

ORIGINAL ARTICLE

COMPARISON OF THREE PORT LAPAROSCOPIC CHOLECYSTECTOMY WITH FUNDAL SUTURING V/S FOUR PORT LAPAROSCOPIC CHOLECYSTECTOMY

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ABSTRACT:

Introduction: The main objective of our work was to try evaluate the feasibility of the three port laparoscopic cholecystectomy with fundal suturing and also to evaluate if there was potential advantages over the standard four port laparoscopic cholecystectomy. **Material and Methods:** 60 patients of either sex admitted to surgical ward no. 7 of Rajindra Hospital Patiala, Punjab were taken up for present study. All patients were randomly assigned into two groups by using lottery system. Variables such as operating time, conversion to open procedure, intraoperative and postoperative complications, analgesia requirements and cosmetic appearance were compared. **Results:** Operative time of 3 port LC with fundal suturing is comparable with 4 port LC and the difference was statistically insignificant. Conversion to open procedure was done in 1 patient in both the groups. Conversion rate was 3.3%. Adhesion was the major cause of conversion. Both the groups were comparable in intraoperative complications in terms of bleeding, content leak from the GB, stone spillage. There were no major post operative complications in both the groups. Mean Hospital stay in 3 port LC with fundal suturing was 2.33 days. Which when compared with 4 port LC found to be statistically insignificant. 3 port LC with fundal suturing does not reduce the analgesia requirement of the patient post operatively. Three port LC with fundal suturing has less no. of ports so better cosmetic appearance. There was no mortality in both the groups. **Conclusion:** Hence from this study we concluded that Three port LC with fundal suturing is technically feasible, safe with good results as achieved with the four-port technique. It involves less number of assistants; patients get less number of scars and hence relatively better cosmetic appearance.

Key words: Cholelithiasis, Laparoscopic Cholecystectomy.

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INTRODUCTION

Gall stone are known ever since the dawn of civilization and have put man to trouble¹Cholecystectomy is the commonest operation of biliary tract and 2nd most common operative procedure performed today.⁽²⁾ Langenbuch's open cholecystectomy remained the gold standard for symptomatic cholelithiasis for over a century.⁽³⁾ Many years ago, the concept of decrease in surgical incisions to have less postoperative pain and more cosmetic appearance has been adopted. ⁽⁴⁾ The introduction of laparoscopy has approved this concept. In March 1987 Mouret in Lyon, France performed first laparoscopic cholecystectomy recorded in medical literature ⁽⁵⁾. The abdominal incisions have been markedly reduced to four (or more) small stab incisions. This approach magnificently provides less

postoperative pain, short hospital stay, good cosmetic appearance ,early recovery and return to normal activities ^(6,7)The main objective of our work was to try evaluate the feasibility of the three port laparoscopic cholecystectomy with fundal suturing and also to evaluate if there was potential advantages over the standard four port laparoscopic cholecystectomy.

MATERIALS AND METHOD:

Sixty patients of either sex admitted to surgical ward of Rajindra Hospital Patiala, Punjab were taken up for present study. All patients were randomly assigned into two groups by using lottery system(Non-algorithmic randomization method) and at the end of procedure four bandages are applied in both the groups:

Group A: three port lap cholecystectomy with fundal suturing

In patients of group A, a 5mm port was put in the right mid clavicular line in subcostal plane, and then anaesthetist was asked to inflate the lung so that movement of the pleura were seen and then aethilon 1-0 on straight needle was inserted through the right 8th or 9th intercostal space in the anterior axillary line from outside and held by laparoscopic needle holder from inside under vision. Needle is manipulated with needle holder and the bite of the wall of gallbladder fundus was taken and the needle was brought out through the same intercostals space close to the entry point and grasp outside. The loop of the ethilon was pulled so that the gallbladder was retracted towards the anterior abdominal wall and the haepatoduodenal space was opened up.

Group B: four port standard lap cholecystectomy

In patients of group B, the fundus of the gallbladder was grasped through the lateral port, and retracted above the liver margin.

Following parameters were noted in both groups:

- 1 Operative time
- 2 The ease and feasibility of the procedure
- 3 Any additional complications
- 4 Cosmetic appearance
- 5 Acceptability of the procedure
- 6 Comparison of morbidity & pain.

RESULTS

The results of the two groups were compared and proper statistical analyses were done.

The mean operative time in group A was 33.66min and in group B was 33.33min. The maximum time in group A was 60 min and in group B was 50 min. The statistical analysis showed that the difference was non significant between the two groups ($t=0.1527$, $p=0.8791$)(Table 1). In terms of conversion of laparoscopic cholecystectomy to open cholecystectomy both groups are comparable to each other ($\chi^2=0$, $p=1$).(Table 2). Both groups were comparable to each other in terms of intraoperative complications (Table 3). In terms of post operative complications, Port site infection was present in 1 patient i.e. 3.3 % in both the groups. It was a small stitch abscess which was drained locally (table 4). Both groups were comparable in terms of analgesic requirement (Table 5). Mean hospital stay in group A was 2.33 days and in group B was 2.3 days. Statistical analysis showed that the difference between the two groups was not significant ($t=0.2610$, $p=0.7951$). Patients with more than 2 days of hospital stay are because of long drain or by the choice of the patient (Table 6). In terms of cosmetic appearance there were 3 scars in three port LC with fundal suture and 4 scars in four port LC. So less number of scar give better cosmesis in three port LC as compared to four port LC.(picture 1)

TABLE 1: Operating time comparison

Group	Range (min)	Mean (min)	SD
3 port (Group A)	20-60	33.66	9.37
4 port (Group B)	20-50	33.33	7.23

At df=58; t =0.1527; p=0.8791 Hence Non-Significant

TABLE 2: Laparoscopic cholecystectomy conversion to open cholecystectomy

	3 port (Group A)	%age	4 port (Group B)	%age
Conversion to open cholecystectomy	1	3.3	1	3.3

TABLE 3: Table showing complications during operation

Complication	3 port (Group A)	%age	4 port (Group B)	%age	χ^2	P
Bleed	1	3.3	1	3.3	0	1,NS
Content leak from GB	3	10	2	6.7	0.22	0.64,NS
Spillage of stone	1	3.3	1	3.3	0	1,NS

(NS = Not significant)

TABLE 4: Showing post operative complications

	Group A 3 port No. of pt	%age	Group B 4 port No. of pt	%age	P
Ileus	0	0	0	0	1,NS
Peritonitis	0	0	0	0	1,NS
Pneumothorax	0	0	0	0	1,NS
Port site Infection	1	3.3	1	3.3	1,NS
Port site hernia	0	0	1	3.3	0.31,NS

(NS= Not significant)

TABLE 5: Analgesic Requirement

Analgesic dose In ampoule (1 ampoule=2ml)	1	2	3	4
3 port (Group A) (no. of ptn)	0	9	16	5
Percentage%	0	30	53.3	16.7
4 port (Group B) (No of ptn)	0	5	20	5
Percentage%	0	16.7	66.6	16.7
df = 58, t = 1, p = 0.3215 Non Significant				

TABLE 6: Hospital Stay Comparison

	Range (days)	Mean (days)	SD
3 port (Group A)	2-3	2.33	0.43
4 port (Group B)	2-3	2.3	0.46
At df=58; t=0.2610; p=0.7951 Non Significant			

PICTURE 1: Cosmetic Appearance



DISCUSSION

The main objective of this study was to try the feasibility of the three port laparoscopic cholecystectomy with fundal suturing and also, to evaluate if there is potential advantages over the standard four port laparoscopic cholecystectomy. In our study both groups were comparable two each other in terms of operative time. This is comparable to study by Mushtaq Chalkoo et al. in 2010(8) and another study by Al-Azawi et al. in 2007(9). In the present study. Both groups were comparable two each other in terms of conversion to open cholecystectomy ($\chi^2 = 0, p=1$). This is comparable to Larson et al, 1992, who reported a conversion rate of 4.5% in laparoscopic cholecystectomy, in a total of 1983 patients. Inflammation and dense adhesions were responsible for the majority of these conversions. (10) In terms of intra operative complications in term of intraoperative bleeding, stone spillage and cotent leak from gall bladder both groups were

comparable. So three port LC with fundal suturing was safe and does not had extra risk in terms of intra operative complications. This was also reported by Trichak 2003(11), AI Nefeh 2005(12), Cerci et(13) al and Tagaya et al 1998(14), In terms of Post operative complications were groups were comparable. In both groups Port site infection was present in 3.3% of patients. So again three port LC with fundal suturing was safe and does not increases the risk in terms of port site infection than 4 port LC. In the previous study by Singh et al. 2010 incidence of port site infection was 4 %.(15) Port site hernia was present in one patient in group 2 but difference was statistically insignificant. So again three port LC with fundal suturing was safe and does not increases the risk in terms of port site hernia than 4 port LC. This was also reported by Trichak 2003(11), AI Nefeh 2005(12), Cerci et al 2007(13) and Tagaya et al 1998.(14) Most of the patients in our study required 2 – 3 doses of

analgesic , i.e. 83.3% in Group A and 83.4% IN Group B. Statistical analysis showed no difference between two groups and Many studies support that three port LC does not reduces the analgesia requirement. ^(13,16).In our study the mean hospital stay in group A was 2.33 days while in group B was 2.3 days. There was no statistical difference between the two groups.

Three port LC with fundal suture does not increase the hospital stay when compared to 4 port LC in this study. This was also reported Trichak 2003⁽¹¹⁾, Endo et al 2001⁽¹⁷⁾, AL Azawi 2007⁽⁹⁾

In this study there are 3 scars in three port LC with fundal suture and four scars in four port LC. So less number of scar better cosmesis in three port LC as compared to four port LC. This is supported by many studies like endo et al 2001⁽¹⁷⁾, trichak 2003⁽¹¹⁾, AI Nafeh et al 2005⁽¹²⁾ and mushtaq chalkoo et al 2010⁽⁸⁾.

In terms of need of assistants ,In this study in group A one surgeon, one assistant and one staff nurse were required and there in group B one surgeon, Two assistant and one staff nurse are involved so Three port LC is more cost effective as it reduces the manpower. Mustaq chalkoo et al in 2010 reported that three port LC requires less assistance. ⁽⁸⁾

CONCLUSION:

Hence from this study we concluded that three port LC with fundal suturing is technically feasible, safe with good results as achieved with the four-port technique. It involves less number of assistants; patients get less number of scars and hence relatively better cosmetic appearance

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