



STUDY ON COMPARISON OF OPEN CHOLECYSTECTOMY VERSUS LAPAROSCOPIC CHOLECYSTECTOMY IN SUBJECTS PRESENTING WITH ACUTE CHOLECYSTITIS

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ABSTRACT

INTRODUCTION: The most common cause for acute cholecystitis is obstruction of the cystic duct with gallstones and is the most common acute abdomen presentation in the causality. The two surgical interventions that have been in place for managing acute cholecystitis include Conventional open procedure and laparoscopic cholecystectomy. Surgical treatment of symptomatic gallstone disease has changed in the past decade since the introduction of laparoscopy. **OBJECTIVES OF THE STUDY:** The objectives of the study include to compare the patient's duration of hospital stay and operative time in Open Cholecystectomy versus Laparoscopic Cholecystectomy and to compare complications that occur in Open Cholecystectomy versus Laparoscopic Cholecystectomy. **MATERIALS AND METHODS:** The prospective study on "Comparison of Open Cholecystectomy Versus Laparoscopic in Subjects Presenting with Acute Cholecystitis" was conducted at Shri Balaji Institute of Medical Sciences and Hospital in the Dept. of General Surgery from January 2021 to October 2021 after taking informed consent from the study subjects who were admitted with acute cholecystitis for surgical intervention. We included a total of 60 subjects in the age group of 20-60 years and were divided into two groups. Group LC: includes 32 subjects who underwent Laparoscopic Cholecystectomy. Group OC: includes 28 subjects who underwent Open Cholecystectomy. Parameters assessed and compared between the two surgical interventions include patient's duration of hospital stay, operative time, intra and postoperative complications and resumption of day to day activities. **RESULTS:** We included a total of 60 subjects both males and females in the age group of 20-60 years. Out of 60 subjects 32 (53.3%) underwent laparoscopic cholecystectomy and 28 (46.6%) underwent open cholecystectomy. We compared the intra and post-operative complications which showed that urinary retention was more in (17.8%) in Group OC group compared group LC which is 9.3%, none had wound infection in LC group, 7.14% had wound infection in OC group, bile duct injury was present in 3.12% in LC group, none had in OC group, Internal haemorrhage was present in 3.12% in LC group none had in OC group, none of the group had DVT, respiratory infection was present in both the groups that is 6.25% and 3.57% in LC and OC group respectively, 3.12% had subcutaneous emphysema in LC group and none had in OC group. **CONCLUSION:** Laparoscopic cholecystectomy offers the greatest benefits to patients; it was associated with a lower rate of postoperative complications, feeding earlier and shorter average hospital stay than open cholecystectomy.

KEYWORDS : acute cholecystitis, laparoscopic cholecystectomy, open cholecystectomy, post-operative complications.

INTRODUCTION

The most common cause for acute cholecystitis is obstruction of the cystic duct with gallstones (cholelithiasis) and is the most common acute abdomen presentation in the causality. The two surgical interventions that have been in place for managing acute cholecystitis include Conventional open procedure and laparoscopic cholecystectomy. Surgical treatment of symptomatic gallstone disease has changed in the past decade since the introduction of laparoscopy.¹⁻³

Elective laparoscopic cholecystectomy has almost replaced the conventional open procedure, and various studies have confirmed its safety and efficacy. In the early years of minimally invasive surgery acute cholecystitis was a relative contraindication to laparoscopic cholecystectomy because of the potential risks of severe complications owing to distorted anatomy caused by acute inflammation. However, randomized studies over the past few years have now proven this fear to be exaggerated.⁴⁻⁶

Laparoscopic cholecystectomy for acute cholecystitis is safe, with mortality rates similar to those described in the era of open surgery. For the first time in the year 1985 First performed in 1985 laparoscopic cholecystectomy was performed by Dr Erich M' uhe, laparoscopic cholecystectomy (LC) has now replaced open cholecystectomy (OC) as the first choice of treatment for gallstones and inflammation of the gallbladder unless contraindications are found with the laparoscopic approach. With the development in

laparoscopic skill and equipment, early LC has been reported as having significantly lower complication rates than early OC. However, the timing of LC remains controversial regarding the inflammation, oedema, and adhesions of the acute course of disease. Nowadays, LCs for acute cholecystitis are now mainly performed after the acute episode occurs, while conservative therapies, usually antibiotics, and delayed LCs are still common in many cases.⁷

OBJECTIVES OF THE STUDY:

The objectives of the study include

1. to compare the patient's duration of hospital stay and operative time in Open Cholecystectomy versus Laparoscopic Cholecystectomy.
2. to compare complications that occur in Open Cholecystectomy versus Laparoscopic Cholecystectomy.

MATERIALS AND METHODS

The prospective study on "Comparison of Open Cholecystectomy Versus Laparoscopic in Subjects Presenting with Acute Cholecystitis" was conducted at Shri Balaji Institute of Medical Sciences and Hospital in the Dept. of General Surgery from January 2021 to October 2021 after taking informed consent from the study subjects who were admitted for surgical intervention of Acute Cholecystitis. We included a total of 60 subjects in the age group of 20-60 years and were divided into two groups.

Group OC: includes 28 subjects who underwent Open

Cholecystectomy.

Group LC: includes 32 subjects who underwent Laparoscopic Cholecystectomy.

We excluded patients with confirmed choledocholithiasis and those who underwent concomitant surgeries, pregnant women and patients with liver cirrhosis or malignant tumours. Demographic data such as age, sex, emergency or elective procedure, duration of surgery, use of prophylactic heparin, Intercurrent diseases and use of prophylactic antibiotics were recorded. Parameters assessed and compared between the two surgical interventions include patient's duration of hospital stay, operative time, intra and postoperative complications and resumption of day to day activities. Intra and post-operative complications include Respiratory complications (pneumonia, bronchopneumonia, pleural effusion, pulmonary embolism), surgical site infections urinary infections, deep vein thrombosis and other complications. We evaluated the time to oral feeding and ambulation, length of postoperative hospital stay and the clinical conditions at the time of discharge. **Statistical Analysis:** the data was expressed as mean and standard duration (SD). The post-operative pain was assessed using visual analogue pain scale. The mean value between the two groups was compared using Student 't' test. The p value of <0.05 was considered statistically significant.

RESULTS

We included a total of 60 subjects both males and females in the age group of 20-60 years. Out of 60 subjects 32 (53.3%) underwent laparoscopic cholecystectomy and 28 (46.6%) underwent open cholecystectomy. Out of 60 subjects 16 were females and 44 were males. The mean age in Group LC is 43 ± 10 years and in Group OC is 44 ± 11 years. Out of 60 subjects 28 had co-morbidities such as Diabetes and Hypertension.

Operative time: The mean operative time for laparoscopic cholecystectomy was 92 minutes compared to open cholecystectomy which was 78 minutes. Mean Operative time for open cholecystectomy was less compared to open cholecystectomy. The difference in the operative time between these two surgical interventions were statistically significant $p < 0.05$.

Duration of hospital stay: The mean duration of stay in hospital in days was found to be 3-4 days in subjects with laparoscopic cholecystectomy and 6-7 days in subjects with Open cholecystectomy. The hospital stay in subjects with Group OC was more compared to the hospital stay in subjects with Group LC. The difference in mean duration of stay in hospital was statistically significant ($p < 0.05$).

Post-operative Pain: Mean pain score was noted on post-operative day (POD) 0,3 & 7. The mean pain score for Group LC and Group OC on POD day 0: 4.8 and 6.8 and POD 3: 4.2 and 5.4 but, on POD 7: pain score for Group LC and Group OC were 2.2 and 4.2 It is quite evident that the visual analogue score was less in subjects who underwent laparoscopic cholecystectomy compared the subjects who underwent open cholecystectomy.

Table 1: Shows The Comparison Of Intraoperative And Postoperative Complications In Group Lc And Group Oc

	Group LC (32)		Group OC (28)	
	Number	Percentage	Number	Percentage
Urinary retention	3	9.3	5	17.8
Wound infection	0	0	2	7.14
Bile duct injury	1	3.12	0	0
Internal hemorrhage	1	3.12	1	3.57

Deep vein thrombosis	0	0	0	0
Respiratory infections	2	6.25	1	3.57
Subcutaneous emphysema	1	3.12	0	0

Resumption of day to day activities: We noted in our study that the mean duration of resumption of day to day activities following laparoscopic cholecystectomy was 7-8 days and in open cholecystectomy was 10-12 days. It is evident that the resumption of day to day activities took longer time in the subjects in Group OC as compared to the subjects in Group LC.

DISCUSSION

In our study, we found that the Mean Operative time for open cholecystectomy was less compared to open cholecystectomy. The difference in the operative time between these two surgical interventions were statistically significant.

The hospital stay in subjects with OC was more compared to the hospital stay in subjects with LC. The difference in mean duration of stay in hospital was statistically significant. The hospital stay in OC is much more than LC. Other studies showed the mean postoperative stay for an open cholecystectomy has been 8 days compared with the 3 days recorded for laparoscopic cholecystectomy. This is in accordance with Other studies which showed the mean postoperative stay for an open cholecystectomy has been 8 days compared with the 3 days recorded for laparoscopic cholecystectomy. The mean operating time for an open cholecystectomy has been given as 90 minutes, as opposed to 95 minutes for the laparoscopic procedure.

We compared the intra and post-operative complications which showed that urinary retention was more in (17.8%) in Group OC group compared group LC which is 9.3%, none had wound infection in LC group, 7.14% had wound infection in OC group, bile duct injury was present in 3.12% in LC group, none had in OC group, Internal haemorrhage was present in 3.12% in LC group none had in OC group, none of the group had DVT, respiratory infection was present in both the groups that is 6.25% and 3.57% in LC and OC group respectively, 3.12% had subcutaneous emphysema in LC group and none had in OC group.¹⁻⁵

Laparoscopic cholecystectomy has largely supplanted the open technique. This is because of the benefits of LC in respect of duration of postoperative hospital stay, shorter time of operative procedure, early recovery, less complications etc. The most common serious complications of LC are bile duct injury, which is fatal and necessary for reoperation. Misidentification of the common bile duct as the cystic duct is the most common cause of bile duct injury. Bile leakage

In the present study, we had one case of bile duct injury. The patients were reoperated and the injury was successfully treated.⁸⁻¹⁵

CONCLUSION:

Laparoscopic cholecystectomy offers the greatest benefits to patients; it was associated with a lower rate of postoperative complications, feeding earlier and shorter average hospital stay than open cholecystectomy.

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