

A COMPARATIVE STUDY OF LAPAROSCOPIC VERSUS OPEN CHOLECYSTECTOMY OUTCOME IN YOUNG ADULTS

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ABSTRACT

Background: Several studies have suggested that laparoscopic cholecystectomy is associated with shorter hospital stays i.e. an earlier return to activities, and lower mortality and morbidity rates than the patient undergoing open cholecystectomy. **Aims and Objectives:** To compare the length of stay and complication associated laparoscopic and open cholecystectomy. **Material and Methods:** All the 400 patients who underwent cholecystectomy were divided into two groups. Group I with open cholecystectomy (100 patients) and group II with laparoscopic cholecystectomy (300 patients). **Result:** The patients have common bile duct stones detected at the time of surgery were 12 (3%). The rate of all complications was low in both either laparoscopic or open procedure, especially among the serious complications. The prevalence of most of the complications was less than 2%. Rates greater than 5% were observed for the less serious complications, such as the requirement of transfusion, urinary retention or ileus. **Conclusion:** Laparoscopic cholecystectomy can be safely considered in young patients presented with cholelithiasis as compared to open cholecystectomy.

Keywords: Laparoscopic cholecystectomy, Open cholecystectomy, Cholelithiasis, Complication.

INTRODUCTION

Since the introduction of laparoscopic cholecystectomy, the most preferred procedure has affected the selection of patients to type of surgery and the outcome of cholecystectomy. The surgical complication, as well as mortality rate, is quite low for laparoscopic cholecystectomy as compared to open cholecystectomy, although the rate of common bile duct injury is greater than injury occurs in open cholecystectomy. (1)

Moreover, several studies have suggested that laparoscopic cholecystectomy is associated with shorter hospital stays i.e. an earlier return to activities, (2-6) and lower mortality and morbidity rates (7) than the patient undergoing open cholecystectomy. Several studies have concluded that patients undergoing cholecystectomy has risen 20% to 30% from the introduction of the laparoscopic surgery. (8-10)

There is the presence of modifiable and non-modifiable risk factors in the case of gall stone. The non-modifiable risk factors include - ethnicity, age of the patient, gender and any occurrence in family. While the modifiable risk factors are – obesity, weight loss, diabetes, and a sedentary lifestyle. For biliary sludge the risk factors are – Total parenteral nutrition, pregnancy, fasting, drugs like thiazide, octerotide, ceftriaxone etc. black pigmented stones are present in case of ileal Chrons' disease, cirrhosis and haemolytic conditions.

The risk factors for gall bladder cancer are obesity, female gender, chronic cholelithiasis, increasing age, congenital anomalies of the gall bladder, etc. For the diagnosis of gall bladder disease such as cholelithiasis USG (ultrasonography) study is the most important non-invasive and safe method to accurately detect gall stones in the asymptomatic population.

Therefore, it is not sufficient to compare patients undergoing either going for laparoscopic cholecystectomy with those patients undergoing open cholecystectomy consequently as surgeons have the opinion to choose open cholecystectomy based on patients' clinical characteristics for the safety of patients. (11)

MATERIAL AND METHODS

After obtaining written informed consent from all the participants, the observational (cross-sectional) study was undertaken for a period of one year from July 2016 to June 2017. All the 400 patients who underwent cholecystectomy in the Department of Surgery, SMS Medical College and Hospital, Jaipur, were divided into two groups. Group I with open cholecystectomy (100 patients) and group II with laparoscopic cholecystectomy (300 patients).

Inclusion Criteria: Patients between the ages of 18 to 45 years, chronic cholecystitis,

symptomatic as well as asymptomatic cholelithiasis and patients with incidental cholecystectomy undergoing procedures for other indications, gall bladder cancer, obstructive Jaundice, dilated common bile duct.

Exclusion Criteria: Acute cholecystitis, multiple abdominal surgeries, acute pancreatitis, multiple comorbidity and patient below 18 years and above 45 years

Factors responsible for conversion of laparoscopic cholecystectomy to open cholecystectomy: Abnormal anatomy, Intraoperative bleeding, Adhesions due to prior surgery, Suspicion of cancer and bile duct injury

Outcome Measures: Outcome measures studied were the length of stay, postoperative length of stay and several other specific surgical complications associated with cholecystectomy. Complications which were surgical in nature, grouped into four categories: infectious complications, pulmonary complications, gastrointestinal complications, and major intra-operative complication/ injury.

RESULT

A total of 400 cholecystectomies were performed from July 2016 to June 2017, out of which 300 (75%) of the cholecystectomies performed as laparoscopic procedures; 17 (4.25%) were completed as open cholecystectomy included the conversion of laparoscopic to open surgery. The patients have common bile duct stones detected at the time of surgery were 12 (3%).

The rate of all complications was low in both either laparoscopic or open procedure, especially among the serious complications. The prevalence of most of the complications was less than 2%. Rates greater than 5% were observed for the less serious complications, such as the requirement of transfusion, urinary retention or ileus.

Table 1: Analysis of Length of Stay with the type of Cholecystectomy

Type of Operation	Number	Length of Stay	Post-operative length of stay
Total	400	4.7 days	3.4 days
Laparoscopic	300	3.3 days	2.1 days
Open	83	10.1 days	8.9 days
Conversion from Laparoscopic to open	17	7.8 days	6.3 days

Table 2: Complications in patients undergoing Cholecystectomy

Complication	Laparoscopic	Open	P value
Major intra-operative complication			
Common bile duct Injury	1 (0.33%)	0 (0%)	0.05
Bowel Injury	2 (0.67%)	1 (1.2%)	0.1
Blood vessel Injury	2 (0.67%)	0 (0%)	< 0.001
Other organs Injury	4 (1.33%)	2 (2.41%)	0.05
Transfusion required	3 (1%)	7 (8.43%)	0.05
Pain	1 (0.33%)	5 (6.02%)	< 0.001
Shock	0 (0%)	1 (1.2%)	0.05
Urinary retention	2 (0.67%)	6 (7.23%)	< 0.001
Bile leak	5 (1.67%)	1 (1.2%)	0.01
Pulmonary complications			
Pneumonia	0 (0%)	1 (1.2%)	< 0.001
Atelectasis	2 (0.66%)	3 (3.61%)	< 0.001
Other Infections			
Wound infection	0 (0%)	1 (1.2%)	< 0.001
Sepsis	1 (0.33%)	1 (1.2%)	0.05
UTI	2 (0.67%)	3 (3.61%)	0.06
Gastrointestinal complication			
Pancreatitis	1 (0.33%)	0 (0%)	< 0.001
Jaundice	1 (0.33%)	1 (1.2%)	0.05
Ileus	3 (1%)	5 (6.02%)	< 0.001

DISCUSSION

In this study, we found that now a day most of the surgical cholecystectomies are done by laparoscopy, but in benefit of patients open

the procedure is preferred over laparoscopy as per the choice of surgeon.

Patients presented with long-standing symptoms of biliary disease refused for open procedures are

willingly opted for laparoscopic cholecystectomy due to fewer chances of complication and length of stay in the hospital as indicated by our study. Also, the newly diagnosed cases of such disease are also now a day are treated by laparoscopic cholecystectomy rather than open procedures.

Complication and morbidity rates of surgical procedure in case of cholecystectomy are very less either in case of open cholecystectomy or laparoscopic cholecystectomy so both procedures are safe in nature.

In the case of laparoscopic procedures, there is a greater incidence of surgical injuries as compared to morbidity that is more in open cholecystectomy.

Our results of the study are in concurrence with the other majority of published reports summarising the results of laparoscopic cholecystectomy. (2-7, 12, 13)

However, a meta-analysis has found low mortality and rate of complication while performing laparoscopic surgeries. (1) As now a day the majority of cholecystectomy is performed laparoscopically in the whole cohort of patients except for patients having large no. of complication. Thus the choice of cholecystectomy depends on patient's characteristics that can influence the outcome of the surgery. Moreover,

from various studies it was found that few injuries are undetected at the time of surgery, they represent at a later time at which the patient does not return to the same hospital so some complications are undetected due to such incidences. (14)

CONCLUSION:

Laparoscopic cholecystectomy can be safely considered in young patients presented with

cholelithiasis as compared to open cholecystectomy. Perioperative outcomes and rate of conversion to open cholecystectomy are influenced by the disease process itself, anatomy at calot's triangle and experience of the operating laparoscopic surgeon to avoid complications.

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