**ORIGINAL RESEARCH**

# Analysis of Complications in Patients Undergoing Cholecystectomy: An Institutional Based Study

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## ABSTRACT

**Background:** The present study was conducted for assessing complications in patients undergoing cholecystectomy.**Materials &Methods:** A total of 100 patients scheduled to undergo LC were enrolled. Complete demographic and clinical details of all the patients were obtained. A Performa was made and all the medical details of all the patients were recorded. Acute cholecystitis was suspected from the medical history, physical examination, and the results of blood chemistry. The suspected diagnosis was verified using an abdominal ultrasound. The diagnosis was evident during surgery and was finally confirmed by histopathology. Surgery was performed and follow-up was done. Both intra and postoperative complications were recorded. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.**Results:** A total of 100 patients were analyzed. The mean age of the patients was 48.3 years. Majority proportion of patients were males. major complications were encountered in 4 percent of the patients. These included Common bile duct (CBD) injury, Retained CBD stones, Subphrenic fluid accumulation and Liver abscess. Minor complications were overall encountered in 9 percent of the patients. These included back pain, Gallbladder perforation, Transient nausea and diarrhea and wound infection.**Conclusion:** From the above results the authors conclude that some of the complications are preventable if LC is performed following strict precautions.

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

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## INTRODUCTION

Knowledge of relevant anatomy is important for the safe execution of any operative procedure. Specifically, in the context of a cholecystectomy, it has been recognized since long that misinterpretation of normal anatomy as well as the presence of anatomical variations contribute to the occurrence of major postoperative complications especially biliary injuries. Such injuries in turn can cause significant morbidity and occasionally even mortality. They are also one of the commonest causes of litigation against abdominal surgeons in the developed world. There is now a fair amount of data to suggest that the acceptance of laparoscopic cholecystectomy (LC) as the standard procedure, has led to an increase in bile duct injuries complications.[1-3]Cholecystectomy is the most common intraabdominal. surgical procedure performed in the United States. Laparoscopic removal is now the procedure of choice when cholecystectomy is indicated.[1, 2] Radiologists should be aware of the correct imaging modality – ultrasound (US), computed tomography (CT), endoscopic retrograde cholangiopancreatography (ERCP), or magnetic resonance cholangiography (MRCP) – to establish the type and site of postoperative complications. The various imaging modalities are complementary, and no single imaging modality is specific for a particular complication.[3- 5] Hence; the present study was conducted for analysing complications in patients undergoing cholecystectomy.

## MATERIALS & METHODS

The present study was conducted in the Department of General Surgery, L. N. Medical College & Research Centre, Bhopal, Madhya Pradesh (India) for analysing complications in patient undergoing cholecystectomy. A total of 100 patients scheduled to undergo LC were enrolled. Complete demographic and clinical details



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of all the patients were obtained. A Performa was made and all the medical details of all the patients were recorded. Acute cholecystitis was suspected from the medical history, physical examination, and the results of blood chemistry. The suspected diagnosis was verified using an abdominal ultrasound. The diagnosis was evident during surgery and was finally confirmed by histopathology.Surgery was performed and follow-up was done. Both intra and postoperative complications were recorded. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS.

## RESULTS

A total of 100 patients were analyzed. The mean age of the patients was 48.3 years. Majority proportion of patients were males.

Major complications were encountered in 4 percent of the patients. These included Common bile duct (CBD) injury, Retained CBD stones, Subphrenic fluid accumulation and Liver abscess.

Minor complications were overall encountered in 9 percent of the patients. These included back pain, Gallbladder perforation, Transient nausea and diarrhea and Wound infection.

**Table 1: Incidence of major complications**

| Major complications | Number | Percentage |
|---|---|---|
| **Common bile duct (CBD) injury** | 1 | 1 |
| **Retained CBD stones** | 1 | 1 |
| **Subphrenic fluid accumulation** | 1 | 1 |
| **Liver abscess** | 1 | 1 |

**Table 2: Minor complications**

| Minor complications | Number | Percentage |
|---|---|---|
| **Back pain** | 4 | 4 |
| **Gallbladder perforation** | 2 | 2 |
| **Transient nausea and diarrhea** | 2 | 2 |
| **Wound infection** | 1 | 1 |

## DISCUSSION

The discipline of surgery has become even more complex with the rapid introduction of revolutionary technologies. Laparoscopic surgery is the simplest and first of those new directions. The establishment of laparoscopic cholecystectomy as a standard method and the associated learning curves has been described by several authors. However, complications still remain, including the need to convert the operation to an open procedure. The introduction of new technologies into hospitals and into operative table must be evaluated on multiple levels. Laparoscopy and robotic surgery have created a need for new and different skills and abilities that must be familiar to both practicing surgeons and trainees. Training of future surgeons is a mission of vital importance to society. Regardless of the etiology of the left-sided gallbladder, cholecystitis, cholelithiasis, and even empyema of the gallbladder in these patients can be successfully and safely treated laparoscopically. The operation is carried out in the usual manner with the trocars placed in locations on the left side of the abdomen as mirror images to their usual location on the right side.[6- 8]Laparoscopic cholecystectomy has been performed since 1985, and throughout the next two decades this procedure became the standard of care for gallbladder disease. Laparoscopic cholecystectomy has traditionally been performed using multiple small incisions/port sites. Single-incision, or single-site, laparoscopic surgery has emerged as an alternative technique to improve cosmesis and minimize complications associated with multiple incisions.[9]

A total of 100 patients were analyzed. The mean age of the patients was 48.3 years. Majority proportion of patients were males. major complications were encountered in 4 percent of the patients. These included Common bile duct (CBD) injury, Retained CBD stones, Subphrenic fluid accumulation and Liver abscess. Minor complications were overall encountered in 9 percent of the patients. These included back pain, Gallbladder perforation, Transient nausea and diarrhea and Wound infection. Duca, S. et al assessed LC performed at their centre. Over the last 9 years 9542 LCs have been performed, of which 13.9% were carried out for acute cholecystitis, 38.4% in obese patients and 7.6% in patients aged >65 years. The main operative incidents encountered were haemorrhage (224 cases, 2.3%), iatrogenic perforation of the gallbladder (1517 cases, 15.9%) and common bile duct (CBD) injuries (17 cases, 0.1%). Conversion to open operation was necessary in 184 patients (1.9%), usually due to obscure anatomy as a result of acute inflammation. The main postoperative complications were bile leakage (54 cases), haemorrhage (15 cases), sub-hepatic abscess (10 cases) and retained bile duct stones (11 cases). Ten deaths were recorded (0.1%). Most of the postoperative incidents (except bile duct injuries) were solved by laparoscopic means. Among patients with postoperative complications 28.9% required revisional surgery.[10]Radunovic M et al evaluated patients for the presence of potential risk factors that could predict the development of complications such as age, gender, body mass index, white blood cell count and C-reactive protein (CRP), gallbladder



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ultrasonographic findings, and pathohistological analysis of removed gallbladders. 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. Adopting laparoscopic cholecystectomy as a new technique for treatment of cholelithiasis, introduced a new spectrum of complications.[11]

Triantafyllidis I et al presented our data about the type and the incidence of these complications and their experience in their management, in a district hospital, during the last 8 years. A retrospective study was performed on 1009 patients, 229 males and 780 females. The procedure was performed urgently due to acute cholecystitis in 78 patients (7.73%). Complications 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. They conclude that laparoscopic cholecystectomy is a safe procedure, although it is associated with some serious complications.[12]

## CONCLUSION

From the above results the authors conclude that some of the complications are preventable if LC is performed following strict precautions.

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