

# Gallbladder Retrieval in Three Ports Laparoscopic Cholecystectomy: Umbilical Port versus Subxiphoid Port

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## ABSTRACT

**Aim:** To compare gall bladder retrieval through umbilical versus subxiphoid port in patients undergoing laparoscopic cholecystectomy in terms of time taken and postoperative pain.

**Methods:** After informed consent and ethical approval, using purposive non-probability sampling, 60 patients with diagnosis of chronic cholecystitis on list for cholecystectomy were randomly assigned for delivery of gall bladder either through umbilical or subxiphoid port. Immune compromised patients and patients with BMI>40kg/m<sup>2</sup> or suspicion of carcinoma of were excluded.

**Results:** Sixty patients with mean age 48.3±6.55 years were included and randomly assigned. There came out a non-significant difference in Time for Gall Bladder delivery (p value 0.109) and post-operative pain score at 24 hours in both groups (p value=0.280). There was equal distribution of age and gender in both groups.

**Conclusion:** It is concluded that both ports are equally efficient in terms of time taken and comparable in postoperative pain score reduction.

**Keywords:** VAS pain score, Laparoscopic cholecystectomy, Three port laparoscopic cholecystectomy, Delivery of gall bladder

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## INTRODUCTION

Open cholecystectomy as a routine operation once for cholecystitis and cholelithiasis is no more a routine practice.<sup>1-4</sup> Instead laparoscopic cholecystectomy has become the gold standard treatment for the symptomatic gall stone disease all over the world.<sup>2</sup> Conventionally the procedure was carried out through four ports. However now there is trend of reducing the number and sizes of port sites and several researchers have reported favorable results.<sup>3-7</sup>

During the extraction of gall bladder, perforation of the wall of gall bladder and spillage of bile in wound are all messy things which may spoil a straight forward cholecystectomy<sup>8-12</sup>. After completing the cholecystectomy, gallbladder is traditionally taken out through the umbilical port<sup>5,11</sup>. In this approach surgeon has to change his position as well as telescope's and telescope is passed through the subxiphoid port. Practically gall bladder can also be removed from 10mm subxiphoid port<sup>11,12</sup>. In which there is no need to change the position of telescope and readjustment of position of surgeon. Very few studies are available exploring the extraction of gall bladder through subxiphoid port. In a recent study at tertiary care hospital 200 patients were analyzed for operative time, port site infection but patient

perception of pain was not assessed<sup>4</sup>.

Current study aims to explore a better port for gallbladder retrieval in three port laparoscopic cholecystectomy in terms of pain outcome, as patient perceives and time taken for delivery of gall bladder. The former study<sup>4</sup> cited refer to ease for surgeon as in subxiphoid port there is no need to change the position of telescope and readjustment of position of surgeon and latter study shows superiority of umbilical port in terms of pain. This new study will help find an evidence for better port for retrieval of gall bladder in laparoscopic cholecystectomy both in terms of patient perception and surgeons ease so we may make evidence based decisions.

## SUBJECTS AND METHODS

To achieve the objective, a randomized control trial was carried out at surgical floor of Jinnah Hospital Lahore Lahore from 5<sup>th</sup> July 2013 to 5<sup>th</sup> January 2014. Sixty patients who fulfilled the selection criteria were included after an informed consent. Inclusion criterion was patients of either sex with age ranging from 16 to 60 years with clinically and sonographically diagnosed case of cholelithiasis and chronic cholecystitis. Immune compromised and patients with BMI >40kg/m<sup>2</sup> and suspicion of carcinoma gallbladder were excluded. Patients were advised baseline investigations that include CBC, HBsAg and Anti HCV. Senior and experienced consultants under general anaesthesia carried out all the operations. Included patients were randomly

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divided into two groups by random number generation i.e. one group in which gallbladder of patients was retrieved through umbilical port and in second group through epigastric/subxiphoid port gallbladder in standard three port laparoscopic cholecystectomy. Time taken for gall bladder retrieval was defined as time taken after completion of preliminary steps i.e. dissection of Calot's triangle, clipping of cystic artery and cystic duct, dissection of gall bladder from liver bed, haemostasis and irrigation/suction till its removal through one of the two ports. Postoperative perceived pain was measured by visual analogue scale at 24 hours postoperatively by a registered nurse. Collected data was analyzed using the SPSS version 17. Student t-test was applied to determine statistical difference in pain score and operative time in both groups. A value of  $p \leq 0.05$  was considered as significant. A pre-designed proforma was filled for each case to record the demographic and study variables.

## RESULTS

Sixty patients with mean age  $48.3 \pm 6.55$  years ranging from 29-62 years were included in the study. Twenty four of included persons (40%) were male. Mean age distribution in treatment group came out similar ( $p=0.746$ ) showing the effect of randomization. Independent sample t test results came out non-significant. Similarly gender distribution was equally distributed in both groups [ $p=0.125$ ] (Table 1). Gender distribution was statistically evaluated using chi square test for homogeneity. Time for Gall Bladder delivery and post-operative pain score at 24 hours were our two outcome variables. To check significant difference in both treatment groups i.e. gall bladder delivery either by umbilical or sub xiphoid port independent sample t test was applied on both groups which showed equal distribution of time taken for delivery [ $p= 0.109$ ] (Table 2) and comparable post-operative pain score i.e. Non-significant [ $p=0.280$ ] (Table 3).

Table 1: Descriptive statistics

Variable	Sub-xiphoid Group	Umbilical Group	P value
Age	$48.5 \pm 7.4$	$48 \pm 5.7$	0.76
Gender			
Male	9	15	0.114
Female	21	15	

Table 2: Comparison of mean time taken for delivery of gall bladder

Treatment group	No.	Mean $\pm$ SD	P value
Sub-xiphoid group	30	$10.43 \pm 4.554$	0.109
Umbilical group	30	$8.67 \pm 3.827$	

Not significant

Table 3: Comparison of post-operative pain in terms of mean VAS Score

Treatment group	No.	Mean $\pm$ SD	P value
Sub-xiphoid group	30	$3.70 \pm 1.022$	0.28
Umbilical group	30	$3.37 \pm 1.326$	

Not significant

## DISCUSSION

Laparoscopic cholecystectomy is a common procedure in our day-to-day surgical practice. Every day we come across certain problems, which are not addressed by keeping all aspects in mind.<sup>8-11</sup> Such is problem of standard port for delivery of gallbladder in Laparoscopic cholecystectomy. Some studies have reported umbilical port better for delivery of gallbladder<sup>5</sup> and others reported sub xiphoid port as better one in terms of ease for surgeon and time taken.<sup>4</sup> However, at same time most of studies did not consider postoperative pain. Current study addressed both issues.

Age distribution ranged from 29 to 62 years showing even an early incidence of symptomatic cholelithiasis in Pakistani population. Age was equally distributed between both types of procedures (Table 1). Random selection of patients reduced the effect modification which might be produced by different distribution of age in both groups. Cholecystitis is more common in female population<sup>2,6,12</sup> as generally observed and similar are results of our study. More female underwent cholecystectomy during our study period. Gender distribution was equal in umbilical and sub xiphoid ports for delivery of gallbladder (Table 1).

In our study mean time for gall bladder delivery was  $10.43 \pm 4.5$  mins in sub xiphoid group while  $8.67 \pm 3.8$  in umbilical group showing a non-significant difference in both groups ( $p=0.109$ ). This also shows that difficulty level for delivery of gall bladder is almost equal from surgeon prospective. Regarding mean time taken for delivery of gallbladder in our study, our results matches those presented by Abbas et al<sup>4</sup> who showed average time taken in delivery of gall bladder varied from 2 to 12 minutes for umbilical port group and 3-16 min for sub xiphoid port group. The difference was statistically insignificant ( $p=.909$ ).<sup>4</sup>

Similarly post-operative pain score in our study came out  $3.70 \pm 1.02$  in Sub xiphoid Group while  $3.37 \pm 1.3$  on visual analogue scale of 10 with 10 as worst pain. The difference in 24 hour postoperative pain score was statistically non-significant [ $p=0.28$ ] (Table 2). This is contradictory to the results by Siddique et al.<sup>5</sup> In a randomized control trial of 120 patients by Siddique et al, who were randomized to either group A ( $n=60$ , GB retrieval through epigastric/subxiphoid port) or group B ( $n=60$ , GB retrieval through umbilical port). VAS for pain was assessed

by a registered nurse at 1, 6, 12, 24 and 36 h after surgery. The VAS for pain at umbilical port was less than subxiphoid port at 6, 12, 24 and 36 hours after surgery ( $5.9\pm 1.1$  vs  $4.1\pm 1.5$ ,  $4.6\pm 0.94$  vs  $3.5\pm 1.05$ ,  $3.9\pm 0.85$  vs  $2.4\pm 0.79$ ,  $3.05\pm 0.87$  vs  $2.15\pm 0.87$ , respectively) and the difference was statistically significant ( $p < 0.001$ ).<sup>5</sup>

The limitations of this study include Limitation of current study is that we did not address the effect of acute cholecystitis neither included nor excluded. A relatively short duration of follow-up i.e. 24 hours was used. The study has evaluated only right-handed surgeon, scenario may be different for left-handed surgeon

## CONCLUSION

It is concluded that three ports laparoscopic cholecystectomy gall bladder retrieval through umbilical versus subxiphoid port are equally efficient in terms of time taken and comparable in postoperative pain score reduction. The surgeon may choose in terms of his ease and practice,

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