

# Outcome of Laparoscopic Cholecystectomy in Tertiary Referral Hospital

N Deivanathan<sup>1</sup>, R Subburathinam<sup>2</sup>, K Ajay Gopal<sup>3</sup>

<sup>1</sup>Senior Assistant Professor, Department of General Surgery, Medical College, Thoothukudi, Tamil Nadu, India, <sup>2</sup>Professor and Head, Department of General Surgery, Thoothukudi Medical College, Thoothukudi, Tamil Nadu, India, <sup>3</sup>CRRI, Department of General Surgery, Thoothukudi Medical College, Thoothukudi, Tamil Nadu, India

## Abstract

**Aim:** The aim of the study was to analyze the outcome of laparoscopic cholecystectomy (LC) in a tertiary referral hospital.

**Materials and Methods:** This is a retrospective study of all LC conducted over 1 year period from January 2015 to June 2016 in the Department of Surgery, Thoothukudi Medical College Hospital, Thoothukudi.

**Results:** Our study comprised 42 calculus and 8 non calculus gall bladder diseases belong to elective cases. Among the 50 cases, 4 cases needed pre-operative endoscopic retrograde cholangiopancreatography and stenting. In our study, 18 cases belong to more than 50 years of age, and only 2 cases were <20 years age group. 50% of patients belong to blood group O positive and only 3 cases had AB positive blood group. In our study, only 2 cases were converted to open cholecystectomy. All patients except conversion cholecystectomy stayed in the hospital for <5 post-operative days.

**Conclusion:** These results support the view that LC is a safe, cost-effective method for performing cholecystectomy with a remarkable improvement in patient recovery time.

**Key words:** Gall bladder calculi, Laparoscopic cholecystectomy, Morbidity

## INTRODUCTION

Cholecystectomy is one of the most commonly performed abdominal surgical procedures previously and is performed laparoscopically worldwide nowadays. Laparoscopic cholecystectomy (LC) is considered the “gold standard” for the surgical treatment of gallstone disease and benign gallbladder diseases. This procedure results in less post-operative pain, better cosmesis, shorter hospital stays and disability from work than open cholecystectomy.<sup>1-3</sup> LC remains an extremely safe procedure, with a mortality of 0.22-0.4%. The prevalence of gallstones increases with age in both sexes and in nearly all populations; in older individuals the prevalence ranges from 20% to 30% and increases to 80% for institutionalized patients older than

90 years, LC decreases post-operative pain, decreases the need for post-operative analgesia, shortens the hospital stay from 1 week to <24 h, and returns the patient to full activity within 1 week (compared with 1 month after open cholecystectomy).<sup>4,5</sup> LC also provides improved cosmesis and improved patient satisfaction as compared with open cholecystectomy.

Although direct operating room and recovery room costs are higher for LC, the shortened length of hospital stay leads to a net savings. More rapid return to normal activity may lead to indirect cost savings.<sup>6-9</sup>

## MATERIALS AND METHODS

This is a retrospective study of all LC done over 1 year period from January 2015 to June 2016 in the Department of Surgery, Thoothukudi Medical College Hospital, Thoothukudi. Our patient’s demographic data, body mass index (kg/m<sup>2</sup>), indication for surgery, American Society of Anesthesiologists physical status class, previous abdominal surgery, duration of procedure and post-operative hospital

Access this article online



www.ijss-sn.com

**Month of Submission :** 06-2017  
**Month of Peer Review :** 07-2017  
**Month of Acceptance :** 08-2017  
**Month of Publishing :** 08-2017

**Corresponding Author:** R Subburathinam, Department of General Surgery, Thoothukudi Medical College, Thoothukudi - 628 008, Tamil Nadu, India. Phone: +91-9443129977. E-mail: drsubbu21@gmail.com

stay, perioperative morbidities, outcomes, and duration of follow-up were obtained from the patients' records.

The exclusion criteria were biochemical or radiological features suggestive of common bile duct (CBD) obstruction. The patients were counseled on the procedure. The possibility of a conversion was discussed with each patient, following which an informed consent was obtained. Each patient had perioperative prophylactic antibiotics consisting of 1 g of ceftriaxone, respectively. The American Technique for LC was adopted for all operations under general or regional anesthesia as considered safe by the anesthetist. Every patient had intraoperative nasogastric tube decompression of the stomach which was removed 12-16 h after surgery. Pneumoperitoneum was created using the open technique through the umbilical port. Other ports used were a 10 mm port in the epigastrium and two other 5 mm ports. The cystic duct and artery were divided between titanium clips after dissection of the adhesions around the Calot's triangle. The gallbladders were extracted through the epigastric port without retrieval bags. All operations were performed by the same set of surgeons who had been trained for the procedure. Data analysis was performed.

## RESULTS

In this present study consisting of 50 cases, planned for LC about 32% (16 cases) belongs to 20-30 age groups and 36% (18 cases) belongs to more than 50 age group (Figure 1).

The period of study is from January 2015 to June 2016, about 18 months. Gender wise female predominance 92% (46 cases) seen. 50% (25 cases) of patients belongs to blood group O, and only 6% (3 cases) had AB blood group. The conversion rate is only 4% (2 cases) that too due to technical difficulties and pre-operative procedure induced fibrosis in Calot's triangle. Wound infection rate was 16% (8 cases) due to bile spillage through the port site retrieval of gallbladder. Only 2% (one case) had severe intraoperative bleeding which had been managed by creating another 5 mm port and applying titanium clip over bleeding point (Table 1).

## DISCUSSION

The most common indication for cholecystectomy in our center was calculus cholecystitis.<sup>10-12</sup> However, the demand for LC in developing countries will increase as more people become aware of its availability.

Majority (88%) of the patients were female, with a mean age similar to other publications.<sup>3,13</sup> Although gallbladder diseases are more commoner in females the aesthetics of

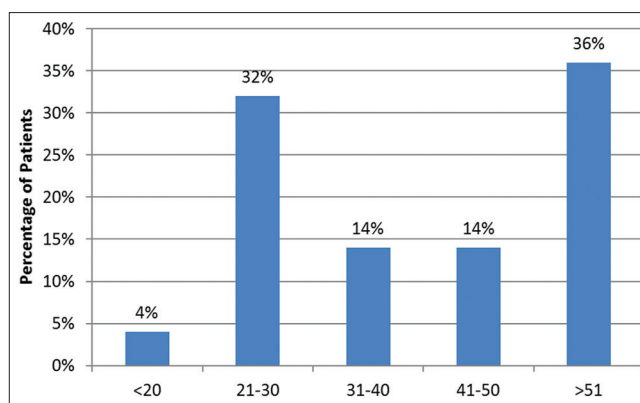


Figure 1: Distribution of age group

Table 1: Distribution of complications

Complication	N (%)
Conversion rate	2 (4)
Wound infection	8 (16)
Hematoma formation	0 (0)
CBD injury	1 (2)
Intraoperative bleeding	1 (2)

CBD: Common bile duct

laparoscopic surgery was a major factor in acceptance of LC in females. Our comorbidity rate was 10%. However, hypertension was the predominant comorbidity as opposed to Type 2 diabetes reported by them. 57.1% of our patients were either overweight or obese. The other comorbid conditions, we have come across are three cases of hypothyroidism and one case of tracheal stenosis who required a pre-operative tracheostomy. However, there was no statistical relationship with surgical outcome of LC as corroborated by other reports.<sup>13-15</sup> 9 (21.4%) patients with previous abdominal incisions were operated without bowel injury.

Operating time ranged from 45 to 75 min with a mean 60 min, this compared favorably with reports from both within and outside the country.<sup>3,5,7,16</sup> The upper end of the range was at the initial phase of the series when the learning curve was steep. This dropped and plateaued, with the average operating time of an hour. Our conversion rate of 4% is at the upper limit of reported conversion rates in larger series of between 4% and 7%.<sup>17,18</sup> The reasons for converting are technical difficulty due to fibrosis of previous stenting procedures.

Reported incidences of CBD injuries during LC have ranged from 0.2% to 3.4%, which is higher than the 0.1-0.2% incidence in open cholecystectomy.<sup>19-22</sup> The incidence of CBD injury (2%) is within the quoted range. The surgical site infection rate of 8% is explained by the occasional spillage of bile when extracting the gall bladder without using retrieval bags. These retrieval bags are scarce and

expensive and hence were unavailable for use at the initial phase. We have however started using retrieval bags for specimen retrieval in recent cases, to forestall the possibility of port site infection or abscess.

In our series, the average post-operative hospital stay was 2.7 days, which is much shorter than 7.5 days for open cholecystectomy in our center. In comparison to a previous audit on our initial set of patients, there is a significant reduction in both operation time and duration of admission. The patients who were converted spent approximately a week while the patient who had CBD injury was referred to the higher center for further management. There is an association between the duration of surgery and duration of symptoms. This may be attributed to the presence of pericolic adhesions from recurrent inflammation thus making the procedure technically more difficult. Similarly, there is a relationship between the presence of pericolic adhesions; and duration of post-operative care.<sup>23-26</sup> Prolonged duration of symptoms and late presentation were associated with fibrosis of the gallbladder consequently making grasping and handling difficult thus prolonging the duration of surgery. The extended or increased tissue dissection may account for slightly longer duration of post-operative care.<sup>27-30</sup> Our patients were followed up in the outpatients department for at least 6 months, and none had a port site incision hernia during the period of follow-up. This was because of our follow-up protocol: First visit a week after discharge, second visit between 1 and 3 months later, and the third visit at 6 months after surgery.

Despite the low volume of patients and the absence of fluoroscopy in our hospital as in many centers in developing countries, our results are comparable with high volume centers. These figures have been achieved by careful patient selection. Consequently, the demand for laparoscopic surgery is increasing in developing countries. We need to develop guidelines based on local patient demography and available instruments.

## CONCLUSION

These results support the view that LC is a safe, cost-effective method for performing cholecystectomy with a remarkable improvement in patient recovery time.

## REFERENCES

- Marcari RS, Lupinacci RM, Nadal LR, Rego RE, Coelho AM, de Matos Farah JF. Outcomes of laparoscopic cholecystectomy in octogenarians. *JLS* 2012;16:271-5.
- Festi D, Dormi A, Capodicasa S, Staniscia T, Attili AF, Loria P, *et al.* Incidence of gallstone disease in Italy: Results from a multicenter, population-based Italian study (the MICOL project). *World J Gastroenterol* 2008;14:5282-9.
- Cheng SP, Chang YC, Liu CL, Yang TL, Jeng KS, Lee JJ, *et al.* Factors associated with prolonged stay after laparoscopic cholecystectomy in elderly patients. *Surg Endosc* 2008;22:1283-9.
- Kuy S, Sosa JA, Roman SA, Desai R, Rosenthal RA. Age matters: A study of clinical and economic outcomes following cholecystectomy in elderly Americans. *Am J Surg* 2011;201:789-6.
- Borzellino G, de Manzoni G, Ricci F, Castaldini G, Guglielmi A, Cordiano C. Emergency cholecystostomy and subsequent cholecystectomy for acute gallstone cholecystitis in the elderly. *Br J Surg* 1999;86:1521-5.
- Pessaux P, Tuech JJ, Derouet N, Rouge C, Regenet N, Arnaud JP. Laparoscopic cholecystectomy in the elderly: A prospective study. *Surg Endosc* 2000;14:1067-9.
- Yetkin G, Uludag M, Oba S, Citgez B, Paksoy I. Laparoscopic cholecystectomy in elderly patients. *JLS* 2009;13:587-91.
- Kim HO, Yun JW, Shin JH, Hwang SI, Cho YK, Son BH, *et al.* Outcome of laparoscopic cholecystectomy is not influenced by chronological age in the elderly. *World J Gastroenterol* 2009;15:722-6.
- Yokoe M, Takada T, Strasberg SM, Solomkin JS, Mayumi T, Gomi H, *et al.* New diagnostic criteria and severity assessment of acute cholecystitis in revised Tokyo Guidelines. *J Hepatobiliary Pancreat Sci* 2012;19:578-5.
- Government Printing Office. Projections of the Population of the United States by Age, Sex, and Race: 1983-2080. U.S. Bureau of the Census Current Population Reports, Series P-25, No. 952. Washington, DC: U.S. Government Printing Office; 1975.
- Kurbanov FS, Abbasova SF, Aliev IuG, Sushko AN, Dobrovol'skii SR. The laparoscopic cholecystectomy in elderly patients. *Khirurgiia (Mosk)* 2012;9:38-41.
- Elwood DR. Cholecystitis. *Surg Clin North Am* 2008;88:1241-52, viii.
- Strasberg SM. Clinical practice. Acute calculous cholecystitis. *N Engl J Med* 2008;358:2804-11.
- Csikesz N, Ricciardi R, Tseng JF, Shah SA. Current status of surgical management of acute cholecystitis in the United States. *World J Surg* 2008;32:2230-6.
- Morse BC, Smith JB, Lawdahl RB, Roettger RH. Management of acute cholecystitis in critically ill patients: Contemporary role for cholecystostomy and subsequent cholecystectomy. *Am Surg* 2010;76:708-12.
- Kim KH, Sung CK, Park BK, Kim WK, Oh CW, Kim KS. Percutaneous gallbladder drainage for delayed laparoscopic cholecystectomy in patients with acute cholecystitis. *Am J Surg* 2000;179:111-3.
- Kiviniemi H, Mäkelä JT, Autio R, Tikkakoski T, Leinonen S, Siniluoto T, *et al.* Percutaneous cholecystostomy in acute cholecystitis in high-risk patients: An analysis of 69 patients. *Int Surg* 1998;83:299-302.
- Davis CA, Landercasper J, Gundersen LH, Lambert PJ. Effective use of percutaneous cholecystostomy in high-risk surgical patients: Techniques, tube management, and results. *Arch Surg* 1999;134:727-31; discussion 731-2.
- Brunt LM, Quasebarth MA, Dunnegan DL, Soper NJ. Outcomes analysis of laparoscopic cholecystectomy in the extremely elderly. *Surg Endosc* 2001;15:700-5.
- Pavlidis TE, Marakis GN, Symeonidis N, Psarras K, Ballas K, Rafailidis S, *et al.* Considerations concerning laparoscopic cholecystectomy in the extremely elderly. *J Laparoendosc Adv Surg Tech A* 2008;18:56-60.
- Bingener J, Richards ML, Schwesinger WH, Strodel WE, Sirinek KR. Laparoscopic cholecystectomy for elderly patients: Gold standard for golden years? *Arch Surg* 2003;138:531-5; discussion 535-6.
- Hazzan D, Geron N, Golijanin D, Reissman P, Shiloni E. Laparoscopic cholecystectomy in octogenarians. *Surg Endosc* 2003;17:773-6.
- Tambyraja AL, Kumar S, Nixon SJ. Outcome of laparoscopic cholecystectomy in patients 80 years and older. *World J Surg* 2004;28:745-8.
- Maxwell JG, Tyler BA, Maxwell BG, Brinker CC, Covington DL. Laparoscopic cholecystectomy in octogenarians. *Am Surg* 1998;64:826-31; discussion 831-2.
- Cho JY, Kim JY, Chang SK, Kim SG, Hwang YJ, Yun YK. Is laparoscopic cholecystectomy safe in octogenarians? *J Korean Surg Soc* 2009;76:231-5.
- Nenner RP, Imperato PJ, Alcorn CM. Complications of laparoscopic cholecystectomy in a geriatric population group. *N Y State J Med* 1992;92:518-20.

27. Fried GM, Clas D, Meakins JL. Minimally invasive surgery in the elderly patient. *Surg Clin North Am* 1994;74:375-87.
28. Nilsson E, Ros A, Rahmqvist M, Bäckman K, Carlsson P. Cholecystectomy: Costs and health-related quality of life: A comparison of two techniques. *Int J Qual Health Care* 2004;16:473-82.
29. Chang YR, Ahn YJ, Jang JY, Kang MJ, Kwon W, Jung WH, *et al.* Percutaneous cholecystostomy for acute cholecystitis in patients with high comorbidity and re-evaluation of treatment efficacy. *Surgery* 2014;155:615-22.
30. Joris JL, Chiche JD, Canivet JL, Jacquet NJ, Legros JJ, Lamy ML. Hemodynamic changes induced by laparoscopy and their endocrine correlates: Effects of clonidine. *J Am Coll Cardiol* 1998;32:1389-96.

**How to cite this article:** Deivanathan N, Subburathinam R, Gopal KA. Outcome of Laparoscopic Cholecystectomy in Tertiary Referral Hospital. *Int J Sci Stud* 2017;5(5):118-121.

**Source of Support:** Nil, **Conflict of Interest:** None declared.