

LAPAROSCOPIC CHOLECYSTECTOMY: A CLINICAL PRACTICE AUDIT

Mannan Masud, Maqbool Ahmed*, Zafar Iqbal Gondal, Muhammad Adil*, Adnan Aqil**, Farhan**, Fatima Ashraf*

Military Hospital Rawalpindi, *Army Medical College Rawalpindi, **Armed Forces Postgraduate Medical Institute Rawalpindi

ABSTRACT

Objective: To evaluate laparoscopic cholecystectomy by a clinical practice audit at Military Hospital, Rawalpindi.

Study Design: Prospective study.

Place and Duration of Study: Surgical department Military Hospital from Jul 2011-Dec 2013.

Material and Methods: A total of 1020 patients who underwent laparoscopic cholecystectomy for acute or chronic cholecystitis and gallstone pancreatitis were included in our study while those who had previously undergone abdominal surgeries, those with high risk for general anesthesia, immunocompromised patients, with age greater than 70 years and having comorbidities like cardiac insufficiency, severe asthma, chronic liver disease with ascites and compromised renal functions were excluded from the study. Patients' demographic data, operative time, intra-operative findings, intra-operative difficulties, post-operative complications, conversion rate to open cholecystectomy and post-operative recovery time were recorded. Data was analyzed by using SPSS version 21.

Results: Out of 1020 patients 907 were females while 113 were males with male to female ratio of 1:8.02. Age range was 20-70 with mean age of 50 ± 10.456 years. 44.7% patients presented with the clinical features of acute cholecystitis, 540 (52.94%) with chronic cholecystitis and 23 (2.28%) with acute pancreatitis. Mean operative time was 20 minutes in asymptomatic patients, while 40 minutes in acute cholecystitis and 35 minutes in chronic gallstone disease. Gall bladder perforation, bleeding from cystic artery and bile spillage were mostly encountered per-operative difficulties. Only 37 (3.6%) patients were converted to open cholecystectomy. Post-operative complications occur in only 122 (12%) patients. 938 (92%) patients were discharged within 48 hours. of surgery.

Conclusion: Laparoscopic cholecystectomy in our setup has comparable results to the data available from other surgical facilities around the world and it has become a gold standard technique for the treatment of non-complicated gallstone disease.

Keywords: Complications, Gall stone disease, Hospital stay, Laparoscopic cholecystectomy.

INTRODUCTION

Over the last 3 decades, laparoscopic cholecystectomy has become the treatment of choice for patients with symptomatic gallstone disease. Indeed, it is safe to say that this procedure has significantly escalated the acceptance of minimally invasive surgery as a whole. The popularity of laparoscopic surgery rests in the range of advantages it has over the open procedures, including decreased need for post-operative analgesia, shorter recovery period and hospital stay, a lower rate of post-operative infections and incisional hernias, and cosmetic satisfaction caused by smaller

incisions¹.

Gallstone disease is one of the most commonly encountered medical entity among the general adult population² and cholelithiasis is the most common disorder of the gallbladder and the most frequent medical problem requiring surgery³. Open cholecystectomy was the procedure more often used for removal of gall stone before 1986. The transition from open to laparoscopy for the treatment of gallstones was a gradual one, and is accredited to the efforts of a multitude of surgeons – the foremost among them is Mouret, who performed the first acknowledged laparoscopic cholecystectomy in 1987⁴. Thereafter, the technique has been developed and refined, from multiple ports to single incision, and has changed the way surgery is perceived, not only by surgeons but also the common man. In Pakistan first laparoscopic cholecystectomy was performed in 1991⁵.

Correspondence: Dr Mannan Masud, House No. 44-A, Lane 7, Gulstan Colony, Rawalpindi
Email: mannanmasud786@hotmail.com

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Now-a-day more than 83.3% of the cholecyst-ectomies are performed laparoscopically⁶. Today laparoscopy is not only confined to cholecyste-ctomy, but it is also used for repairing hernia, colectomy, exploration of CBD, esophagectomy, appendectomy and resection of pancreas. Laparo-scopic pancreatic resection was first performed in 1993⁷.

Although laparoscopic cholecystectomy has been the procedure of choice for last 3 decades, its absolute safety and efficacy has yet to be established. Keeping this perspective in mind, we performed a study that analyzed various surgical and operative aspects of laparoscopic cholecystectomy performed at Military Hospital, and compared them against the standards recognized in the field of laparoscopic surgery. The aim of the current study was to bring medical and surgical practice at Military Hospital in context with international benchmarks, and in the long run inculcate a culture of regular evaluation and evolution of not only surgical practice, but also patient care as a whole.

MATERIAL AND METHODS

This was a prospective study conducted at surgical department Military Hospital, Rawalpindi from Jul, 2011 to Dec, 2013 over a period of 2.5 years. A total of 1020 patients who underwent laparoscopic cholecystectomy were included in the study. All patients with acute or chronic cholecystitis and gallstone pancreatitis were included while those who had previously undergone abdominal surgeries, those with high risk for general anesthesia, immunocompromised patients, with age greater than 70 years and having comorbidities like cardiac insufficiency, severe asthma, chronic liver disease with ascites and compromised renal functions were excluded from the study. The diagnosis of cholecystitis was made on the basis of clinical, laboratory and radiological data. In all cases of symptomatic gall stone disease, all the patients were offered laparoscopic cholecystectomy as an alternative to open cholecystectomy. Patients were explained well about both the procedures. Final decision was made by patient.

Pre-operative investigations for fitness of anesthesia were performed that include blood complete picture, urine analysis, blood urea, serum creatinine, blood sugar, serum albumin, Hepatitis B and C, ECG and X-ray chest. Administration of prophylactic antibiotic was made by attending surgeon on individual basis and they were usually not employed for uncomplicated cases. Laparoscopic cholecystectomy was performed using four port technique with zero degree telescope. Laparoscopic cholecystectomy was converted to open cholecystectomy in patients with distorted anatomy, dense adhesions and bleeding that obscured the field of dissection. Data including patient's demographic details, mode of admission, operative time, intra-operative findings, perioperative difficulties, post-operative complications, conversion to open cholecystectomy and post-operative recovery time were recorded. Data was analyzed by using SPSS version 20 and finally results were compared with international studies.

RESULTS

Out of 1020 patients 907 were females while 113 were males with male to female ratio of 1: 8.02. Age range was 20-70 with mean age of 50 ± 10 years. 47% patients were admitted as emergency cases through medical reception center whereas the remaining 53% were admitted through surgical OPD as elective cases. 44.7% patients presented with the clinical features of acute cholecystitis, 52.94% with chronic cholecystitis and 2.28% patients with acute pancreatitis. Common clinical features were acute pain abdomen in 46.98% patients, fever in 7.5%, tachycardia in 10.5%, tenderness RHC in 28.4%, positive murphy's sign in 12.1% and jaundice in 2.28%.

Lab investigations revealed leukocytosis in 35.2% patients with TLC > 14000/cmm, Hb < 10 mg/dl in 7%, deranged LFTs (increased bilirubin and ALP) in 7.18% and deranged coagulation profile in 2.28% patients. Ultrasound was suggestive of single gallstone in 10% patients and multiple stones in 40% patients, acute cholecystitis associated with gallstones in 45% patients, increased wall thickness 31% patients, CBD dilation in 2.3%

patients and empyema gall bladder in 7.6% patients.

In intraoperative findings, anatomical variations in gallbladder morphology were found in 45% of patients, gall bladder was moderately distended in 27.5%, severely distended in 19.4%, shrunken in 11.2% and thick walled in 19.6% patients. Dense adhesions were encountered during the dissection of gallbladder in 40.3% patients while empyema was found in 9.2% patients. Normal variations of cystic duct morphology were found in 65% patients, it was thick walled in 27.2% patients, dilated in 13.7% patients while it was impacted with stones in 7.1% patients. CBD was normal in 97% patients while dilated in 3% patients. Hartmann's pouch was normal in 22.5% patients; it was bulging in 47.5% patients and was found impacted with stones in 12.45% patients. Gall bladder bed was easily dissectible in 47.5% patients, it was adherent and difficult to dissect in 52.5% patients and it penetrated the liver in 17.5% patients. Bleeding occurred in 12.5% patients. Bile was normal in 45% patients. It was concentrated in 30% patients whereas sludge was found in 27.5% patients. Peroperatively, gall bladder perforation with bile spillage occurred in 7.5% patients, gallstone spillage occurred in 6% patients and bleeding from cystic artery occurred in 8.7% patients. Single stone was found on operation in 10%, multiple calculi in 87.5% while acalculus cholecystitis was found in 2.3% patients. Only 37 (3.6%) patients were converted to open cholecystectomy because of distorted anatomy, dense adhesions, phlegmonous mass and bleeding. Gall bladder was retrieved via epigastric port in 92% patients and via umbilical port in 4% patients. Port enlargement was done in 7.5% patients. Mostly encountered post-operative complications were bile leakage in 1.3%, fever in 2.3%, wound infection in 3.6% and shoulder pain in 4.6% patients while re-intervention in 0.6% patients. Mean operative time was 20 min in asymptomatic patients, while 40 min in acute cholecystitis and 35 min in chronic gallstone disease. 92% patients were discharged within 48 hrs of surgery while 2.28% patients who underwent ERCP with sphincterotomy and retrieval of CBD stones

were laparoscopically operated on same admission and were discharged within a week without any morbidity. There was no mortality.

Table shows intra-operative complications while Fig shows post-op complications.

Table: The frequency of intra operative complications in patients of laparoscopic cholecystectomy.

Complications	Frequency n (%)
Gall bladder perforation	38 (7.5%)
Gallstone spillage	30 (6%)
Cystic artery bleeding	44 (8.7%)
Bile spillage	38 (7.5%)

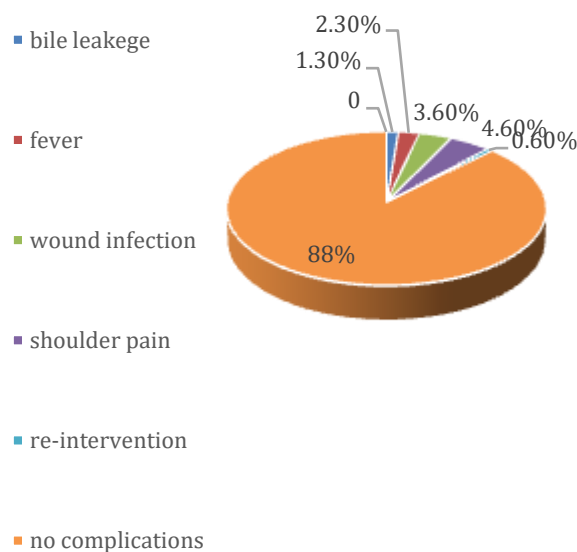


Figure: The percentages of postoperative complications in patients of laparoscopic cholecystectomy.

DISCUSSION

Today open cholecystectomies are almost completely replaced by laparoscopic cholecystectomies for the treatment of symptomatic non-complicated gallstone disease. This hypothesis can be confirmed by the fact that 83.3% cholecystectomies are being performed laparoscopically⁶. In USA by late 90s, 10 years after the introductions of LC, approximately 80% of cholecystectomies were being performed laparoscopically⁸. In Pakistan the scope of laparoscopy is limited due to lack

of technology and expertise. Indeed, it is safe to say that this procedure has significantly escalated the acceptance of minimally invasive surgery as a whole. The laparoscopic surgery has revolutionized the gallbladder surgery because of its advantages over open procedures, including decreased need for post-operative analgesia, shorter recovery period and hospital stay, a lower rate of post-operative infections and incisional hernias, and cosmetic satisfaction caused by smaller incisions¹.

Conversion from laparoscopic cholecystectomy to open cholecystectomy rate in our study was 3.6% which is less than rate observed by Jahangeer al et¹⁰ and Jeremy al et¹¹. Important reasons for conversion to open cholecystectomy were distorted anatomy, dense adhesions, phlegmonous mass and bleeding. Conversion to open cholecystectomy significantly changes the outcome of the patients in term of complications and post-op hospital stay.

Bile duct injury is the most devastating complication of laparoscopic cholecystectomy. Despite the advancement in laparoscopy its frequency is still high. In our study bile duct injury occurred in 1.3% patients which is comparable to data published by Albrecht R al et¹². Gallbladder perforation is intra-operative complication that has consequences of converting procedure into a lengthy procedure because of spilled bile and gall stones that should be retrieved. In our study gallbladder perforation occurred in 7.5% patients which was less than the data published by Markis GN al et¹³. Acalculous cholecystitis has remained a debatable entity and it usually accounts for 5-20% of the cholecystectomies¹⁴. In our study 2.3% patients undergoing laparoscopic cholecystectomy were acholous.

Port site wound infection occurred in about 3.6% patients. This data is consistent with the international data that shows that patients undergoing laparoscopic cholecystectomy have 72% decreased risk for developing surgical site infections¹⁵. The mean operative time in our study was 20 mins for asymptomatic patients while it was 40 mins for acute cholecystitis and 35 mins for chronic cholecystitis, this data is

comparable to data published by Jahangir Sarwar Khan et al¹⁶. An important benefit of laparoscopic cholecystectomy is short post-op hospital stay. In our study 92% of the patients were discharged within 48 hrs of surgery while Adnan M al et¹⁷ reported a figure of 84.4%.

Today laparoscopic cholecystectomy has become the procedure of choice for surgeons as well as for the patients. In order to cope with its emerging need we have to overcome scarcity of technology and experienced staff in Pakistan.

CONCLUSION

Laparoscopic cholecystectomy in our setup has comparable results to the data available from other surgical facilities around the world and it has become a gold standard technique for the treatment of non-complicated gallstone disease. There should be regular evaluation and evolution of not only surgical practice, but also patient care as a whole.

CONFLICT OF INTEREST

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

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