

COMPARATIVE STUDY OF SSI WHILE RETRIEVAL OF GB FROM EPIGASTRIC VS UMBILICAL PORT DURING LAP CHOLECYSTECTOMY

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Received : 05/09/2023
 Received in revised form : 10/10/2023
 Accepted : 19/10/2023

Keywords:

Symptomatic Gallstones, Gall Bladder Polyps, Laparoscopic Cholecystectomy.

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DOI: 10.47009/jamp.2023.5.5.309

Source of Support: Nil,
 Conflict of Interest: None declared

Int J Acad Med Pharm
 2023; 5 (5); 1574-1577

**Abstract**

Background: Comparative study of SSI while retrieval of GB from epigastric vs umbilical port during lap cholecystectomy. **Materials and Methods:** Eighty-four patients with symptomatic gallstones, gall bladder polyps scheduled for elective four-port laparoscopic cholecystectomy of both genders were randomly divided into 2 groups of 42 each. In group I, GB was retrieved from epigastric port, and in group II, GB was retrieved from umbilical port. Parameters such as indication for surgery, duration of surgery, retrieval difficulty, number of patients required additional analgesia, SSI and post-operative pain (VAS) at 1 hour, 6 hours, 12 hours and 24 hours etc. was recorded. **Result:** Group I comprised 24 males and 20 females and group II 26 males and 18 females. Age group 20-30 years had 2 patients in group I and 4 in group II, 30-40 years had 4 in group I and 7 in group II, 40-50 years had 10 in group I and 15 in group II and 50-60 years had 18 in group I and 10 in group II and >60 years had 8 in group I and 6 in group II. The difference was significant ($P < 0.05$). Indications were symptomatic gallstones in 40 patients in group I and 38 patients in group II and gall bladder polyps in 2 patients in group I and 4 patients in group II. The mean pethidine requirement was 10.4 mg in group I and 8.2 mg in group II. Ketorolac requirement was 6.2 mg in group I and 3.4 in group II. The difference was significant ($P < 0.05$). The mean duration of surgery was 51.5 minutes in group I and 57.3 minutes in group II. The mean retrieval difficulty was seen in 4.7 in group I and 4.5 in group II. Patients required additional analgesia were 14 in group I and 12 in group II. The SSI was seen in 6 in group I and 3 in group II. The difference was non-significant ($P > 0.05$). The mean Vas at 1 hour in group I was 5.4 and in group II was 4.8, at 4 hours was 4.2 in group I and 3.4 in group II, at 12 hours was 3.1 in group I and 2.5 in group II and at 24 hours was 1.5 in group I and 1.1 in group II. The difference was significant ($P < 0.05$). **Conclusion:** In individuals undergoing elective laparoscopic cholecystectomy, gall bladder retrieval using an umbilical port is associated with less discomfort, pain and SSI than retrieval from an epigastric port.

INTRODUCTION

The most common general surgical procedure worldwide is a cholecystectomy. The development of laparoscopic technology and practice has changed surgery since the laparoscopic cholecystectomy (LC) was originally described in 1985.^[1] If we consider the numerous problems (cardiac, wound, pulmonary, discomfort, delayed return to daily activities) associated with open cholecystectomy, LC has been a great advancement.^[2,3] The majority of patients who receive LC experience a brief and trouble-free hospital stay, and their postoperative course is characterized by a prompt return to normal daily activities.^[4]

Postoperative pain following LC has been linked to a number of causes, such as hemoperitoneum, abdominal wall trauma from port placement, use of carbon dioxide (CO₂) to create pneumoperitoneum, gall bladder (GB) removal, etc.^[5] Non-steroidal anti-inflammatory drugs, pre-emptive analgesia (incisional or intraperitoneal infiltration of local anesthetic agents), intraperitoneal saline, a gas drain, heated gas, low-pressure gas, and nitrous oxide pneumoperitoneum are some of the different ways to relieve pain after laparoscopic cholecystectomy.^[6,7] It has been stated that some of these techniques are effective. One of the identified factors influencing postoperative port site discomfort is the reported recovery of GB, which is a significant terminal event of laparoscopic cholecystectomy. GB is frequently

removed from the umbilical or epigastric ports.^[8,9] In a laparoscopic cholecystectomy, both ports have been suggested for retrieving the GB, and they are always used based on the surgeon's preference.^[10,11] We performed this study to compare SSI while retrieval of GB from epigastric versus umbilical port during lap cholecystectomy.

MATERIALS AND METHODS

After considering the utility of the study and obtaining approval from ethical review committee, we selected eighty- four patients with symptomatic gallstones, gall bladder polyps scheduled for elective four-port laparoscopic cholecystectomy of both genders. Patients' consent was obtained before starting the study.

Data such as name, age, gender etc. was recorded. Patients were randomly divided into 2 groups of 42 each. In group I, GB was retrieved from epigastric port, and in group II, GB was retrieved from umbilical port. Parameters such as indication for surgery, duration of surgery, retrieval difficulty, number of patients required additional analgesia, SSI and post- operative pain (VAS) at 1 hour, 6 hours, 12 hours and 24 hours etc. was recorded. The results were compiled and subjected for statistical analysis

using Mann- Whitney U test. P value less than 0.05 was set significant.

RESULTS

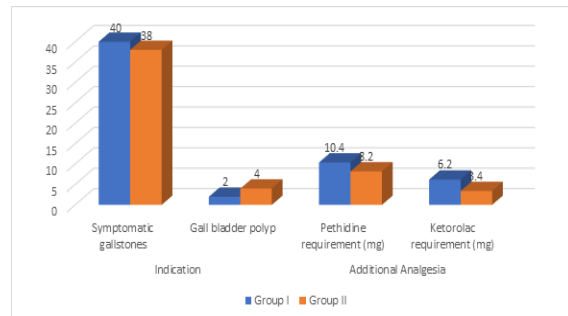


Figure 1: Comparison of parameters

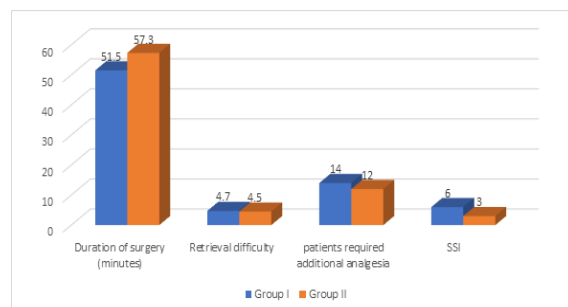


Figure 2: Other variables

Table 1: Patients distribution based on gender

Groups	Group I	Group II
Site	epigastric port	umbilical port
M:F	24:20	26:18

Group I comprised 24 males and 20 females and group II 26 males and 18 females [Table 1].

Table 2: Patients distribution based on age group

Age group (years)	Group I	Group II	P value
20-30	2	4	0.72
30-40	4	7	
40-50	10	15	
50-60	18	10	
>60	8	6	

Age group 20-30 years had 2 patients in group I and 4 in group II, 30-40 years had 4 in group I and 7 in group II, 40-50 years had 10 in group I and 15 in group II and 50-60 years had 18 in group I and 10 in group II and >60 years had 8 in group I and 6 in group II. The difference was significant (P< 0.05) [Table 2].

Table 3: Comparison of parameters

Parameters	Variables	Group I	Group II	P value
Indication	Symptomatic gallstones	40	38	0.01
	Gall bladder polyp	2	4	
Additional Analgesia	Pethidine requirement (mg)	10.4	8.2	0.05
	Ketorolac requirement (mg)	6.2	3.4	0.02

Indications were symptomatic gallstones in 40 patients in group I and 38 patients in group II and gall bladder polyps in 2 patients in group I and 4 patients in group II. The mean pethidine requirement was 10.4 mg in group I and 8.2 mg in group II. Ketorolac requirement was 6.2 mg in group I and 3.4 in group II. The difference was significant (P< 0.05) [Table 3 and Figure 1].

Table 4: Other variables

Variables	Group I	Group II	P value
Duration of surgery (minutes)	51.5	57.3	0.94
Retrieval difficulty	4.7	4.5	0.97

patients required additional analgesia	14	12	0.72
SSI	6	3	0.01

The mean duration of surgery was 51.5 minutes in group I and 57.3 minutes in group II. The mean retrieval difficulty was seen in 4.7 in group I and 4.5 in group II. Patients required additional analgesia were 14 in group I and 12 in group II. The SSI was seen in 6 in group I and 3 in group II. The difference was non-significant ($P > 0.05$) [Table 4 & Figure 2].

Table 5: Assessment of post-operative pain

VAS	Group I	Group II	P value
1 hour	5.4	4.8	0.05
4 hours	4.2	3.4	0.04
12 hours	3.1	2.5	0.01
24 hours	1.5	1.1	0.05

The mean VAS at 1 hour in group I was 5.4 and in group II was 4.8, at 4 hours was 4.2 in group I and 3.4 in group II, at 12 hours was 3.1 in group I and 2.5 in group II and at 24 hours was 1.5 in group I and 1.1 in group II. The difference was significant ($P < 0.05$) [Table 5].

DISCUSSION

Laparoscopic surgery, often known as minimally invasive surgery or keyhole surgery, is a contemporary surgical method that involves carrying out procedures through relatively small incisions (typically between 0.5 and 1.5 cm) made elsewhere on the body.^[12,13] Hans Christian Jacobaeus of Sweden carried out the first laparoscopic procedure on a person in 1910.^[14,15] We performed this study to compare SSI while retrieval of GB from epigastric versus umbilical port during lap cholecystectomy.

In our study, group I comprised 24 males and 20 females and group II 26 males and 18 females. Age group 20-30 years had 2 patients in group I and 4 in group II, 30-40 years had 4 in group I and 7 in group II, 40-50 years had 10 in group I and 15 in group II and 50-60 years had 18 in group I and 10 in group II and >60 years had 8 in group I and 6 in group II. Shakya et al,^[16] studied 200 patients of cholelithiasis. The patients were randomly selected in the operation theatre for gall bladder extraction via epigastric port (designated as group A with $n = 100$ patients) and gall bladder extraction via umbilical port (designated as group B with $n = 100$ patients). Post-operative pain at 24 hours, in terms of VAS was 3.67 ± 1.42 in group A while 2.47 ± 1.17 in group B with 10 being the worst pain. A total of eight patients out of two hundred patients suffered port site infections amongst which five were from group A (5%) and three were from group B (3%).

Our results showed that indications were symptomatic gallstones in 40 patients in group I and 38 patients in group II and gall bladder polyps in 2 patients in group I and 4 patients in group II. The mean pethidine requirement was 10.4 mg in group I and 8.2 mg in group II. Ketorolac requirement was 6.2 mg in group I and 3.4 in group II. Hajong et al,^[17] studied 100 patients of laparoscopic cholecystectomy which were randomly allocated into 2 groups.

Postoperatively, port site pain score was assessed at 1, 6, 12, and 24 hours by visual analog scale (VAS) score both for the epigastric and umbilical ports in all the patients. VAS score for postoperative pain at epigastric port at 1, 6, 12, and 24 h found to be higher as compared to umbilical port (6.640 ± 1.494 vs. 5.500 ± 1.176 , 6.620 ± 1.549 vs. 5.320 ± 1.188 , 6.100 ± 1.549 vs. 4.660 ± 1.232 , 5.250 ± 1.459 vs. 3.970 ± 1.274 , respectively). The time taken for retrieval of GB was significantly longer in the umbilical group (4.94 ± 1.56 vs. 3.24 ± 1.29).

We observed that the mean duration of surgery was 51.5 minutes in group I and 57.3 minutes in group II. The mean retrieval difficulty was seen in 4.7 in group I and 4.5 in group II. Patients required additional analgesia were 14 in group I and 12 in group II. The SSI was seen in 6 in group I and 3 in group II. Siddiqui et al,^[18] included 120 adult patients undergoing elective laparoscopic cholecystectomy were randomized to either group A ($n = 60$, GB retrieval through epigastric 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 hours after surgery. The VAS for pain at umbilical port was less than epigastric port at 1, 6, 12, 24 and 36 hours after surgery (5.9 ± 1.1 vs. 4.1 ± 1.5 , 4.6 ± 0.94 vs. 3.5 ± 1.05 , 3.9 ± 0.85 vs. 2.4 ± 0.79 , 3.05 ± 0.87 vs. 2.15 ± 0.87 , respectively). Multiple linear regression was done for port site pain at 24 h and the VAS at umbilical port was less than epigastric port with VAS difference of 0.9 after adjusting for age, sex, duration of surgery and additional analgesia use. Our results showed that the mean VAS at 1 hour in group I was 5.4 and in group II was 4.8, at 4 hours was 4.2 in group I and 3.4 in group II, at 12 hours was 3.1 in group I and 2.5 in group II and at 24 hours was 1.5 in group I and 1.1 in group II. Ahmad et al,^[19] recommended both umbilical and subxiphoid ports to be equally effective for gallbladder extraction in terms of postoperative pain and to be surgeon specific. Abbas et al,^[20] preferred the subxiphoid port for GB retrieval due to ease for the surgeon as in there is no need to change the position of telescope and readjustment of position of the surgeon.

CONCLUSION

In individuals undergoing elective laparoscopic cholecystectomy, gall bladder retrieval using an umbilical port is associated with less discomfort, pain and SSI than retrieval from an epigastric port.

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