

A COMPARATIVE STUDY OF LAPAROSCOPIC VERSUS OPEN CHOLECYSTECTOMYD. Gopal Rao¹, K. Suryanarayana², T. Srinivas³, B. Satish⁴**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: The model era of Laparoscopic Surgery has evoked remarkable changes in approaches to surgical diseases. The trend toward minimal access surgery (MAS) has prompted General surgeons to scrutinize nearly all operations for possible convention to Laparoscopic techniques. **AIM OF THE STUDY:** Our aim of the study is to compare Laparoscopic Cholecystectomy with that of open cholecystectomy. **MATERIALS AND METHODS:** In our Mahatma Gandhi Memorial Hospital we are doing both Open and Laparoscopic cholecystectomy, this is done between October 2011 – October 2013. In this period we have done 146 cholecystectomy, out of which 96 are Laparoscopic Cholecystectomy to compare with 50 cases of Open cholecystectomy. **RESULTS:** Conversion rate Laparoscopic to Open is 8%. **Duration of Surgery:** Open (90Min), Lap (120Min). Average post of antibiotics: Open (7 days), Laparoscopic (4 days). Average post-op resumption of normal diet Open (5 days), lap (3 days). Average post of hospital stay: Open (10days), Lap (5days). **CONCLUSION:** In our study the Laparoscopic cholecystectomy surpasses the open cholecystectomy. The only disadvantage is the prolonged operative time, which can be minimized in due course of time as the learning curve progresses. We have also found that the conversion to open cholecystectomy should be done in proper time without any hesitation in case of complications that could not be managed laparoscopic surgery and conversion in such case reflects sound judgment and should not be considered as a complication.

KEYWORDS: Laparoscopic Cholecystectomy, Open Cholecystectomy.

INTRODUCTION: The model era of Laparoscopic Surgery has evoked remarkable changes in approaches to surgical diseases. The trend toward minimal access surgery (MAS) has prompted General surgeons to scrutinize nearly all operations for possible convention to Laparoscopic techniques. Laparoscopic Cholecystectomy appeared to be both economically and physiologically better.

Anderson et al¹ in a study compared effectiveness Laparoscopic Cholecystectomy over Open Cholecystectomy found that hospital charge for patients undergoing Laparoscopic Cholecystectomy was less than that of Open Cholecystectomy. Grace et al² compare 50 consecutive patients who underwent Laparoscopic Cholecystectomy with those of a group of 25 patients who underwent Open Cholecystectomy during 3 months before introduction of Laparoscopic Cholecystectomy. When compared with Laparotomy, Laparoscopic Cholecystectomy was associated with longer mean (s. d.) anesthesia, 155(61) min versus 102(31) min. (p<0.001), shorter mean post-operative stay, 3.5(1.5) versus 8.8(3.2) days (p<0.001) and reduced mean cost.

Attwood³ studied 115 patients undergoing cholecystectomy to compare patient's recovery, subjective and objective pain experienced and complications after Laparoscopic Cholecystectomy and Open Cholecystectomy.

Laparoscopic Cholecystectomy was found to be safe with lesser preoperative and post-operative morbidity, was more cost effective and associated with faster patients recovery.

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Kelley,⁴ compared 185 Laparoscopic Cholecystectomy with 82 Open Cholecystectomy in a prospective analysis to find out safety, efficacy, cost and morbidity of Laparoscopic Cholecystectomy versus Open Cholecystectomy.

Trondsen⁵ did a prospective randomized study to compare Laparoscopic Cholecystectomy with Open Cholecystectomy (35 patients each). Laparoscopic Cholecystectomy took twice as long as Open Cholecystectomy required less opiate analgesic, required less sick, leave there were 6 complication in Laparoscopic Cholecystectomy group and 7 in Open Cholecystectomy group.

Williams Jr. et al ⁶ conducted a retrospective study between 1283 Open Cholecystectomies and 1107 Laparoscopic Cholecystectomies and found that there was a higher mortality in the patients with acute cholecystitis treated with Open Cholecystectomy and an increase in the overall complications in the patients with chronic cholecystitis in the Open cholecystectomy compared with Laparoscopic Cholecystectomy group.

Historical Aspects: The first open cholecystectomy was performed by Langenbuch on July 15 1882, in Berlin. The first laparoscopic was performed by Muhe in 1985, however the first Laparoscopic cholecystectomy is recorded in medical literature was performed in March 1987 by Mouret in Lyon, France. The technique was perfected in year later in March 1988 by Dubois. In Paris.

MATERIALS AND METHODS: In our Mahatma Gandhi Memorial Hospital we are doing both Open and Laparoscopic cholecystectomy, this is done between October 2011–October 2013. In this period we have done 146 cholecystectomy, out of which 96 are Laparoscopic Cholecystectomy to compare with 50 cases of Open cholecystectomy. Common indications for surgery were chronic calculuscholecystitis, a calculuscholecystitis, Cholelithiasis, biliary colic and acute cholecystitis. The following factors are compared in Laparoscopic and open cholecystectomy. Technique of Surgery, Duration of surgery, Post-Operative pain, Analgesic Requirements, Duration of Antibiotics given, Intra Operative and Post-Operative Complications, Resumption of Normal Diet, Post-operative Hospital stay, Return to Normal Activity, Cosmesis.

Inclusion Criteria:

- Patients of all age groups.
- Gender: Males and Females.
- Patients presented with signs and symptoms of Cholelithiasis which underwent surgery.

Exclusion Criteria:

- Patients with comorbid conditions, Hypertension, Diabetes Mellitus, Pulmonary Tuberculosis, Coronary artery diseases, Epilepsy.

RESULTS:

- Study period of the present study October 2011- October 2013.
- Total number of hospital admissions during the study period 1, 25, 263.
- Total number of admissions in general surgery during the study period was 12,877.
- Percentage of general surgery cases admissions 10.28%.
- Total number of cholecystectomy during this period is 146 out of which 96 underwent Laparoscopic Cholecystectomy and 50 underwent Open Cholecystectomy.

Total number of cases compared during the study period 100 (50 Laparoscopic Cholecystectomy and 50 underwent Open Cholecystectomy):

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- Conversion rate is Lap to Open is 8%.
- Duration of Surgery Open (90 Min), Lap (120 Min).
- Average post of antibiotics: Open (7 days), Laparoscopic (4 days).
- Average post-op resumption of normal diet Open (5 days), lap (3 days).
- Average post of hospital stay: Open (10 days), Lap (5days).

DISCUSSION OF STUDY: In our study I have selected cases for surgery based on preoperative history, clinical examination, ultrasonography and liver function test. We exclude the common bile duct stones by Clinical Signs, LFT and Ultrasonography.

A study of Open Cholecystectomy patients of which 36 female and 14 male patients were compared with that of 50cases of Laparoscopic Cholecystectomy of which 28 female and 22 male patients.

The relative advantages and disadvantages of Laparoscopic and open surgery are measured primarily in terms of quality of life for the patients involved. The study revealed the following findings:

- By technique wise Laparoscopic surgery provides better visualization with magnification of surgical anatomy in contrast to the open surgery.
- Among 50 Laparoscopic Cholecystectomies, 4 cases were converted to open Cholecystectomy due to adhesions and inability to identify anatomy. Conversion rate was 8%.
- The mean operative time for Laparoscopic Cholecystectomy is 120minutes which is 30 minutes longer than conventional open method (90min).
- Regarding post-operative mobility in terms of pain, recovery from surgery and ambivalence from bed the laparoscopic patients fared better from open surgery.
- Traditional major open abdominal operations have potent effects on the immune system. Surgical trauma induces an inflammatory state characterized by the release of pro-inflammatory cytokine IL1B, IL6, IL8, TNF alpha and acute phase proteins such as C-reactive protein are typically transiently increased. Surgical manipulation also depresses cell mediated immunity by lateration in recruitment, activation and function of circulating lymphocytes, monocytes and other immune cells. After open cholecystectomy, higher post-operative plasma levels of CRP, TN alpha, IL1B, IL6 and higher leukocyte counts relative to laparoscopic cholecystectomy. This was the probable reasons for early recovery, less pain and early ambivalence in Laparoscopic Cholecystectomy patients.
- Regarding analgesic requirement the open surgery patients required analgesics even on the sixth post-operative day. While the laparoscopic patients didn't experienced pain in the immediate post-operative period because of less acute phase infiltration of bupivacaine and no patients required analgesics on the fourth post-operative day.
- The mean duration of antibiotics given for open cholecystectomy patients were around 7 days, while for laparoscopic patients it was only 4 days.
- Regarding intra operative complications bleeding has occurred in 4 open cholecystectomy and 1 open laparoscopic cholecystectomy patients. Bile duct injury was nil in both open and lap cholecystectomy. Regarding post-operative complication bile leak through drain has occurred in 4 open and 1 lap patients. All the 6 patients were treated conservatively and subsided probably reason due to bile leak from the gall bladder bed in the liver. Out of 50cases of open cholestectomy 6 case had got wound infection, but was developed in 2 lap cases. Persistent

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pain and dyspepsia after cholecystectomy patients. Long term pain less common after laparoscopic than open cholecystectomy. In our study both groups' patients there were no pulmonary complications. But other studies revealed impairment in pulmonary function after lap cholecystectomy was less marked than after open cholecystectomy. The overall complication rate for open method was 16% and for lap only 6%.

- The patients operated by conventional open method resumed to normal diet only on 5 post-operative day. While those done by lap method resumed to normal diet even on the 3 post-operative day.
- Regarding post-operative study in the hospital, for open method patients it was totally 10 days after surgery, while for lap patients it was only 5 days. The early ambulation and even return to normal activity was quick after lap method, so cost effective.
- Cosmesis is the greatest advantage after Lap cholecystectomy compared to open method.

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