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Comparative Study Of Laparoscopic Versus Open Cholecystectomy – The Retrospective Study.

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ABSTRACT

Laparoscopic procedures have been established as a popular alternative to Open procedures, which is called Minimally Invasive Surgery (MIS). In Gallbladder diseases, especially Gall stones Laparoscopic cholecystectomy has rapidly become established as the popular alternative to open cholecystectomy. The aim of this study is to compare Laparoscopic cholecystectomy with conventional open cholecystectomy concerning duration of surgery, intra-operative complications, postoperative pain, analgesic requirement, and period of hospital stay. In this study 60 consecutive patients between 25 to 70 years presenting with calculous cholecystitis with no evidence of CBD stones who underwent open and laparoscopic cholecystectomy were taken into account. At the end of the study, results given the duration of the procedure, duration of postoperative pain, incidence of complications and duration of hospital stay and early return to work were significantly lower in laparoscopic group, when compared with Conventional Open procedures.

Keywords: Cholelithiasis, Laparoscopic cholecystectomy, Open cholecystectomy

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INTRODUCTION

Gallbladder stones are one of the major causes of morbidity and mortality all over the world. After the 1980s, open Cholecystectomy was replaced by laparoscopic surgeries for the treatment of gallstones. The first Open Cholecystectomy was performed by Karl Langenbuch in Germany [1]. Similarly, 1st Laparoscopic cholecystectomy was done by Dr.Erich Muhe, of Germany in 1985, 103 years after the open procedure. After the 1990s, the open approaches were replaced by laparoscopic techniques The laparoscopic procedure was found to cause less scarring, shorter hospital stays, and faster recovery than the open surgery, but during the initial period at the expense of a higher rate of bile duct injuries [2]. It is proved that laparoscopic procedures, in comparison with Conventional methods, result in only a few post-operative complications and help for earlier patient mobilization and resuming of the normal regular activities of daily life. The safety of laparoscopic cholecystectomy for the elderly has also been confirmed in many studies as an acceptable procedure and is now the preferred method of cholecystectomy [3] over conventional one The major complications are significantly low in laparoscopic techniques and considered the mainstay of management of uncomplicated symptomatic gallbladder stones. But even after more than 35 years of journey, the application of laparoscopic techniques to the management of patients with complicated gallstone disease falls into debate [4]. Minimal Post-operative pain, cosmetically acceptable scar, short hospital stay early return to work and rare Complications like incisional hernia help us to consider better and opt for this technique [5].

MATERIAL AND METHODS

This study consists of 60 patients who have undergone gallbladder removal at Sri Muthukumaran Medical College Hospital and Research Institute, Chennai, Tamil Nadu, India. Out of 60 cases, 30 patients who have undergone laparoscopic cholecystectomy and 30 patients who have undergone open cholecystectomy for a period of one and half years from July 2021 to December 2022 have been taken into the study.

Inclusion criteria

Patients with symptomatic cholelithiasis which was initially diagnosed by USG followed by MRCP to rule out CBD stones have been included in this study. Male & Female (both sexes)30 from each sex

Exclusion criteria

Patients with the following conditions were excluded from the study.

- Patients with CBD stones
- Previous abdominal surgery
- The patient's age is above 70 years.
- Bleeding diathesis
- Pregnant women
- Children

Follow-up of postoperative patients were done for a period of 6 months to 1 year

RESULTS

Patients of Lap surgery and patients of Open procedure were males and similarly for females also patients for lap and for open (Table-). The time taken was generally less in laparoscopy surgery than in open cholecystectomy (Table 1). % of patients who underwent open surgery and % of those who underwent laparoscopic surgery had complications. The overall percentage of complications is lesser in laparoscopic surgery than in open surgery (Table 2). The Visual Analogue Scale was used to assess pain score. The median grade was 2 in the Laparoscopic group as compared to the median grade of 4 in the Open group. The NSAID/ Opioid analgesics were used for more days in the open group compared to the Lap group (Table-5). Out of 30 cases, 27 patients who underwent laparoscopic surgery used analgesics only for 3- 5 days whereas all patients in the other group who underwent open surgery used analgesics for 7-10 days. 28 patients in the lap group were discharged before 5 days, ranging from 3 to 5 days But the conventional group was discharged after 7 days, which ranges from 7 to 10 days.

Table 1: Sex distribution

Sex	Laparoscopic Cholecystectomy	Open cholecystectomy
Male	15	15
Female	15	15

Table 2: Time taken for surgery in hours

Laparoscopic cholecystectomy				Open cholecystectomy			
< 1½	%	> 1½	%	<1½	%	> 1½	%
28		2		17		13	

Table 3: complications

Complication	Open	%	Lap	%
Intra Op Bleeding	4		1	
Wound infection	5		1	
CBD injury	0	0	0	0
Incisional hernia	2		0	
Cosmetic scar	0		26	
Biliary radicles leak	2		4	
Total				

Table 4: Pain score

	LC	OC	P Value
VAS (Grade 0.5)	Grade 2	Grade 4	0.024
Range	0-3	1-5	(S)

Table 5: Number of days of analgesics

Surgery	<5 days	%	>5 days	%
LC	27		3	
OC	0	0	30	100

Table 6: Number of days of in-hospital stay

Surgery	<5 days	%	>5 days	%
LC	28		2	
OC	0	0	30	100

LC (Laparoscopic cholecystectomy) OC (Open cholecystectomy).

DISCUSSION

According to the previous studies the time taken for laparoscopic surgery was found to be more than open cholecystectomy such as Supe AN *et al.*; [6] (or) no significant time difference between the conventional group and lap group as per Waldner H *et al.* [7]. But, according to the present study, the overall time taken for laparoscopic surgery was found to be less than for open surgery. In this study, only % of patients, who had undergone laparoscopic cholecystectomy had minimal bleeding (< 50ml), and 3% in the open cholecystectomy group had more than 200ml of blood loss. According to Supe Sn *et al.*, those patients who fell in the open group required antibiotics for at least 4 to 5 days [7], whereas in the laparoscopic group, the Antibiotic requirement was found to be less according to Foster D.S *et al.* and Phillips E *et al.*[8, 9]. In this study, 90% of patients who underwent laparoscopic surgery required antibiotics for 3-5 days,

whereas 100% of all patients required antibiotics for 7 to 10 days in the open group. 27 cases in the laparoscopic group in this present study, required analgesics for less than 5 days, ranging from 3 to 5 days. But in the other group analgesic requirement was for at least 8-10 days. Three patients required the same for > 12 days. The need for analgesia is greater in open than in laparoscopic surgery according to Waldner H *et al.*; and Supe AN *et al.*; [6, 7]. As per Carbajo Caballero *et al.*'s study, the rate of complications was higher in conventional surgery than in laparoscopic procedures [11]. The complication rate is higher in the open group than in the laparoscopic group [6, 12]. In this study, 4 patients with open cholecystectomy had excessive bleeding, and 5 of them had wound infection. However, in laparoscopic procedures, the complications were found to be bleeding in 1 which was also insignificant & wound infection in 1 patient. According to Verma G *et al.*; [12] patients who underwent open cholecystectomy had longer hospital stay than those who underwent laparoscopic surgery. In our study lap surgery group had a hospital stay of less than 5 days, but all patients in open surgery were hospitalized for more than 5 days postoperatively. In the studies conducted by Carbajo *et al.*; [6], Supe AN *et al.*; [11]. Those patients who had undergone laparoscopic procedure (laparoscopic group) & open technique group, the mean postoperative duration required to resume routine work was 12.8 days and 34.8 days respectively. In our study, all patients who underwent open surgery took up to 3 weeks or more to resume regular activities. According to Stevens HP *et al.*, the cost of open surgery is found to be more than laparoscopic surgery [10]. As per Supe *et al.* study, there are not many cost differences between the two procedures [11]. According to the present study, laparoscopic surgery is somewhat costlier than open procedures.

CONCLUSION

In this study considerable advantages are well documented in Laparoscopic procedure, when compared with open technique in the treatment of gallbladder disease. The appreciable advantages are Technically, the dissection of the calot's triangle is very precise and bleeding is easily controlled, other than meager blood loss. This MIS technique is associated with less percentage of wound infections and it is rarely associated with incisional hernia. The intensity & duration of post-operative pain is less. Short hospital stays and early return to work are added advantages. The cosmetic scar obvious

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