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Original Research Article

Comparative Study of Manual Anal Dilatation and Lateral Internal Anal Sphincterotomy in the Treatment of Acute Anal Fissure

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Abstract

Background: Anal fissures are among the most painful conditions and are incredibly common. It can be extremely concerning since, in the case of an acute lesion, the degree of discomfort and handicap experienced by the patient significantly surpasses what would be anticipated from a relatively insignificant lesion. The two most popular treatments for anal fissures, manual anal dilatation (MAD) and lateral internal anal sphincterotomy (LAS), are compared in this study.

Methods: From May 2025 to October 2025, GMCH, Bettiah, West Champaran, Bihar, was conducted a prospective study comparing MAD with LAS for the treatment of persistent anal fissures. Thirty patients who satisfied the inclusion criteria were randomly assigned to receive either MAD or LAS, and their post-operative discomfort, complications, hospital stay, recurrence rates, and compliance were examined.

Results: A total of thirty patients were assigned at random to either LAS or MAD. Patients who have had LAS experience improved pain alleviation and a somewhat higher risk of infection. Compared to LAS, those who have had MAD had a lower risk of infection, recurrence rates, and sequelae.

Conclusion: For the treatment of acute anal fissures, MAD and LAS are similarly safe, efficacious, and have lower recurrence rates. However, the MAD group experienced somewhat more postoperative pain.

Keywords: Manual anal dilatation, Lateral internal anal sphincterotomy, Acute anal fissure.

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Introduction

A painful linear tear in the lower end of the anal canal is called an anal fissure.[1] It is frequently called an ischemic ulcer. Anus resting pressure has a negative correlation with anodermal blood flow. By squeezing the arterioles, increased internal anal sphincter activity may reduce the anodermal blood flow.[2]

There are two types of fissures: typical and atypical, as well as acute and chronic.[3] Bright crimson bleeding and stool motions are signs of acute fissures (less than six weeks).

They will have anal pain or spasms that are severe, searing, and tearing. After the bowel movement, the pain may last for several hours. Physical observations include the anoderm's linear separation, which is only noticeable when the buttocks are separated. Up to 90% of common anal fissures occur in the posterior midline. The anterior midline contains the remaining minority of typical fissures.

An external sentinel tag at the external apex, an exposed internal sphincter muscle, and a hypertrophied anal papilla at the internal apex are further visible signs of chronic fissures (>6 weeks).[4]

Usually found in the anterior or posterior midline, these fissures are unrelated to other illnesses.[5] Anywhere in the anal canal, atypical fissures might develop. They are frequently linked to various illnesses such as cancer, Crohn's disease, HIV infection, syphilis, and tuberculosis.[6]

The purpose of the study is to compare these two approaches for treating acute fissure-in-ano in thirty patients, fifteen in each limb.

Material and Methods

This Prospective Study was conducted at Department of General Surgery, Govt. Medical College and Hospital, Bettiah, West Champaran, Bihar from May 2025 to October 2025. First 30 patients of consecutive sampling who met the inclusion and exclusion criteria were selected for the study. All enrolled patients with odd number were undergone procedure 1 (MAD), even number procedure 2 (LAS).

Exclusion criteria were atypical fissures; patients below the age of 18 years; patients who have undergone previous anal surgeries. Detailed pre-operative evaluation of the patient and appropriate preparation for surgery. Operative findings are noted. Post-operative course, pain severity documentation with the aid of VAS score at 12 hours, 24 hours and 48 hours were evaluated. Complications are noted. Follow up is monthly once up to 6 months following surgery.The data has been entered in to MS - Excel and statistical analysis has been done by using IBM SPSS version 24.0.

For categorical variables, the data values are represented as numbers and percentages. To test the association between groups chi-square test was used. For continuous variables, the data values are shown as mean and standard deviation. To test the mean difference between two groups for post-operative pain vas score at 12 hours, 24 hours and 48 hours, Mann - Whitney U test and Wilcoxon Signed Rank test was used. All the p values are having less than 0.05 are considered as statistically significant.

Results

Thirty patients with persistent anal fissures who were admitted to surgical units at GMCH, Bettiah, West Champaran, Bihar, were examined.

At 12 hours, the MAD group's mean±SD postoperative pain VAS score (6.30±0.75) was higher than the LAS group's (5.23±0.57). The postoperative pain VAS score at 12 hours differs significantly between the MAD and LAS groups ($p<0.0001$). (Table 1)

Table 1: Mean differences among MAD and LAS group for post-operative pain VAS score at 12 hours

	Surgery done	No. of cases	Mean±SD	z-value	p-value
Postoperative Pain VAS score at 12 hours	Manual Anal Dilatation (MAD)	15	6.30±0.75	-5.01	<0.0001 Very highly significant
	Internal Anal Sphincterotomy (LAS)	15	5.23±0.57		
	Total	30	5.77±0.85		

Statistical Test: Mann-Whitney U Test.

At 24 hours, the MAD group's mean±SD postoperative pain score [3.03±0.81] was higher than the LAS group's [2.73±0.58]. However, the postoperative pain VAS score at 24 hours does not change statistically significantly between the MAD and LAS groups ($p=0.131$). (Table 2)

Table 2: Mean differences among MAD and LAS group for post-operative pain VAS score at 24 hours

	Surgery done	No. of cases	Mean ±SD	z-value	p-value
Postoperative Pain VAS score at 24 hours	Manual Anal Dilatation (MAD)	15	3.03±0.81	-1.51	0.131 Not significant
	Internal Anal Sphincterotomy (LAS)	15	2.73±0.58		
	Total	30	2.88±0.72		

Statistical Test: Mann-Whitney U Test.

At 48 hours, the MAD and LAS groups' mean±SD postoperative pain scores are 0.43±0.50 and 0.47±0.51, respectively. However, the postoperative pain VAS score at 48 hours did not significantly differ between the MAD and LAS groups ($p=0.797$) (Table 3).

Table 3: Mean differences among MAD and LAS group for post-operative pain VAS score at 48 hours

	Surgery done	No. of cases	Mean±SD	z-value	p-value
Postoperative Pain VAS score at 48 hours	Manual Anal Dilatation (MAD)	15	0.43±0.50	-0.257	0.797 Not significant
	Internal Anal Sphincterotomy (LAS)	15	0.47±0.51		
	Total	30	0.45±0.50		

Statistical Test: Mann-Whitney U Test.

In the MAD group, the maximum [14 (93.3%)] patients are staying less than four days in hospital and 1 (6.7%) patients are staying more than four days, whereas all 15 (100.0%) patients are staying less than four days in hospital the LAS group (Table 4).

Table 4: Association between hospitals stay (days) and type of surgery

Surgery done	Hospital Stay (days)		Percentage
	<4 days	>4 days	
Manual Anal Dilatation (MAD)	14	1	6.7%
Internal Anal Sphincterotomy (LAS)	15	0	0

Chi-Square value=2.069, p=0.150 (Not Significant)

In MAD group, 2 (13.3%) patients are having hematoma whereas in LAS group, only 1 (3.3%) patient has hematoma. However, there is no statistically significant association between Nocturnal soiling and type of surgery (p=0.161) (Table 5).

Table 5: Association between post-operative hematoma and type of surgery

Surgery done	Hematoma		Percentage
	No	Yes	
Manual Anal Dilatation (MAD)	13	2	13.3%
Internal Anal Sphincterotomy (LAS)	14	1	3.3%

Chi-Square value=1.964, p=0.161 (Not Significant)

In MAD group, 3 (10.0%) patients are having Nocturnal soiling whereas in LAS group, only 1 (3.3%) patient has Nocturnal soiling. However, there is no statistically significant association between Nocturnal soiling and type of surgery (p=0.301). (Table 6).

Table 6: Association between nocturnal soiling and type of surgery

Surgery done	Nocturnal Soiling		Percentage
	No	Yes	
Manual Anal Dilatation (MAD)	12	3	10.0%
Internal Anal Sphincterotomy (LAS)	14	1	3.3%

Chi-Square value=1.071, p=0.301 (Not Significant)

In MAD group, only 2 (3.3%) patients are having recurrence. whereas in LAS group, no patient has recurrence. There is no statistically significant association between recurrence and type of surgery (p=0.150)

Table 7: Association between recurrence and type of surgery

Surgery done	Nocturnal Soiling		Percentage
	No	Yes	
Manual Anal Dilatation (MAD)	14	2	6.7%
Internal Anal Sphincterotomy (LAS)	15	1	0

Chi-Square value=2.069, p=0.150 (Not Significant)

Discussion

In general surgery, anal fissures are a common proctologic condition. It is occasionally misdiagnosed as perianal fistula and hemorrhoids. Even though the lesion is tiny, it is extremely painful and uncomfortable. Patients take a long time to visit the hospital since the perineum is a region where people might not want to disclose being ill.

Topical anesthetics, glyceryl triturate, calcium channel blockers (Diltiazem), and injections of botulinum toxin are examples of medical therapy [7,8,9]. Manual anal dilatation, open lateral internal anal sphincterotomy, closed internal anal sphincterotomy, posterior midline sphincterotomy, and, to a lesser extent, dermal flap covering are among the frequently performed surgical procedures.[10, 11]Thirty case records of patients with persistent anal fissures are examined analytically and contrasted with various series. In this study, I compared two surgical techniques for treating chronic anal fissures: open internal anal sphincterotomy and manual anal dilatation. The results of procedures, the benefits of manual anal dilatation and lateral anal sphincterotomy, and the rates of complications between the two techniques have all been investigated. Compared to lateral internal sphincterotomy, manual anal dilatation had higher incidence of complications. Individuals who had lateral internal sphincterotomy showed good improvement in terms of the fissure's epithelialization and lack of symptoms. Additionally, it was discovered that manual anal dilatation had a greater recurrence rate than lateral internal sphincterotomy. Patients who had the aforementioned issues during manual anal dilatation needed to be monitored more closely and have their problems addressed. However, there were minimal issues with lateral internal

sphincterotomy. A hematoma development and nocturnal soiling were reported by a few patients who had manual anal dilation. After these were resolved, several patients who had manual anal dilation experienced severe bleeding, which resulted in a lengthy hospital stay. This resulted from the sphincter's atony brought on by the dilation. There were no bleeding cases following lateral internal sphincterotomy. Western literature has demonstrated this.[12,13,14] Patients who underwent manual anal dilatation experienced higher issues than those who had lateral internal sphincterotomy, according to a review of the patient following a four-week follow-up.[15, 16, 17, 18] The findings are consistent with the Western literature, which shows that manual anal dilatation causes more difficulties.[19, 20, 21, 22]

Conclusion

In general surgical practice, acute fissures in the ano are a prevalent issue that is frequently misdiagnosed and undertreated. This study compares two typical surgical techniques. Compared to lateral internal sphincterotomy, manual anal dilatation is associated with higher complications. These include nocturnal soiling and the development of hemorrhages. Manual anal dilatation was found to have a higher recurrence rate than open lateral internal sphincterotomy. Nevertheless, the findings are not statistically significant enough to suggest that one method is better than another.

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