# COMPARISON OF LATERAL INTERNAL SPHINCTEROTOMY WITH 0.2% GLYCERYL TRINITRATE IN THE MANAGEMENT OF CHRONIC ANAL FISSURE

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**Abstract**

**Objective:** To compare the effectiveness of topical Glyceryl trinitrate Ointment with Lateral internal Sphincterotomy in terms of relief of pain, healing of fissure and absence of bleeding over a period of two months.
**Study Design:** Randomized controlled trial.
**Place and Duration of Study:** Department of Surgery, Combined Military Hospital Peshawar from Feb 2007 to August 2007.
**Patients and Methods:** This study included 80 patients of chronic anal fissure. Patients were randomly divided in two groups with 40 patients in each group. One group was prescribed with 0.2% GTN Ointment intra-anally 4 times a day for 8 weeks in OPD (groupA). Second group was admitted in Surgical ward and lateral internal sphincterotomy was performed on each patient by open technique under general anaesthesia (groupB).
**Results:** In Group A 33 (82.5%) patients had healed fissure at the end of 8 weeks, While in group B, 37 out of 40 (92.5%) patients had healed fissure at the end of 8 weeks.
**Conclusion:** 0.2% Glyceryl trinitrate can be offered as first line of treatment for chronic anal fissure which means that surgery can be avoided in more than 82% of the patients.

**Keywords :** Anal fissure, Glyceryl trinitrate ointment, Lateral internal sphincterotomy.

**Article**

## INTRODUCTION

Anal fissure is a common condition affecting all age groups, but it is particularly seen in young and otherwise healthy adults with equal incidence across the gender1. Anal fissure is a linear tear at the anal verge2. Ninety percent of fissures occur posteriorly and 10% are seen in anterior midline. Anterior fissures are more common in women3. The classical symptoms of the disease are anal pain during or after defecation accompanied by passage of bright red blood per anus4. An early fissure has sharply demarcated fresh mucosal edges and there may be granulation tissue in its base1. With increasing chronicity, the margins of fissure become indurated and there is a distinct lack of granulation tissue, horizontal fibres of internal sphincter may be evident in the base of chronic anal fissure and secondary changes such as sentinel skin tag, hypertrophied anal papilla or a degree of anal stenosis are often present. If the fissure fails to heal within six weeks, then it requires definitive treatment and is associated with hypertonia of internal anal sphincter5. Recent studies have suggested that decreased blood flow and resulting ischaemia of the mucosa are important in the pathogenesis of chronic anal fissure6. Lateral internal sphincterotomy is the most common treatment for chronic anal fissure7. GTN is the most widely used agent for chemical sphincterotomy. GTN is a nitrous oxide donor, which is an important neurotransmitter mediating internal anal sphincter relaxation8. For maximal benefit in clinical setting, topical 0.2 % GTN should be prescribed for longer than 6 weeks and some fissures may take upto 12 weeks to heal9,10. In a study by Christie and Guest, it was reported that GTN is a potentially cost effective first line treatment for the management of chronic anal fissure11. Lateral internal Sphincterotomy is found to be safe and simple operation if

done by skilled Proctologic surgeon12,13. In a study, surgical Sphincterotomy was found to be superior to GTN ointment in the healing of chronic anal fissure with fewer side effects. The purpose of this study was to compare 0.2% GTN ointment with lateral internal Sphincterotomy in the treatment of chronic anal fissure.

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## PATIENT AND METHODS

This randomized control trial was carried out at CMH Peshawar in the department of surgery from Feb 2007 to Aug 2007.

Male patients of 20 to 60 years age without any other anorectal disease and fulfilling the criteria of chronic anal fissure were included.

Patients having any skin ailment in the perianal and anal region, having trauma to anal region, acute anal fissure and patients already taking nitrates or calcium channel blockers for hypertension and ischaemic heart disease were excluded.

Eighty patients fulfilling the inclusion criteria were included in this study and randomly divided into to groups of 40 each using random number table. Forty patients in group A were treated with 0.2% GTN ointment while patients in group B were treated with Lateral internal Sphincterotomy. Patients were followed up for 8 weeks. Group A was prescribed with 0.2% GTN ointment to apply intra-anally four times a day for 8 weeks (the dose of ointment was about the size of half a pea i.e less than 500 mg). Patients in group B were admitted in surgical ward and after routine investigations e.g Blood CP, Blood Sugar, Urine routine examination, ECG and Chest X-Ray, patients above 40 years of age, were subjected to a lateral internal Sphincterotomy under GA.

Following Surgical Technique was employed:

* Patient was placed in Lithotomy position.
* Bivalve proctoscope was used.
* H papilla or skin tag was excised.
* Parks retractor was inserted and intersphincteric groove was felt.
* A small 1 cm incision was made in lateral quadrant and mucosa was separated from internal sphincter and then from external sphincter using scissors. The isolated area of internal anal sphincter was clamped for 30 seconds.
* Sphincter was divided with scissors upto the upper end of anal fissure followed by application of pressure for 2-3 minutes.
* A pad and bandage was applied at the end of the procedure.

## RESULTS

Patients were followed up for 8 weeks and the results compared at final follow up.

### Data Analysis

Data was analyzed using SPSS version 15. Descriptive statistics were used to compare age of both the groups. Syptoms between both the groups were compared using chi-square test. A p-value of <0.05 was considered as significant.

Eighty patients were included in this study, 40 in each group. Youngest patient was 20 years of age and the oldest was 60 years. In group A, mean age was 38 years (SD=13.58), while in group B the mean age was 37.72, SD 13.72. Both the groups were comparable with respect to age (P>0.05). All patients were male in both groups. At final follow up after 8 weeks in group A, fissure had healed in 33 (82.5%) patients while in group B, 37 (92.5%) patients had healed fissure(p=0.043). In group A, 36 (90%) patients were pain free, while in group B 38 (95%) patients had relief of pain at the final follow up (P=0.67). As far as control of bleeding was

Table: Improvement in symptoms at final follow up.

| Symptoms | Group A (n=40) | | Group B (n=40) | | p-value |
|---|---|---|---|---|---|
| | No | % | No | % | |
| Bleeding | 35 | 87.5 | 38 | 95 | 0.43 |
| Pain | 36 | 90 | 38 | 95 | 0.67 |
| Healing | 33 | 82.5 | 37 | 92.5 | 0.31 |

concerned, 35 (87.5%) patients in group A and 38 (95%) patients in groupB out of 40 patients had no complaint of bleeding per rectum at the end of final follow up (p=0.31) (Table).

## DISCUSSION

There are many modalities for treatment of chronic anal fissure, but so far surgical lateral internal sphincterotomy remains the gold standard. Morbidity and requirement for hospital admission in relation to surgery for chronic anal fissure calls for some alternative form of treatment although lateral internal sphincterotomy is the standard surgical treatment, but it is definitely associated with high incidence of complications like incontinence for stool and flatus. The other most commonly available alternate modality of treatment is the glyceryl trinitrate ointment, which is a form of chemical sphincterotomy. It is safe and effective in the treatment of chronic anal fissure.

The patients who were put on GTN treatment can be managed on out patient's basis without the need for hospital admission and there is no long-term sequelae of the treatment. Our study was comparative and prospective one to compare the effectiveness of 0.2% GTN with lateral internal sphincterotomy measured in terms of relief of pain and healing of chronic anal fissure. There was no need for hospitalization in group A and no anaesthesia was required and moreover GTN ointment is readily available and cheaper. The ointment is easy to apply and the compliance of the patients is not a problem. Headache is the only significant adverse effect, which also settles in majority of the patients within few days of treatment with simple analgesics and counseling.

In the present era, time and money are so important that need for OPD modalities are increasing tremendously. Although the results of GTN ointment are not as good as those of the surgical sphincterotomy in terms of healing of fissure (82% vs 97%) but it is without any permanent disability like incontinence. GTN decreases the sphincter tone and improves the blood supply to the area and helps in the healing of fissure.

This study focused on the relief of pain, absence of bleeding and healing of fissure. After one week of application of 0.2% GTN, pain relief was observed in 10 patients (25%) and after 8 weeks healing was seen in 82.5 % of the patients. Headache was not a big problem in our study as it settled in within a few weeks time by regular follow up and appropriate counselling.

Brown CJ deducted from his study that lateral internal anals sphincterotomy is superior to topical nitroglycerine for healing of chronic anal fissure and does not compromise long term faecal incontinence14. Arroyo A and his colleagues in a study comparing surgical and chemical sphincterotomy for chronic anal fissures concluded that patients at high risk of recurrence should be treated surgically15. Surgery has a higher success rate, close to 100% of patients who underwent surgery were completely healed by two months after surgery16. Surgery is highly efficacious and succeeds in curing 90% of patients,the overall risk of incontinence is 10%17. Sphincterotomy up to the dentate line provided faster pain relief and fissure healing but is associated with significant postoperative feacal incontinence than sphincterotomy up to fissure apex18.

Anterior anal fissures are associated with occult external anal sphincter injury and impaired external anal sphincter function compared with posterior fissures19. Garcea in 2003 conducted a study and found that conservative lateral internal sphincterotomy resulted in 97% of the patients with healed fissures20. Anal sphincterotomy with or without other related rectal procedures can be safely prescribed in properly selected patients21. Total subcutaneous lateral internal sphincterotomy is a safe and effective treatment for chronic anal fissures that only rarely impairs continence to flatus22. Lateral sphincterotomy is a gold standard in the treatment of anal fissure23. It is a safe

and effective procedure for the treatment of chronic anal fissure24.
In a study it was shown that only 4% of the patients initially healed with 0.2% GTN and had to undergo sphincterotomy for recurrences25.
Mishra and his colleagues conducted a study in New Dehli, India and were of the opinion that topical GTN should be the initial treatment in the chronic anal fissure. Lateral internal sphincterotomy should be reserved for those with severe disabling pain and for patients not responding to at least 4 weeks of GTN therapy26.
Conservative lateral internal sphincterotomy under local anaesthesia was found effective in more than 98% of patients27.
Immediate pain relief and painless passage of first bowel movement was observed in 98% of patients28. Incontinence to flatus was seen in only one patient and no patients developed feacal incontinence29. Hypertrophied anal Papilla and fibrous anal polyps should be removed in the treatment of patients with chronic anal fissure30.
Most patients with a newly diagnosed anal fissure should have an initial trial of conservative therapy, and the majority of patients with acute fissures will heal with such treatment alone. Patients for whom nonoperative treatment fails or for those who simply hurt too much to wait for its success, lateral internal sphincterotomy is usually the next step. Although surgery is effective, fissure healing and relapse rates are quite variable. After lateral sphincterotomy the healing rates range from > 90 percent to 78 percent31, and the recurrence rates range between 1.3 and 13.1 percent32. These variations could be due to the type of surgical technique (open vs. subcutaneous sphincterotomy) or the length of the sphincterotomy incision.
With the topical use of glyceryl trinitrate ointment, patients can be managed on out patients basis. Surgery can be avoided in more than 80% of cases with no serious side effects, so 0.2% GTN ointment is the first line of treatment to treat anal fissure and surgery should be reserved for those who fail to response to medical therapy. Lateral internal sphincterotomy is perhaps the standard surgical treatment for chronic anal fissure as healing was seen in 97.5% patients in our study.

**CONCLUSION**

Glyceryl trinitrate is a simple, safe and effective first line of treatment for chronic anal fissure. By virtue of this modality of treatment, surgery can be avoided in more than 80% of patients with chronic anal fissure. It is cheaper for the patient and hospital because the patients are treated on outpatient’s basis. Outcome of lateral sphincterotomy is excellent Despite being the gold standard in the management of anal fissures, our study has revealed that the initial management of chronic anal fissures should be with 0.2% GTN ointment. Surgery should be reserved for cases having disabling pain and complications.

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