Original Research Article

Assessment of complications of laparoscopic cholecystectomy

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Received: 05-04-2021 / Revised: 31-05-2021 / Accepted: 18-06-2021

Abstract

Background: The prevalence of gall stones ranges from 10-20% and it is the major cause of morbidity. The present study was conducted to assess complications of laparoscopic cholecystectomy.**Materials & Methods:**140 cases of gall bladder stones of both genders were treated with laparoscopic cholecystectomy.The operations were performed with standard four port technique. All were subjected to hematological, biochemical and radiological investigation.Complications of procedure was recorded.**Results:** Diagnosis of cases was chronic cholecystitis in 112, acute calculouscholecystitis in 18, sclero-atrophic cholecystitis in 5, GB mucocele in 4 and chronic cholecystitis with cholecysto-duodenal fistula in 1 case. Common causes of conversion was CBD injury in 3, pericholecystitis in 1 and biliary leak from cystic duct stump in 1 case. Common complications was bile leak in 5, port site hematoma and infection in 1, choleperitoneum in 1, umbilical hernia in 2 and retained duct stone in 1 case. The difference was significant (P< 0.05).**Conclusion:** Common complications were bile leak, port site hematoma, infection, choleperitoneum, umbilical hernia and retained duct stone.

Keywords: choleperitoneum, retained duct stone, laparoscopic cholecystectomy

Introduction

The prevalence of gall stones ranges from 10-20% and it is the major cause of morbidity. Open cholecystectomy has been the cornerstone of the treatment of cholelithiasis for about more than 100 years, since it was introduced by Carl August Langenbuch in 1882[1].Majority of the surgeons and patients accepted this technique and it almost replaced OC. Now this method of treatment of GB stone and inflamed gallbladder has become the 1st choice Worldwide[2].The procedure, however, is surgically demanding and introduces specific risks unique to the laparoscopic approach, that are not present during the performance of open cholecystectomy.Laparoscopic cholecystectomy seems to have a higher common bile duct injury rate than the open procedure. Major vascular injuries and clip migration can seriously complicate the operation and the post-operative course after laparoscopic cholecystectomy[3].Adopting laparoscopic cholecystectomy in a treatment of symptomatic cholelithiasis introduced a new spectrum of associated intraoperative and postoperative complications. Minor complications (biliary and non-biliary)are usually treated conservatively[4].

Major complications (biliary and vascular) are life threatening and increase mortality rate, therefore creating the need for conversion to open surgical approach in order to treat them. The frequency of complications associated with laparoscopic cholecystectomy varies from 0.5 to 6%. The most serious complications are associated with high mortality rate: injury of common bile duct with an incidence of 0.1-0.6%[5].The present study was conducted to assess complications of laparoscopic cholecystectomy.

Materials & Methods

The present study comprised of 140 cases of gall bladder stones of both genders. All were included in the study once they gave their consent. All were operated laparoscopically for symptomatic gall stone disease.Data such as name, age, gender etc. was recorded. The operations were performed with standard four port technique. All were subjected tohematological, biochemical and radiological investigation.Conversion to open operation were done where ever needed. Sub hepatic bile collectionwas treated by ultrasound guided percutaneous drainage.Complications of procedure was recorded also. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table 1: Distribution of patients

Total- 140		
Gender	**Males**	**Females**
Number	60	80

Table 1 shows that out of 140 males were 60 and females were 80.

Table 2: Diagnosis of cases

Diagnosis	Number	P value
Chronic cholecystitis	112	0.01
Acute calculouscholecystitis	18	
Sclero-atrophic cholecystitis	5	
GB mucocele	4	
Chronic cholecystitis with cholecysto-duodenal fistula	1	

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Table 1,Fig 1 shows that diagnosis of cases was chronic cholecystitis in 112, acute calculous cholecystitis in 18, sclero-atrophic cholecystitis in 5, GB mucocele in 4 and chronic cholecystitis with cholecysto-duodenal fistula in 1 case. The difference was significant (P< 0.05).

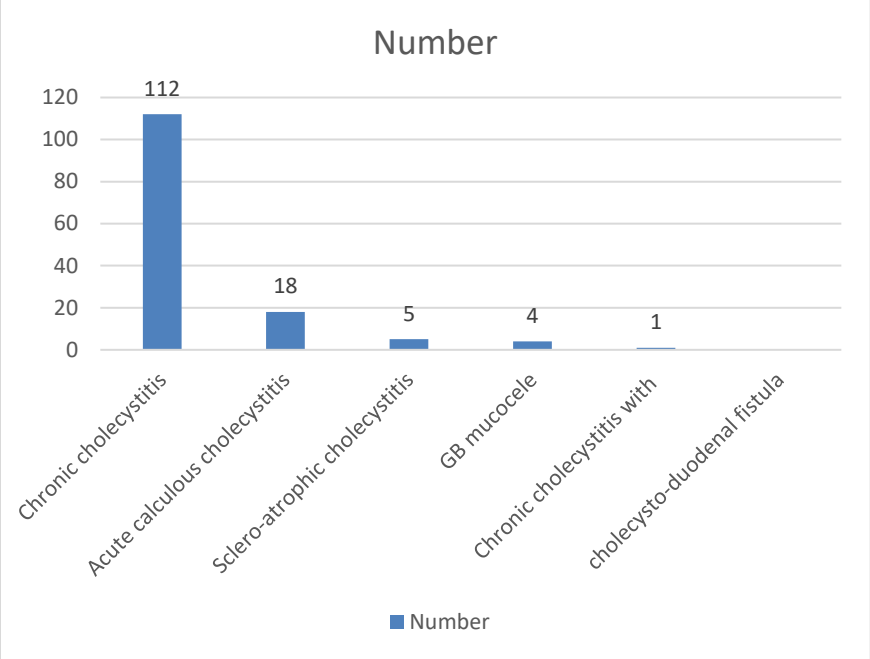

Fig 1:Diagnosis of cases

Table 3:Causes of conversion

Causes	Number	P value
CBD injury	3	0.05
Pericholecystitis	1	
Biliary leak from cystic duct stump	1	

Table 3 shows that common causes of conversion was CBD injury in 3, pericholecystitis in 1 and biliary leak from cystic duct stump in 1 case. The difference was significant (P< 0.05).

Table 4: Complication of laparoscopic cholecystectomy

Complications	Number	P value
Bile leak	5	0.02
Port site hematoma and infection	1	
Choleperitoneum	1	
Umbilical hernia	2	
Retained duct stone	1	

Table 4 shows that common complications was bile leak in 5, port site hematoma and infection in 1, choleperitoneum in 1, umbilical hernia in 2 and retained duct stone in 1 case. The difference was significant (P< 0.05).

Discussion

Laparoscopic cholecystectomy became the preferred method for the treatment of symptomatic cholelithiasis[6].Laparoscopic cholecystectomy has many advantages over the standard open cholecystectomy: minimal trauma, decreased pain, shorter hospital stay, satisfactory cosmetic outcome, quick recovery, and return to work[7]. However, numerous studies have shown this that laparoscopic cholecystectomy is associated with a higher frequency of complications compared to the standard open cholecystectomy including lesions to the common bile duct, injury to the vascular and visceral structures during the application of a Veress needle, and a trocar with fatal outcomes[8]. Male gender, age, presence of systemic inflammatory response syndrome (defined by elevated inflammatory parameters- elevated white blood cell count and C- reactive protein), acute inflammation of the gallbladder and preoperative ultrasonographic finding of increased thickness of the gallbladder wall, and/or presence of gallbladder empyema, are all factors that increase risk for possible development of intraoperative laparoscopic complications, and the possibility of needing a conversion[9].The present study was conducted to assess complications of laparoscopic cholecystectomy. In present study, out of 140 males were 60 and females were 80. We found that diagnosis of cases was chronic cholecystitis in 112, acute calculous cholecystitis in 18, sclero-atrophic cholecystitis in 5, GB mucocelein 4 and chronic cholecystitis with cholecysto-duodenal fistula in 1 case.Radunovic et al[10] in their study 740 patients who had laparoscopic cholecystectomy were analysed. There were 97 (13.1%) intraoperative complications (IOC). Iatrogenic perforations of a gallbladder were the most common complication - 39 patients (5.27%). Among the postoperative complications (POC), the most common ones were bleeding from abdominal cavity 27 (3.64%), biliary duct leaks 14 (1.89%), and infection of the surgical wound 7 patients (0.94%). There were 29 conversions (3.91%). The presence of more than one complication was more common in males. An especially high incidence of complications was noted in patients with elevated white blood cell count and CRP. The increased incidence of complications was noted in patients with ultrasonographic finding of gallbladder empyema and increased thickness of the gallbladder wall > 3 mm, as well as in patients with acute cholecystitis that was confirmed by pathohistological analysis. We found that common causes of conversion was CBD injury in 3, pericholecystitis in 1 and

biliary leak from cystic duct stump in 1 case. We observed that common complications was bile leak in 5, port site hematoma and infection in 1, choleperitoneum in 1, umbilical hernia in 2 and retained duct stone in 1 case.Gupta et al[11]conducted a study in which 88.98% patients were women and 83.6% cases were of chronic cholecystitis. Four cases were of hypothyroidism. The age ranged between 11 to 55 years.

Results

Out of 336 cases, 93.75% (315) cases were successfully operated laparoscopically while 21 (6.25%) cases developed complications. Of 21 cases, 95.23% (20) cases developed operative and early postoperative complications. The frequent operative incidents and complications were gall bladder (GB) perforation (15.47%), stone spillage (10%), hemorrhage (2.3%), common bile duct injuries (0.89%). Conversions to open cholecystectomies were done in 2.3% cases. Most common reason of conversion was acute inflammation with obscure anatomy. The frequent postoperative complications were bile leak, hemorrhage and retained bile duct stone. Two cases required help of minimally invasive procedure.One death was recorded.Triantafyllidis et al[12]in their study on laparoscopic cholecystectomy found that complica-tions occurred in 96 (9.51%) patients. Bile leakage occurred in 15 patients (1.49%). One patient (0.10%) had a major bile duct injury (common bile duct transection). Bleeding occurred in 9 patients (0.89%), wound infection in 14 patients (1.39%), abdominal wall hematomas in 3 patients (0.30%), omental hematoma in 3 patients (0.30%), port site hernias in 3 patients (0.30%), subphrenic abscess in 1 patient (0.10%), subcapsular liver hematoma in 1 patient (0.10%), bowel injury in 5 patients (0.51%), postoperative acute pancreatitis in 4 patients (0.40%), respiratory and cardiovascular complications in 11 patients 1.09%). Finally in 14 patients (1.39%), the gallbladder was unintentionally opened during laparoscopic procedure and spillage of gallstones occurred into the peritoneal cavity. All patients had satisfactory results and no death occurred.

Conclusion

Authors found that common complications were bile leak, port site hematoma, infection, choleperitoneum, umbilical hernia and retained duct stone.

Conflict of Interest: Nil
Source of support:Nil

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