

Lateral Internal Sphincterotomy for Chronic Fissure in Ano - Comparative Study between Spinal Anaesthesia Vs. Local Anaesthesia

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Abstract

Background and Objectives of the Study: Anal fissure are commonly encountered in routine clinical practice, where patients present with hematochezia, intense and painful anal spasm lasting for several hours after bowel movement. Traditionally lateral sphincterotomy under spinal anaesthesia is the procedure of choice for failed medical therapy. At present there are few attempts to perform lateral sphincterotomy on an Ambulatory basis under local infiltrative anaesthesia. This study will assess the post-operative pain, average duration of hospital stay, complications like urinary retention, ambulation time after surgery, cost effectiveness of open lateral anal sphincterotomy under local anaesthesia over spinal anaesthesia.

Material and Methods: Patients admitted in surgical wards of MGM Hospital, Warangal, diagnosed as case of chronic fissure in ano by through clinical history and per rectal examination, is included in our study by applying the following inclusion and exclusion criteria. The study was conducted during the period January 2019 to October 2020 with 90 numbers of cases which are assigned to group A(local) and group B(spinal) randomly. A pre-structured proforma is used to collect relevant information of each individual patient selected.

Results: LIS can be done under both spinal anaesthesia and local infiltration. But LA patient has lower duration of hospital stay, less expensive when compared to SA. Post-op pain scores more in LA group in early post-operative time, where as we don't find any difference at 5 hours post-op, and post operative day- 1. Patient's satisfaction is good in LA group, where as surgeons satisfaction is similar in both groups.

Conclusion: LIS can be effectively and safely done as day care procedure under local anaesthesia and provides alternative to SA, which is beneficial in terms of less hospital stay, less cost, early ambulation and less post op spinal anaesthesia complications.

Key words: Open Lateral Internal Sphincterotomy; chronic fissure in ano; local anaesthesia; spinal anaesthesia.

INTRODUCTION

Anal fissure (fissure-in-ano) is a common condition that usually presents as anal pain or bleeding with defecation. Bleeding is usually scant, bright red, streak of blood on the stool and also found on the tissue when cleansing after a bowel movement.

Anal fissure is described as a linear defect, or laceration, in the anoderm, located between the dentate line and the

anal verge. The fissure is almost always located close to the midline of the anal canal; in men, 95% are near the posterior midline and 5% near the anterior midline, whereas in women, about 80% will be located posteriorly and 20% anteriorly.^[1]

An acute fissure is a simple laceration whereas a chronic anal fissure is ulceration with built-up scarred and indurated edges and exposed internal anal sphincter muscle fibres at its base. Additional findings may include a perianal skin tag at the external margin of the fissure and a hypertrophied papilla at the dentate line. Chronic fissure is defined by these three findings - heaped-up edges, a skin tag (sentinel tag), and hypertrophied papilla.^[2]

The pathogenesis of chronic anal fissure is not completely understood, but persistent hypertonia of the internal anal

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sphincter, associated with increases in resting anal pressure, seems to play an important role.^[3,4]

Traditionally medical management is considered as the first line of treatment and internal anal partial sphincterotomy (open or closed), is reserved for chronic fissures that fails or recurs frequently after nonsurgical management.^[5]

Surgical sphincterotomy reduces the resting tone of the anal sphincter and allows the fissure to heal. For this reason, left lateral internal sphincterotomy has been widely accepted as the treatment of choice for chronic anal fissures.^[6] Given the disparity of results of recurrence and incontinence after surgical sphincterotomy in the literature, there is still controversy concerning the respective benefits and complications of the open and closed methods and which should be regarded as the procedure of choice in the treatment of chronic fissure.^[7,8] Also, outpatient sphincterotomy using local anesthesia instead of spinal or general anesthesia has been proposed as an alternative method that does not lead to increases in associated morbidity or recurrence.^[9,10] Until recently surgeons were hesitant to perform anal and rectal procedures in an ambulatory setting because of fear of postoperative pain and retention of urine. This attitude has slowly changed. Due to increase in experience and confidence, more than 90 % of anorectal surgeries can be done successfully on an ambulatory setting.

This study is aimed at comparing the advantages and disadvantages of conducting open lateral anal sphincterotomy for chronic fissure in ano under local anesthesia versus spinal anesthesia.

Aims and Objectives of the Study

Primary

To assess the post-operative pain, average duration of hospital stay, cost effectiveness and complications of open left lateral internal sphincterotomy under local anaesthesia over spinal anaesthesia.

Secondary

To assess patient and surgeons satisfaction by likert scale.

MATERIAL AND METHODS

Patients diagnosed with chronic fissure in ano, admitted in surgical ward at MGM hospital and Warangal, during the period of January 2019 to October 2020 were taken for study considering the inclusion and exclusion criteria.

Type of Study

Interventional study: Randomized Controlled Trial.

Mode of Selection

Inclusion criteria

- Patients with age more than 14 years with chronic fissure in ano who are candidates for lower lateral internal sphincterotomy.
- Willing for surgery under either local or spinal anesthesia.

Exclusion criteria

- Significant co-morbid conditions (like- IBD, Immuno-compromised patients, TB, STD).
- Known or newly diagnosed hypersensitivity to local anesthesia.
- Perineal infection in the area of local anesthesia
- Patients on anticoagulant therapy.
- Associated anal pathologies like incontinence, stenosis, fistula, hemorrhoids.
- Patients who refuses for consent.

Study Method

Informed written consent is taken for both procedure i.e; surgery either by local or spinal anaesthesia from all patients who are included in study. Patients were explained about the advantages and disadvantages of each type of anaesthesia. They were explained about benefits from early mobilization, early discharge and socio economic benefits of short stay surgery. It's a single blinded RCT, decision of surgery under local or spinal anesthesia to the patient is taken by cheat method, computer generated random numbers.

A detailed clinical study and management of all cases of fissure in ano treated with sphincterotomy under local or spinal anesthesia of 45 patients in each group has been personally made.

Group A- Surgery under Local Anesthesia

Patient in lithotomy position, under aseptic precautions, parts are painted and draped. 15-20 cc 2% of local anesthesia, lignocaine hydrochloride without adrenaline is infiltrated using 25 G needle including skin and over line of incision, intersphincteric space, internal anal sphincter in left side of anal canal.

Group B- Surgery under Spinal Anesthesia.

Intrathecal injection of 0.5% bupivacaine heavy is given at L3 –L4 space in sitting position with aseptic measures, patient is then put in lithotomy position. Parts are painted and draped. Surgical procedure is common in both groups.

Surgery: Open Sphincterotomy

1 to 2 cm radial incision of the anoderm over the intersphincteric groove is made at 3 o'clock position,

Intersphincteric groove is felt and an artery forceps is inserted to deliver out the band of lower part of internal sphincter and divided under direct vision using cautery. Haemostasis achieved, Primary closure of incision is done using absorbable suture (vicryl 2- 0).

Post operatively all patients were kept nil orally for 4-6 hrs. Patients were treated with I.V fluids, Inj. Monocef 1g iv BD and inj. Metronidazole 100 ml infusion iv Tid, inj. Diclofenac BD and inj. pantoprazole 40 mg iv OD.

Patients were advised for high fibres diet, sitz bath with Luke warm water for 15 minutes TID.

Details regarding duration of hospital stay, intra and post operative pain, complications, patient and surgeons satisfaction were recorded.

- Study includes a total of 90 patients. 45 patients undergoing surgery in local anesthesia (Group-A)
- 45 patients undergoing surgery in spinal anesthesia (Group-B)
- Calculation done using open epi software version 2.3.1

At 95% confidence limit, 80% power of the study;

According to the study done by Kulkarni S V, *et al.* proportion of patients getting discharged on day one operated under local anesthesia is 93%. Proportion of patients getting discharged on day one operated under spinal anesthesia is 70%.

RESULTS

The present study is the comparison of lateral anal sphincterotomy under local anesthesia versus spinal anesthesia was conducted at Kakatiya Medical College and MGM Hospital, Warangal. Total 90 patients are included in our study, were randomly divided in to 2 groups based on computer generated randomization tables, 45 patients underwent surgery under local anesthesia (Group A), and 45 patients under spinal anesthesia (Group B). Data was collected and statistical analysis was performed as explained in methodology of the study. The results and interpretations are as explained below.

The table shows Age distribution between the two groups. The maximum age was 70 years and minimum age was 19 years. Most of the patients are aged between 20 to 50 years in both groups. The mean age in group A (those who underwent local anaesthesia) was 38.8 years and the mean age in group B (those who underwent spinal anaesthesia) was 41.33. There is no statistical significance $p=0.97$.

This table shows gender distribution among the study population. In the group A- LAS under local infiltration,

there were 57.8% males and 42.2 % females. And in group B – LAS under spinal anesthesia, 60 % were males and 40 % were females. And the two groups were comparable and there is no statistical significance $p=0.83$.

70% of the patients presented with pain during defecation only, remaining 30% of patients had pain with bleeding. Constipation is seen in 10% of the patients.

Position of Fissure

Position of fissure is posterior in 86.7% (n=78), anterior in 11.1% (n=10), both anterior and posterior in 2.22% (n=2), none had lateral fissure in ano.

Number of Days Stayed in Hospital: In group A minimum number of days stayed in hospital was 1 days, maximum was 3 days with mean 1.96 days. In group B minimum number of days stayed in hospital was 3 day, maximum was 5 days with mean 3.73 days.

In group A, the number patients with hospital stay of 1 day are 2 of 45 (4.4%). The number of patients with hospital stay of 2 days are 42 of 45 (93.4%). The number of patients with hospital stay of 3 days are 1 of 45 (2.2%).

In group B, the number with hospital stay of 1 day is 0 of 45. The number of patients with hospital stay of 2 days

Table 1 : Age Distribution

Age	Anesthesia			
	Local Infiltration		Spinal Anesthesia	
	Count	%	Count	%
<20	1	2.2%	1	2.2%
20-30	14	31.1%	12	26.7%
31-40	8	17.8%	10	22.2%
41-50	14	31.1%	12	26.7%
51-60	4	8.9%	6	13.3%
61-70	4	8.9%	4	8.9%
Total	45	100.0%	45	100.0%

Chi-square value = 0.93; df = 5; P=0.97

Table 2 : Sex Distribution:

Sex	Anesthesia			
	Local Infiltration		Spinal Anesthesia	
	Count	%	Count	%
Male	26	57.8%	27	60.0%
Female	19	42.2%	18	40.0%
Total	45	100.0%	45	100.0%

Chi-square value = 0.05; df = 1; P=0.83

Table 3: Presenting Symptoms

	Pain	Pain and bleeding	constipation
Number	63	18	9
Percentage	70%	20%	10%

are 0 of 45. The number of patients with hospital stay of 3 days are 19 of 45. The number of patients with hospital stay of 4 days are 19 of 45. The number of patients with hospital stay of 5 days are 7 of 45.

Intra-Operative Pain: Pain measurement was done using VAS. All the patients operated under spinal anaesthesia has no intra-operative pain, but the patients operated under local infiltration has intra-operative pain score 2 (VAS score 2). $P < 0.001$ which is statically significant i.e. group A patients had experienced more pain compared to group B intra-op.

Post Operative Pain at 30 Minutes: At 30 minutes of operation, patients operated under spinal anaesthesia had no pain, where as patients operated under local infiltration had VAS-2 in 11 patients (24.4%) and VAS-0 in remaining 34 patients (75.6%). $P < 0.001$ which is statically significant i.e. group A patients had experienced more pain compared to group B at 30 min post-op.

Operative Pain on POD- 1

At POD- 1, patients operated under spinal anaesthesia had VAS-2 in 8 (17.8%) patients and VAS-0 in 37 (82.2%) patients, where as patients operated under local infiltration had VAS-2 in 9 patients (20%) and VAS-0 in remaining 36 patients (80%). $P = 0.7977$, which is not statically significant i.e. both group experienced same pain on post-op day one.

Patients who were operated under local anaesthesia (group A), out of 45 patients 38 patients (84.4%) ambulated early i.e. less than 6 hours of duration post operatively. Patients operated under spinal anaesthesia (group B), out of 45 patients only 5 patients (11.1%) ambulated early. This shows that a significant number patients mobilised early (<6hrs) in group A compared to group B [Tables 1-3].

DISCUSSION

Age

In this study, most of the anal fissures were found in middle-aged patients, about 77.8% of which were between 20 and 50 years of age, and the mean age was 40.

	Leong Af <i>et al</i>	Shafiq ullah <i>et al</i>	Present study
Age range	30-45	25-50	20-50

Gender

In this study 58.8% percent of patients are male and 41.1% of patients are female, with a male-to-female ratio of 1.43:1.

	Nahaset <i>et al</i>	Melange <i>et al</i>	Present study
Male:Female ratio	2.3:1	1.15:1	1.43:1

Presenting Symptoms

The patients suffering from an anal fissure complain of pain, bleeding, constipation. In our study, about 70% of patients presented with pain only during or after defecation, and 20% of patients presented with bleeding and pain, and 9 patients (10%) had constipation.

	Sarhan H <i>et al</i>	Present study
Presenting Symptom	Pain -54% Pain and bleeding - 30%	Pain - 70% Pain and bleeding - 20%

Position of Fissure

In this study, 86.7% of patients presented with a posterior midline fissure and 11.1% of patients presented with an anterior midline anal fissure, 2.22% of patients presented with an both anterior and posterior anal fissure.

In our study, the results of surgery under local infiltration and spinal anaesthesia are compared regarding post operative pain score, Patients and surgeon satisfaction, duration of hospital stay and cost effectiveness.

Duration of Hospital Stay

In group A (local) minimum number of days stayed in hospital was 1 days, maximum was 3 days with mean 1.92 days. In group B (spinal) minimum number of days stayed in hospital was 3 day, maximum was 5 days with mean 3.73 days.

It was noted that surgery under local infiltration had discharged earlier compared to group B patients with p value <0.001, which is significant.

Pain

Pain measurement was done using Visual analogue scale (VAS).

Intra Operative Pain

All the patients operated under spinal anaesthesia had no intra-operative pain, but the patients operated under local infiltration has intra-operative pain score 2 (VAS score 2). $P < 0.001$ which is statically significant i.e. group A (local) patients had experienced more pain compared to group B (spinal) intra-op. Surgery under local infiltration had little more pain and discomfort due to lithotomy position as limbs are not paralysed, during giving local anaesthesia, and during use of cautery compared to spinal anaesthesia.

Post Operative Pain at 30 minutes

At 30 minutes of operation, patients operated under spinal anaesthesia had no pain as they were still under effect of spinal anaesthesia, where as patients operated under local infiltration had VAS-2 in 11 patients (24.4%) and VAS-0 in remaining 34 patients (75.6%). $P < 0.001$ which is statically

significant i.e. group A (local) patients had experienced more pain compared to group B (spinal) at 30 min post-op.

Post Operative Pain at POD- 1

At POD- 1, patients operated under spinal anesthesia had VAS-2 in 8 (17.8%) patients and VAS-0 in 37 (82.2%) patients, whereas patients operated under local infiltration had VAS-2 in 9 patients (20%) and VAS-0 in remaining 36 patients (80%).

$P=0.7977$, which is not statically significant i.e. both group experienced same pain on post-op day one.

In the all the patients underwent open lateral internal sphincterotomy, about 80% of patients were free of symptoms like pain and bleeding during defecation on the next postoperative day. Rest 20% of patients had mild pain or bleeding during defecation, which are relieved on conservative treatment.

Studies done by Ahmed E, Al-Raymoony, KhaledAjarma, *et al.*, showed that there was no significant difference in postoperative pain. Whereas study done by S.M. Towliat Kashani, *et al.*, found a significant difference ($p < 0.05$) in postoperative-pain score after 6hours of LIS (group Local- 1.90 ± 1.07 , group Spinal- 1.90 ± 1.07).

Early Ambulation

In our study, Patients who were operated under local anesthesia (group A), out of 45 patients 38 patients (84.4%) ambulated early post operatively.

Patients operated under spinal anesthesia (group B), out of 45 patients only 5 patients (11.1%) ambulated early. This shows that a significant number patients mobilised early (<6hrs) in group A compared to group B.

CONCLUSIONS

1. Anal fissure is most common condition presenting to surgery OPD, which is associated with elevated anal pressure. Initial step in treatment is correct diagnosis and to rule out other additional pathology.
2. Conservative line of treatment is the first line of treatment in acute fissure in ano, which includes high fibre diet, sitz bath, topical CCB or nitrates.
3. Surgical management is considered in case of failed conservative management. In which lateral internal sphincterotomy is gold standard surgical intervention.
4. It can be done in two techniques open or closed, under local infiltration or spinal anesthesia. There is no difference in outcome in this procedure.
5. Patients operated under local infiltration had benefit of early discharge, no need of ICU admission and cost

6. effective which can be done under OPD basis safely.
6. Ninety patients suffering from chronic fissure in ano were posted for lateral sphincterotomy. The patients were divided into two groups of forty five each.
7. Group A received Local anaesthesia infiltration and Group B received spinal anaesthesia.
8. Both LA and SA in LIS were found to be comparable in terms of needle pain at the time of anesthetic infiltration.
9. Post-operative pain was found to be significantly high in group A as when compared to Group B during first few hours post op, where group B patients are still under action of SA.
10. Post-operative pain was found to be not significant at post op 5 hours and POD- 1.
11. Number of days spent in hospital and cost incurred towards surgery were significantly lower in patients of group A
12. Most of the surgeons prefer spinal anesthesia for sphincterotomy in chronic fissure in ano, due to fear of pain or vaso-vagal shock during surgery, which requires admission in hospital, investigations, PAE.
13. The main objective of my study is to change this view, and conduct this surgery under local anesthesia in OPD basis.
14. We have not noted any intra-op or post-op complications for surgery in local infiltration, and similar outcome in both groups.
15. Post op patients in group A were able to mobilise early and had no post op urinary retention.
16. Both the group had similar patients and surgeons satisfaction.
17. Hence it can be concluded that lateral anal sphincterotomy under local anesthesia is a safe and cost effective procedure can be done on day care basis. This will be helpful in reducing patient's economic burden in a country like India where most of people belong to low socio- economic class.

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