Original Research Article

Case series of 200 laparoscopic cholecystectomy, their intra-operative finding and post-operative complication

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ABSTRACT

Background: In the current era of laparoscopic procedure, laparoscopic cholecystectomy are most commonly performed surgery all over the world. The biliary tract injury by laparoscopic cholecystectomy has been found to be higher than open cholecystectomy. So adequate recognition and awareness of anatomical abnormalities of encounter during laparoscopic cholecystectomy can decrease the morbidity and mortality related to surgery.

Methods: It is prospective study including 200 patients based on intra-operative finding and their postoperative complication in Bhopal Memorial Hospital and research centre Bhopal, during period of Jan 2017 to Jan 2019.

Results: In 200 cases 154 were Female and 46 were male. Mucocoele of gallbladder in 22 cases, pyocoele of gallbladder in 7 cases. Gallbladder wall thickened and fibrosis in 13 cases. Gallbladder with duodenal fistula in 1 case, gall bladder with colon and gall bladder with stomach fistula both in 1 case, and gall bladder with stomach fistula in 1 case. In one case there is absent gall bladder but patient having CBD stone. Cystic artery cant separated from cystic duct and clipped along with cystic duct in 16 cases. In 3 cases there were gall bladder malignancy two were suspected intra-operatively and procedure abandoned other one after post lap cholecystectomy, confirm with biopsy report. Two cases develop post op incisional hernia. In 8 cases lap cholecystectomy converted into open cholecystectomy.

Conclusions: This case series of laparoscopic cholecystectomy will help surgeons to be aware of such intra-operative finding and complication, so as to prevent undesirable outcome.

Keywords: Cystic duct, Cystic artery, Laparoscopic cholecystectomy

INTRODUCTION

In the current era of laparoscopic procedure, laparoscopic cholecystectomy are most commonly performed surgery all over the world. The gallbladder is a pear-shaped organ that lies on the inferior surface of the liver at the junction of the left and right hepatic lobes between Courmand's segments IV and V.¹

Calot described a triangular anatomic region formed by the common hepatic duct medially, the cystic duct laterally, and the cystic artery superiorly.² Calot's triangle is considered by most to comprise the triangular area with

an upper boundary formed by the inferior margin of the right lobe of the liver, rather than the cystic artery.^{3,4} Complications of cholelithiasis include cholecystitis, common bile duct, obstruction/impingement (Mirizzi's syndrome), pancreatitis, cholangitis, and rarely gallbladder cancer. The most common of these is cholecystitis. Approximately 65% of patients with acute cholecystitis have some element of chronic cholecystitis, which is characterized by fibrosis and inflammatory infiltrate of the gallbladder wall.⁵ Regardless of the cause, almost all cases of symptomatic or complicated cholelithiasis are treated by a cholecystectomy-surgical removal of the gallbladder. The widespread popularity

and acceptance of laparoscopy and minimally invasive surgery are exemplified by the laparoscopic cholecystectomy, making it one of the most commonly performed procedures today. Although the advantages of laparoscopic cholecystectomy are acknowledged, its limitations and unique complications should also be kept in mind. There is a significantly higher incidence of bile duct injuries in laparoscopic cholecystectomy (0.2% to 0.8%) compared to open cholecystectomy (0.1% to 0.25%), and developing critical view of safety is essential to decrease bile duct injury.⁶⁻⁹

The timing of cholecystectomy during acute cholecystitis has been debated. In the current laparoscopic era, it has been demonstrated that an earlier intervention is beneficial. In a recent prospective, randomized study comparing early cholecystectomy (within 72 hours of admission) to delayed cholecystectomy, there were no significant differences in morbidity or mortality, but there was a significantly prolonged hospital stay (11 vs. 6 days) and recovery period (19 vs. 12 days) in the delayed group.^{10,11}

In other prospective studies, early laparoscopic cholecystectomy resulted in decreased rates of conversion to open cholecystectomy, decreased length of hospital stay, and decreased overall morbidity.^{12,13} Hence, early surgical intervention for acute cholecystitis has medical, economic, and social benefits that make it the recommended approach.

The morbidity rate for an open cholecystectomy ranges from 5% to 20% when all complications are reported, including problems associated with any operation such as ileus, electrolyte abnormalities, atelectasis/pneumonia, and urinary retention.^{14,15} The overall mortality rate from an open cholecystectomy is 0.1% to 0.5%.¹⁶ The current study was a prospective study conducted to know the various complications encounter during and after surgery of laparoscopic cholecystectomy. So aware of such complications and how to minimize and how to deal with these complications in laparoscopic cholecystectomy.

METHODS

This prospective study was conducted in department of Gastro- Surgery including 200 patients in Bhopal Memorial Hospital and Research Centre Bhopal, Madhya Pradesh, India over period of January 2016 to January 2019. Following written informed consent with patient to undergo laparoscopic cholecystectomy.

Inclusion criteria

- All patients having symptomatic cholelithiasis.
- Post ERCP CBD Stent with cholelithiasis.
- Gall stone pancreatitis.
- Acalculous cholecystitis.
- Gall bladder polyp.

Exclusion criteria

- Suspicious of gall bladder carcinoma
- Cirrhosis/portal hypertension
- Pregnancy
- Refractory coagulopathy

Figure 1: Normal anatomy of GB, CD, CA, CBD.

Figure 2: Cholecystoduodenal fistula.

FIG.3 SHOWING PYCOEL OF GALL BLADDER

Figure 3: Pyocoe of gall bladder.

All operation performed under general anaesthesia, orogastric tube placed. Pneumoperitoneum created with open technique. 10mm port placed laparoscope inserted then another 10mm port inserted at epigastric region just

toward right of falciform ligament. Then patient positioned and two other 5mm subcostal port placed under direct vision then with sharp dissection critical view of safety made cystic duct and cystic artery clipped and cut, gallbladder dissected from liver surface and taken out. Port site close with port closure vicryl and other port site directly close with nylon suture. Gall bladder sent for histopathological examination. Average hospital stay was 3 days and there is no mortality.

Figure 4: Infected and partially necrosed gall bladder.

RESULTS

In 200 cases of laparoscopic cholecystectomy 156 were female and 44 were male. 32 patient were post ERCP CBD stenting for CBD stone. The following intra-operative finding and post-operative complication seen.

There are mucocele of gall bladder in 22 cases, pyocele of gallbladder in 7 cases gall bladder wall thickened and fibrosed in 13 cases, gall bladder wall necrosis in 3 cases. Intra-hepatic Gall-bladder in 2 cases, In 1 case Gall bladder present beneath left lobe of liver instead of right lobe, and in 1 case Gall bladder was absent. Although patient having CBD stone for which ERCP CBD stenting for CBD Stone was already done. Ultrasound reported small fibrotic gall bladder, patient was 35 yr female mentally retarded and on psychiatric treatment.

Figure 5: Intra-operative finding of gall bladder (out of 200) during lap cholecystectomy.

Fistula with gall-bladder present between, gall bladder with transverse colon and stomach both in 1 case, gall bladder and duodenum in 1 case, gall bladder and stomach in 1 case.

Figure 6: Gall bladder fistula with bowel.

In cystic duct there is short cystic duct (<1.5cm) in 16 cases stone present in cystic duct in 7 cases. In 2 cases cystic duct grossly dilated and suture tie need to be taken.

Figure7: Status of cystic duct during laparoscopic cholecystectomy.

In out of 200 cases cystic artery anterior to cystic duct in 6 cases, cystic artery cannot be separated from cystic duct in 16 cases and clipped along with cystic duct, double cystic artery in 2 cases.

Figure 8: Cystic artery during laparoscopic cholecystectomy.

Laparoscopic cholecystectomy converted to open cholecystectomy in 8 cases these were as one was GB-stomach fistula second was GB-transverse colon and stomach fistula third was GB- duodenum fistula fourth was gall bladder could not found on laparoscopy so converted into open, although gall bladder absent. Fifth was patient having diabetes and external drain for emphysematous cholecystitis. Gall bladder having dense adhesion of bowel with peritoneum and gall bladder. Sixth was intra-op CBD injury during separation of cystic duct, CBD adheres to cystic duct, and 2 cases of post ERCP gall bladder, due to dense adhesion calot anatomy could not delineate properly.

Figure 9: Laparoscopic cholecystectomy converted to open cholecystectomy.

In 3 cases detected gall bladder malignancy, in 2 cases there is intraoperative suspicious of malignancy, procedure abandoned and biopsy taken. One of the case present with GB perforation and another one present with acute calculus cholecystitis with GB wall thickening. One case detected after laparoscopic cholecystectomy as Stage 1a adenocarcinoma.

Figure 10: Incidental finding of GB malignancy during lap cholecystectomy.

One of the case develop jaundice after laparoscopic cholecystectomy, and on investigation found having CBD stone, ERCP guided stone extracted, and Bile leak from D1 in one case, having GB- stomach fistula and undergo open cholecystectomy with stomach repair. Patients

recover with conservative treatment in 15 days. Post-operative incisional hernia in 2 cases one in open cholecystectomy patient and another small port site infra-umbilical hernia in lap cholecystectomy patient. Infra-umbilical port site infection in 4 cases patients are diabetics, and get treated with antibiotic and dressing.

DISCUSSION

It is imperative to have a proper knowledge regarding the anatomy and its associated anatomical variations while performing laparoscopic cholecystectomy. Although in past various studies have been done on laparoscopic cholecystectomy that has made evident various complication during and post- operative surgeries. We add our study on 200 patients to look for further intra-operative and post-operative complication to add more to existing medical literature. We discuss here in details of the complication and intraoperative finding in our present study. Mucocoele of gallbladder in 22 cases, pyocoele of gallbladder in 7 cases, gallbladder wall thickened and fibrosis in 13 cases, gallbladder wall necrosis in 3 cases these patients having uncontrolled diabetes mellitus. In one case gallbladder present beneath left lobe of liver instead of right lobe. In one case gallbladder was absent although patient having CBD stone for which CBD stenting and stone retrieved. Ultrasound reported small fibrotic gall bladder The routine use of ERCP before cholecystectomy cannot be justified.¹⁷ Patients judged to have high suspicious of duct stones are likely to benefit from preoperative ERCP and stone extraction (if stones are present).¹⁸ There is gallbladder duodenum fistula in one case, gallbladder stomach fistula in one case and gallbladder with transverse colon and stomach fistula both in one case. Short cystic duct in 16 cases and in 7 cases stone present in cystic duct. In 16 cases cystic artery cant separated from cystic duct and both clipped together, double cystic artery in two cases. Based on anatomic dissections, Benson and Page described variations in the arterial anatomy an accessory or double cystic artery occurs in approximately 15% to 20% of individuals.¹⁹ Laparoscopic cholecystectomy converted into open cholecystectomy in 8 cases. In the elective setting, conversion to an open procedure is needed in about 5% of patients.²⁰ 3 cases detected as malignancy of gallbladder, 2 cases suspected during surgery and one case detected after laparoscopic cholecystectomy on biopsy. It has been estimated that only 0.3% to 3% of patients with gallstones develop gallbladder cancer.²¹ Most gallbladder cancers diagnosed incidentally after routine cholecystectomy are early-stage tumors. One of the case develop jaundice after lap cholecystectomy and on MRCP found to be having CBD stone although previous LFT was normal and ultrasound abdomen suggestive of multiple cholelithiasis.

CONCLUSION

This case series of laparoscopic cholecystectomy will help to the surgeons to be aware of such intra-operative

and post-operative complication, so as to prevent undesirable outcome.

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