

# Post-Operative Pain Score in Port Site Infiltration of Local Anesthetic after Laparoscopic Cholecystectomy for Symptomatic Cholelithiasis

Muhammad Muazzam, Sarwat Bibi, Husnain Ejaz

## ABSTRACT

**Objective:** To determine the mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis. **Study Design:** Prospective Study. **Settings:** Study was conducted in DHQ Hospital Faisalabad. **Period:** 15 December, 2016 to 15 May, 2017. (6 Months). **Methodology:** Due procedure for approval of ethical committee to conduct this study was adopted, while only OPD cases with the condition to fulfillment of inclusion criteria were the population of this study. Laparoscopic cholecystectomy was performed under general anesthesia by consultant surgeon. Patients were given 20ml of 1.0% levoropivacaine at all port sites in total after wound closure with 6ml at each 10mm port site and 4ml at 5mm port sites. All infusion fluid was drained after laparoscopic cholecystectomy. Pain score was assessed by using visual analogue scale after 6 hours of surgery. **Results:** In our study, mean±sd was calculated as 41.29±12.22 years, 45.71%(n=32) were male and 54.29%(n=38) were female. Mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis was 3.76±0.82. **Conclusion:** We concluded that mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis was significantly low, and this technique appears to an effective and alternative method for minimizing the need of opioid analgesia while being simple technique, it is easy to perform and applicable.

**Keywords:** Symptomatic cholelithiasis, laparoscopic cholecystectomy, port-site infiltration of local anesthetic, post-operative pain

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## INTRODUCTION

In 1987, Philippe Mouret introduced laparoscopic cholecystectomy which is now considered as gold standard while managing symptomatic cholelithiasis or enlarged gallbladder polyps.<sup>1</sup> Post laparoscopic cholecystectomy pain is sharp and acute, it starts after the laparoscopic cholecystectomy is done and settles with tissue healing. Though, it is less intense as compared to open cholecystectomy,<sup>2</sup> however, some cases still experience a significant discomfort during first 24 to 72 postoperative hours and cause delay in hospital discharge.<sup>3</sup> Pain experienced following laparoscopic cholecystectomy derives significantly from the incisions made in the anterior abdominal wall which has segmental innervation provided by nociceptor afferents in the transversus abdominis fascial plane between the internal oblique and transversus abdominis muscles.<sup>4,5</sup> Multiple factors are responsible for post laparoscopic pain. Incision sites pain being somatic pain, whereas pain from the gallbladder bed being mainly visceral in nature, and shoulder pain is mainly due to the residual CO<sub>2</sub> irritating the diaphragm. It is, therefore, likely that combined methods of analgesia can best reduce postoperative pain.<sup>3</sup> Inadequate postoperative pain control can delay patient's recovery, lengthen the hospital stay and increase morbidity and

costs.<sup>6</sup> Scoring of pain and its management by different methods is also in practice in other specialties as well.<sup>7</sup> Local anesthetics (LA) have been widely used for control of pain by various routes including port-site infiltration and intraperitoneal instillation.<sup>1</sup> Local anaesthetic infiltration into the surgical incision can relieve pain at the wound site after surgery, as part of multimodal analgesic approach. This is a simple, safe, low-invasion and low-cost technique used.<sup>5</sup> In one study mean pain score after 6 hours of surgery was noted to be 4±1 (2-6).<sup>8</sup> Symptomatic cholelithiasis is a common disease presenting in tertiary care hospitals and mostly laparoscopic cholecystectomy is used for its management. Post-operative pain is a major issue after laparoscopic cholecystectomy but in routine practice no local wound anesthetic is used. There is no local study available on this regard as per my knowledge. So, the results of my study will be helpful in creating awareness regarding the use of local wound anesthetic infiltration for the management of post-operative pain after laparoscopic cholecystectomy.

## METHODOLOGY

**Study Design:** Descriptive case series.

**Settings:** DHQ Hospital Faisalabad-Pakistan.

**Duration:** 6 months from 15-12-2016 to 15-05-2017.

**Methods:** In this study, we enrolled 70 cases by using WHO sample size calculator, where population mean  $\pm$  standard deviation =  $4 \pm 1.7$ ,  $d = 0.5$ , confidence level = 95%. All these cases ranged from 18 – 60 years of both genders and those undergoing for elective laparoscopic cholecystectomy for symptomatic cholelithiasis as per operational definition having ASA I / II status. We excluded all those cases with history of previous abdominal surgery, pregnancy or lactating, acute pancreatitis, history of alcohol or drug addiction and patients with comorbid diseases like diabetes mellitus, hepatic or renal impairment and valvular heart disease using oral anticoagulant drugs. We got approval of ethical committee and enrolled all these cases coming through OPD with an informed consent of the participants. Laparoscopic cholecystectomy was performed under general anesthesia by consultant surgeon. Patients were given 20ml of 1.0% levoropivacaine at all port sites in total after wound closure with 6ml at each 10mm port site and 4ml at 5mm port sites. All infusion fluid was drained after laparoscopic cholecystectomy. Pain score was assessed by using visual analogue scale after 6 hours of surgery. SPSS 16 was used to analyze the collected data in this study.

## RESULTS

Of 70 cases, mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis.

Age distribution reveals 47.14%(n=33) between 18-40 years and 52.86%(n=37) between 41-60 years, mean age was  $41.29 \pm 12.22$  years. (Table 1)

**Table 1: Age distribution(n=70)**

Age (in years)	No. of patients	%
18-40	33	47.14
41-60	37	52.86
<b>Total</b>	<b>70</b>	<b>100</b>
<b>Mean<math>\pm</math>SD</b>	<b>41.29<math>\pm</math>12.22</b>	

Regarding gender distribution 45.71% were male and 54.29% female. (Table. 2)

Body mass index was recorded as 44.29%(n=31) with  $<30$  and 55.71%(n=39) had  $\geq 30$ , ASA status of the patients was recorded as 51.43%(n=36) for ASA-I and 48.57%(n=34) had ASA-II.

**Table 2: Gender distribution (n=70)**

Gender	No. of patients	%
Male	32	45.71
Female	38	54.29
<b>Total</b>	<b>70</b>	<b>100</b>

Mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis was  $3.76 \pm 0.82$ . (Table No. 3)

**Table 3: Mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis(n=70)**

Pain score	Mean	SD
	3.76	0.82

## DISCUSSION

This study was aimed to determine the mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis with the fact that symptomatic cholelithiasis is a common disease presenting in tertiary care hospitals and mostly laparoscopic cholecystectomy is used for its management. Post-operative pain is a major issue after laparoscopic cholecystectomy but in routine practice no local wound anesthetic is used but no local study is available on this regard. So, the results of my study may be helpful in creating awareness regarding the use of local wound anesthetic infiltration managing post-operative pain.

These findings correspond to a study where mean pain score after 6 hours of surgery was noted to be  $4 \pm 1$  (2-6).<sup>8</sup>

Gouda M El-labban and others<sup>9</sup> compared intra-incisional v/s intraperitoneal infiltration of levobupivacaine 0.25% while managing post-operative pain after the laparoscopic cholecystectomy is done and concluded that the efficacy regarding control of post-operative pain through intra-incisional infiltration of levobupivacaine is appreciable and significantly effective than those cases with intraperitoneal route and reduces need for rescue analgesia.

Lepner et al<sup>10</sup> in a study evaluated the efficacy of two techniques by comparing intra-incisional and intraperitoneal infiltration of local anesthetic. According to his findings, significant reduction of post-operative abdominal pain was recorded with intra-incisional local infiltration of the anesthetic drug.

Alam MS and others<sup>11</sup> evaluated whether intraperitoneal port site and intraperitoneal instillation of local anesthetics is effective for early pain relief and revealed that while managing post-operative pain they found it as a substitute method for early pain control which minimizes the need of opioid analgesics.

The findings of our study are helpful in creating awareness regarding the use of local wound anesthetic infiltration while managing post-operative pain after the laparoscopic cholecystectomy is done.

## CONCLUSION



We concluded that mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis was significantly low, and this technique appears to an effective and alternative

method for minimizing the need of opioid analgesia while being simple technique, it is easy to perform and applicable.

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