

Lateral Internal Sphincterotomy for Chronic Fissure in ANO-Comparative Study between Spinal Anaesthesia Vs Local Anaesthesia**Sunil Kumar Ranjan¹, Brajesh Kumar², Khursid Alam³**¹Assistant Professor, Department of General Surgery, Govt. Medical College and Hospital, Bettiah, W. Champaran, Bihar²Senior Resident, Department of General Surgery, Govt. Medical College and Hospital, Bettiah, W. Champaran, Bihar³Assistant Professor and Head of Department, Department of General Surgery, Govt. Medical College and Hospital, Bettiah, W. Champaran, Bihar

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Abstract:

Background: Anal fissure instances, when patients present with hematochezia and acute, painful anal spasm lasting for many hours following bowel movement, are frequently seen in normal clinical practise. Traditionally, if medical therapy fails, lateral sphincterotomy under spinal anaesthetic is the preferred surgery. There have only recently been a few attempts to conduct lateral sphincterotomies under local anaesthetic in an outpatient setting. This study will compare open lateral anal sphincterotomy under local anaesthetic to spinal anaesthesia in order to compare post-operative pain, typical hospital stays, and cost effectiveness.

Methods: Applying the following inclusion and exclusion criteria, patients admitted to the surgical wards of the Govt. Medical College and Hospital, Bettiah, Bihar, who have been identified as cases of chronic fissure in ANO through clinical history and per rectal examination, are included in this study. The study, which had 90 instances, was carried out from May 2022 to April 2023. The cases were randomly assigned to Group A (local) and Group B (spinal) groups. Each chosen patient's pertinent information is gathered using a pre-structured pro forma. SPSS software is used to examine the data, which are tabulated in an Excel sheet.

Results: Both spinal anaesthetic and local infiltration are options when performing LIS. However, a patient from LA spends less time in the hospital and pays less money than a patient from SA. Early post-operative pain scores are higher in the LA group; however there is no difference at 5 hours or on post-operative day 1. In the LA group, patients are more satisfied than surgeons, who are equally satisfied in both groups.

Conclusion: Under local anaesthesia, LIS can be performed effectively and safely as a day-care procedure and offers an alternative to SA, which is advantageous in terms of a shorter hospital stay and lower cost.

Keywords: Chronic fissure in ano, Local anesthesia, Open lateral internal sphincterotomy, Spinal anesthesia.

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Introduction

ANO fissure is a frequent anal ailment that gives the patient great suffering and misery. Anal pain, spasm, and/or bleeding during faeces are symptoms of anal fissures, which are linear ulcers in the mucosa of the anal canal distal to the dentate line. [1]

The origin of the fissure is complex. The fissure is usually solitary and situated in the posterior midline, but it can sometimes form in the anterior midline, particularly in parous females. Although there is no clear distinction between acute and chronic ano fissures, many authorities agree that an ano fissure that persists for longer than six weeks despite conservative treatment is termed chronic. Most fissures heal with conservative treatment in 4-6 weeks, while some last longer and become

chronic. Many people think that the inability of a fissure to heal results from impaired blood flow to the anoderm, which is caused by hypertonia of the internal anal sphincter.[2] According to anal manometry, the majority of patients have higher resting anal pressure. [3,4] Muscle probes show that in certain patients, the blood flow to the internal anal sphincter is similarly diminished.[5,6]

This describes how surgery that disrupts the internal anal sphincter lowers anal tone, boosts blood flow, and aids in healing. Conservative treatment is unlikely to result in the healing of chronic anal fissures since the sphincter will undergo major, irreversible alterations, including fibrosis. The majority of acute fissures heal with medical treatment; however for unknown reasons,

some fissures do not heal, turn chronic, and do not respond to medical or conservative treatment.

A closed or open internal anal partial sphincterotomy is only used to treat persistent fissures that continue to recur despite non-surgical treatment. [7] As a substitute procedure that doesn't raise associated morbidity or recurrence, sphincterotomy under local anaesthetic has been advocated as an option to spinal or general anaesthesia.[8,9] Due to concerns about postoperative pain and urine retention, surgeons were previously reluctant to undertake anal and rectal procedures in an outpatient setting.

This study compares the benefits and drawbacks of doing an open lateral anal sphincterotomy for a persistent fissure in an ANO patient while under local anaesthetic versus spinal anaesthesia.

Material and Methods

Patients diagnosed with chronic fissure in ANO who were admitted to the surgical ward at the Govt. Medical College and Hospital, Bettiah, Bihar, between May 2022 and April 2023 were the subjects of a randomised prospective comparative study, taking into account the inclusion and exclusion criteria.

In the study conducted by Kulkarni, et al. [10,11], 93% of patients who underwent pudendal block surgery were discharged on the first day. 70% of patients who underwent spinal anaesthesia were discharged from the hospital on the first day. As the study's 80% power and 95% confidence limit, the sample size was computed at 44, with an approximation of 45 in each group. Version 2.3.1 of the open Epi programme was used for the calculation. 90 participants were totaled for this study, and they were randomly split into two groups, each with 45 patients: Group-A, which comprised 45 patients undergoing surgery under local anaesthetic, and Group-B, which included 45 patients undergoing surgery under spinal anaesthesia (Group-B).

Both male and female patients between the ages of 15 and 70 who complained of excruciating pain in the anal region, bleeding when urinating, constipation, and previous unsuccessful therapy for an ano fissure were included in the study. Acute and chronic fissure diagnosis was always made solely through clinical examination. Patients with

additional, concurrent anal issues such cancer, anal incontinence, haemorrhoids, and an ano-fistula fistula were not included in this study.

Patients with a history of coronary artery disease and chronic obstructive pulmonary diseases as well as those with perineal infections in the area of local anaesthesia, diagnosed hypersensitivity to local anaesthesia, anticoagulant therapy patients, and associated anal pathologies like cancer, incontinence, stenosis, fistula, haemorrhoids were all disqualified from the study.

All study participants provide informed written agreement for both procedures, which include surgery under spinal or local anaesthesia. The statistical package SPSS was used to analyse the data. In this single-blinded RCT, the patient's decision to have surgery under local or spinal anaesthetic is made using a hacking technique involving randomly generated numbers from a computer.

All patients received a single dosage of ceftriaxone and metronidazole before receiving local anaesthetic. One unit of fluid-containing normal saline with dextrose was given during the procedure. Except for regular blood and urine tests, no other specific pre-operative investigations were performed.

Results

In both groups, the majority of the patients were between the ages of 20 and 50. The study's minimum and maximum ages were both 19 years. The average age of individuals who got local anaesthetic in Group A was 38.8 years, while the average age of those who underwent spinal anaesthesia in Group B was 41.33 years.

There were 57.8% males and 42.2% females in Group A, and 60% males and 40% females in Group B. Additionally, there was no statistical significance ($P = 0.83$), the two groups were comparable. The mean number of days spent in the hospital in Group A was 1.92 days, with a minimum of 1 day and a maximum of 3 days. The mean number of days spent in the hospital in Group B was 3.73 days, with a minimum of 3 days and a maximum of 5 days. With $P < 0.001$, it was discovered that patients who underwent local infiltration surgery were discharged earlier than those in Group B patients (Table 1).

Table 1: Number of days stayed in the hospital

Anaesthesia	No.	Minimum	Maximum	Mean	SD
Local infiltration	45	1.0	3.0	1.96	0.30
Spinal anaesthesia	45	3.0	5.0	3.73	0.72

$Z=8.6$; $P<0.001$. Using a visual analogue scale, pain was evaluated (VAS). No intraoperative pain was experienced by any of the patients who underwent spinal anaesthetic, while intraoperative pain level 2

was experienced by the patients who underwent local infiltration surgery (VAS score 2). $P < 0.001$, which is statistically significant, indicating that patients in Group A (local) had higher

intraoperative discomfort than those in Group B (spinal). When compared to spinal anaesthesia, local infiltration surgery caused slightly more pain

and discomfort because to the limbs' non-paralyzed positions, the use of cautery, and the administration of local anaesthetic (Table 2).

Table 2: Intraoperative Pain

VAS-intraoperative	Local infiltration		Spinal anaesthesia		Total	
	Count	%	Count	%	Count	%
No pain	10	22.2%	45	100.0%	55	61.1%
Mild pain	35	77.8%	0	0.0%	35	38.9%
Total	45	100.0%	45	100.0%	90	100.0%

P<0.001. VAS: Visual analog scale. Patients who underwent spinal anaesthetic experienced no discomfort at 30 minutes after the procedure since the spinal anaesthetic was still in place, but patients who underwent local infiltration had VAS-2 in 11 patients (24.4%), and VAS-0 in the remaining 34 patients (75.6%), p<0.001, which is statistically significant, indicating that Group A (local) patients had higher pain than Group B (spinal) patients at 30 minutes after surgery (Table 3).

Table 3: Postoperative Pain at 30 min

VAS-postoperative 30 min	Local infiltration		Spinal anaesthesia		Total	
	Count	%	Count	%	Count	%
0	34	75.6%	45	100.0%	79	87.8%
2	11	24.4%	0	0.0%	11	12.2%
Total	45	100.0	45	100.0%	90	100.0%

P<0.001. VAS: Visual analog scale.

At 5 hours following surgery, patients who had spinal anaesthesia had a VAS-2 in 7 (15.5%) patients and a VAS-0 in 38 (84.5%) patients, whereas patients who had local infiltration had a VAS-2 in 10 patients (22.2%), a VAS-0 in 35

patients (77.8%), and a VAS-0 in the remaining patients. P = 0.419, which is not statistically significant, indicating that both groups reported the same level of discomfort five hours after surgery due to the wear-off of spinal anaesthetic in group B. (Table 4).

Table 4: Postoperative Pain at 5 hours

VAS-postoperative 5 hours	Local infiltration		Spinal anaesthesia		Total	
	Count	%	Count	%	Count	%
0	35	77.8%	38	84.5%	73	81.1%
2	10	22.2%	07	15.5%	17	18.9%
Total	12	100.0%	45	100.0%	90	100.0%

P<0.419. VAS: Visual analog scale. After one day, patients who had undergone spinal anaesthesia had an average VAS-2 of 8 (17.8%) and an average VAS-0 of 37 (82.2%), whereas patients who had undergone local infiltration had an average VAS-2 of 9 (20%) and an average VAS-0 of the remaining 36 patients (80%). P = 0.7977 is not statistically significant, meaning that both groups had the same level of pain on the first post-operative day (Table 5).

Table 5: Postoperative Pain on POD-1

VAS-postoperative POD-1	Local infiltration		Spinal anaesthesia		Total	
	Count	%	Count	%	Count	%
0	36	80.0	37	82.2	73	81.1
2	09	20.0	08	17.8	17	18.9
Total	45	100.0	45	100.0	90	100.0

On the second post-operative day, nearly 80% of patients who had open lateral internal sphincterotomies were free of symptoms like discomfort and bleeding during urination.

20% of patients suffered minor bleeding or pain during bowel movements, which was treated conservatively and was alleviated.

Discussion

The initial line of treatment for fissure in ano is medical care. The lateral internal sphincterotomy is

still regarded as the gold standard in conservative treatment for persistent fissure in ano. The best healing rate and recurrence rate are undoubtedly achieved with surgical treatment. The LA is becoming more preferred for anaesthesia.[12-14] Contrarily, LA is successfully performed by a surgeon and nearly without consequences.[12] Ahmed et al revealed that there was no discernible change in post-operative pain. In contrast, Towliat et al discovered a significant difference (P< 0.05) in the post-operative pain score following 6 hours

of LIS (group local - 1.90 ± 1.07 and group spinal - 1.90 ± 1.07).

The majority of minor ano-rectal illnesses, such as chronic anal fissure, are now commonly acknowledged to be treated ambulatorily. The conditions for an ambulatory basis are: rapid onset and absence of problems during or after surgery.[15] We all know that a spinal anaesthesia causes bradycardia and hypotension in the range of 13% and 33%, respectively. The most frequent side effect of spinal anaesthetic, however, is post-dural puncture headache, which, despite not being life-threatening, interferes with everyday activities and necessitates hospitalisation. Hospitalization is statistically significant in our analysis as well ($P < 0.001$).

According to Bell from the University of British Columbia, a surgeon's confidence and capacity to do the lateral internal Anal sphincterotomy under LA grow as his expertise level rises.[16] According to the current study, we firmly believe that patients with anal fissures should be admitted to the hospital one day before their procedures, undergo spinal anaesthesia, and need an additional 3-5 days of recovery time at home in addition to a week of rest afterward. Therefore, when patients having surgery under LA are admitted on the same day of operation and released on the same day on an ambulatory basis, the total time away from work may be 2 weeks. Overall, one of the surgical problems that prolongs hospital stays is pain.[17]

Under LA, the internal sphincter is not relaxed. Due to the sphincter's spasm, it was possible to clearly verify the division's appropriate length as well as the sphincter's length. Under spinal or general anaesthesia, where the sphincter is completely relaxed and its length is impossible to determine, this advantage is absent. Since we only conducted limited or conservative sphincterotomies during the trial, determining the sphincter's length was crucial. Shorter sphincter division may not relieve the spasm or mend the fissure, whereas longer division would increase the likelihood of incontinence.[18]

For the same procedure, spinal group patients spent at least three times as much as the local group patients when preoperative testing, surgery, postoperative drugs, and hospital stays were taken into account. Given that the majority of the patients in this context are from low socioeconomic backgrounds, this has increased significance. Hiltunen and Matikainen dubbed it ambulatory treatment for CAF where patients were allowed to leave the clinic immediately after the surgery in light of these advantages with LA.[9]

Conclusion

In ambulatory surgery for lateral anal sphincterotomy, local anaesthetic could provide better post-operative pain relief. Aside from the benefit of the sphincter's easy palpability, LA offers sufficient pain relief for the treatment. Without requiring an anaesthetist, it can be completed as an outpatient procedure. In comparison to SA, there are no appreciable differences in the complications or healing of the fissure, but the LA procedure has a sizable financial advantage.

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