



ORIGINAL RESEARCH PAPER

Surgery

AN OBSERVATIONAL STUDY ON TWO- PORT LAPAROSCOPIC CHOLECYSTECOMY

KEY WORDS: laparoscopic cholecystectomy, reduced port laparoscopic cholecystectomy, cholecystitis.

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ABSTRACT

Introduction: This observational study on two port laparoscopic cholecystectomy was done to evaluate the technique of the two port laparoscopic cholecystectomy and to analyse the feasibility and effectiveness of the same in a tertiary care set-up in India. **Materials and Methods:** In a total of thirty patients undergoing laparoscopic cholecystectomy for gallstone disease, two ports i.e., a 10mm umbilical port and a 5mm epigastric ports were used for the bimanual manipulation of the gallbladder. Outcomes were measured in terms of the operative time, requirement of drainage tubes, conversion to conventional four port cholecystectomy, post-operative pain scores, time for discharge and occurrence of early complications upto 14 days. **Results:** Out of 30 patients, the male:female ratio was 13:2 and the mean age 29.6 years. The mean operative time was 39.57 minutes, post-operative pain was significantly low upto 24 hours. With low analgesia requirements upto 2.03 doses in 24 hours, and return to daily activity by 3.67 days, with better patient satisfaction. Length of hospital stay was 1.27 days and the post-operative complications were nil in our study. **Conclusion:** Two port laparoscopic cholecystectomy resulted in decreased pain, analgesia requirements, better cosmesis & low operative times. Thus, it can be recommended in a tertiary care set-up in India in selected patients.

INTRODUCTION

Laparoscopic cholecystectomy has become the gold standard for gallstone diseases worldwide. For the treatment of gallbladder pathologies, advancements from open cholecystectomy to conventional four port cholecystectomy to three, two and even single port cholecystectomies have been made^(4,6). These were aimed at reducing the operative trauma to the patient by reducing the invasiveness of the procedure^(1, 9, 11). These newer techniques promise scarless, pain free procedures with early functional recovery of the patient^(13,14,16).

Two port laparoscopic cholecystectomy has a short learning curve and better outcomes in terms of post-operative pain, cosmesis and return to activity⁽⁶⁾. In our study, the instrument used for holding the fundus was omitted and in order to obtain the required exposure, a thread was passed through abdominal wall and fundus was retracted⁽²⁾ and a second thread was used to retract the gallbladder neck or the Hartmann's pouch^(6, 12). The only shortcoming with the use of threads was the thread being static⁽²⁾.

MATERIALS AND METHODS

This observational study was carried out between 1st January 2020 and 30th march 2020 with thirty cases of symptomatic gallstone disease at Silchar Medical College and Hospital. The female to male ratio was 13:2, ages were in the range of 7 to 60 years, the ASA was 1 for all the patients. The inclusion criteria was history of symptomatic gallstone disease. The exclusion criteria used was patients with suspected malignancy, previous gastro-intestinal surgery, ASA Score \geq 2.

An informed consent was obtained prior to the surgery. The pre-operative work-up for all the patients⁽⁹⁾ consisted of Complete blood count, Random blood sugar level, Liver function test, Renal function test, Coagulation profile, Viral hepatic markers and Cardio-pulmonary evaluation. Prophylactic pre-operative antibiotic (iv Ceftriaxone 1gm) was administered routinely.

Patient was positioned in the operation theatre table in supine slight head-down position. After making an infraumbilical incision and insertion of a 10mm port into the peritoneal cavity, the camera was inserted and the peritoneal and the

pelvic cavities thoroughly examined. The table was taken head-up and a second 5mm port i.e., the working port was inserted in the epigastric region under direct vision. The fundus of the gallbladder was retracted by a traction suture^(2,7) passed through the anterior abdominal wall to the fundus in the right hypochondrium below the costal margin. A second suture was passed from the right flank to hold and provide traction to the neck of the gallbladder or the Hartmann's pouch^(6,7) and was brought out through right hypochondrium making a loop.

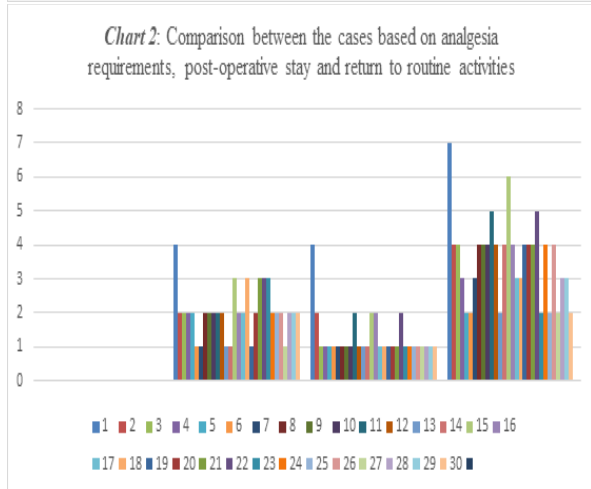
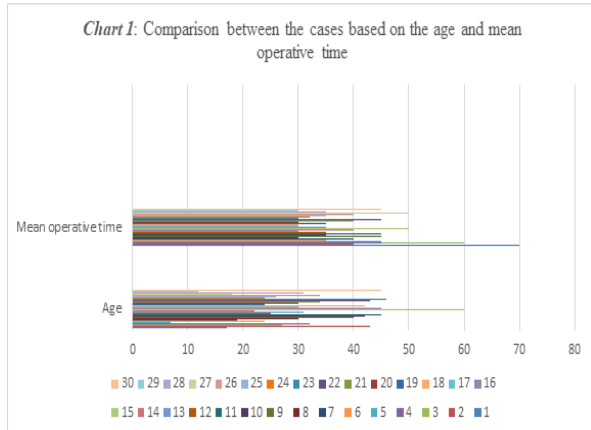


Figure 1 : Post-operative picture of patient with good cosmesis

The gallbladder was manipulated using traction on the sutures, to expose the Calot's triangle and the critical view of safety was obtained⁽⁹⁾. The cystic artery and the cystic duct were dissected and clipped; the gallbladder was then dissected from the liver bed. Extraction of the gallbladder was done through the 10mm umbilical port (fig 1)

RESULTS

The mean operative time is 39.57 minutes. The average total postoperative analgesia required was 2.03 doses of 75 mg Diclofenace (intra-muscular injection). Drainage tube was required in 1 patient with cholecystoduodenal fistula. The case was converted to conventional 4 port cholecystectomy. 24 patients were discharged on the day after the surgery, 5 patients on post-operative day 2 and 1 patient with cholecystoduodenal fistula was discharged on the 4th postoperative day. There were no postoperative complications in our study. The patients resumed their normal routine by average 3.67 days.



DISCUSSION

In an attempt to decrease morbidity and to improve the cosmesis, two port laparoscopic cholecystectomy can be a good alternative in the field of minimally invasive surgeries⁽⁷⁾. Kagaya et al developed a “twin port” system which allows a 5mm camera and a forceps to be inserted through a single port; a 5mm trocar is inserted below the xiphoid process and thus a two port cholecystectomy is performed⁽¹⁹⁾. Trans-abdominal suture retraction of gallbladder was reported by Navarra et al⁽¹²⁾ which was later applied to three port, two port and single incision laparoscopic cholecystectomy by others^(16, 17, 18). Another method of gallbladder manipulation is by placement of three traction sutures (at the fundus, body and neck respectively) of the gallbladder⁽¹⁷⁾. In acute cholecystitis and chronic cholecystitis with thickened gallbladder wall, the approach would be difficult⁽²⁾. Some special instruments used for the purpose of traction are mini-loop retractor and endo-retractor⁽²⁰⁾. Although in our study comparisons were not made between the two port and conventional laparoscopic cholecystectomy, we believe that the two port technique would take comparable operative time and ease of surgery as the conventional method⁽²⁾. Also, the post-operative outcomes in terms of decreased pain, early return to routine activities, complications and cosmesis were better.

CONCLUSION

For a gallstone pathology, in selected patients, two port laparoscopic cholecystectomy with suture traction of the gallbladder fundus, is a safe, feasible technique with good patient satisfaction and cosmetic outcome.

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