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COMPLICATIONS OF LAPAROSCOPIC CHOLECYSTECTOMY IN ACUTE CHOLECYSTITIS

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ABSTRACT:

Background: Laparoscopic cholecystectomy has almost replaced the open cholecystectomy in patients in which removal of gallbladder is required.
Objective: Toassesstheclinical out-come of laparoscopic Cholecystectomy for management of acute cholecystitis and toevaluate its safety and frequency of complications.
StudyDesign: Prospective observational study
Study Setting: Liaquat University Hospital and Private Medical setup.
Methodology: All patients had routine investigations, Liver function tests and ultrasound abdomen. The patients who underwent laparoscopic cholecystectomy were included in this study. The procedure was carried out by standard four port technique. Clinical examination, investigations, postoperative complications were recorded on proforma and results were drawn.
Results: Total study population was 63 patients with female preponderance and male to female ratioof 1:3.2 Mean age was 44.21 years ± 13.43. Main per-operative complications observed were spilled stones 7.93% and hemorrhage in 6.34% cases, bile duct injury in 4.76% cases and gallbladder perforation in 4.76% patients. Post-operative complication included wound infection in 9.52%, Ilues and post-cholecystectomy syndrome in 6.34%, bile leakage in 4.76% and CBD stricture in 1.5% cases.
Conclusion: Laparoscopic earlycholecystectomyis reliable and safe modality cost effective, and timely surgery with modern conception in the management of acute cholecystitis, because of accelerated recovery, negligible wound infection or related complication, and less postoperative pain.

Keywords: LapChole, Laparoscopic cholecystectomy, cholecystitis, complications, gall bladder

INTRODUCTION:

Laparoscopic cholecystectomy has rapidly become the procedure of choice for routine gallbladder removal and it is the most common major abdominal procedure performed in Western countries[1]. Philippe Mouret performed first laparoscopic cholecystectomy in Lyon, France in 1987.The first laparoscopic cholecystectomy in Pakistan was performed in 1991[2]. Since that time it has become the routine procedure in the management of It is minimally invasivesurgery and is superior to open cholecystectomy as it causes less surgical trauma,reduced hospital stay, less intra-abdominal adhesions and better cosmetic results[3]. Complications of laparoscopic cholecystectomy include early and late complications. Early complications include complications due to port entry, bowel injuries, bleedingand biliary complications including spilled gallstones, biliary leaks and bile duct injuries.Thecomplications can beminimized with carefulpatientselection, meticulous operative dissection and judicious use of cholangiography along with sound

surgicaljudgment[4].

METHODOLOGY:

This prospective study was conducted at Surgical Unit, Liaquat University Hospital Jamshoro and private hospitals of Hyderabad from December 2011 to November 2012. Sixty threepatients, presenting with complicated and uncomplicated cholelithiasis, undergoing laparoscopic cholecystectomy were included in the study.

The diagnosis ofacute cholecystitis confirmed by abdominal ultrasound scanning were admitted and planned forundergoing early Laparoscopic cholecystectomy. Diagnosisof acute cholecystitis was based on clinical evidenceof pain, tender ness and guarding in right upperabdominal quadrant fever, nausea and vomitingassociated with leukocytosis. Abdominal ultrasound performed in all cases and confirmed calculus cholelithiasis with evidence of acute cholecystitis. Patients presenting with the clinical, biochemical and ultrasonologic evidence of acute pancreatitis, CBD stones and Cirrhosis were excludedfrom the study. Patients with following condition were also excluded from the study: very severeform of acutecholecystitis, bile duct calculous, obstructive jaundice, cholangitis, portalhypertension, gallbladdermalignancy, sepsis, severe cardiopulmonary disease orany other unacceptable anesthetic risk. Preoperative work up including blood complete examination, urine analysis, blood urea, serum creatinine, bloodsugar,serumbilirubin, alkalinephosphatase, transaminases and abdominalultrasonography specially for gallbladder, CBD, liverandpancreas were also conducted . Those withnormal LFT and negative HBsAg selectedfor laparoscopic cholecystectomy. Fitness for anaesthesia was assessed by ASA Scoring system.Normal four port techniquewas used; two of 10mm and two ports of five mm. Veress needlewas not used in any patient, instead a small incision was givenbelow umbilicus, rectus sheath and peritoneum were opened andtrocar was introduced in abdominal cavity to inducepneumoperitoneum. Another port of 10 mm was introduced inepigastrium and two ports of five mm were introduced in rightupper quadrant, all under direct vision. Carbon dioxide pressurewas maintained between 12-15 mm of Hg during procedure. Britishtechnique of pulling the infundibulum laterally and creating rightangle between CBD and cystic duct was used in all cases to avoidinjury to CBD. Haemostasis achieved and any bile leakage waschecked and stopped before finishing the procedure. Data collectedwas statistically analyzedand results compiled using SPSS v.16. Variables were described as mean ± standard deviation. Frequency was described as percentages in each group.

RESULTS:

A total of 63 patients had laparoscopic cholcystectomy during the study period. Average age was 44.21 years ± 13.43. The age range of the selected population was 28-59 years, 35 patients were in age range 31-40 years (55.5%). While in age range of

FIGURE 1:
Frequency of acute cholecystitis in various age groups

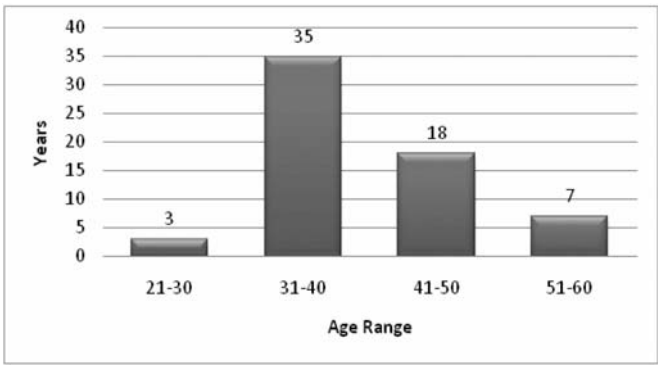


FIGURE 2:
Ultrasound findings in study population

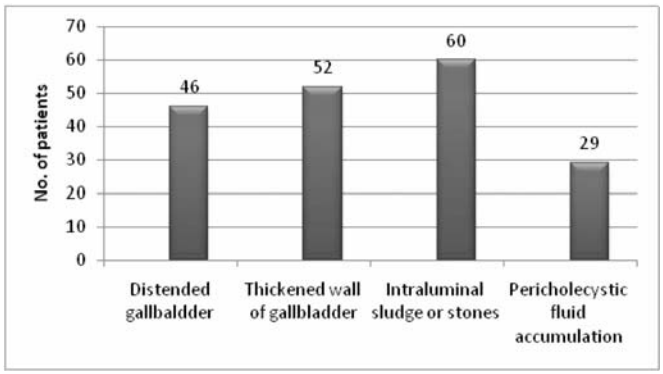


FIGURE 3:
Per-operative complication of laparoscopic cholecystectomy

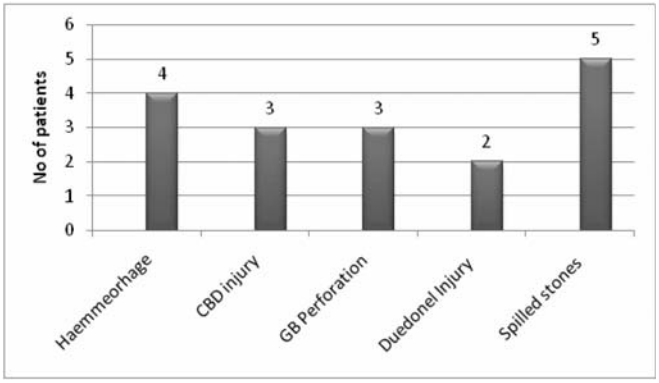
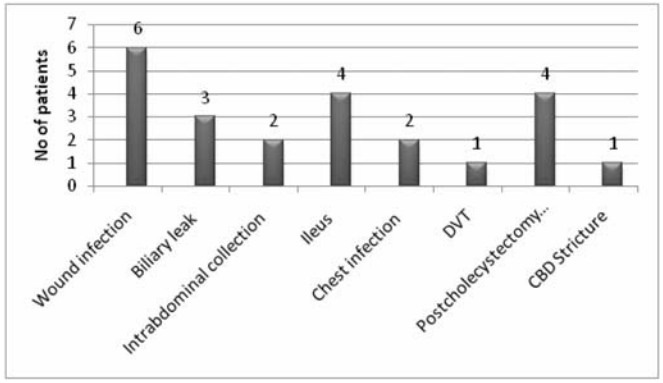


FIGURE 4:
Post-operative complication of laparoscopic cholecystectomy



41-50 year there were 18(28.5%) patients, 3 were below 30 years and 7 were within age range of 51-60 years(2.8%) patients had age more than 60 yearsFigure 1. In our study 15(23.8%) were male and 48(76.1%) femaleswith male to female ratio of 1:3.2. Common clinical features were upper outer quadrant abdominal pain in 52 (82.5%) patients, fever in 47 (74.6%) patients, nausea and vomiting 15 (23.8 %) patients and palpable gallbladder in 30 (47.6%) patients. On the basis of clinical findings suggestive of acute cholecystitis, patients were further investigated for biochemical and radiologicalfindings. Leucocytosis was detected in almost all patients with more than 8000 /cmm,and in 9 (14.2%) patientsmore than 12000cells per cmm. On ultrasound distended gallbladder was seen in 46 (73.01%), thickened wall of gallbladder 52 (82.5%), Intraluminal sludge or stones 60 (95.2%) and pericholecystic fluid accumulation in 29 (46.03%) patients (Figure 2).

Complications were divided into per-operative and postoperative complications. Common per-operative complications were bleeding (6.34%), perforation of gallbladder (4.76%), injury to common bile duct (4.76%), Duodenal perforation (3.17%), spilled stones or retained stones in CBD(7.93%) (Figure 3).

Delayed complications or post-operative complications included port-site or wound infection (9.52%), biliary leak (4.76%), intra-abdominal collection (3.17%), ileus (6.34%), chest infection (3.17%), DVT (1.5%), postcholecystectomy syndrome (6.34%) and CBD stricture(1.5%) (Figure 4).

DISCUSSION

Laparoscopic cholecystectomy (LC) has almost replaced open surgery in the treatment of symptomatic cholecystolithiasis. This fact can be confirmed by the fact that in US in early 90s, 10% of cholecystectomies were being performed laparoscopically and by late 90s, 10 years after the introduction of LC, close to 80% of cholecystectomies were being performed laparoscopically.In Pakistan laparoscopiccholecystectomy is not common yet as compared to the developedcountries because of less expertise and expansive instruments. Laparoscopic cholecystectomy has revolutionized the gallbladder surgery by minimizing the operative and post-operative complications, hospital stay, operative time and mortality and morbidity associated with the open cholecystectomies. While LC offers the patient several advantages ofminimal invasive surgery, the spectrum of complications ingallstone surgery has changed compared to open procedure. Complications though smaller in percentage are of varied nature and complex severity as compared with the open cholecystectomy. Laparoscopy-related complications such as bile duct injury (BDI) tend to be adverse being more proximal and often associated with concomitant vascular injury. The spectrum of mishap hasalso changed due to the involvement of new and advanced instrumentation such as stapling device and energized instruments. Related complication slikemigrating clips or spillage of gallstone intoperitoneal cavity were completely unknown in open surgery. Due to these complicating factorsmorbidity has raisedmanifold. The mean age in our study population was 44.21 years ± 13.43, this presenting age for gallbladder pathology is well matched with published data populationsof various studies [iv,5]. The age range in our study was 28-59 years, 35 patients were in age range 31-40 years (55.5%).While in age range of 41-50 year there were 18(28.5%) patients, 3 were below 30 years and 7 were within age range of 51-60 years (2.8%) patients had age more than 60 years. Similarly most populated age range in our study was 31-40 years as of Khan et al and Hinduja et al[iv,v]. In our study 15(23.8%) patients were male and 48(76.1%) females with male to female ratio of 1:3.2. Various published data shows male to female ratios of 1:2.84 to 1:9[iv-6]. this wide range of male to female ratio may be owing to limited number of study population in each study and may not be true reflection of female to male ratio of particular area. However, there is one thing common among all these studies and other published data that there is female predisposition for gall bladder pathology.

This study was undertaken with the aims and objective of finding the common per-operative and post-operative complications associated with laparoscopic cholecystectomy. In our study population the most common complication was retained and spilled gall stones. In our study population it was found in 5 out of 63 patients. Spillage of gallstones during laparoscopic cholecystectomy is a frequent observation. Its estimated incidence is reported to be between 3 and 33%[7,8]. The retained or spilled stones can result in later complication. The rate of these complications occurring from these unretrieved stones is reported to be about 0.3%.Spillage of gallstones into the peritoneal cavity during LC occurs frequently due to gallbladder perforation and may be associated with complications, and every effort should be made to remove spilled gallstones. Abscess and fistula formation in the abdominal wall after stone spillage has been reported.In a retrospective study by Geraci et al, only 1.4% of patients with spillage of gallstones during LC developed serious postoperative complications[9].In another study gallstone spillage occurred in 15(10.6%) cases[ii]. Our results are in within the wide spectrum of stone spillage incidence along with its complication. We didn't find any complication due to stone spillage possibly because all the spilled stones were retrieved either after the conversion of LC to open cholecystectomy or by retrieving the stones or by reattempting for harvesting the stone in same sitting of LC. Another reason for no complication may be that follow-up period is not that long. Patient may develop very late complications due to spilled stones. A follow-up study in this regard will be beneficial to comment on the later complications of the spilled stones.

Bleeding or hemorrhage from vascular injury is the most lethal complication of LC with incidence ranging from 0.25% - 8%[10]. It may result during dissection of gall bladder orslippage of clip/ ligature from cystic artery. It can be due to trocar, operative dissection or poor retraction. The most common vessel to be damaged is epigastric and cystic artery due to trocar insertion. Bleeding from other intra-abdominalsites including mesenteric, omental, falciform ligament, gestroepiploic and spleenic vessels result from puncture injury with verres neddle or adhenolysis. Liver bed may bleed due to traction Memon et al havereported 1.8% cases of bleeding.While Kaushik et al reported an incidence of 10% in their study population. Our study reported the bleeding incidence of about 6.34% which is well within the reported range. It is however, on higher side of the reported range of published literature. Most of the bleeding occurred at the gall bladder bed which was controlled with the fulguration of the bleeding site. CBD injury, gallbladder perforation and duodenal injury were seen in 4.76% and 3.17% patients respectively. Theincidenceofmajor CBD injuriesin literature ranges from0-3%[vi 11,12] . In our study there was no major CBD injury only minor CBD injuries resulting in bile like were seen which spontaneously resolved after 5 days.

In late complication the most common complication was wound infection which was seen in 9. 52% Our findings are in concordance with already published literature showing 8% wound infections [iv.] The complications like ileus, biliary leak, chest infections, postholecystectomy syndrome, CBD stricture, intrabdominal collection etc show similar incidences as in already published data[ii,x,xi].

CONCLUSION

Laparoscopic cholecystectomyis an effective and safe technique of treating in cases of acute cholecystitisbecause ofaccelerated recovery, easilytreatable wound infectionandwoundrelated complication, less postoperativepainand short hospitalstay.The experienced and well-trained teaminvolved in laparoscopic surgery can minimize thepostoperative complications.

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