



A COMPARATIVE STUDY ON LATERAL INTERNAL SPHINCTEROTOMY V/S LORD'S DILATATION IN CHRONIC FISSURE IN ANO PATIENT

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ABSTRACT

Introduction: Anal fissures are elongated ulcers in the anal canal that cause significant discomfort and impact daily activities when they become chronic. These fissures are commonly treated with surgeries such as lateral internal sphincterotomy (LIS) and lord's anal dilatation, each presenting unique challenges and outcomes. This study focused on comparing these surgical techniques to determine the most effective approach for treating chronic anal fissures.

Aim and Objective: This study aimed to compare the effectiveness, outcomes, and potential complications associated between LIS and Lord's dilatation in treatment of chronic fissure in Ano.

Methodology: This prospective observational study was conducted at western up, 120 patients were taken who diagnosed with chronic anal fissure and divided into two groups for either LIS or Lord's dilatation. The outcomes were measured through various methods including pain scales, healing rates and complication records over a follow-up period of three months. Data analysis was performed using SPSS software, focusing on statistical significance of the results obtained.

Results: Both LIS and Lord's dilatation proved effective in treating chronic anal fissures, but with different efficacy profiles. LIS showed higher healing rates (95% at 1 month, 98.3% at 3 months) and lower recurrence rates (1.7% at 3 months) compared to Lord's dilatation. Lord's dilatation reported slightly higher immediate postoperative pain relief than LIS. Complications were minimal and comparable between both the groups. Overall patient improvement was better in the LIS group, correlating with the lower incidence of complications and better long-term outcomes.

Conclusion: The study concludes that both procedures were viable, LIS may offer a better overall treatment profile in terms of healing rates and recurrence, supporting its preferential use in clinical settings for chronic anal fissure.

Keywords: Chronic anal fissure, Lateral internal sphincterotomy (LIS), Lord's dilatation, Surgical treatment comparison, Fissure healing rates

Introduction:

Anal fissures present a significant challenge for those affected, often causing considerable discomfort and interfering with daily activities. Symptoms of anal fissures typically include pain, bleeding during bowel movements, and constipation. When these fissures persist for more than six weeks, they are categorized as chronic¹. Chronic anal fissures may present additional features such as associated sentinel piles, hypertrophied anal papillae, or visible internal sphincter fibres. In addressing chronic anal fissures, contemporary treatment modalities aim to reduce resting anal pressure while simultaneously enhancing blood supply to the fissure site to promote healing². This approach targets the underlying mechanisms contributing to the persistence of the condition. While surgical intervention was considered as standard treatment for chronic cases, there has been other option like sphincter relaxants. While these relaxants may show promising results, surgical treatment remains a frequent necessity, particularly in cases where conservative measures prove insufficient. Treating CAF can involve medicines or surgery, but there's no agreement on the best approach. Medical treatments often don't work well, while surgical options like Lord's anal dilatation (LAD) and lateral internal sphincterotomy (LIS) have their pros and cons. LAD is a simple surgery but can lead to the fissure coming back and problems with controlling bowel movements. LIS is now more commonly used, but it also carries a risk of bowel control issues³.

METHODS**Study design and Study population:**

The prospective observational study was conducted in the Department of General Surgery over a period of 18 months after getting approval from the institutional ethics committee. Detailed written informed consent was taken from the patients. Patient aged 18-60 years was included in this study and who was having chronic anal fissure, no history of previous treatment of fissure, failed medical treatment. Patient who was having anal fissure secondary to diseases like inflammatory bowel disease, malignancy, acute fissure in Ano and refused to participate in the study were excluded.

A total 120 patient who fulfilled the inclusion criteria were enrolled.

Data collection and feature selection:

The demographic information, duration and nature of symptoms were recorded. All patients underwent clinical examination, basic laboratory test and radiological investigations like X-ray Chest, Abdominal Ultrasound were performed. Patients were grouped by using the Sequentially Numbered, Opaque Sealed Envelopes (SNOSE) system into two. Group A were treated with lateral internal sphincterotomy, while Group B treated with Lord's dilatation. Lateral internal sphincterotomy (LIS) was performed in the lithotomy position with open sphincterotomy under general or regional anaesthesia. Anoscope was used to visualize anal canal. A longitudinal incision was made in the anoderm then more than half of the internal anal sphincter was divided under direct vision followed by leaving the incision open. Lord's dilatation (AD) was performed manually by stretching the anal canal beginning with two fingers and then four fingers, stretching the lateral walls of the anal canal. Both group of patients followed by 1 week, 1 month, and 3 months after surgery. Patients were asked about pain relief, bleeding, mucous discharge, and incontinence in follow up. Inspection of anal canal was done to see healing of the incision site The primary outcome measure was healing of the fissure. Secondary outcome measures included pain relief, postoperative bleeding, incontinence, infection, and recurrence rates. Pain was assessed by the Visual Analog Scale (VAS). Both group data were recorded and typed in MS excel 2010. Statistical analysis were performed with the help of Stata MP-17.

Observation and results:

Total 120 patients were taken and divided in two group A (LIS) and group B (Lord's Dilatation). The mean age for Group A is 42.3 ± 8.7 , whereas Group B has a mean age of 41 ± 9.3 . The gender

distribution shows 34 male and 26 female in Group A, and 31 male and 29 female in Group B, culminating in an overall 54.16% were males and 45.84% were females across both groups.

Visual Analogue Scale (VAS) was 7.8 ± 1.4 for Group A and 7.6 ± 1.6 for Group B. 80% patients in Group A and 81.7% patients in Group B, totalling 80.8% across both groups were having sentinel tags. The mean pain relief score for Group A was 3.7 ± 1.2 , whereas Group B recorded a slightly higher mean score of 4.1 ± 1.3 . This indicates that patients in Group B experienced a marginally higher level of pain relief compared to those in Group A. 20% patients of group A had fissure in anterior location and 80% had in posterior located whereas 25% patients of group B had fissure in anterior location and 75% had in posterior location. 5% cases were reported bleeding and 1.7% cases were reported infection in group A. 3.3% cases were reported bleeding and 5% cases were reported infection in group B. The total number of complications in Group A were 6.7% while in Group B were 8.3%. Across both groups, overall complication rates were 7.5%.

95% patients of group A and 86.7% patients of group B was healed, resulting in an overall healing rate of 90.8% for the entire sample. Conversely, 5% patients in Group A and 13.3% patients in group B did not heal, leading to a total non-healing rate of 9.2%. Amongst both the group 94.2% healed and 5.8%, did not heal. Mean pain relief score was 1.9 ± 1.1 in group A while in group B was 2.4 ± 1.2 . This data suggests a variation in pain relief effectiveness between the two treatments.

In Group A 5% experienced bleeding, whereas in Group B only 3.3% experienced bleeding. incontinence was reported in 4.2% cases overall. Specifically 6.7% from Group A experienced incontinence compared to only 1.7% from Group B. In Group A, only 1.7% developed an infection, whereas in Group B, 5% patients experienced infections, bringing the total number of infections to 3.3% across both groups. Recurrence of symptoms was observed in 1.7% from Group A and 10% from Group B. The overall recurrence rate across both groups was 5.8%. It shows that 93.3% patients of Group A and 83.3% patients of Group B were satisfied with their respective treatments, contributing to an overall satisfaction rate of 88.3% patients across both groups. Mean stay in group A was 2.4 ± 0.8 days while in group B was 1.9 ± 0.7 days. Both groups exhibit the same value of correlation coefficients, with a value of 0.87, indicating a high level of similarity in another unstated metric across both groups.

Discussion:

Both groups were comparable in age and gender, with no significant demographic differences, ensuring that the observed treatment outcomes were not influenced by these factors. The average age of participants in both groups was around 42 years, and while the gender distribution showed a slight male predominance 54.16%. A study was conducted by Prajapati et al⁴, showed no significant differences on the basis of age group. Shoramah RA et al⁵, provides additional context for our findings. In their study, the majority of patients undergoing treatment for fissures fell within the 21-30 age group, with 42 individuals in total. Of these, 20 were in the group B, and 22 were in group A. The second-largest group was in 31-40 age range that consist of total 12 patient (7 in the Lord Dilatation group and 5 in the LIS group). Among patients receiving Lord's Dilatation, 27 were male (69.2%) and 12 were female (30.8%). In contrast group A had a higher percentage of male patients having 82.5% male. These gender differences reflect trends in the population affected by anal fissures, where males tend to be more commonly affected, though females are also significantly represented in the study.

At baseline, both groups experienced high levels of pain with average Visual Analog Scale (VAS) scores 7.8 for group A and 7.6 for group B that reflecting the severity of chronic anal fissures. Furthermore, 80-81.7% of participants across both groups presented with sentinel tags, which are commonly associated with fissures resistant to pharmacological treatment. Fissure locations were predominantly posterior, with 75-80% of patients in each group having posterior fissures. These findings were consistent with existing literature on chronic anal fissures, where posterior fissures are most common, and sentinel tags are a frequent occurrence. Our findings are consistent with those of zafar et al⁶, who reported 49 out of 180 (27.2 %) patients had a sentinel skin tag and majority of them were associated with fissures resistant to pharmacological treatment. Regarding fissure location, our

results align with those of Nelson (2016), who noted that chronic anal fissures in mostly patients were situated in the midline with sphincter fibres mostly visible at the base, anal papillae, sentinel piles, and having indurated margins⁷. When comparing the two treatment modalities in terms of postoperative complications, the results indicated that both procedures had relatively low complication rates. Group A had a 5% incidence of bleeding, while Group B had a slightly lower incidence of 3.3%. Infection rates were also low, with Group A reporting 1.7% and Group B 5%, similar to studies conducted by Pandit et al. and Kang et al⁸. The overall complication rate was slightly less in group A (6.7%) in comparison to Group B (8.3%) that was suggesting a slight advantage of LIS. Pain relief was assessed at a one-week follow-up using VAS scores, and Group A reported a mean pain score of 3.7 compared to 4.1 for Group B. While the difference was slight, it indicates that both treatments were effective in providing pain relief, with LIS showing slightly better results. When evaluating fissure healing rates, Group A demonstrated a healing rate of 95%, slightly outperforming Group B, which had a healing rate of 86.7%. These results suggest that LIS may offer slightly better healing outcomes than Lord's dilatation. At 3 month follow-up group A showed healing rate of 98.3% with only one patient failing to heal, while Group B had a healing rate of 90%, with six patients experiencing persistent fissures. The overall healing rate for the study population was 94.2%, highlighting the effectiveness of both procedures. In terms of long-term pain relief, Group A reported a mean pain score of 1.9, significantly better than Group B's 2.4. This difference, while not large, suggests that LIS may provide more effective pain relief in the long term. Both procedures were associated with a low incidence of postoperative bleeding, with only 5 patients (4.2%) experiencing bleeding, and the majority of patients in both groups had uneventful recoveries. The study also assessed complications such as incontinence, infection, and recurrence. Incontinence occurred in 6.7% of Group A patients, compared to only 1.7% in Group B, indicating that LIS may carry a slightly higher risk of incontinence. Infection rates were relatively low overall, with Group A reporting 1.7% and Group B 5%, aligning with results from other studies. The recurrence rate at three months was notably higher in Group B, with 10% of patients experiencing recurrent symptoms, compared to only 1.7% in Group A, suggesting that LIS might offer better long-term prevention of symptom recurrence. In terms of patient satisfaction, 93.3% of Group A patients were satisfied with their treatment, compared to 83.3% in Group B, resulting in a combined satisfaction rate of 88.3%. This high satisfaction rate for both treatments suggests that both procedures are well-received by patients, although LIS had a slight advantage. Average hospital stay of group A patient was 2.4 days while Group B's stay was only 1.9 days. The difference in hospital stays may reflect the less invasive nature of Lord's dilatation, which might lead to a quicker recovery. Both treatments showed high effectiveness having correlation coefficient of 0.87 indicating that the outcomes were similarly positive for both procedures. Overall, the study demonstrated that both LIS and Lord's dilatation are effective treatment options for chronic anal fissures, with LIS showing slightly better healing of incision site and having less chance of recurrence. The findings suggest that while both procedures are relatively safe and effective, LIS may provide superior outcomes in long term, although the risk of incontinence is higher. According to the American Society of Colon and Rectal Surgeons (ASCRS) Clinical Practice Guidelines, initially conservative treatment was aimed to reduce anal sphincter pressure and promoting healing and for patients unresponsive to conservative measures, the guidelines recommend Lateral Internal Sphincterotomy (LIS) because this procedure involves cutting a portion of the internal anal sphincter to reduce sphincter pressure that help to facilitate the healing rate. While effective, potential complications like faecal incontinence are considered⁹.

Table 1: Comparison of different parameters between both groups

Parameter	Group A (LIS)	Group B (Lord's Dilatation)	Total
Age (Mean ± SD)	42.3 ± 8.7	41.1 ± 9.3	—
Gender			
Male	34	31	65 (54.16%)

Female	26	29	55 (45.84%)
Pain severity (VAS Score, Mean $\pm$ SD)	7.8 $\pm$ 1.4	7.6 $\pm$ 1.6	–
Sentinel Tag	48 (80%)	49 (81.7%)	97 (80.8%)
Fissure Location			
Anterior	12 (20%)	15 (25%)	27 (22.5%)
Posterior	48 (80%)	45 (75%)	93 (77.5%)
Bleeding	3 (5%)	2 (3.3%)	5 (4.2%)
Infection	1 (1.7%)	3 (5%)	4 (3.3%)
Pain Relief (VAS – Early)	3.7 $\pm$ 1.2	4.1 $\pm$ 1.3	–
Healing Status (First record)			
Healed	57 (95%)	52 (86.7%)	109 (90.8%)
Not Healed	3 (5%)	8 (13.3%)	11 (9.2%)
Healing Status (Second record)			
Healed	59 (98.3%)	54 (90%)	113 (94.2%)
Not Healed	1 (1.7%)	6 (10%)	7 (5.8%)
Pain Relief (VAS – Late)	1.9 $\pm$ 1.1	2.4 $\pm$ 1.2	–
Postoperative Bleeding			
Yes	3 (5%)	2 (3.3%)	5 (4.2%)
No	57 (95%)	58 (96.7%)	115 (95.8%)
Incontinence			
Yes	4 (6.7%)	1 (1.7%)	5 (4.2%)
No	56 (93.3%)	59 (98.3%)	115 (95.8%)
Infection (Post-op)			
Yes	1 (1.7%)	3 (5%)	4 (3.3%)
No	59 (98.3%)	57 (95%)	116 (96.7%)
Recurrence			
Yes	1 (1.7%)	6 (10%)	7 (5.8%)
No	59 (98.3%)	54 (90%)	113 (94.2%)
Satisfaction Level			
Satisfied	56 (93.3%)	50 (83.3%)	106 (88.3%)
Neutral	3 (5%)	7 (11.7%)	10 (8.3%)
Dissatisfied	1 (1.7%)	3 (5%)	4 (3.3%)
Hospital Stay (Days, Mean $\pm$ SD)	2.4 $\pm$ 0.8	1.9 $\pm$ 0.7	–

Limitations

This study's observational design limits causal interpretation of outcomes. The sample size was modest and the follow-up period of three months may not reflect long-term complications or recurrence. Single-centre data and convenient sampling may affect generalizability. Reliance on patient-reported pain scores introduces subjective bias, and variations in surgical technique or surgeon experience were not assessed.

Summary & Conclusion

This study compared Lateral Internal Sphincterotomy (LIS) and Lord's Dilatation (LD) in 120 patients with chronic anal fissure over a three-month follow-up period. Both procedures were effective in reducing pain and promoting healing; however, LIS demonstrated higher healing rates, better long-

term pain relief, and significantly lower recurrence compared to LD. Although LD offered slightly quicker early recovery and shorter hospital stay, its recurrence rate was higher. Complication rates were low in both groups, with a marginally increased rate of incontinence in LIS. Overall, LIS appears to provide superior long-term clinical outcomes and may be recommended as the preferred surgical option for chronic anal fissure.

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