

A Hospital Based Prospective Study to Assessment of Postoperative Complications of Patients Underwent Gallbladder Surgery (Open Cholecystectomy)

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Abstract

Background: Gallstones are the most common biliary pathology. Minor complications (biliary and non-biliary) are usually treated conservatively. 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 aim of this study to assessment of postoperative complications of patients underwent gallbladder surgery (Cholecystectomy). **Materials & Methods:** A hospital based prospective study done on 50 cases of open cholecystectomy have been selected in the department of general surgery. The analysis included operative protocols, anesthesiology records, the medical history which included the history of the disease, documented laboratory findings and imaging results. The results were considered statistically significant if the $p < 0.05$. The statistical analysis was performed by using statistical package SPSS v. 21. **Results:** Out of the 50 patients in the study, 24 were female (48%), and 26 were male (52%). The median age was 60.7 years, including participants that were 20 to 85 year old. Mostly patients (90%) had $<30 \text{ kg/m}^2$ BMI in our study. Duration of surgery was 66.5 minutes, 26.4 ml blood loss, 6.7 days stay in hospital and return to work was 19.2 days approximately in open cholecystectomy. **Conclusion:** Major biliary and vascular complications are life threatening, while minor complications cause patient discomfort and prolongation of the hospital stay. It is important recognizing IOC complications during the surgery so they are taken care of in a timely manner during the surgical intervention.

Keywords: Open Cholecystectomy, Complications, Bile Stone.

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Introduction

Gallstones are the most common biliary pathology. More than 85% of patients are asymptomatic who needs expectant line of management. Gall stone represent a failure to maintain certain biliary solutes, primarily cholesterol and calcium salts in a solubilized state. An important biliary precipitate in gallstone pathogenesis is "biliary sludge", which refers to a mixture of cholesterol crystals, calcium bilirubinate granules and a mucin gel matrix. Biliary sludge has been observed in prolonged fasting states or with the use of long term total parenteral nutrition. Both of these conditions are also associated with gallstone formation.¹

Minor complications (biliary and non-biliary) are usually treated conservatively. 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 most serious complications are associated with high mortality rate: injury of common bile duct with an incidence of 0.1-0.6%, injuries of large blood vessels 0.04-1.22% depending on the study. The most common complication is iatrogenic perforation of the gallbladder with spilt gallstones with an incidence of 10-30%[1-4]

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 intra-operative surgical complications, and the possibility of needing a conversion.^{5,6} The aim of this study to assessment of

postoperative complications of patients underwent gallbladder surgery (Cholecystectomy).

Materials & Methods

A hospital based prospective study done on 50 cases of open cholecystectomy have been selected in the department of general surgery at district hospital, Dholpur, Rajasthan, India during one year period. All patients were preoperatively assessed by doing USG abdomen, liver function tests and other routine investigations for getting assessment for surgery.

Surgical Procedure: After opening the abdomen, the GB is appropriately exposed by keeping packs on the hepatic flexure of colon, the duodenum and the lesser omentum. An artery forceps is placed on the infundibulum of the GB and the peritoneum overlying Calot's triangle is put on stretch. The peritoneum then divided close to the GB and Calot's dissected to expose the cystic duct and cystic artery. The cystic duct is cleared down to the CBD, the cystic artery is tied and divided. The cystic duct is then divided in between ligatures. The GB is then dissected away from the GB bed. The analysis included operative protocols, anesthesiology records, the medical history which included the history of the disease, documented laboratory findings and imaging results.

Statistical Analysis

We used Chi-square test, Fisher test, Mann-Whitney test. The results were considered statistically significant if the $p < 0.05$. The statistical analysis was performed by using statistical package SPSS v. 21.

Results

Out of the 50 patients in the study, 24 were female (48%), and 26 were male (52%). The median age was 60.7 years, including participants that were 20 to 85 year old. Mostly patients (90%) had $<30 \text{ kg/m}^2$ BMI in our study (table 1). The mean operative time taken for doing open cholecystectomy was 75.06 minutes. In open group, CBD was inadvertently injured in 1 case, 'T' tube was inserted immediately and the tube was removed 2 weeks later and the patients is on regular follow up. 4 cases developed wound infection and 1 case had bile leak which subsided in 5 days in open group. Duration of surgery was 66.5 minutes, 26.4 ml blood loss, 6.7 days stay in

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hospital and return to work was 19.2 days approximately in open cholecystectomy (table 2).

Table 1: Baseline characteristics of patients

Baseline characteristics	No. of patients (N=50)	Percentage
Age (Mean±Sd) (yrs)	60.7±15.62	
Sex		
Male	26	52%
Female	24	48%
BMI (kg/m²)		
<30 kg/m ²	45	90%
≥30 kg/m ²	9	10%
ASA score		
<3	35	70%
≥3	15	30%

Table 2: Observations in present study

Baseline characteristics	No. of patients (N=50)	Percentage
Overall complications	6	12%
BD injury	1	2%
Infection	4	8%
Others	1	2%
Duration of surgery (min.)	66.5±26.3	
Blood loss (ml)	26.4±51.3	
Hospital stay (Days)	6.7±3.3	
Return to work (Days)	19.2±2.7	

Discussion

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. 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. In our prospective study, we report 4 (8%) patients with the operative wound infection. Surgical wound infection is a complication that occurs with higher frequency in open cholecystectomy compared to laparoscopic cholecystectomy [7-10]. Florian Bosch et al [11] found 0.45% and 0.10% of BD injuries were noted in laparoscopic and open methods respectively. Our study showed that BD injury was found in 2% of patients, because our setup as limited resources in district level. Hjelmquist B et al [12] found that average operating time was 104 minutes and hospital stay was about 3 days. Our study showed that duration of surgery was 66.5 minutes, 26.4 ml blood loss, 6.7 days stay in hospital and return to work was 19.2 days approximately in open cholecystectomy. Both biliary and nonbiliary complications take an important place in the published studies. The most common biliary complications described are lesions of the common bile duct, lesions of the right hepatic duct, and perforation of the gallbladder with spilled calculi. Vascular injuries, injuries to the intestine, diaphragm, and iatrogenic pneumothorax represent the most important non-biliary complications.

Conclusion

Major biliary and vascular complications are life threatening, while minor complications cause patient discomfort and prolongation of the hospital stay. It is important recognizing IOC complications during the surgery so they are taken care of in a timely manner during the surgical intervention. Conversion should not be considered a complication.

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Conflict of Interest: Nil
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