International Journal of Medical Research Professionals
P-ISSN: 2454-6356; E-ISSN: 2454-6364
DOI: 10.21276/ijmrp

IJMRP

*Original Research Article.*

# Study of Evaluation of Complications in Patients Undergoing Cholecystectomy at a Tertiary Care Hospital

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## ABSTRACT

**Background:** The present study was conducted for assessing complications in patients undergoing cholecystectomy.

**Materials & Methods:** The present study was conducted on 300 patients who were diagnosed with cholelithiasis and were scheduled to undergo laparoscopic cholecystectomy. All the surgical procedures were carried out under the hands of skilled and experienced surgeons. Both intraoperative and postoperative findings were evaluated. The analysis of type and incidence of occurrence of both intraoperative and postoperative complications was done. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

**Results:** Analysis of a total of 300 patients undergoing LC was done in the present study. Mean age of the patients was 46.8 years. Overall incidence of complications was 8.33 percent. Among them, intraoperative complications were seen in 5 percent of the patients while postoperative complications were seen in 0.33 percent of the patients.

**Conclusion:** Laparoscopic cholecystectomy is a routinely employed technique for treatment of cholelithiasis and associated with low incidence of complications.

**Key words:** Laparoscopic, Cholecystectomy, Complications.

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**Article History:**

**Received:** 17-08-2019, **Revised:** 03-09-2019, **Accepted:** 25-09-2019

| Access this article online | |
|---|---|
| Website: www.ijmrp.com | Quick Response code |
| DOI: 10.21276/ijmrp.2019.5.5.074 | |

## INTRODUCTION

Acute cholecystitis (AC) often requires emergency admission to the hospital. The traditional treatment of AC was conservative followed by cholecystectomy, usually 6 weeks to 8 weeks after discharge, although early cholecystectomy in patients with AC was shown to be safe and effective many years ago.[1, 2] Laparoscopic cholecystectomy (LC) for an acutely inflamed gallbladder is technically more demanding than surgery for acute biliary pain without inflammation (biliary colic) because of severe inflammatory adhesions and distortion of the biliary anatomy; and the time interval from admission to surgery may affect conversion rates.[3, 4]

Severe inflammation and fibrosis of the gallbladder may increase the risk of bleeding and biliary tract injury during Calot's triangle dissection. Open subtotal cholecystectomy has been used safely in patients at high-risk of bile duct injury due to disruption of natural anatomy due to severe fibrosis and inflammation. With improvements in laparoscopic techniques, laparoscopic partial cholecystectomy (LPC) has become an effective and safe method of decreasing the rates of conversion to open surgery.[5, 6]

Analysing 15 cases (0.8%) of CBD injury among 6067 cases operated by laparoscopy in Holland, Schol et al.3 found two common causes. The first cause was acute cholecystitis, which caused difficulty in identifying the anatomy in two-thirds of cases. The duct was injured after a mean dissection of 110 minutes, usually following confusion between the CBD and the cystic duct. Huang et al. analysed 6 lesions of the CBD produced in a series of 350 LCs and reported that they occurred among the first 10–15 laparoscopic operations performed by the surgeon.[7, 8] Hence; the present study was conducted for assessing complications in patient undergoing cholecystectomy.

## MATERIALS & METHODS

The present study was conducted in Department of General Surgery, L. N. Medical College & Research Centre, Bhopal, Madhya Pradesh (India) on 300 patients who were diagnosed with cholelithiasis and were scheduled to undergo laparoscopic cholecystectomy. A Performa was made and complete demographic and clinical details of all the patients were obtained.

Blood samples were obtained preoperatively and both hemodynamic and biochemical profile was evaluated. All the surgical procedures were carried out under the hands of skilled and experienced surgeons.

Both intraoperative and postoperative findings were evaluated. The analysis of type and incidence of occurrence of both intraoperative and postoperative complications was done. All surgically extracted gallbladders were examined by pathophysiologists in order to confirm the diagnosis of acute cholecystitis, chronic cholecystitis or presence of malignancy. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

**Table 1: Incidence of complications**

| Intraoperative complications | Number | Percentage |
|---|---|---|
| **Intraoperative complications** | 15 | 5 |
| **Postoperative complications** | 10 | 3.33 |
| **Total** | 25 | 8.33 |

**Table 2: Intraoperative complications**

| Intraoperative complications | Number | Percentage |
|---|---|---|
| **Bleeding from tissues adjust to gallbladder** | 5 | 1.67 |
| **Perforation of gallbladder** | 6 | 2 |
| **Spilled gallstones** | 2 | 0.67 |
| **Bleeding from cystic artery** | 1 | 0.33 |
| **Injuries to common bile duct** | 1 | 0.33 |
| **Total** | 15 | 5 |

**Table 3: Postoperative complications**

| Postoperative complications | Number | Percentage |
|---|---|---|
| **Bleeding from abdominal cavity of more than 100 ml in 24 hours** | 3 | 1 |
| **Bile leak of more than 50 ml in 24 hours** | 2 | 0.67 |
| **Surgical wound infection** | 2 | 0.67 |
| **Incisional hernia** | 1 | 0.33 |
| **Hematoma of the abdominal wall** | 1 | 0.33 |
| **Retained calculus in choledochal duct** | 1 | 0.33 |
| **Total** | 10 | 3.33 |

## RESULTS

Analysis of a total of 300 patients undergoing LC was done in the present study. Mean age of the patients was 46.8 years. After assessment, complications were found to be present in 25 patients. Hence; overall incidence of complications was 8.33 percent. Among them, intraoperative complications were seen in 5 percent of the patients while postoperative complications were seen in 0.33 percent of the patients. Among intraoperative complications, bleeding from tissues adjust to gallbladder, perforation of gallbladder, spilled gallstones, bleeding from cystic artery and injuries to common bile duct was seen in 1.67 percent, 2 percent, 0.67 percent, 0.33 percent and 0.33 percent of the patients respectively. Among postoperative complications, Bleeding from abdominal cavity of more than 100 ml in 24 hours, Bile leak of more than 50 ml in 24 hours, Surgical wound infection, Incisional hernia, Hematoma of the abdominal wall and Retained calculus in choledochal duct was seen in 1 percent, 0.67 percent, 0.67 percent, 0.33 percent, 0.33 percent and 0.33 percent of the patients respectively.

## DISCUSSION

Cholecystectomy is one of the most common intraabdominal surgical procedures performed. Laparoscopic removal is now the procedure of choice when cholecystectomy is indicated. However, newer, less invasive techniques, such as natural orifice transluminal endoscopic surgery (NOTES) and single incision laparoscopic cholecystectomy (SILC), are currently being investigated as alternatives to the traditional 4-port laparoscopic removal. Safety data and definitive benefits of these less invasive procedures are lacking.[9,10]

A move towards performing laparoscopic cholecystectomy during emergency admission in patients with symptomatic gallstone disease may also result in a change in the composition of elective cholecystectomy lists. These potentially more challenging cases are not always suitable for training purposes. If these cases are performed acutely, fewer delayed cholecystectomies will be placed on elective lists, making these sessions even more suitable for providing training opportunities while still maintaining the day case throughput.[11, 12] Hence; the present study was conducted for assessing complications in patient undergoing cholecystectomy.

Analysis of a total of 300 patients undergoing LC was done in the present study. The mean age of the patients was 46.8 years. After assessment, complications were found to be present in 25 patients. Hence; overall incidence of complications was 8.33 percent. Among them, intraoperative complications were seen in 5 percent of the patients while postoperative complications were seen in 0.33 percent of the patients. Our results were in concordance with the results obtained by previous authors who also reported similar findings. 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%, injuries of large blood vessels 0.04-1.22% depending on the study.[13- 15]

The intraoperative and postoperative complications of laparoscopic cholecystectomy, as well as the frequency of conversions was assessed in a previous study conducted by Radunovic, M et al. 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.[16]

In the present study, among intraoperative complications, bleeding from tissues adjust to gallbladder, perforation of gallbladder, spilled gallstones, bleeding from cystic artery and injuries to common bile duct was seen in 1.67 percent, 2 percent, 0.67 percent, 0.33 percent and 0.33 percent of the patients respectively. Among postoperative complications, Bleeding from abdominal cavity of more than 100 ml in 24 hours, Bile leak of more than 50 ml in 24 hours, Surgical wound infection, Incisional hernia, Hematoma of the abdominal wall and Retained calculus in choledochal duct was seen in 1 percent, 0.67 percent, 0.67 percent, 0.33 percent, 0.33 percent and 0.33 percent of the patients respectively. The results of this treatment were compared in 187 patients with simple cholelithiasis and 75 patients with complicated cholelithiasis in another study conducted by Fabre JM et al. Cholecystectomy was performed with a straight optic introduced through the paraumbilical region and coupled with video camera. Two, 3, or 4 other trocars were inserted and placed as required by anatomic conditions. In the group with simple cholelithiasis, laparoscopic cholecystectomy was performed in 99% of the patients while in the group with complicated cholelithiasis the procedure was achieved in 75% of the patients. Immediate laparotomy was done in 1% and 25% of cases respectively in both groups. No interventional mortality occurred. Postoperative complications have been acceptable (1.6% and 2.7%), with no late complications reported.[17] Alexander HC et al, in another similar study, identified the range of complications currently reported for laparoscopic cholecystectomy (LC), and the adequacy of their definitions. MEDLINE, EMBASE, and the Cochrane Central Register of Controlled Trials were searched for prospective studies reporting clinical outcomes of LC. In total 233 studies were included, reporting 967 complications, of which 204 (21%) were defined. One hundred and twenty-two studies (52%) did not provide definitions for any of the complications reported. Conversion to open cholecystectomy was the most commonly reported complication, reported in 135 (58%) studies, followed by bile leak in 89 (38%) and bile duct injury in 75 (32%). Mortality was reported in 89 studies (38%).[18]

## CONCLUSION

Laparoscopic cholecystectomy is a routinely employed technique for treatment of cholelithiasis and associated with low incidence of complications.

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**Source of Support:** Nil. **Conflict of Interest:** None Declared.



**Cite this article as:** Duke Prabhjot Jaspal, Punit Dixit. Study of Evaluation of Complications in Patients Undergoing Cholecystectomy at a Tertiary Care Hospital. Int J Med Res Prof. 2019 Sept; 5(5): 318-20. DOI:10.21276/ijmrp.2019.5.5.074