

Original article

**Evaluation of complications and conversion rate of laparoscopic
cholecystectomy in Rural Medical College**

**Satish Kumar Bansal¹, Sandeep Kumar Goyal¹, Umesh Kumar Chhabra¹, Pawan Kumar
Goyal², Gopal Singal², Yudhvir Singh³**

¹Assistant Professor, ²Professor, ³Senior Resident

Department of General Surgery, MAMC, Agroha, Hisar, Haryana

Corresponding author: Dr.Satish Kumar Bansal, Assistant Professor, Department of General
Surgery, Maharaja Agrasen Medical College, Agroha, Haryana, India.

Abstract:

Introduction: Laparoscopic cholecystectomy (LC) offers the patient reduced hospital stay, faster return to work, less pain, and improved cosmetic results. Thus, the present study was commenced to evaluate the rate of conversion from laparoscopic to open cholecystectomy and to assess the postoperative complications in patients reporting in rural medical college.

Material and Methods: The present prospective study was conducted over 145 patients who underwent a laparoscopic cholecystectomy for benign disorders of gall bladder. The number of cases and reasons attributing to conversion to open cholecystectomy were recorded. Any intra and postoperative complications were recorded. Chi square test was used for the analysis and a p-value of less than or equal to 0.05 was considered statistically significant.

Results: The present study revealed need of conversion from laparoscopic to open cholecystectomy in 15.8% patients. Perforation of gall bladder with stone spillage, bile duct injury, post-operative pyrexia, bleeding were reported as most frequent complications of LC.

Conclusion: The risks and complications of LC must be neither over-estimated nor under-estimated. Comprehensive, this study emphasis the safety of laparoscopic cholecystectomy and supports the acceptance of this approach as a standardized procedure for gallbladder surgery.

Introduction

Since the foundation of laparoscopic cholecystectomy (LC) in 1987 by Philip

Mouret of Lyon, it has been the procedure of choice for symptomatic gall bladder disease.¹ This procedure offers the patient

reduced hospital stay, faster return to work, less pain, and improved cosmetic results. The technique offers a minimally invasive alternative to open cholecystectomy.²

However, extensive inflammation, adhesions and consequent increased oozing can make laparoscopic dissection of Calot's triangle and recognition of the biliary anatomy hazardous and difficult. Consequently, conversion to OC remains an important treatment option to assure patient safety in such difficult situations.³ Thus, in view of this the present prospective study was commenced to evaluate the rate of conversion from laparoscopic to open cholecystectomy and to assess the postoperative complications in patients reporting in rural medical college.

Material and Methods

The present prospective study was conducted over 145 patients who underwent a laparoscopic cholecystectomy for benign disorders of gall bladder. Ethical approval was taken from the concerned authority for the commencement of study. Preoperatively a complete history and physical examination, standard laboratory tests including liver function tests and radiological examinations including abdominal ultrasound were carried out. The presence of gall bladder stones in all patients

was confirmed on ultrasonography. Informed consent was taken from all patients after describing the nature of the surgical procedure and was also explained of the possibility of the probability for conversion from the laparoscopic method to an open cholecystectomy procedure. Intravenously prophylactic antibiotic was given to all patients at induction of anaesthesia. Cholecystectomies were performed by same experienced surgeons on all patients.

The number of cases and reasons attributing to conversion to open cholecystectomy were recorded. Any intra and postoperative complications were recorded. Patients were followed-up and were reviewed after first and fourth week postoperatively in the surgical OPD. Chi square test was used for the analysis and a p-value of less than or equal to 0.05 was considered statistically significant.

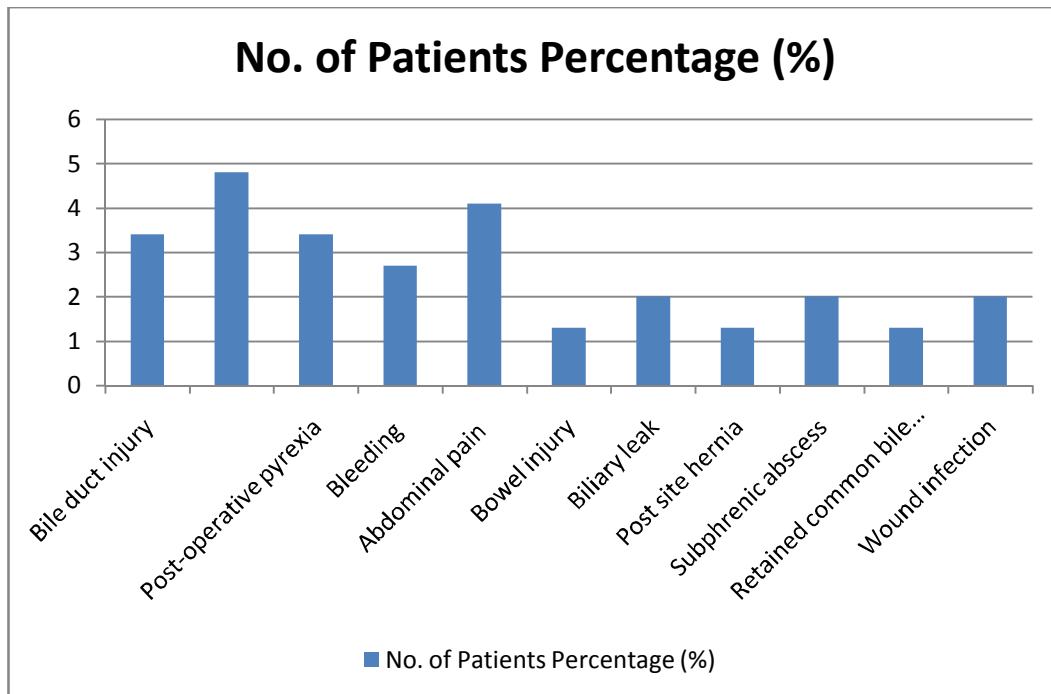
Results

Patients who were admitted for laparoscopic cholecystectomy were 145, 93 females and 52 males with an average age of 52.3 years. 23 (15.8%) patients were required conversion to open cholecystectomy. There was no mortality reported. Perforation of gall bladder with stone spill, bile duct injury, post-operative pyrexia, bleeding were reported as most frequent complications of

LCPost and intra operative complications are reported in table 1.

Complications	Number of patients	Percentage (%)
Bile duct injury	5	3.4
Perforation of gall bladder with stone spill	7	4.8
Post-operative pyrexia	5	3.4
Bleeding	4	2.7
Abdominal pain	6	4.1
Bowel injury	2	1.3
Biliary leak	3	2.0
Post site hernia	2	1.3
Subphrenic abscess	3	2.0
Retained common bile duct injury	2	1.3
Wound infection	3	2.0

Table I: Post and Intra operative complications



Graph 1: Post and Intra operative complications

Discussion

Laparoscopic cholecystectomy (LC) is one of the most commonly performed laparoscopic procedures. It requires only small incisions (0.5-1 cm), causes relatively less pain, allows for early ambulation, requires shorter hospital stay and therefore allows early return to work, and is associated with an early return of intestinal movement and a lower incidence of incisional hernia.⁴ Surgeons and patients prefer LC to open cholecystectomy now and this procedure is cost-effective, cosmetically superior, and produces far less morbidity and access to LC is equally important for rural communities of the developing world.⁵ The present study revealed need of conversion from laparoscopic to open cholecystectomy in 15.8% patients reporting in rural medical college. Wherry DC et al⁶ evaluated complications of laparoscopic cholecystectomy performed in medical treatment facilities of the department of defense and reported conversion to open cholecystectomies in 8.08% of the patients and the frequency of complications found in this study including bile duct injuries, was 6.87% and the frequency of bile duct injury alone was 0.57%. Simpoulos C et al⁷ reported a conversion to open cholecystectomy was needed in 5.2%

patients. Elder S et al⁸ reported 83 patients (72%) underwent successful LC and 37 (28%) needed conversion to open cholecystectomy where as on the contrary, Mir SI et al reported rate of conversion of 1.8% in a prospective analysis conducted in the non-teaching hospitals in the rural areas of Kashmir.

Laparoscopy and LC are invasive procedures associated with a range of minor and major complications.⁵ The present study found perforation of gall bladder with stone spill, bile duct injury, post-operative pyrexia, bleeding as most frequent complications of LC

Duca S et al⁹ analysed the frequency of laparoscopic cholecystectomy complications and reported the main postoperative complications were bile leakage, haemorrhage, sub-hepatic abscess and retained bile duct stones. Ghnam W et al⁴ reported that the most common complication was postoperative transient pyrexia, which was seen in four patients (1.2%) followed by postoperative wound infection in three patients (0.9%), postoperative fluid collection and bile duct injury in two patients each (0.6%). Deziel DJ et al¹⁰ conducted a national survey of 4292 hospitals and an analysis of 77604 cases of laparoscopic cholecystectomy and reported

that bile duct injuries were recognized postoperatively in half of the cases and most frequently required anastomotic repair, bowel and vascular injuries, which occurred in 0.14% and 0.25% of cases, respectively, were the most lethal complications and postoperative bile leak was recognized in 0.3% of patients, most commonly originating from the cystic duct. Successful performance of laparoscopic cholecystectomy requires proper training, discipline, skills and technology, and ongoing maintenance of competency.⁵

Conclusion

The risks and complications of LC must be neither over-estimated nor under-estimated. Laparoscopy is not easy for the surgeon, thorough instruction as well as experience being crucial for improvement of results. Comprehensive, this study emphasis the safety of laparoscopic cholecystectomy and supports the acceptance of this approach as a standardized procedure for gallbladder surgery.

References

1. Al-Azawi D, Houssein N, Rayis AB, McMahan D, Hehir DJ. Three-port versus four-port laparoscopic cholecystectomy in acute and chronic cholecystitis. *BMC Surgery*. 2007;7:8.
2. Olsen DO. 10 years experience in laparoscopic cholecystectomy. *Am J Surg*. 1991;161:339-44.
3. Giger U, Michel JM, Volanthen R, Becker K. Laparoscopic cholecystectomy in acute cholecystitis. *Langenbecks Arch Surg*. 2004;14:234-12.
4. Ghannam W, Malek J, Shebl E, Elbeshry T, Ibrahim A. Rate of conversion and complications of laparoscopic cholecystectomy in a tertiary care center in Saudi Arabia. *Annals of Saudi Medicine*. 2010;30(2):145-148. doi:10.4103/0256-4947.60521.
5. Mir IS, Mohsin M, Kirmani O, Majid T, Wani K, Hassan MU, Naqshbandi J, Maqbool M. Is intra-operative cholangiography necessary during laparoscopic cholecystectomy? A multicentre rural experience from a developing world country. *World J Gastroenterol* 2007; 13(33): 4493-4497.

6. Wherry DC, Rob CG, Marohn MR, Rich NM. An External Audit of Laparoscopic Cholecystectomy Performed in Medical Treatment Facilities of the Department of Defense. *Annals of Surgery* 1994;220(5):626-34.
7. Simopoulos C, Botaitis S, Polychronidis A, Tripsianis G, Karayiannakis AJ. Risk factors for conversion of laparoscopic cholecystectomy to open cholecystectomy. *SurgEndosc*. 2005 Jul;19(7):905-9.
8. Eldar S, Sabo E, Nash E, Abrahamson J, Matter I. Laparoscopic cholecystectomy for acute cholecystitis: prospective trial. *World J Surg* 1997 Jun;21(5):540-5.
9. Duca S, Bălă O, Al-Hajjar N, et al. Laparoscopic cholecystectomy: incidents and complications. A retrospective analysis of 9542 consecutive laparoscopic operations. *HPB : The Official Journal of the International HepatoPancreato Biliary Association*. 2003;5(3):152-158.
10. Deziel DJ, Millikan KW, Economou SG, Doolas A, Ko ST, Airan MC. Complications of laparoscopic cholecystectomy: a national survey of 4292 hospitals and an analysis of 77 604 cases. *Am J Surg* 1993; 165: 9-14.

This original research work was conducted by Dr.Satish Kumar Bansal, Assistant Professor, Department of General Surgery, Maharaja Agrasen Medical College, Agroha, Haryana, India

Conflict of Interest: Nil, Source of Support: Nil.