

# A Clinical Study of Cholecystectomies in PGIMS, Rohtak

Dipanshu Gupta, Ashish Anand, Md Taquedis Noori, Anil Mehta, Pradeep Garg, Rajesh Godara

Department of General Surgery, PGIMS, Rohtak, Haryana, India

**Abstract:** Gall stones constitute a significant health problem in developed societies. Risk factors for gall stone disease are family history and genetics, age (incidence increases with age), gender and female sex hormones, obesity, dyslipidaemia, diabetes mellitus and the metabolic syndrome, rapid weight loss, total parenteral nutrition, life style factors and socioeconomic status, reduced physical activity heightens the risk of gall stone disease whereas increased physical activity prevent cholelithiasis. laparoscopic cholecystectomy decreases the postoperative pain, decrease the need for postoperative analgesia, shortens the hospital stay to less than 24 hours and returns the patient to full activity within one week (compared with one month after open cholecystectomy). This study was done to recognise the rates of laparoscopic and open cholecystectomies in our institute and the factors influencing the choice of one over the other and conversion rates.

**Keywords:** Open Cholecystectomy, laparoscopic cholecystectomy, conversion

## 1. Introduction

Gall stones constitute a significant health problem in developed societies. Risk factors for gall stone disease are family history and genetics, age (incidence increases with age), gender and female sex hormones, obesity, dyslipidaemia, diabetes mellitus and the metabolic syndrome, rapid weight loss, total parenteral nutrition, life style factors and socioeconomic status, reduced physical activity heightens the risk of gall stone disease whereas increased physical activity prevent cholelithiasis.<sup>1</sup> laparoscopic cholecystectomy decreases the postoperative pain, decrease the need for postoperative analgesia, shortens the hospital stay to less than 24 hours and returns the patient to full activity within one week (compared with one month after open cholecystectomy)<sup>2</sup>.

This study was done to recognise the rates of laparoscopic and open cholecystectomies in our institute and the factors influencing the choice of one over the other and conversion rates.

## 2. Methods

200 Patients of all age groups and both sexes who underwent cholecystectomy in various units of department of surgery, PGIMS Rohtak were included in the study. Cases of acute cholecystitis, Cases of Carcinoma Gall bladder and Cases of GB perforation were excluded from the study. All patients were admitted from surgery OPD. Based on history, clinical examination and ultrasonographic findings the diagnosis of cholelithiasis was made. Patients were sent for hematological investigations like hemoglobin, Bleeding time, Clotting time, TLC, DLC, Platelets, Blood urea, Random Blood Sugar levels, Serum electrolytes, Liver investigations like urine examination, ECG and Chest X ray were also done.

After all investigations patient were sent for Preanaesthetic checkup. Patients were admitted and detailed informed and written consent was taken from the patients and their attendants.

Patients then underwent open or laparoscopic cholecystectomy depending on the will of patient, any co morbid conditions, surgeon's choice or availability of resources. Operative findings were noted.

## 3. Results

### Mode of Surgery

Following was the pattern of surgery

**Table 1:** Mode of Surgery

Mode of Surgery	Percentage
Laparoscopic Mode	71
Open Surgery	25.5
laparoscopic to open conversion	3.5
Total	100

### Reasons for conversion

Following were the various reasons for conversion from LC to OC.

**Table 2:** Reasons for conversion

Reasons for conversion	Percentage
Iatrogenic Gut injury	14
Frozen calot's triangle	43
Mirizzi's syndrome	29
Hydatid cyst liver	14
Total	100

Table 2. shows various reasons for conversion from LC to OC. 3 patients required conversion due to dense adhesions present at calot's triangle, 2 patients were converted due to Mirizzi's syndrome while in one patient there was Iatrogenic Gut injury for which the procedure was converted to OC.

**Table 3:** Reasons for opting primarily for Open Cholecystectomy

Reasons	Percentage
Surgeon's Choice	68.63
Barrier Nursing	17.65
Empyema	5.88
Equipment failure	1.96
Post ERCP	1.96
Patient's Choice	3.92
Total	100

The Majority of the OC procedures were conducted due to the preference of the operating surgeon (68.63%). 2 patients were adamant on getting OC due to lack of awareness and misconceptions about LC. 9 patients underwent OC due to barrier nursing and in 1 patient of OC was chosen due to equipment failure (non availability of carbon dioxide).

**Outcome**

**Table 4:** Outcome

Outcome	Percentage
No Complications	98.5
Complications	1.5
Total	100

Table 4, shows 3 patients had complications during intra-operative and post-operative period. In one patient there was Iatrogenic Gut injury occurred during operation. One another patient cystic duct stump was blown out while in one another patient there was wound dehiscence during post-operative period.

**Table 5:** Hospital Stay

Study	Open cholecystectomy hospital stay(Days)	Laparoscopic cholecystectomy hospital stay (Days)
Our study	6.4 days	4.3 days

The duration of hospital stay takes into account time from hospital admission which is generally 2 days prior to the day of surgery. This is a hospital policy of this institute. It is pertinent to note that patients having diabetes were admitted at least 3 days prior to scheduled date of surgery because they required switch over to insulin and control of diabetes.

**Discussion**

Laparoscopic surgery also called minimally invasive surgery, band aid surgery, key hole surgery or pinhole surgery is a surgical technique in which abdominal operations are performed through small incisions (port sites).

In a developing country like India, where the costs and loss of working days constitutes an issue on which laparoscopic cholecystectomy can be a safe and cost-effective alternative to the open method? LC has replaced open cholecystectomy (OC) for treatment of patients with gall bladder disease especially cholelithiasis. Initially only simple gallstone disease was considered as indication for LC. Progress in technology over the past 25 years have made LC even feasible for complicated gallstone disease

with acute cholecystitis, gangrene GB, fibrosed GB, mucocele GB and empyema GB.

Gupta N, et al. found that history of hospitalization, palpable gall bladder, impacted stone and gall bladder wall thickness were statistically significant factors for prediction of difficult laparoscopic cholecystectomy. Sensitivity and specificity of this preoperative scoring method were found to be 95.74% and 73.68% respectively.<sup>3</sup> Memon W, et al.<sup>4</sup> found the mean hospital stay to be 2 days which is comparable to the present study after 2 days of preoperative stay are removed. This is lower than the average post-operative stay of approximately 4 days in patients who underwent open cholecystectomy.

The most common cause of choice of OC over LC in our institute was the operating surgeon's choice. There are many factors influencing this choice like lack of proper training and availability of not a perfect armamentarium.

Surgeons performing LC should not think of conversion to open operation as a complication, but rather mature judgment, and hence not hesitate to convert to a traditional OC if the anatomy is unclear, if complications arise, or there is failure to make reasonable progress in a timely manner. It is "better to open one too many than to open one too few," even if it means a longer hospital stay for the patient. Some complications requiring laparotomy are obvious, such as massive hemorrhage or major injury to the bile duct. Open laparotomy allows the additional tool of manual palpation and tactile sensation and should be performed when the anatomy cannot be delineated because of inflammation, adhesions or anomalies. Fistulae between the biliary system and bowel are rare, but may require laparotomy for optimal management. The demonstration of potentially resectable gallbladder carcinoma also dictates an open exploration. Finally, CBD stones that cannot be removed laparoscopically and are unlikely to be extracted endoscopically (because of Billroth II anastomosis, previously failed endoscopic retrograde cholangiopancreatography {ERCP}, or an inexperienced endoscopist) should be converted to open operation without hesitation.

OC should be an important part of laparoscopic cholecystectomy training courses. The young surgeons tend to try harder into managing complications laparoscopically instead of converting to OC. Laparoscopic surgeons should be familiar with open surgery. OC either converting from LC or primary requires training because of the cause of conversions, usually unsafe anatomy, occurrence of complications or anaesthetic problems, which need rapid decisions and proper management to prevent disastrous complications. Attention should be focused on prevention and early recognition of bile duct injury, and laparoscopic surgeons should be familiar with open surgery.<sup>5,6,7</sup>

## References

- [1] Stinton LM, Shaffer EA. Epidemiology of Gallbladder Disease: Cholelithiasis and Cancer Gut Liver 2012; 6(2): 172-87.
- [2] Shea JA, Berlin JA, Bachwich DR, Staroscik RN, Malet PF, McGuckin M. Indications for and outcomes of cholecystectomy: a comparison of the pre and postlaparoscopic eras. *AnnSurg*1998 ; 227(3):343-50.
- [3] Gupta N, Ranjan G, Arora MP et al. Validation of a scoring system to predict difficult laparoscopic cholecystectomy. *Int J Surg.* 2013;11:1002-6.
- [4] Waseem Memon, Tariq Wahab Khanzada, Abdul Samad, M. Hussain Laghari. Laparoscopic cholecystectomy: conversion rate and its causes at Isra University Hospital, Hyderabad. *RMJ.* 2008; 33(2): 159-161
- [5] O'Bryan MC, Dutro J. Impact of laparoscopic cholecystectomy on resident training: fifteen years later. *J Surg Educ.* 2008;65:346–9.
- [6] Kaafarani HM, Smith TS, Neumayer L et al. Trends, outcomes, and predictors of open and conversion to open cholecystectomy in Veterans Health Administration hospitals. *Am J Surg.*2010;200:32–40
- [7] Schulman CI, Levi J, Sleeman D et al (2007) Are we training our residents to perform open gall bladder and common bile duct operations? *J Surg Res.* 2007; 142:246–9.