



## COMPARATIVE STUDY OF RETRIEVAL OF GALL BLADDER FROM EPIGASTRIC VERSUS UMBILICAL PORT DURING LAPAROSCOPIC CHOLECYSTECTOMY

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**ABSTRACT** **Background:** In laparoscopic cholecystectomy, gall bladder removal is the terminal event. It can be done via Umbilical port or Epigastric port. This study aims to compare umbilical and epigastric ports for gall bladder retrieval in laparoscopic cholecystectomy in terms of post operative port site pain, post operative port site infection and time required to retrieve gall bladder. Materials and **Methods:** A prospective observational study was conducted at Tertiary Healthcare Centre in Mumbai. Total 60 patients were randomly assigned for gall bladder retrieval through umbilical port and epigastric port. Time required to retrieve gall bladder was recorded intraoperatively. Post operative port site pain was assessed at 12 and 24 hours after surgery. Port site infection was assessed at post operative day 3, 7 and 15. **Results:** Mean time required to retrieve gall bladder from umbilical port was 1.68 minutes and from Epigastric port was 1.29 minutes. In umbilical port group mean VAS (visual analogue scale) score of post operative port site pain at 12 hours was 3.37 and at 24 hours was 1.53, while in Epigastric port at 12 hours it was 4.13 and at 24 hours was 1.93. One patient from umbilical port group had post operative port site infection on post operative day 3 and 7 which resolved by post operative day 15. No patient from Epigastric port group had port site infection. **Conclusion:** This study indicates that during laparoscopic cholecystectomy umbilical port is better for gall bladder retrieval in term of post operative pain but as far as time to remove gall bladder and post operative infection is concerned epigastric port is better than umbilical port.

**KEYWORDS :** Laparoscopic cholecystectomy, epigastric port, umbilical port.

### INTRODUCTION

Gall stone disease is very common in today's surgical practice. First open cholecystectomy was performed by Carl Langenbach in 1882 and since then it had been the primary treatment for gall bladder disease through the early 1990s [1]. Mouret performed the first laparoscopic Cholecystectomy [2], since then laparoscopic cholecystectomy has become the gold standard for treatment of gallstone disease [3,4]. Symptomatic cholelithiasis is most common indication for laparoscopic cholecystectomy today. Laparoscopic cholecystectomy has many advantages like lesser post operative pain, shorter hospital stay, faster post operative recovery, better cosmetic results, decreased wound infection rate and decreased overall cost [5,6]. In laparoscopic cholecystectomy removal of gall bladder is terminal event. It can be done via epigastric port or umbilical port [7,8,9]. Removal of gall bladder from port site causes post operative port site pain and predispose patient to port site infection in post operative period. Different ports have different propensity for postoperative infection and pain. In literature there is no definitive evidence which port is better out of these two ports for gall bladder removal. Every surgeon has his own preference. There are many such studies undertaken to determine better port for gall bladder removal. Each one of them has suggested one or other port for retrieval. Nafeh Al et al suggested using epigastric port for gall bladder removal [10], while Beckingham suggested using umbilical port for gall bladder removal [11]. The purpose of this study is to determine better port out of epigastric and umbilical port for removal of gall bladder in terms of post operative post site pain, port site infection and time required to remove gall bladder from these ports.

### MATERIALS AND METHODS

This was a Prospective observational type of study conducted at Tertiary care hospital in Mumbai. Patients admitted for elective laparoscopic cholecystectomy were included in study. Inclusion criteria was i) age >18 yrs ii) age <60 yrs iii) patients giving consent for study iv) Gall bladder stones of <1cm size as seen in ultrasound of abdomen. Exclusion criteria was i) age <18 yrs and >60 years ii) intraoperative gall bladder perforation iii) intraoperative spillage of gall stones iv) comorbidities like diabetes mellitus and obesity. For getting statistically significant result the sample size of total 60 patients were selected, 30 patients in umbilical port group (Group A) and 30 patients in epigastric port group (Group B).

### Study procedure

Written informed consent was taken for participation in study. All patients were operated by senior surgeons experienced in laparoscopic cholecystectomy and standard 4 port cholecystectomy was done in all patients. Pneumoperitoneum was created using open technique and

umbilical 10 mm port was inserted under vision. 10 mm epigastric port was used and subsequent 2 ports used were 5 mm each. Time taken to remove gall bladder was noted intraoperatively. Post operative port site pain was assessed at 12 and 24 hours after surgery using VAS (visual analogue scale). Port site infection was assessed on post operative day 3, day 7 and day 15. It was noted whether infection is present or not.

### Statistical analysis

Data from the case record forms was entered into a Microsoft excel sheet and analyzed using SPSS version 21 software. Descriptive statistics was assessed and represented as mean $\pm$ SD, frequencies and percentages. Normality of quantitative data was assessed using Shapiro wilk test. Quantitative data between two groups was compared using unpaired t test for normally distributed data or Mann Whitney test for data which was not normally distributed.

Categorical data between two groups was compared using chi square test or fisher's exact test. Level of significance in the study was less than or equal to 0.05.

### RESULTS

Table no 1 shows the time required to retrieve gall bladder. In Umbilical port it as 1.68 minutes while in epigastric port it was 1.29 minutes.

**Table 1**

Port	Mean time	Standard Deviation	P value
Umbilical	1.68 minutes	0.2398	0.0000
Epigastric	1.29 minutes	0.2578	0.0471

Table no 2 shows incidence of Port site infection (Number of Patients) at post op day 3, 7, 15. There was a single incidence of port site infection in one of the patients of Umbilical port group. No incidence of port site infection was noted in Epigastric port group.

**Table 2**

Port	POD3	POD7	POD15
Umbilical	1	1	1
Epigastric	0	0	0

In umbilical port group mean VAS (visual analogue scale) score of post operative port site pain at 12 hours was 3.37 and at 24 hours was 1.53. There was significant reduction in pain at 24 hours. In epigastric port group mean VAS score of post operative port site pain at 12 hours was 4.13 and at 24 hours was 1.93. As far as post operative port site pain at 12 hours and 24 hours is concerned, patients in umbilical port group

experienced lesser pain as compared to epigastric port group which was evident by mean VAS score. Mean VAS score of umbilical port group was 1.83 while mean VAS score of epigastric port group was 2.20 which was significantly higher than umbilical port group.

### DISCUSSION

Our study was conducted upon 60 patients operated for laparoscopic cholecystectomy surgery in our institute. Various parameters studied are as follows;

#### Age distribution:

Mean age of umbilical port group was 42.60 years and mean age of epigastric port group was 41.30 years.

#### Gender distribution:

In umbilical port group 6 patients were males and 24 patients were females. In epigastric port group 5 were males and 25 were females. Among total 60 patients 11 were males and 49 were females clearly indicating female predisposition of Gall stone diseases.

#### Number and sizes of gall stones.

The number and sizes were variable among patients. Few patients had multiple gall stones varying from average size of 4 mm to 9 mm, while few patients had single gall stone. The size of single gall stone among different patients varied from 4 mm to 9 mm.

#### Time required to retrieve gall bladder:

In umbilical port group, time required to retrieve gall bladder averaged from 1.2 minutes to 2 minutes. Mean time required to retrieve gall bladder from umbilical port was 1.68 minutes. In epigastric port group, average time required to retrieve gall bladder was 1 minutes to 1.9 minutes. Mean time required to retrieve Gall bladder from Epigastric port was 1.29 minutes. Thus the mean time required to retrieve gall bladder is lesser in epigastric port group as compared to umbilical port group.

#### Port site pain in Umbilical port group:

In umbilical port group mean VAS score of post operative port site pain at 12 hours was 3.37 and at 24 hours was 1.53. There was significant reduction in pain at 24 hours.

#### Port site pain in Epigastric port group:

In Epigastric port group mean VAS score of post operative port site pain at 12 hours was 4.13 and at 24 hours was 1.93. As far as post operative port site pain at 12 hours and 24 hours is concerned, patients in umbilical port group experienced lesser pain as compared to epigastric port group which was evident by mean VAS score. Mean VAS score of umbilical port group was 1.83 while mean VAS score of epigastric port group was 2.20 which was significantly higher than umbilical port group.

#### Port site infection on post operative day 3,7 and 15:

Among all 60 patients only one patient from umbilical port group had post operative port site infection on post operative day 3 and 7 which resolved by post operative day 15. No patient from Epigastric port group had port site infection. Occurrence of port site infection in only one patient in only one group was not statistically significant.

### CONCLUSION

For removal of gall bladder both epigastric and umbilical ports can be used. It depends on surgeon's preference. Our study indicates that in terms of pain umbilical port is better as it has lesser incidence of post operative pain. But as far as time to remove gall bladder is concerned epigastric port is better than umbilical port. In our study only 1 patient from umbilical group had post operative port site infection which was not statistically significant.

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