



COMPARATIVE STUDY BETWEEN LAPAROSCOPIC CHOLECYSTECTOMY VERSUS MINI INCISION LAPAROTOMY CHOLECYSTECTOMY IN J.A.H., GWALIOR

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ABSTRACT

Our study was carried out as a prospective randomized controlled study in the Department of General Surgery at Gajra Raja Medical College and Jayarogya group of Hospitals, Gwalior (M.P.) for 1½ year from December 2017 to May 2019. The study involved total no. of 100 patients blindly randomized into 2 groups in an alternating manner. operative time, post operative complication, post operative hospital stay, cosmetic appearance of wound were studied and statistically analyzed.

KEYWORDS : laparoscopic, mini laparotomy, cholelithiasis, postoperative pain

INTRODUCTION

Cholelithiasis is one of the most common digestive tract diseases and constitutes an important health problem in developed countries [1]. Gallstone disease is one of the most prevalent gastrointestinal diseases with substantial burden on health care system [2]. Supe calculated the burden of gallstone disease in India to as high as 15% of total population [3]. Four major factors explain most gallstone formation—super saturation of secreted bile, concentration of bile in the gallbladder, crystal nucleation, and gallbladder dysmotility. Earlier attempts of the surgical techniques involved cholecystectomies and various techniques were used to create a cutaneous fistula through which gall stones could be removed. Though perfected over time, gall bladder surgery had high mortality rates and attempts were made to find an alternative technique [4].

Since ages, cholecystectomy has been the surgical treatment of choice of cholelithiasis. With the help of laparoscopic cholecystectomy surgical management of cholelithiasis drastically changed. We know better that benefits of laparoscopic approach include reduced hospital stay with cost, decreased pain, reduced post-operative recovery time with early return to work, avoidance of large incision with better cosmetic results. Expensive instruments specialized training and long learning phase limit the use of laparoscopic. This led to the development of mini incision laparotomy cholecystectomy, which is necessarily a form of open cholecystectomy, but done with a much smaller incision. Recent consensus has evolved around defining mini incision laparotomy cholecystectomy as a procedure with an incision size of 5+/- 2 centimeters which is performed in the setting of an ambulatory day care surgical center.

It offers the advantages of a smaller abdominal access, lesser post-operative pain, faster post-operative ambulation, shorter hospital stays and equally good scar cosmetic. Mini incision laparotomy cholecystectomy has also been reported as the preferred procedure from the hospital and societal cost perspective and holds great significance in places with lower socio-economic status.

Though laparoscopic cholecystectomy remains the gold standard technique, various trials have failed to find its superiority over mini incision laparotomy cholecystectomy. The goal of minimal access surgeries has always been to diminish the trauma of access without compromising the overall goal of surgical procedure [5].

AIMS AND OBJECTIVES

The aim of this study is to compare the results of the technique of conventional Laparoscopic Cholecystectomy with Mini Incision Laparotomy Cholecystectomy regarding:

1. Operative time
2. Post-operative hospital stay
3. Post-operative complications

MATERIALS AND METHOD

The study was carried out as a prospective randomized controlled study in the Department of General Surgery at Gajra Raja Medical College and Jayarogya group of Hospitals, Gwalior (M.P.) for 1½ year from December 2017 to May 2019. The study involved total no. of 100 patients blindly randomized into 2 groups in an alternating manner with 50 patients divided in each group. The patient was selected for operation from each group as alternative manner. The study was approved by the ethical committee of the hospital.

The study subjects were patients presenting with symptomatic, ultrasonography proven cholelithiasis and underwent elective cholecystectomy at this hospital. All the patients were interviewed for detailed clinical history and examined. They were then subjected to routine blood investigations as per protocol. An abdominal ultrasound was performed in all cases to confirm cholelithiasis and to rule out choledocholithiasis or any other pathology.

A written informed consent was taken from all the patients before their inclusion in the study, and both the procedures were performed under general anesthesia with endotracheal intubation.

OBSERVATIONS

The data were all recorded and analyzed using simple statistical tests. Significance was measured using Chi square test, to compare the results. Mean operating time for laparoscopic cholecystectomy group is 62.48 min, and 37.64 min in mini incision laparotomy cholecystectomy group. [P-value = <0.05]. Post-operative hospital stay in laparoscopic cholecystectomy is 3.16 with range of (2-4 days) & in mini incision laparotomy cholecystectomy is 3.34 with range of (2-5 days). 06 patients (12%) in laparoscopic cholecystectomy group and 08 patients (16%) in mini incision laparotomy cholecystectomy group had postoperative pyrexia. Postoperative fever was more common in mini incision laparotomy cholecystectomy group. 02 patient (4%) had postoperative urinary retention in laparoscopic cholecystectomy group it was seen in 3 patients (6%) in MINI incision laparotomy cholecystectomy group. 2 patients (6%) in laparoscopic cholecystectomy group and 7 patients (14%) in mini incision laparotomy cholecystectomy group had chest infection.

1 patients (2%) in laparoscopic cholecystectomy group and 8 patients mini incision laparotomy cholecystectomy group (16%) in mini incision laparotomy cholecystectomy group had wound infection. So wound infection was more common in mini incision laparotomy cholecystectomy group. Scar cosmetic was measured using the Hollander's wound evaluation scale at 4 weeks of follow up. The mean score was 5.06 in laparoscopic cholecystectomy and 4.8 in mini incision laparotomy cholecystectomy ranged from a minimum of 4 to a maximum of 6. There was no significant difference found for requirements of post-operative analgesia in both groups of patients.

Table 1: Comparison Of Laparoscopic Cholecystectomy And Mini Incision Laparotomy Cholecystectomy Group In Relation To Operating Time

	LC 50	MILC 50	P<0.00001
Operating time (in min) mean	62.48	37.64	T- test* t=10.68

Mean operating time for laparoscopic cholecystectomy group is 62.48 min, and 37.64 min in mini incision laparotomy cholecystectomy group which is significantly different as p-value is <0.05.

Table 2: Post-operative Complication In Study Group

Post-operative Complications	No. of patients		
	LC (n=50)	MILC (n=50)	
Pyrexia	6	8	x ² =3.1435 Df=3 P - Value =0.3700
Retention of urine	2	3	
Pulmonary complication	2	7	
Wound infection	1	8	

06 patients (12%) in laparoscopic cholecystectomy group and 8 patients (16%) in mini incision laparotomy cholecystectomy group had postoperative pyrexia. Postoperative fever was more common in mini incision laparotomy cholecystectomy group.

02 patient (4%) had postoperative urinary retention in laparoscopic cholecystectomy group it was seen in 3 patients (6%) in mini incision laparotomy cholecystectomy group. 2 patients (6%) in laparoscopic cholecystectomy group and 7 patients (14%) in mini incision laparotomy cholecystectomy group had chest infection. 1 patient (2%) in laparoscopic cholecystectomy group and 8 patients.

Mini incision laparotomy cholecystectomy group (16%) in mini incision laparotomy cholecystectomy group had wound infection. So wound infection was more common in mini incision laparotomy cholecystectomy group.

Table 3 :post-operative Hospital Stays In Laparoscopic Cholecystectomy And Mini Incision Laparotomy Cholecystectomy

	LC n=50		MILC n=50		
	Mean	S.D.	Mean	S.D.	
Duration of postoperative hospital stay (in days)	3.16	0.5481	3.34	0.6581	t=1.481 p value =0.1405

Post operative hospital stay in laparoscopic cholecystectomy is 3.16 with range of (2-4) & in mini incision laparotomy cholecystectomy is 3.34 with range of (2-5).

Table 4: Cosmetic Appearance Of Wound

	LC		MILC		
	Mean	S.D.	Mean	S.D.	
Cosmetic appearance of wound	5.06	0.81	4.8	0.699	P=0.0454 68 t=2.85655

Scar cosmesis was measured using the **Hollander's wound evaluation scale** at 4 weeks of follow up. The mean score was 5.06 in laparoscopic cholecystectomy and 4.8 in mini incision laparotomy cholecystectomy ranged from a minimum of 4 to a maximum of 6.

DISCUSSION

Following results were drawn from the study:-

Operative Time.

All the procedures were performed under general anaesthesia, and the operative time was measured from the time of skin incision. The mean operating time in laparoscopic cholecystectomy was 62.48 and 37.64 in mini incision laparotomy cholecystectomy.operative time was more in laparoscopic cholecystectomy group and difference was significant by t- test (p<0.05), compares well with other studies.

Corroborating these results with the study of Basuet al⁸, mini incision laparotomy cholecystectomy is a procedure with less operating time. This is significant in countries.

where waiting lists for surgeries are long and a high surgical turnover is

required.

Post Operative Complication

The post operative complications observed during the study were pyrexia, urinary retention, pulmonary complication and wound infection which were found to be comparable in both the groups and statistically insignificant (p>0.05).

Post-operative Stay

Hospital stay determines to be a significant factor in cost-reduction and overall patient satisfaction. A comparative summary is given below.

In present study mean post-operative hospital stay was 2.76 (2-4), and 3.03 (2-5) for laparoscopic cholecystectomy and mini incision laparotomy cholecystectomy group respectively which is having no significant difference.

Scar Cosmesis

The physical attributes of the operative scar is a significant quality of life variable. We used subcuticular sutures for the skin closure which improve the cosmetic appearance of wound. The mean scar cosmesis score in our study was 5.06in laparoscopic cholecystectomy and 4.8 in mini incision laparotomy cholecystectomy out of 6 which was highly acceptable.

CONCLUSION

We concluded that operating time which was significantly less in mini incision laparotomy cholecystectomy with help of some laparoscopic instrument. This is important for hospitals where waiting lists for surgeries are long and a high surgical turnover is required. Rest of the parameters like intraoperative & postoperative complications , length of hospital stay and cosmetic appearance of wound had no significant difference.

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