Section: General Surgery

Original Research Article

STUDY OF COMPLICATION OF LAPAROSCOPIC CHOLECYSTECTOMY

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Abstract

Background: Although laparoscopic cholecystomy is a gold standard surgical treatment of systematic biliary lithiasis. The surgery is not completely free from risk. Some incidents and complications are more frequent than with open cholecystitis. Hence, a meticulous approach can save the morbidity and mortality. **Materials and Methods:** 250 adult patients aged between 39 to 60 years of age with benign GB disease were operated on with LC; prior to surgery, a hematological and radiological evaluation was carried out. Histopathological study, intraoperative, and postoperative complications were noted. **Result:** Histo-pathological studies included 195 (78%) chronic calculous cholecystitis, 19 (7.6%) chronic caliculus cholecystitis with mucocele, 12 (4.8%) acute caliculus cholecystitis, 12 (4.8%) empyema G.B., 6 (2.4%) acute cholecystitis, and 1 (1.2%) chronic cholecystitis with cystitis glandular profiles. Peri- and postoperative complications were 23 (9.2%) for Tricor site bleeding, 23 (9.2%) liver bed injury, 15 (6%) for bile leakage from GB, 11 (4.4%) for bleeding from calots, and 5 (2%) for port infection. **Conclusion:** LC is a safe and effective procedure for GB disease, but it requires an experienced surgeon to avoid morbidity and mortality for favorable results.

INTRODUCTION

Laparoscopic cholecystectomy (LC) has become standard surgical treatment for gallstone disease.[1] There is a wide range of diseases. There is a wide range of 0.5% to 1.5% of bile duct injury during LC. Compared to 0.3% for open cholecystectomy, it is documented globally, including in India, because intraoperative and immediate postoperative complications cannot be ignored.[2] The intraoperative complications include bowel and vascular injury (trocar site bleeding); biliary leaks and bile duct injuries are rare if the surgeon is inexperienced. Hence, LC procedure is popular and the gold standard as compared to open cholecystectomy because LC has new techniques and instruments.[3] The patients need not stay for a long duration in the hospital, as the LC procedure is rapid healing, reduced in morbidity, and will have a smaller surgical scar.[4] Hence an attempt is made to rule out the complications of laparoscopic cholecystectomy apart from meticulous surgical procedure and skilled, experienced surgeons.

MATERIALS AND METHODS

250 patients aged between 30 to 60 years old who regularly visited the Department of Surgery, Sri Siddartha Institute of Medical Sciences and Research Centre, T. Begur, Nelamangala, Karnataka-562123, were studied.

Inclusion Criteria

Patients diagnosed with benign GB disease, above 18 years, and who gave their consent in writing for the study were selected for the study.

Exclusion Criteria

Patients having common bile duct (CBD) stones or dilatation features of obstructive jaundice and malignancy of the gall bladder (GB) were excluded from the study.

Method: Every patient was evaluated with a physical examination and relevant laboratory and radiological investigations and underwent laparoscopic cholecystectomy (LC). Histopathological tests were conducted to evaluate the causes of GB disease; perioperative and postoperative complications were noted.

The duration of the study was from July 2023 to June 2024.

Statistical Analysis

Histopathological findings and perioperative and postoperative complications were classified with percentages. The statistical analysis was carried out in SPSS software. The ratio of male and female was 1:2.

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RESULTS

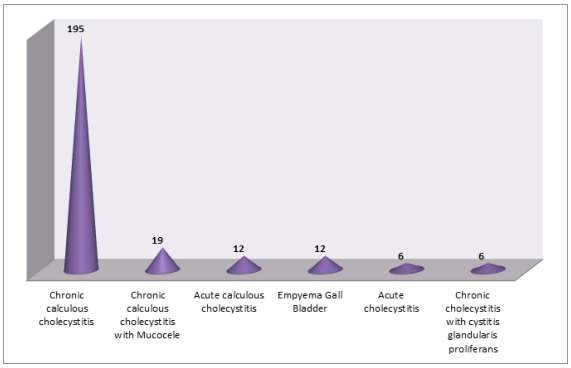

Figure 1: Histopathological study of Cholecystitis

[Table 1] Histo-pathological study of cholecystitis: 195 (78%) had chronic calculous, 19 (7.6%) had chronic calculous cholecystitis with mucocele, 12 (4.8%) had acute cholecystitis, 12 (4.8%) had empyema gall bladder, 6 (2.4%) had acute cholecystitis, and 6 (2.4%) had chronic cholecystitis with cystitis glandularis proliferans.

[Table 2] Peri and postoperative complications: 23 (9.2%) trocar site bleeding, 23 (9.2%) liver bed injury, 15 (6%) bile leakage from gallbladder, 11 (4.4%) bleeding from calots, 5 (2%) port site infection

[Table 3] Present conversion 6.2% is compared with previous workers.

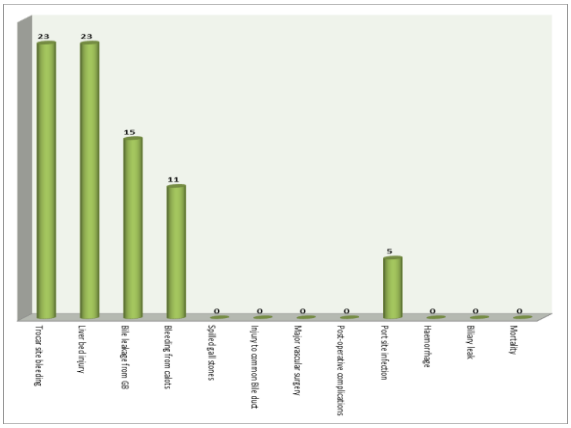

Figure 2: Peri and Post Operative Complications

Table 1: Histopathological study of Cholecystitis. (N=250)

Sl No	Details	No. of Patients (250)	Percentage (%)
1	Chronic calculous cholecystitis	195	78%
2	Chronic calculous cholecystitis with Mucocele	19	7.6%
3	Acute calculous cholecystitis	12	4.8%
4	Empyema Gall Bladder	12	4.8%
5	Acute cholecystitis	6	2.4%
6	Chronic cholecystitis with cystitis glandularis proliferans	6	2.4%

Table 2: Peri and Post Operative Complications

Intra operation complications	No. of patients	Percentage (%)
Trocar site bleeding	23	9.2
Liver bed injury	23	9.2
Bile leakage from GB	15	6
Bleeding from calots	11	4.4
Spilled gall stones	0	0
Injury to common Bile duct	0	0
Major vascular surgery	0	0
(B) Post-operative complications	0	0
Port site infection	5	2
Haemorrhage	0	0
Biliary leak	0	0
Mortality	0	0

Table 3: Comparison of conversion rates with previous studies

Name of the Author with year	Conversion rate percentage (%)
Rooh-ul-Mugin et al 2008	3.6
Shaun et al 2009	5.37
Ghnnam et al 2010	5.30
Daniel et al 2012	7
Shankar et al 2012	7.8
Nidani et al 2015	6
Lee S No. et al 2015	8.5
Miodrag et al 2016	3.9
Faruquzzaman et al 2017	7
Ravindra, Naik et al 2021	6.1
Present study 2025	6.2

DISCUSSION

Present study of complications of laparoscopic cholecystectomy. In a histopathological study of cholecystitis, there were 195 (78%) cases of chronic calculous cholecystitis, 19 (7.6%) cases of chronic calculous cholecystitis with mucocele, 12 (4.8%) cases of acute chronic calculous cholecystitis,

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empyema GB, 6 (2.4%) cases of acute cholecystitis, and 6 (2.4%) cases of chronic acalculous cholecystitis with cystitis glandular proliferms [Table 1]. Peri and postoperative complications included 23 (9.2%) cases of trocar site bleeding, 23 (9.2%) liver bed injury, 15 (6%) bile leakage from GB, 11 (4.4%) bleeding from calots, and 5 (2.1%) port site infections [Table 2]. Conversion and compared with previous studies [Table 3]. These findings are more or less in agreement with previous studies.[5-7]

Trocar-related bowel injuries are frequently encountered during port entry. The trocar site bleeding can occur from trocar site vessels, inferior epigastric arteries, or omental vessels.[8] It was managed with pressure hemostasis from the trocar itself, diathermy, or vessel ligation. Omental vessel injury was managed with a laparoscopic energy device. Liver bed injury occurs in the form of bleeding from the liver bed; it was more common in cases where the GB was partially intrahepatic or firmly adherent to the liver bed and the plane of dissection was not clearly defined.[9] Bile spillage may occur inadvertently during the surgical dissection of GB handled either by grasper or electrocautery dissection of GB with laparoscopic instruments. It may also occur at the time of retrieval from the abdomen; spilled gallstones are due to iatrogenic perforation of GB, which is most of the time associated with spilled gallstones in the peritoneal cavity.[10] Biliary leakage was due to improper ligation of the cystic duct. The port site infection was managed conservatively with daily dressing and with intravenous antibiotics after culture and sensitivity.[11] Mortality during laparoscopic cholecystectomy is a rare phenomenon. It could be due to an undiagnosed rupture of malignancy in GB.

CONCLUSION

The present study of complications in laparoscopic cholecystectomy is the most advanced technique with the least rate of mortality and morbidity. It is a safe and effective procedure in patients presenting with symptomatic benign GB diseases. Most of the complications are due to inexperienced surgeons; hence, proper and skilled training of laparoscopic technique for surgeons can minimize the complications, and the LC technique can remain the gold standard method.

Limitation of Study: Owing to tertiary locations of research centers, a small number of patients, and a lack of the latest techniques, we have limited findings and results.

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