dissection techniques, the traditional interval cholecystectomy, laparoscopic or open is giving way to the emerging early laparoscopic cholecystectomy. In this series of 428 patients undergone early cholecystectomy for acute cholecystitis in which conversion rate was 2.57%, time of operation was 30-95min (mean 50min), bile duct injury in 0.46%, common he-

patic duct injury of 0.23%, port site infection was in 3.03% and sub-hepatic abscess was found in 0.7%.

Duca S et al[3]. in their series of LC of 9542 patients performed for different indications including 13.98% of AC patients, found the conversion rate of 1.9%, common bile duct injury in 0.1% and hepatic abscess in 0.1% cases which is comparable to our study results of LC performed for AC.

In another study of 201 patients, Lim KR et al[11]. found the conversion rate of 27.7% and wound infection rate of 0.68% in interval LC performed for AC which on comparison to our series suggests that the early LC is better and safe treatment option for AC. Lau H et al[12] also did not find any significant difference in terms of conversion rate, operation time, complication rate, incidence of bile leakage and intra-abdominal collection rate in their experience, comparing early and delayed-interval laparoscopic cholecystectomy for acute cholecystitis.

Bhattacharya D et al[13] also reported the safety and success of early LC for the treatment of LC. In another study comparing early and interval cholecystectomy Koo KP et al[14] reported the conversion rate of 12% in early LC group and concluded that early LC had lower rates of conversion to open procedures, less difficult operations, shorter operative times, less costly procedures, and a shorter convalescence. Pessaux P et al[15] in their study of 796 patients showed that there was no statistical difference between early and delayed LC for the treatment of AC in terms of operative time and postoperative complications. Willsher PC et al [16] repoted conversion rate of 3.47 % in LC performed within 2 days against 27% in LC performed after 2 days.

Although early LC for the treatment of AC is a preferred option because it can be safely performed in most of the patients and thus cutting down hospital stay and socioeconomic burden on the health facilities. But still large randomized controlled trials are needed to support the results.

Conclusion:

Early laparoscopic cholecystectomy for acute cholecystitis does not increase morbidity, conversion to open procedure and complications rates and can be safely performed.

References:

1. Sharp KS. Acute cholecystitis. Surg Clin North Am 1988;68:269–79.
2. Kum CK, Eypasch E, Lefering R, et al. Laparoscopic cholecystectomy for acute cholecystitis: is it really safe? World J Surg 1996; 20:43–9.
3. Duca S, Bala O, Al-hajjar N, Lancu C, Puia IC, Munteanu D et al. Laparoscopic Cholecystectomy: incidents and complications. A retrospective analysis of 9542 consecutive laparoscopic operations. HBP 2003;5(3):152-58.
4. Lujan JA, Parrilla P, Robles R, et al. Laparoscopic cholecystectomy vs. open cholecystectomy in the treatment of acute cholecystitis. Arch Surg 1998;133:173-5.
5. Kiviluoto T, Siren J, Luukkonen P, et al. Randomized trial of laparoscopic versus open cholecystectomy for acute and gangrenous cholecystitis. Lancet 1998;351:321–5.
6. Bender JS, Zenilman ME. Immediate laparoscopic cholecystectomy as definitive therapy for acute cholecystitis. Surg Endosc 1995;9:1081–4.
7. Lo CM, Liu CL, Fan ST, et al. Prospective randomized study of early versus delayed laparoscopic cholecystectomy for acute cholecystitis. Ann Surg 1998;4:461–7.
8. Lai PBS, Kwong KH, Leung KL, et al. Randomized trial of early versus delayed laparoscopic cholecystectomy for acute cholecystitis. Br J Surg 1998;85:764–7.
9. Mohammad S, Hinduja T, Fatima S. Complications of Laparoscopic Cholecystectomy in acute cholecystitis. J Surg Pak Jun 2008;13(2):59-61.
10. Casillas RA, Yegiyants S, Collins JC. Early Laparoscopic Cholecystectomy Is the Preferred Management of Acute Cholecystitis. Arch Surg. 2008;143(6):533-537.
11. Lim KR, Ibrahim S, Tan NC, Lim SH, Tay KH. Risk Factors for Conversion to Open Surgery in Patients with Acute Cholecystitis Undergoing Interval Laparoscopic Cholecystectomy. Ann Acad Med Singapore 2007;36:631-5
12. Lau H, Lo CY, Patil NG, Yuen WK. Early versus delayed-interval laparoscopic cholecystectomy for acute cholecystitis. Surg Endosc 2006;20: 82–87
13. Bhattacharya D, Senapati PSP, Hurle R, Ammori BJ. Urgent versus interval laparoscopic cholecystectomy for acute cholecystitis: a comparative study. J Hepatobiliary Pancreat Surg 2002;9:538–542
14. Koo KP, Thirlby RC. Laparoscopic Cholecystectomy in Acute Cholecystitis;What Is the Optimal Timing for Operation?. Arch Surg. 1996;131(5):540-545.
15. Pessaux P, Tuech JJ, Rouge C, Duplessis R, Cervi C, Arnaud JP. Laparoscopic cholecystectomy in acute cholecystitis. Surg Endosc 2000;14: 358–361
16. Willsher PC, Sanabria JR, Gallinger S, Rossi L, Strasberg S, Litwin DEM. Early laparoscopic cholecystectomy for acute cholecystitis: A safe procedure. J Gastrointest Surg 1999;3:50-53.