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Our Experience With Lateral Internal Anal Sphincterotomy For Chronic Anal Fissures In Local And Spinal Anaesthesia

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Abstract:
Introduction- *Anal Fissures(Afs) Are Common Anal Disease Which Cause Significant Morbidity And When Lasts For > 6 Weeks They Are Called Chronic And Such Fisssures Generally Require Operative Intervention. Lateral Internal Anal Sphincterotomy Is The Procedure Of Choice Which Can Be Done Under Local And Spinal Anaesthesia.*
Objective- *To Calculate Difference In Mean Duration Of Hospital Stay Among Comparison Groups.*
Methods - *We Conducted A Hospital Based Comparative Interventional Study From May 2022 Till November 2022 In Sawai Man Singh Hospital , Jaipur .30 Patients Each Were Non-Randomly Allotted To Local Anaesthesia And Spinal Anaesthesia Groups Respectively. Lateral Internal Anal Sphincterotomy(Lis) Was Done In Both Groups And The Groups Analysed For Results.*
Results -*Mean Duration Of Hospital Stay Was 4.9±1.79 Hours In Local Anaesthesia Group Which Is Significantly Lower Than Spinal Anaesthesia Group Which Was 26.13±5.18 Hours.*
Conclusion – *Results Of Lateral Internal Anal Sphincterotomy Were More Promising In Terms Of Studied Variables When Done Under Local Anaesthesia Than Spinal Anaesthesia*.
Key Word*: Anal Fissure; Local Anesthesia; Lateral Internal Anal Sphincterotomy ; Spinal Anesthesia.*

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I. Introduction

Being one of the most common proctological condition anal fissure (AF) causes most quality adjusted life years (QALY) losses due to psychological distress and physical pain .[1]AF is defined as " a linear ulcer usually found in the midline anal canal , distal to the dentate line"[2]. It can be acute i.e. <6 weeks duration or chronic >6 weeks duration. Chronic AFs are associated with a) heaping up edges b) skin tag (sentinel tag) c) hypertrophy of papilla [3]

Several types of operative and non-operative management have been invented but most commonly used is lateral internal anal sphincterotomy(LIS). It is done both under spinal anesthesia(SA) and local anesthesia(LA). Our study is to compare this procedure under both forms and to find the which one better suits to population of this geographical area.

II. Material And Methods

STUDY DESIGN: Hospital based Prospective comparative interventional study

STUDY POPULATION
Patients admitted in surgical wards of Sawai Man Singh, Hospital Jaipur for LIS after taking written informed consent.

STUDY DURATION: May 2022 to October 2022

SAMPLE SIZE: 60 patients , 30 in each group

SAMPLE SIZE CALCULATION: Sample size of 30 cases in each group was calculated at 95% confidence interval and 5% alpha error at power 80%

SAMPLING TECHNIQUE

Patients were alloted to group A and group B non randomly using chit paper method

SELECETION CRITERIA

INCLUSION CRITERIA:

All the patients admitted in SMS hospital for lateral sphincterotomy after taking written informed consent**.**

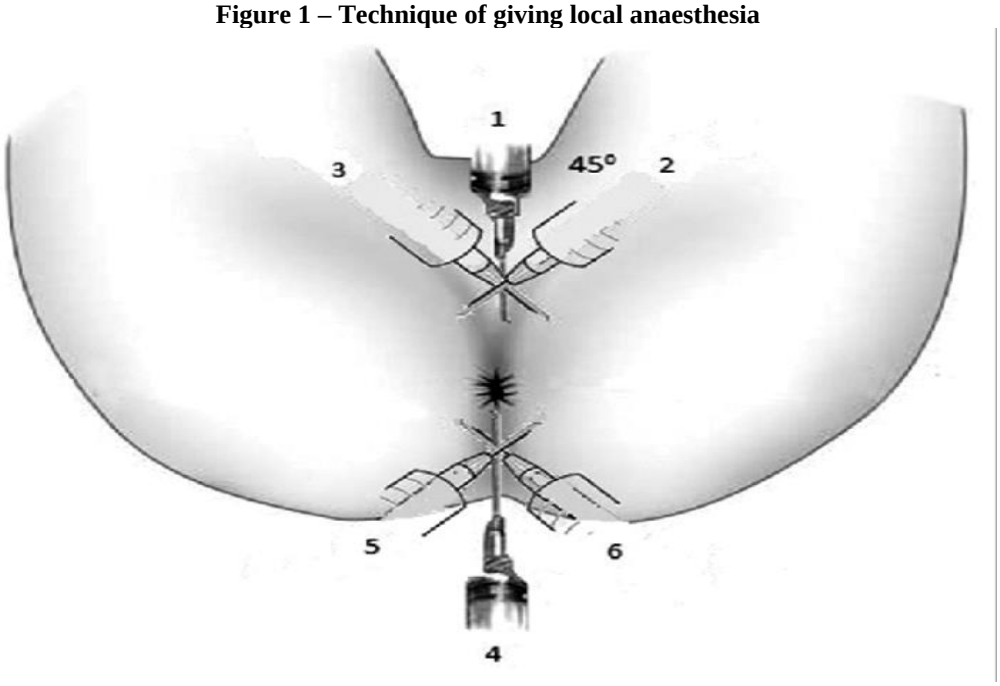
EXCLUSION CRITERIA:

1. Acute anal fissure responsive to medical management.
2. Fissure associated with crohn's disease , syphilis , TB, HIV, carcinoma, haemorrhoids, fistula in ano.
3. Patients with history of faecal incontinence.
4. Patients with previous anorectal surgery .

ANAESTHESIA TECHNIQUE

For surgery under LA , patients were placed in lithotomy position . 15ml each of lignocaine hydrochloride 2% with adrenaline (1:1,00,000) and 0.5% bupivacaine were taken and mixed in a kidney tray to obtain total volume of 30 ml . Using 10 ml syringe with 60 mm intramuscular needle this mixture was injected in a fan shaped manner at 12'O clock and 6'O clock position 1.5 cm away from anal verge 4ml in each direction. 1 ml of mixture was injected at proposed incision site. This is done to target inferior rectal nerves which supplies lower anal canal, perianal skin , middle and posterior part of EAS . This anaesthesia was given by surgeon himself. [4]
For SA group the anaesthesia was given in usual manner by anaesthetist.

Figure 1 – Technique of giving local anaesthesia



SURGERY TECHNIQUE

After taking informed consent patient was placed in lithotomy position . SA was given before patient positioning whereas LA was given after painting and draping, in the respective groups. Digital rectal examination is first done by lubricated finger to assess the intraoperative anal tone . Followed by this the lower anal canal is inspected by half anoscope. After removing anoscope index finger of left hand is inserted in lower anal canal . A 15 no. blade knife is used to make a stab incision at 3'O clock position between IAS and EAS with cutting edge facing downwards . Once stab incision is made blade is rotated 90 degrees to make cutting edge face towards anal canal and IAS is cut using swaying movement of wrist and pulling the blade outwards. In our technique we cut the sphincter tailored to the length of fissure . Hemostasis is achieved by lignocaine gel soaked moist gauze pad which is inserted in anal canal immediately after surgery and can be removed by surgeon or patient himself after an hour. For purpose of this study anal tag is not excised during surgery if it is present.[5,6,7,8,9]

Figure 2 – Location and technique of LIS

Statistical analysis (10 Bold)
For Statistical analysis samples were entered in excel sheet and data was analysed . After applying chi square test and unpaired T test the differences and their statistical significances studied.

III. Result

TABLE 1: AGE WISE DISTRIBUTION OF FISSURE CASES IN BOTH GROUPS

Age group	Total	Group A	Group B
11-20 yrs	8	5	3
21-30 yrs	20	12	8
31-40 yrs	14	5	9
41-50 yrs	9	6	3
51-60 yrs	6	0	6
61yrs and above	3	2	1

TABLE 2 : AGE WISE DISRIBUTION OF FISSURE CASES IN BOTH GENDER

Age group	Male	Female	Total
11-20 yrs	4	4	8
21-30 yrs	12	8	20
31- 40 yrs	4	10	14
41-50 yrs	3	6	9
51-60 yrs	3	3	6
61yrs and above	3	0	3

TABLE 3 : GENDER DISTRIBUTION OF FISSURE CASES

GENDER	TOTAL	Group A (local)	Group B(spinal)	X2(chi square)	P value
MALE	29	17	12	1.668521	0.196
FEMALE	31	13	18		

TABLE 4 : FREQUENCY OF SYMPTOMS OF ANAL FISSURE

Symptoms	No. of patients	Percentage of patients
Pain	60	100%
Constipation	50	83.34%
Bleeding	33	55%

CHART : FREQUENCY OF SYMPTOMS OF ANAL FISSURE

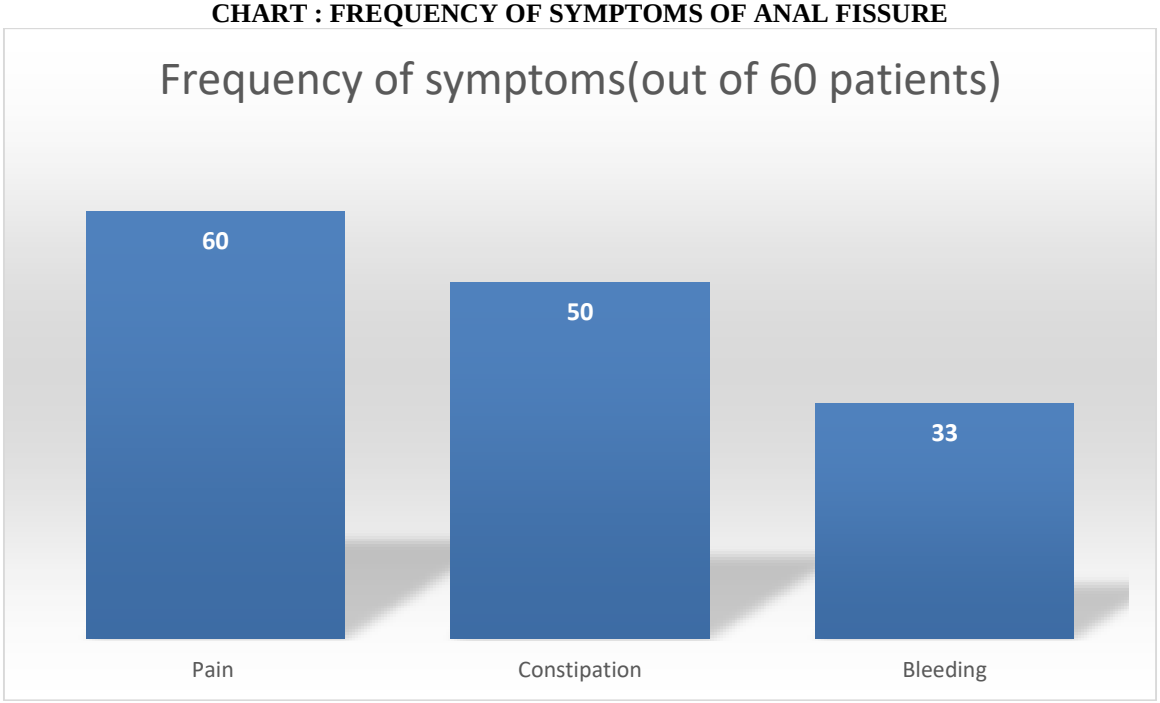


TABLE 5: FEMALES WITH HISTORY OF (H/O) VAGINAL DELIVERY

	Total(out of 31)	Group A (L)(out of 13)	Group B (S)(out of 18)	X2(chi square)	P value		
H/O vaginal delivery	23	7	16	4.84123	0.027		

TABLE 6 : INCIDENCE OF ANAL TAG IN FISSURE CASES

Anal tag	Total	Group A	Group B	X2	P value
PRESENT	29	16	13	0.600667	0.438
ABSENT	31	14	17		

TABLE 7: POSITION OF FISSURE

Position of fissure	Total	Group A	Group B	X2	P value
6'o clock	48	26	22	1.666	0.196
12 'o clock	8	2	6		
Both 6 & 12'o clock	4	2	2		

TABLE 8: INTRAOPERATIVE ANAL TONE IN LIS IN COMPARISON GROUPS

Anal tone	Group A	Group B	X2	P value
Maintained	25	3	32.41	<0.01
Lost	5	27		

TABLE 9 : COMPARISON OF OUTCOME VARIABLES

VARIABLES	OVERALL	GROUP A(LOCAL)	GROUP B(SPINAL)	TEST	P VALUE
DURATION OF SYMPTOMS(IN MONTHS)	10.21±7.32	10.93±6.94	9.46±7.61	Unpaired T test	0.436
DURATION OF SURGERY (IN MINUTES)	N/A	3.95±3.19	7.77±4.18	Unpaired T test	0.002
DURATION OF POST OPERATIVE HOSPITAL STAY (IN HOURS)	N/A	4.9±1.79	26.13±5.18	Unpaired T test	0

TABLE 10: COMPARISON OF COMPLICATIONS

Complications	Group A	Group B	X2	P value
Urinary retention	1	12	11.88	<0.01
Incontinence	1	1	0	1
Non healing fissure	1	1	0	1
Significant intra-op pain(VAS score > 4)	3	1	1.071	0.300

IV. Discussion

Our study was purposed to find out the better form of anaesthesia for LIS by comparing this surgery under two forms of anaesthesia i.e. local and spinal in terms of duration of hospital stay , intraoperative anal tone , duration of surgery , post-surgery retention of urine and post-operative anal incontinence With regards to AFs and LIS under LA and SA our observations and results are as follows:-

Age – In our study the age ranged from 16 years to 69 years with commonest age group overall and in males being 21- 30 years . 33.33% of patients fall in this age group category and 41.38 % of male cases distributed to 21- 30 years age group whereas in females 31- 40 years is the most common age group and 32.26% of female cases belong to this group .

Sex- Most studies unified to show its incidence to be slightly higher in females. Our study is also not the exception and is showing 51.67% prevalence in females and rest in males . Male to female ratio in our study is 1: 1.06. These cases were randomly distributed among comparison groups with a p-value of 0.19 showing its probability of occurrence by chance is more and is not statistically significant.

Multipara with vaginal delivery

From demographics of our study we can safely say that women with history of vaginal delivery are prone to AF. The statistics shows that 74.19% of woman who had this disease in our study were having such history of vaginal delivery . In this study the distribution of such females among comparison groups is non-random which comes to be statistically significant but not clinically significant . ($p = < 0.05$)

Symptoms – The most common symptom in our study is pain which is seen in 100% cases followed by bleeding which is seen in 55 % cases. Association with constipation is seen in 83.33% patients . In this north western part of India in our study the average duration of symptoms before the patients opted for definitive management was 10.21±7.321 months. The average duration was 10.93±6.94 months in group A and was 9.46±7.61 months in group B.

Fissure position:- Our study also follows other studies in terms of position of fissure which is commonly 6'O clock . Among 48 total cases of AF with position 6'O clock , 26 were operated under LA and 22 were done under SA. 2 cases in each group had AF at both 6 and 12 O' clock positions. 2 cases in group A and 6 cases in group B has AF at only 12'O clock position. Otherwise it can be said that 80% of AFs occur at 6'O clock position according to our study. This proportion was 86.67% for cases in group A and 73.34% for cases in group B.

Anal tag – Anal tags are feature of chronic AFs. In our study 48.33% cases were associated with anal tags.

Intra operative anal tone:- This variable is rarely measured in studies. We measured it subjectively in every patient . After giving either LA or SA the anal tone is checked manually by inserting a finger in anal canal. The ones in which hypertonicity of IAS is still present after giving anaesthesia is labelled as maintained anal tone and those in which the IAS is relaxed is termed as lost anal tone . In LA this was maintained in 83.33% of cases whereas in SA this was maintained in only 10% cases and lost in rest 90%. This difference is statistically significant with p value of < 0.01. This can be attributed to S2, S3, S4 nerve roots blocked by SA leading to complete relaxation of IAS which is only partially relaxed in LA cases due to inferior rectal nerve block.. The practical implication of this is that the cases in which hypertonic IAS is easily palpable can be easily done and result can be instantly interpreted as losing that hypertonicity just after procedure . This difference is difficult to identify in SA cases as tone is already low even before procedure.

Duration of surgery –

The average duration of surgery was calculated in our study by measuring time from induction of anaesthesia till hemostasis is achieved . This was found to be 3.95±3.19 minutes in group A whereas it is 7.77±4.18 min in group B. This difference was statistically significant with p value of 0.002 when unpaired T tests were

applied. The reason for this observation is that in LA when hypertonic sphincter is easily palpable and it loses hypertonicity as soon as surgery is completed then it is easy for surgeon to assess the completeness of surgery. High operative time in SA group may be due to lack of this tone of IAS due to effect of anaesthesia.

Duration of post-operative hospital stay- This was the primary objective of this study . Duration of hospital stay in LA group is significantly lower than in SA group as shown in bar chart.
Discharge criteria were –

a) Able to pass urine
b) Tolerate feed
c) Able to mobilise
d) Absence of post-operative bleeding
e) Absence of vomiting

The average duration of hospital stay among LA group is 4.9±1.7 hours whereas in SA group is 26.13±5.18 hrs (p value =0). It is due to this difference LA can be used as an alternative method of anaesthesia for AF cases . Given the high burden of problem and behaviour of population in our region of seeking medical care less frequently if done under LA more patients will be treated by definitive surgery in less amount of time and without the need for hospital admission in an outpatient basis at lower cost.

Complications –
Urinary retention In our study where only 1 patient developed urinary retention in LA group which can be attributable to phimosis and old age in that particular patient. On the other hand 12 patients i.e. 40% developed retention of urine among SA group , the difference being statistically significant (p= <0.01). Due to this retention patients require either catheterisation or delayed discharge was done or both happened.

Incontinence – incontinence was the most dreaded complication of LIS in the past. Some authors accept an incontinence rate of 6.52% . In one study done by Manoharan et al[10] it was 4.2 % . In our study incontinence to faeces did not develop at all. Only incontinence to flatus was seen in 2 cases , one from each group . The overall flatus incontinence rate was 3.33% which is less than previous studies.

Non healing fissure- Patients were followed each week post-surgery for a duration of 4 weeks. Most patients were symptom free after 2 weeks . Fissure healing was complete in 28 cases from each group . 2 cases from each group showed non healing fissures at the end of 4 weeks post-operatively which gives an incidence of 6.67%.

Pain – Intraoperative pain can be distressing complication of LIS done under LA if technique is not good. However this study demonstrated moderate pain(VAS score > 4) in 10% of cases from LA group compared to 3.33 % cases in SA group . The pain was calculated in this study by using visual analog scale(VAS) where patients were asked intraoperative to grade the severity of pain . The grading used for VAS in this study was-

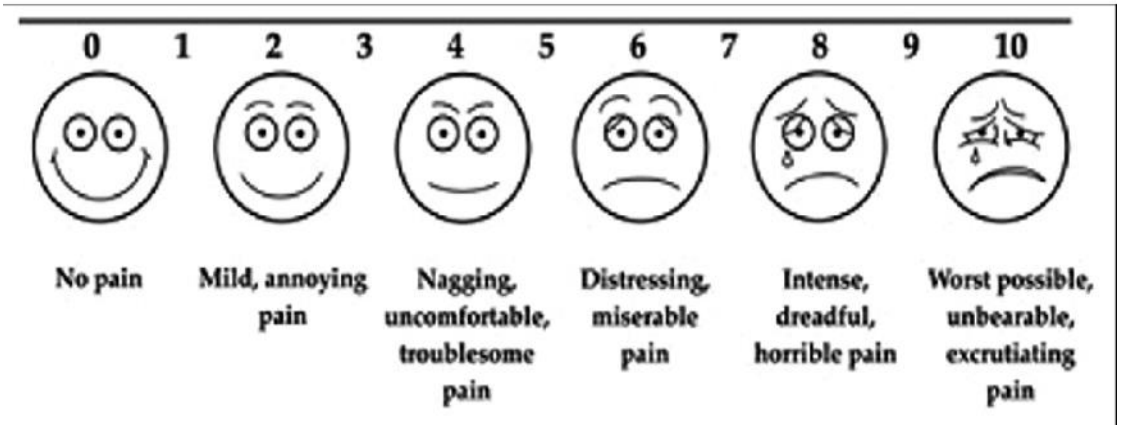


Figure – VISUAL ANALOG SCALE (VAS) FOR PAIN

The difference in rates of patients having pain was not statistically significant (p value = 0.30).
Other complications- Bleeding , fistula or abscess formation is not seen in any case in our study.

V. Conclusion

LIS best suits to the population of north western India under LA only due to less hospital stay , less duration of surgery , less health cost burden and overall less adversely affecting lifestyles of patients.

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