

Lateral Anal Sphincterotomy for Chronic Anal Fissures- A Comparison of Outcomes and Complications under Local Anaesthesia Versus Spinal Anaesthesia

Lateral Anal Sphincterotomy under Local VS Spinal Anaesthesia

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ABSTRACT

Objective: To compare the mean pain scores at 6 hours and 24 hours after lateral internal sphincterotomy under local anesthesia versus spinal anesthesia.

Study Design: A double-blind prospective randomized controlled trial study

Place and Duration of Study: This study was conducted at the conducted at surgical unit 2, Civil Hospital Karachi, Pakistan from June, 2018 to December, 2018 for a period of six months.

Materials and Methods: A total of 60 patients were selected by non-probability consecutive sampling, aged 18-65 years of either gender with complaint of chronic anal fissure lasting 3 months, underwent lateral internal sphincterotomy. They were randomized into 30 patients who received local anesthesia and 30 patients who received spinal anesthesia by closed envelop method. Mean pain score was measured as the primary outcome at 6 hours and 24 hours after the procedure.

Results: There was no statistically significant difference found in mean pain score at 6 hours and 24 hours after the LIS in both groups. Mean pain score at 6 hours was 5.40 (± 1.886) and 5.40 (± 2.568) respectively (p-value=0.102) while at 24 hours mean pain score was 1.77 (± 1.278) and 2.37 (± 1.159) respectively (p-value=0.859). Moreover, the patients who had local anesthesia were met with low risk of anesthesia, short hospital stay and early return to home.

Conclusion: Lateral internal sphincterotomy can be safely performed under local anesthesia with minimum risk of complications.

Key Words: Chronic anal fissure, Bupivacaine, Local anesthetic, Lateral internal sphincterotomy

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INTRODUCTION

Fissure in Ano is described as a linear breach or ulcer in the anoderm which usually remains distal to the dentate line. Even though the definite cause of anal fissure is still unknown¹, it is one of the most common anorectal diseases associated with pain in the anal region.^{2,3} and bleeding during defecation; thereby, leading to the clinical diagnosis of the disease.⁴ It is often associated with increased resting anal sphincter tone and decreased blood supply⁵ and is classified into acute and chronic fissures.

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Acute anal fissures resolve within four weeks while, chronic anal fissure usually persists beyond four weeks with a non-healing indurated edge and prominent internal sphincter fibers at the base of the fissure.

The treatment modalities commonly include non-operative and operative techniques, however, both work in a similar manner, that is, by reducing the anal sphincter tone and improve blood supply.⁶ Although majority of non-operative techniques include topical application of lignocaine gel, nitrates or calcium channel blockers, sitz baths, high fiber diet, and stool softeners^{6,7}. Lateral internal sphincterotomy (LIS) is considered the gold standard surgical treatment for chronic anal fissures.⁸ is also preferred in the cases of, complicated, and acute anal fissures refractory to non-operative treatment.⁹ The overall procedure of the LIS surgical technique involves dividing the lower fibers of internal sphincter to relieve muscle spasm subsequently, improving blood supply accompanied by incontinence, the persistence of fissure, and recurrence like complications.¹⁰

LIS may be performed under local anesthesia or spinal anesthesia. Generally, LIS is routinely performed under spinal anesthesia which provides good intra-operative

and immediate post-operative pain relief, however it carries risks of complications like hypotension, urinary retention, spinal headache, spinal hematoma, meningitis, prolonged hospitalization, and immobilization.^{11,12} The effectiveness of local anesthesia in terms of patient's cost, decreased morbidity, and short hospital stay^{13,14,15} is highlighted by Romero AS, Siddique T, and Kulkarni in their separate studies. Furthermore, an in study by Kashani SMTit was observed that LIS performed under local anesthesia was associated with less postoperative pain (mean pain score 1.90 ± 1.07) as compared to that performed under spinal anesthesia (mean pain score 3.77 ± 1.25) at 6 hours.¹⁶ Moreover, lateral sphincterotomy performed under Local anesthesia has advantage of shorter duration of surgery.¹⁷

This study was designed to compare postoperative pain scores at 6 and 24h hours in patients undergoing LIS under local anesthesia with spinal anesthesia, consequently, assessing the efficiency of local anesthesia in this particular procedure. This would contribute in increasing the frequency of future LIS performed under local anesthesia, which would not only enhance and expedite hospital services delivery by catering more patients on operation theater lists but would substantially play an important role in saving the patients from the complications associated with spinal anesthesia.

MATERIALS AND METHODS

A double-blinded prospective randomized controlled trial was conducted from 25th June' 18 to 25th December' 18 at surgical unit 2, Civil Hospital Karachi, Pakistan. A total of 60 patients were selected by non-probability consecutive sampling, aged 18-65 years of either gender with a complaint of chronic anal fissure lasting 3 months or more diagnosed clinically by history and examination at OPD. Patients with clinical evidence of Anal stenosis, Incontinence, Perianal abscess, Hemorrhoids, Fistula-in-ano, and known biopsy-proven Intestinal Tuberculosis, Crohn's disease, and Anorectal carcinoma were excluded from the study. After ethical and Institutional Reviewer Board (IRB) approval, informed consent was taken from all the participants, who were then randomly allocated in two groups of thirty patients by closed envelop method. Group A was given local anesthesia (10ml of 2% lignocaine with 10ml of 0.5% bupivacaine) around the anal verge while group B was operated in spinal anesthesia (0.5% hyperbaric bupivacaine in the intrathecal space).

Thereafter, LIS and all other relevant procedures were conducted by specialized consultant general surgeons, working in the civil hospital for 5 years. In order to control the risk of bias, an on-duty general surgery resident, unaware of the type of anesthesia used (local or spinal), collected the data regarding post-operative

pain scores (using visual analog scale) at 6 hours and 24 hours through a manual Performa (attached).

RESULTS

With the sample size remaining consistent throughout the study, a total of 60 patients, who fulfilled the inclusion criteria, were identified from 25 June'18 to 25 December'18. The ages of the included patients were between 18 and 61 years with an overall mean age (\pm SD) of 35.50 (± 10.679) years. The mean age in group A (\pm SD) was 34.77 (± 10.325) years, whereas in group B (\pm SD) was 36.23 (± 11.150) years with no significant difference between the two groups (p-value = 0.647) (Table 1). Furthermore, the study consisted of 19 (31.7%) male and 41 (68.3%) female patients. Group A consisted of 11 male and 19 female patients, while group B constituted eight male and 22 female patients (Table 1). The mean pain scores after two hours of LIS were then compared between both groups by applying the t-test.

According to the visual analog scale (measured 0-10 cm), pain scores at 6 hours and 24 hours after LIS for chronic anal fissure were recorded by the on-duty resident. As a result, at 6 hours mean pain scores (\pm) were [group A 5.40 (± 1.886) versus group B 5.40 (± 2.568)], while at 24 hours mean pain scores (\pm) were [group A 1.77 (± 1.278) versus group B 2.37 (± 1.159)] (Table 2). In addition to this, as per the calculation of independent t-tests, no significant differences were observed between the mean pain scores of the two groups at 6 hours (p-value = 0.102) and 24 hours (p-value = 0.859) (Table 2).

Table No.1: Characteristics of Patients

Variable	GROUP	
	Group A (local anesthesia) (n=30)	Group B (spinal anesthesia) (n=30)
Age Group (years)		
≤ 35	14(46.66%)	13(43.33%)
> 35	16(53.33%)	17(56.66%)
Gender		
Male	11(36.66%)	8(26.66%)
Female	19(63.33%)	22(73.33%)

Table No.2: Pain Score at 6 and 24 Hours Lateral Internal Sphincterotomy

Group	N	Mean pain scores	Std. Deviation	p-value
At 6 Hours				
Group A (local anesthesia)	30	5.40	1.886	0.102
Group B (spinal anesthesia)	30	5.40	2.568	
At 24 Hours				
Group A (local anesthesia)	30	1.77	1.278	0.859
Group B (spinal anesthesia)	30	2.37	1.159	

DISCUSSION

Despite the recent advances in non-operative treatment modalities, lateral internal sphincterotomy still remains the primary surgical treatment option for chronic anal fissure mainly because it guarantees rapid healing and decreased recurrence rates.¹⁸ LIS is generally performed under general anesthesia, spinal anesthesia, and local anesthesia. In a multi-centre randomized controlled trial, Brown CJ et al. found lateral internal sphincterotomy as the most suitable procedure for the treatment of chronic anal fissure¹⁹. In this procedure anterior fibers of internal anal sphincter are divided either with sharp dissection or diathermy. Conventionally this procedure was performed under spinal anesthesia which was widely accepted by patients in terms of intra operative and immediate post-operative pain relief, then again this type of anesthesia carries risk of complications like urinary retention, headache, hypotension etc.¹⁵ However, recent studies are in favor of local anesthesia due to its safe and cost-effective nature accompanied by early recovery and decreased morbidity of patients.²⁰ As observed by Antonio Arroyo in his study, local anesthesia substantially benefited patients in terms of less morbidity, less hospital expenses, early resumption of daily routine, thereby, leading to greater patient's satisfaction.²¹ In another study, local anesthesia was again found as the fruitful treatment for patients undergoing LIS for chronic anal fissure.²²

Furthermore, Nessar, et al. reported postoperative pain as the most common cause of discomfort and inconvenience to the patient after LIS (n=9,20.9%) in his study. Similarly in our study experienced pain was the most frequent post-operative complication observed in our study. In our study no statistically significant differences were observed in the mean pain scores at 6 hours and 24 hours of both groups (spinal versus local anesthesia), which were 5.40 ± 1.886 vs 5.40 ± 2.568 (p-value= 0.102) and 1.77 ± 1.278 vs 2.37 ± 1.159 (p-value= 0.859) respectively. The results of this research trial were in line with the study of Manoharan R, et al (2017), where no statistically significant difference was observed between the pain scores of the two groups with spinal and local anesthesia in the immediate post-operative period (p=0.097)¹⁸. Thus the efficacy of local anesthesia was found similar to spinal anesthesia in terms of pain relief in the postoperative period. Kashani et al also reported significantly less pain at 6 hours after LIS in the LA local anesthesia group as compared to the spinal anesthesia group (1.90 ± 1.07 vs. 3.77 ± 1.25)¹⁶. In addition to pain, bleeding was also noted in two patients at second post-operative day reported the complaint of bleeding in OPD, which was, however, mild and stopped spontaneously. Urinary retention was also observed in three patients who underwent the procedure in spinal anesthesia.

Literature suggests that individuals from all age groups are equally prone to the anal fissures, however, chronic anal fissure is more frequent in the younger age group.^{23, 24} Correspondingly in this study of 60 patients, the mean age group was 35.5 years, the youngest subject being 18 years and the oldest 61 years. Further more it is reported by Isbister et al that chronic anal fissure is more common in males with a ratio of 1.3:1²⁵. On the contrary, our study demonstrates an increased number of females having the disease (2.1:1) compared to males. Nonetheless, when data was stratified for age and gender, no difference was found in mean pain scores between the groups for age, whereas the mean pain score in the female gender was prominent.

CONCLUSION

In this study, we did not find any significant differences between mean pain scores in patients undergoing LIS in local anesthesia versus spinal anesthesia. Our results suggest that local anesthesia may routinely be used as a day case procedure to avoid possible complications that are associated with spinal anesthesia.

Author's Contribution:

Concept & Design of Study:	Sumta Khan
Drafting:	Farhan Zaheer, Shafaq Naseer
Data Analysis:	Usama Iqbal Khatri, Rizwan Khan, Qamaruddin Balcoh
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Final Approval of version:	Sumta Khan

Conflict of Interest: The study has no conflict of interest to declare by any author.

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