

## ORIGINAL ARTICLE

# Comparison of efficacy of lateral sphincterotomy versus topical 0.2% Glyceryl Trinitrate Ointment in anal fissure treatment

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## ABSTRACT

**Aim:** To compare the outcomes of both 0.2% glyceryl trinitrate and lateral sphincterotomy to treat the anal fissure.

**Study design:** Comparative study.

**Methods:** This study was performed at the surgery department sir Ganga Ram Hospital hospital Lahore, Pakistan from 1<sup>st</sup> June 2020 to 30 Dec 2021. Total 80 patients were the participant of this study. After the diagnosis of anal fissure and before the starting treatment, a detailed scenario of its treatment, process, side effects, and chances of recurrence were explained to patients then consent was signed by the individual patients. Patients were divided into two groups to compare the outcomes of both sphincterotomy and glyceryl trinitrate. Group A had 40 patients and Group B had 40 patients as well. The age of all the patients was above the 18 years.

**Results:** Group A had 14 (35%) patients of age range 18-30 years and 26 (65%) of 31-60 years old. 13 (32.5%) females, 27 (67.5%) males, mild pain in 10 (25%), severe pain in 30(75%), Constipation was reported in 16(40%) patients and 29(72%) patients had bleeding issues. Group B found with 17 (42.5%) patients of age range 18-30 years and 23 (57.5%) of 31-60 years old. 10 (25%) females, 30 (75%) males, mild pain in 12 (30%), severe pain in 28(70%), Constipation was reported in 20(50%) patients and 31(77%) patients had a bleeding issue. The final comparison after six weeks of treatment shows the 65% of patients healed with the lateral sphincterotomy and 47% of patients healed with ointment of 0.2% glyceryl trinitrate. The healed proportion was measured high for the lateral sphincterotomy treatment as compared to the ointment of 0.2% glyceryl trinitrate.

**Conclusion:** We concluded that lateral sphincterotomy has an effective response to treat the anal fissure as compare to 0.2% ointment of glyceryl trinitrate.

**Keywords:** Lateral sphincterotomy, ointment of 0.2% glyceryl trinitrate, anal fissure.

## INTRODUCTION

The common anorectal condition is anal fissure and most painful lesions. Episodic pain appears, especially during defecation.<sup>1</sup> Persistent pain may cause trouble and prolong discomfort due to the severity of disease<sup>2</sup>. Chronic anal fissure is substantially rare than acute form. The 11% incidence rate was found for acute anal fissure equally for men and women<sup>7</sup>. The acute anal fissure can be healed through the diet like high fiber diet with plenty of water while chronic associated with internal sphincter problem which might be treated with surgical or non-surgical techniques depend on the disease severity.<sup>8,9</sup> In the case of chronic anal fissure, the anal canal hypertonia along the reduction in blood flow were the commonly associated complications. However, lateral anal sphincterotomy is one of the surgical techniques that heal most fissures within weeks.<sup>4</sup> A study reported that lateral sphincterotomy is the most effective treatment to treat the chronic anal fissure but the majority of cases were found with anal incontinence.<sup>3,5</sup> Therefore, Sphincterotomy increase the stay time of patients at the hospital. To avoid all the post-operative complications non-surgical treatment is preferred. Glyceryl trinitrate is an eminent biological mediator that helps to reduce the sphincter pressure and heal the fissure.<sup>6</sup> A better management approach to treat a chronic anal fissure is to use glyceryl trinitrate as a first-line treatment.

The present study is the comparative study of the efficacy of lateral sphincterotomy and ointment of 0.2% glyceryl trinitrate to cure the anal fissure.

## MATERIAL AND METHODS

This study after approval from ethical committee was performed at the surgery department Sir Ganga Ram hospital Lahore, Pakistan from 20 June 2020 to 20 June 2021. Total 80 patients were the participant of this study. After the diagnosis of anal fissure and before the starting treatment, a detailed scenario of its treatment, process, side effects, and chances of recurrence were explained to

patients then consent was signed by the individual patients. Patients were divided into two groups to compare the outcomes of both sphincterotomy and glyceryl trinitrate. Group A had 40 patients and Group B had 40 patients as well. The age of all the patients was above the 18 years.

**Inclusion and exclusion criteria:** All the patient who was suffering from lateral anal fissure part of the study. The patients had fissures for more than 6 weeks included. Patients with systematic disease (Diabetes and chronic liver disease) were not part of the study. Pregnant women and patients with other diseases including rectal cancer, fistula, and inflammatory bowel disease were omitted from the study. Secondly, anal fissure with fistula complications was excluded from the study.

**Procedure:** After taking a detailed history of the pain severity and other symptoms such as bleeding, constipation, and previous treatment. Group A was prepared for the lateral sphincterotomy and group B for ointment of 0.2% glyceryl trinitrate. Group-A patients were examined through anesthesia then subjected to lateral sphincterotomy by an expert surgeon. Ointment of 0.2% glyceryl trinitrate was advised to use around the anal margins with clockwise massage for 6 seconds and continuously use 3 times in 24 hours for 6 weeks. Prescription also included the use of cream inside the anus. The patient was kept under observation for one week to assess the results.

**Statistically analysis:** Statistical testing was performed using SPSS version 23. The chi-square test was used to compare the parameters for both techniques, P<0.05 considered significant.

## RESULTS

Group A had 14(35%) patients of age range 18-30 years and 26(65%) of 31-60 years old. 13(32.5%) females, 27(67.5%) males, mild pain in 10(25%), severe pain in 30(75%), Constipation was reported in 16(40%) patients and 29(72%) patients had bleeding issues. Group B found with 17 (42.5%) patients of age range 18-30 years and 23(57.5%) of 31-60 years old. 10(25%) females, 30(75%) males, mild pain in 12 (30%), severe pain in 28(70%), Constipation was reported in 20 (50%) patients and 31(77%)

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patients had bleeding issues (Table 1). The second week's results of lateral sphincterotomy show wound healing in 4(10%) patients, the pain was observed in 32(80) patients and bleeding in 25(62.5). Six week results for the same treatment in table 2 shows wound healing in 23 patients (57.5%), pain in 18(45%) patients, and bleeding reported in 6 patients (15%). Second-week outcomes of ointment of 0.2% glyceryl trinitrate indicate wound healing in 3 patients (7.5%), pain in 35(87%), and bleeding in 28(70%). Similarly, results of six weeks show wound healing in 18(45%) patients, pain in 20(50%) patients and bleeding in 8(20%) patients. The overall ameliorated response was measured in patients treated with the lateral sphincterotomy. The final comparison after six weeks of treatment shows the 65% of patients healed with the lateral sphincterotomy and 47% of patients healed with ointment of 0.2% glyceryl trinitrate (Table 3). The healed proportion was measured high for the lateral sphincterotomy treatment as compared to the ointment of 0.2% glyceryl trinitrate.

Table 1: Characteristics of 80 patients before treatment

Characteristic	Group A	%age	Group B	%age
<b>Age</b>				
18-30 years	14	35%	17	42.5%
31-60 years	26	65%	23	57.5%
<b>Gender</b>				
Females	13	32.5%	10	25%
Males	27	67.5%	30	75%
<b>Pain</b>				
Mild Pain	10	25%	12	30%
Severe Pain	30	75%	28	70%
Constipation	16	40%	20	50%
Bleeding	29	72%	31	77%

Table 2: Comparison of outcomes of lateral sphincterotomy and 0.2% glyceryl trinitrate

Outcomes	Group A	Group B
<b>2nd week</b>		
Wound healing	4 (10%)	3 (7.5%)
Pain	32 (80%)	35 (87.5%)
Bleeding	25 (62.5%)	28 (70%)
<b>6th week</b>		
Wound healing	23 (57.5%)	18 (45%)
Pain	18 (45%)	20 (50%)
Bleeding	6 (15%)	8 (20%)

Table 3: Comparison of complete healed after the six weeks of lateral sphincterotomy and 0.2% glyceryl trinitrate treatment (n=40)

Treatment group	Proportion healed	95% CL	P-value
Lateral sphincterotomy	26 (65%)	0.33-0.66	0.01
0.2% glyceryl trinitrate	19 (47%)	0.22-0.46	0.01

## DISCUSSION

In our study we found better healing in 65% of patients who were treated with lateral sphincterotomy while 47% of patients cured with the ointment of cream. Therefore, glyceryl trinitrate ointment application is most suitable than lateral sphincterotomy to treat chronic fissure. This might be a good alternative treatment for patients who prefer medicinal therapy<sup>10</sup>. A study demonstrated that use of 0.2% cream of glyceryl trinitrate (GTN) had healed the 34 patients and lateral sphincterotomy, 39 patients, while pain score clearly proves the GTN is the best treatment at an early stage<sup>11</sup>.

For the chronic anal fissure ointment of 0.2% glyceryl trinitrate had a high rate of fissure healing without the risk of incontinence specifically for unfit elders and females<sup>12-13</sup>.

Surgical sphincterotomy provides better results with rapid relief of pain and symptoms but surgery is a choice for patients as well as for experienced surgeons.<sup>14</sup> One more study in favor of surgical treatment demonstrated that 100% symptomatic in patients after the 6 weeks, fissure healing was noted in 84.85%

during the 6th week and 100% healing was noted during the 10th week.<sup>15</sup> Topical ointment of cream (0.2% glyceryl trinitrate) heals the wound slowly with lesser side effects. Such as in our study healing after the six weeks was observed only in 47% of patients who treated with the ointment of cream<sup>16</sup>. Although several studies had shown the positive association of 0.2% glyceryl trinitrate to treat the chronic anal fissure<sup>17-18</sup>.

## CONCLUSION

We concluded that lateral sphincterotomy has an effective response to treat the anal fissure as compare to 0.2% ointment of glyceryl trinitrate. Although we recommend surgeons to use 0.2% glyceryl trinitrate as first line treatment before to select surgery.

**Conflict of interest:** Nil

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