

## Laparoscopic Cholecystectomy: Perioperative Complications and Literature Review

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### Abstract

The first laparoscopic cholecystectomy was performed by Muhe in 1985. Since then laparoscopic cholecystectomy skills have progressively improved, and it has become the gold standard treatment for gallstone disease. It is most common to perform on an inpatient basis in the surgical ward or in the short stay unit with overnight admission. In this study we report our LC experiences in respect of postoperative complications. Thirty-three patients who underwent laparoscopic cholecystectomy included this study. All procedures performed by the same surgical team. No statistical differences were observed in operative time between the patients and mean operative time. No statistical differences were observed in blood loss between patients. 1 patient converted to open due to extreme adhesions resulted by recurrent acute cholecystitis. No mortality or no reoperation occurred. 1 patient developed wound site infection which treated with non-specific antibiotherapy. No biliary injury or postoperative bleeding occurred and there was no need for secondary powder application. Our complication rate which reported here is parallel with literature. We believe that it is also very important to recognise and report the complications following laparoscopic cholecystectomy such as bile leak, bile duct injury, wound infection, hemorrhagia and conversion to open cholecystectomy.

**Keywords:** Laparoscopic Cholecystectomy; Complications; Cholelithiasis

### Introduction

The first laparoscopic cholecystectomy (LC) was performed by Muhe in 1985 [1]. Since then LC skills have progressively improved, and it has become the gold standard treatment for gallstone disease [1,2]. It is most common to perform LC on an inpatient basis in the surgical ward or in the short stay unit with overnight admission. However, recent reports have demonstrated the safety and feasibility of day-case LC for selected patients. Advantages of LC include early return to the community and work, lower cost, avoiding complications associated with hospital stay [2,3]. In this study we report our LC experiences in respect of postoperative complications.

### Patients and Methods

Thirty-three patients who underwent laparoscopic cholecystectomy included this study. All procedures performed by the same surgical team. As procedure the trocars placed following North America style. If any adhesions between the gallbladder and

the omentum or duodenum had been carefully lysed with a hook electrocautery (The Valleylab™, Covidien, USA). Once the area of the hilum of the gallbladder has been reached, the cystic duct and artery has been carefully dissected and identified in the triangle of Calot to obtain the critical view. Once the critical view has been achieved and the cystic structures clearly identified, the structures clipped and divided. For bleeding control electrocautery and hemostatic powder (Arista™, Bard, USA Oxichel Powder, Betatech Med, Istanbul, Turkey) -by applying and holding for 2 minutes- used for liver bed side. If hemorrhagia continues secondary application of powder then electrocauterisation planned. Operation area and irrigated and suctioned carefully. Under direct visualization, all ports removed beyond the fascia, helping to visualize any active hemorrhage and abdominal insufflation ceased. Fascia closed with 2.0 prolene and skin closed with 3.0 prolene. After operation all perioperative details recorded and used for this study. Patients examined in respect of intraoperative and postoperative complications.

## Results

33 consecutive patients were listed. The ratio of women to men (overall 3.1:1) with the highest proportion of females observed. The mean age was 51.1 years (range: 27 - 67). The ASA score distribution showed a significantly higher prevalence for Class-II, 7 patients with Class-III. Cholelithiasis was the most frequent diagnosis, observed in 31 cases; 2 of patients operated due to gallbladder polyps.

No statistical differences were observed in operative time between the patients and mean operative time was 45 (+/- 5) minutes. No statistical differences were observed in blood loss between patients. Mean blood loss was 45 (+/- 10) cc (100-10) which is parallel with the literature. 1 patient converted to open due to extreme adhesions resulted by recurrent acute cholecystitis. No mortality or no reoperation occurred. 1 patient developed wound site infection which treated with non-specific antibiotherapy. No biliary injury or postoperative bleeding occurred and there was no need for secondary powder application.

## Discussion and Conclusion

In 1985, when the first LC was performed, this procedure immediately showed clear advantages compared to the open technique, particularly in regards to patients' recovery [4,5]. Since then, LC has rapidly and widely spread with progressive further improvement of postoperative outcomes. This evolution has radically changed the way of conceiving a cholecystectomy, especially in terms of clinical impact and postoperative recovery, leading authors to perform now this procedure in an ambulatory setting. The discharge of a patient at the same day of LC represents a proved solution to really save on healthcare costs and optimize beds utilization [4-6].

LC is superior to open cholecystectomy because of less postoperative pain, shorter hospitalization duration, shorter time for returning to daily activities, less surgical scarring, and better cosmetic results [7]. The reason for conversion to open surgery during LC is to prevent severe complications that may occur during the operation. Conversion to open surgery should not be considered a complication, but as a procedure necessary to complete the operation safely [7]. Knowing the risk factors for conversion to open surgery is important described as male gender, chronic disease history, normal (20 - 25) BMI level, increased gallbladder wall thickness, high preoperative blood glucose level and leukocytosis, ERCP history, grade 3 or 4 adhesions found during the operation, and the presence of multiple stones in the bladder were found to be statistically significant risk factors for conversion to open surgery on a study carried by Ekici U., *et al* [7]. Our complication rate which reported here is parallel with literature. We believe that it is also very important to recognise and report the complications following LC such as bile leak, bile duct injury, trocar site hernia, wound infection, hemorrhagia and conversion to open cholecystectomy [8-11].

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