



## CLINICAL STUDY OF ADVANTAGES OF LAPAROSCOPIC CHOLECYSTECTOMY OVER OPEN CHOLECYSTECTOMY IN KING GEORGE HOSPITAL, VISAKHAPATNAM, ANDHRA PRADESH

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### ABSTRACT

**BACKGROUND:** This study aims to compare the advantages of laparoscopic cholecystectomy over open cholecystectomy in King George Hospital, Visakhapatnam. It is well established that laparoscopic surgery, in comparison with more traditional methods, results in fewer postoperative complications and leads to earlier patient mobility, and recovery of the normal activities of daily life. **AIM and OBJECTIVES:** This study aims to compare the advantage of laparoscopic cholecystectomy over open cholecystectomy in King George Hospital by the considering the following factors like-Duration of procedure, postoperative pain, requirement of analgesic ,complications – intra/post-operative ,post-operative stay in hospital, resumption of normal activity and cosmesis. **METHODS:** In our KING GEORGE HOSPITAL, we are performing both laparoscopic and open cholecystectomy. This study is conducted between OCTOBER 2017-OCTOBER 2019. This study is a comparative study in which 30 cases were posted for laparoscopic cholecystectomy and 30 cases were operated by open cholecystectomy and compared.The indications are cholelithiasis, chronic calculous cholecystitis, biliary colic, acute cholecystitis, and acalculous cholecystitis. The factors taken into account for comparison are duration of procedure, postoperative pain, requirement of analgesic, complications – intra/post-operative , post-operative stay in hospital,resumption of normal activity, cosmetic reasons. **RESULTS:** This is a study of 30 cases of laparoscopic cholecystectomy, of which 14 are male, and 16 are female patients, compared with 30 cases of an open cholecystectomy, of which 16 are male patients, and 14 are female patients. Visualisation and magnification of the anatomy of the Callots triangle are much better in laparoscopy when compared to the open method. The mean duration for an open procedure is 98.6 min and for laparoscopic is 68 minutes which is 30.6 minutes longer than that of the laparoscopic cholecystectomy. Duration of surgery is less in laparoscopy so early recovery from anesthesia. Regarding the requirement of analgesia open cholecystectomy patient requires analgesics even in the 5th the POD, whereas in the case of laparoscopic cholecystectomy analgesia is needed for only three days or less than that. In comparison between the post-operative complications between open and laparoscopic cholecystectomy, there is a significant p-value of 0.011 of variation in betterment of laparoscopic cholecystectomy. **CONCLUSIONS:** This study finally concludes that laparoscopic cholecystectomy is a considerable advancement than the open procedure in gall bladder diseases. Better visualization and magnification of the anatomy of the Callot's triangle, Laparoscopy is associated with less chance of wound infection so no risk of wound dehiscence. The post-operative pain duration and degree are less in laparoscopy. Early resumption on a regular diet in laparoscopy. Early ambulation and return to regular activity in laparoscopy. Post-operative hospital stay is shorter in laparoscopy compared to open.

**KEYWORDS :** Laparoscopic cholecystectomy, open cholecystectomy, Cholelithiasis

### INTRODUCTION

Laparoscopic cholecystectomy is the choice of procedure for symptomatic and asymptomatic gall bladder disease. Laparoscopic cholecystectomy is the removal of the gallbladder through (laparoscopy) multiple small incisions on the abdomen. In 1985, the German surgeon Eric Muhe performed the first laparoscopic cholecystectomy. However, Phillipe Mouret in Lyon has generally been given credit for developing the first laparoscopic. The American surgeons Barry McKernan and William Saye performed the first laparoscopic cholecystectomy in the United States in 1988. Cappuccino et al. reported For the Monmouth Medical Center Laparoscopic Cholecystectomy Group, the first large single institution<sup>1</sup>.

Gall stones are the most common biliary pathology. It is estimated that gall stones affect 10-15% of the population in western societies. More than 80% are asymptomatic. Approximately 1-2% of asymptomatic patients will develop symptoms requiring surgery per year, making cholecystectomy one of the most common surgery performed by general surgeons<sup>2</sup>.

In our hospital, cholecystectomy commonly occurs procedure for gall stone diseases. Both lap and open cholecystectomy. But we live in an era of surgical innovation that has seen the development and expansion of various types of laparoscopic surgery in which the incisions made are increasingly small. It is well established that laparoscopic surgery, in comparison with more traditional methods, results in fewer postoperative complications and leads to earlier patient mobility, and recovery of the normal activities of daily life. Lap cholecystectomy is now the preferred method.

### AIMS AND OBJECTIVES:

This study aims to compare the advantage of laparoscopic cholecystectomy over open cholecystectomy in King George Hospital by the considering the following factors like-Duration of procedure, postoperative pain, requirement of analgesic ,complications –

intra/post-operative ,post-operative stay in hospital, resumption of normal activity and cosmetic reasons.

### MATERIALS AND METHODS:

In our KING GEORGE HOSPITAL, we are performing both laparoscopic and open cholecystectomy. This study is conducted between OCTOBER 2017-OCTOBER 2019. This study is a comparative study in which 30 cases were posted for laparoscopic cholecystectomy and 30 cases were operated by open cholecystectomy and compared. The investigations<sup>3,4,5,6</sup> done are:

1)COMPLETE BLOOD COUNT, 2)RENAL FUNCTION TEST 3) BLOOD GROUPING 4)LIVER FUNCTION TEST

Bilirubin- direct, indirect Identified by Van den bergs test. Normal value of bilirubin is >1mg%.

Conjugated bilirubin is increased in cases of obstructive jaundice.

SGOT,SGPT,PT-INR,GGT,ALP,ALBUMIN

5)URINE ANALYSIS ,6)PLAIN X-RAY ABDOMEN. 7) ULTRA SONOGRAM ABDOMEN. 8) HEPATIC IMINODIACETIC ACID SCAN, 9) COMPUTED TOMOGRAPHY, 10) MAGNETIC RESONANCE IMAGING AND MAGNETIC RESONANCE CHOLANGIOPANCREATOGRAPHY, 11) ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY ERCP

### INCLUSION CRITERIA:

All patients admitted in surgery department in king George hospital, Visakhapatnam for elective cholecystectomy

1. Patients with symptomatic gall bladder disease
2. Symptomatic gall stones
3. Acute or chronic cholecystitis
4. Patients who gave valid informed consent.
5. Mucocele of gall bladder

**EXCLUSION CRITERIA:**

Pregnant women  
Major bleeding disorder  
Generalized peritonitis  
Suspected gall bladder malignancy

**RESULTS:**

The data in this study is reported as the mean $\pm$  SD or the median, depending on their distribution. The chi-square test was used to assess differences in categoric variables between groups. P-value of less than 0.05 is considered significant. All statistical analysis was performed with the help of a statistician.

**Table 1: TOTAL COMPLICATIONS BOTH IN LAPAROSCOPY AND OPEN CHOLECYSTECTOMY**

COMPLICATIONS	OPEN	LAPAROSCOPY	TOTAL
Intra-operative	1	1	2
Post-operative	7	0	7
Total	8	1	9

Chi-square level= 6.40

p-value=0.01138, which is significant between the variables.

**Table 2: DETAILS OF PATIENT SUBJECTED TO OPEN AND LAPAROSCOPIC CHOLECYSTECTOMY**

VARIABLES	LAPAROSCOPY n=30	OPEN n=30
AGE IN YRS	42.8	44.8
SEX RATION (M/F)	14/16	16/14
DURATION OF SURGERY IN MIN	68	98.6
RESUMPTION OF NORMAL DIET IN DAYS	1.36	2.76
Postoperative COMPLICATIONS	0%	23.3%
POSTOPERATIVE STAY IN DAYS	5.03	8.66

In this study, the conversion rate is 3.3%

**DISCUSSION:**

In this study, I have selected patients for the operative procedure depends on history, clinical examination, liver function test, and ultrasonography. The patients with CBD stones are excluded from my study by imaging method and LFT. This is a study of 30 cases of laparoscopic cholecystectomy, of which 14 are male, and 16 are female patients, compared with 30 cases of an open cholecystectomy, of which 16 are male patients, and 14 are female patients.

**This study revealed the following:**

Visualisation and magnification of the anatomy of the callots triangle are much better in laparoscopy when compared to the open method. The mean duration for an open procedure is 98.6 min and for laparoscopic is 68 minutes which is 30.6 minutes longer than that of the laparoscopic cholecystectomy. Duration of surgery is less in laparoscopy so early recovery from anesthesia, Regarding the requirement of analgesia open cholecystectomy patient requires analgesics even in the 5th the POD, whereas in the case of laparoscopic cholecystectomy analgesia is needed for only three days or less than that. so in lap duration of pain in lap is less Open cholecystectomy induces an inflammatory response in which proinflammatory cytokines such as IL6, IL8, IL 1B, TNF alpha, and C reactive proteins are released, which is responsible for increased pain and slow recovery. There is also suppression of cell-mediated immune system transiently which alters the functioning of lymphocyte, monocyte and other immune cells<sup>7</sup>

In laparoscopic cholecystectomy, trauma is less, so the release of

proinflammatory cytokines is also less and so post-operative recovery is functional, and the requirement of analgesia is even less.

In a study conducted by Karim t, Kadyal A et al, the mean surgery time in laparoscopic surgery is 103 minutes when compared to the 70minutes in open surgeries with conversion rate from laparoscopic to open is 6%<sup>8</sup>.

In a study conducted by Talpur et al. 2011 on 200 patients ,a mean hospital stay of 5.56 days in open surgery when compared to 3.02days in laparoscopic surgery with rate of complications of 50% in open surgery and 37%in laparoscopic surgery with return to normal activity in 31.6days in open surgery and 18.06 days in open surgery<sup>9</sup>.

**CONCLUSION:**

In our study, the laparoscopic cholecystectomy is a considerable advancement than the open procedure in gall bladder diseases. The advantages of laparoscopic cholecystectomy are several. Better visualisation and magnification of the anatomy of the Callots triangle, because technically, the dissection of cystic duct and artery is very precise and bleeding is easily controlled Laparoscopy is associated with less chance of wound infection so no risk of wound dehiscence The post-operative pain duration and degree are less in laparoscopy. Early resumption of a regular diet in laparoscopy. Early ambulation and return to regular activity in laparoscopy. Post-operative hospital stay is shorter in laparoscopy compared to open. The best cosmetic advantage in the laparoscopy compared to open. And patient acceptance also is laparoscopy.

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