

Topical Nitroglycerine Versus Lateral Sphincterectomy for Fissure in Ano: A Hospital Based Comparative Study

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ABSTRACT

Background: Anal fissure is a common benign condition presenting as severe pain, constipations and bleeding per rectum. It is defined as longitudinal tear or defect in anal canal skin. Surgical treatment of this condition requires hospital admission and complications, like bleeding, infection and to its severe extent continence disturbances. That warrants a new treatment modality as pharmacological sphincterotomy i. e. topical GTN (glycerine trinitrate) whose effects are reversible, cost effective and simple. **Objective:** The objective is to compare the effectiveness of topical GTN over lateral sphincterotomy in terms of pain management and healing of fissure. **Method:** This was a comparative study carried out in the department of Surgery at Nepalgunj Medical College, Teaching Hospital. Two groups were created and 25 patients in each group were put randomly. First group (Group 1) used topical GTN whereas second group (Group 2) underwent lateral sphincterotomy for treatment of fissure. The two groups were reassessed at 4 and 8 weeks for pain and fissure healing. **Result:** Total number of patients was 50. Each group consisted of 25 patients. The male to female ratio in group 1 was 1:1.5 and in group 2 it was 1: 1.8. In group 1 patients after 4 weeks of application of GTN pain reduced from the mean of 80 ± 15 at the time of presentation to 50 ± 9.27 . When these patients were seen after 8 weeks, the pain reduction on VAS was nil in 21 patients out of 25. In group 2 the mean score fell from 75 ± 15 to 20 ± 10 after 4 weeks and at 8 weeks 23 out of 25 patients didn't have any pain. It was observed that the pain reduction and healing were faster in group 2 patients when evaluated after 4 weeks ($p=0.0029$), but at the end of 8 weeks both group patients were similar in terms of pain reduction and healing of fissure ($p=.28$). **Conclusion:** According to study local GTN application is as effective as lateral sphincterotomy with cost effectiveness, simple with tolerable side effect and no continence disturbances.

Keywords: Anal fissure, lateral sphincterotomy, topical GTN

INTRODUCTION

An anal fissure is a longitudinal tear or defect in the skin of the anal canal distal to the dentate line. The classification of anal fissures is based on causative factors. Primary fissures are typically benign and are likely to be related to local trauma such as hard stools, prolonged diarrhea, vaginal delivery, repetitive injury or penetration. Secondary fissures are found in patients with previous anal surgical procedures, inflammatory bowel disease (e.g. Crohn's disease), granulomatous diseases (e.g. tuberculosis, sarcoidosis), infections (e.g. HIV/AIDS, syphilis) or malignancy¹.

The pathophysiology of anal fissures is not entirely clear. It is probable that an acute injury leads to local pain and spasm of the internal anal sphincter. This spasm and the resulting high resting anal sphincter pressure² leads to reduced blood flow and ischaemia^{3,4} and poor healing.

It is seen in any age group but more commonly seen in adult group. Sex wise also it more or less equally seen in both sexes. The fissure classically presents as severe pain, bleeding and mass at perianal region in chronic fissure with history of constipation and itching around perianal region in 50% of cases⁵.

In the past treatment of fissure most patients used to go for lateral sphincterotomy as method of choice but these surgery have common complications like bleeding, infection, wound pain, disturbances in incontinence (10%), cost and long hospital stay, which warranted a new method of treatment which is easy, cost effective and as good as surgery. That led towards the chemical or pharmacological way to create temporary sphincterotomy by using glyceryl nitrate ointments locally which lowers the sphincter tone only until the fissure wound heals¹.

Local GTN decreases anal tone, relaxes the internal sphincter and improve the local bloodflow that improves the symptoms and helps healing of fissure with minimal side effect like headache, giddiness and syncope and also costly and time consuming surgery can be avoided⁶.

In the view of above fact local GTN can be used as its having minimal, temporary and avoidable complications and surgery can be reserved for those cases which don't tolerate the GTN or treatment failures from GTN. Thus my study tries to evaluate the efficacy of local GTN application over lateral

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sphincterotomy in the management of fissure, in terms of pain and fissure healing.

MATERIAL AND METHODS

The study was Hospital based comparative study consisting of patients diagnosed as fissure in ano in Surgical OPD at Nepalgunj Medical College, from the period of September 2017 to September 2018. All the patients diagnosed as anal fissure were included. Pregnant females, patients with diabetes, inflammatory bowel disease, chronic liver disease, recurrent fissure, associated hemorrhoids and patients who did not give written consent were excluded. Detail history about pain during and after defecation, bleeding per rectum, itching, and discharge with duration of symptoms were recorded. After recording detail history, digital rectal examination was done to see for the tear at posterior and anterior anal verge, discharge, indurations and skin tag (chronic fissure). Pain evaluation was done by using Visual analogue score.

According to the treatment patients were randomly divided into two groups:

Group 1 consisted of Patients with fissure that used pharmacological sphincterotomy with local application of GTN at and around fissure area twice daily for about 8 weeks. Along with the GTN, patients were advised for stool softener, rich fiber diet and sitz bath twice daily for a month. The patients who did not tolerate GTN and in those despite GTN fissures persisted, were advised for lateral sphincterotomy and not considered in study.

Group 2 consisted Patients with fissure who underwent Surgery sphincterotomy. All the patients underwent surgery by the same surgeon with same technique in lithotomy position under spinal anesthesia.

Followup Assessment

1. Pain evaluation was done by visual analogue score (VAS). Patients were shown the VAS scale (100 mm) line to point with starting point of no pain during defecation and end point of worst pain during defecation.
2. Bleeding present or absent
3. Healing of fissure with complete epithelization of fissure, non-healing or persistence of fissure and time for healing of fissure
4. Any adverse effects of treatments

All the patients were reevaluated after 4 weeks and 8 weeks for healing, recurrence of fissure and any side effects of treatment.

RESULT

Group 1

The total numbers of Patients were 50. Each group consisted of 25 Patients.

There were 15 (60%) females and 10 (40%) males. The age ranged from 18 to 60 years, with the mean age of 36 years. 25 (100%) patients presented with pain during defecation, 18 (72%) with pain and constipation and 15 (50%) presented with pain and bleeding. 23 (92%) had posterior fissure. 2 (8%) had anterior fissure.

Follow up Assessment (Group 1)

At 4 weeks

The major complaints of all the patients in group 1 were pain. The pain score ranged from 60 – 100 on VAS, with the mean score of 80 ± 15 at the time of presentation. After the application of topical GTN, when they were followed up at 4 weeks the pain reduced from mean of 80 at presentation on VAS to mean of 50 ± 9.27 . The bleeding was present in 15 Patients at presentation. After 4 weeks of application 9 Patients did not have any bleeding. In 6 Patients bleeding was persisting but was reduced significantly. The sign healing of the fissure was seen in 15 (60%) patients.

At 8 weeks

At 8 weeks the pain on VAS reduced from mean of 50 at 4 weeks follow-up to no pain in 21 Patients out of 25 while passing stool. The bleeding was absent in all Patients. The remaining 4 Patients who had persisting pain, but mild in intensity (ranging from 5-15 on VAS) totally disappeared at 12 weeks follow up. The fissure had completely healed after 8 weeks in 20 Patients. In 5 Patients it healed after 12 weeks. One Patient out of 25 had recurrence after 6 months.

Group 2

The patient of this group underwent lateral sphincterotomy under spinal anesthesia in a lithotomy position. This group consisted of 25 patient among which 12 (48%) were males and 13 (52%) were females. The age ranged from 24 to 49 with mean age of 32.58.

25 (100%) had pain during defecation, 19 (76%) presented with pain and constipation and 10 (40%) had anal pain and bleeding. 24 (96%) had posterior fissure with 1 (4%) having both anterior and posterior fissure.

Follow up assessment (Group 2)

At 4 weeks

In this group the pain at presentation ranged from 50 to 100 on VAS, with the mean score of 75 ± 15 . When these Patients were evaluated at 4 weeks their mean score on VAS was 20 ± 10 . The bleeding was present in 10 patients at presentation. After Surgery none of them had bleeding, 24 (96%) Patients showed healing of fissure at 4 weeks. 1 (4%) Patient had infection which took few more weeks to heal. 2 (8%) Patients had flatus incontinence which resolved on itself.

At 8 weeks

After 8 weeks the pain score on VAS reduced from mean of 20 to no pain in 23 Patients. The remaining 2 Patients who had pain while passing stool disappeared completely at 10 weeks. The bleeding was absent in all Patients. All Patients had complete healing.

While comparing the pain score in two group at the end of 4 weeks the decrease in intensity was statistically significant ($P=0.0029$). But when compared at 8 weeks the severity of pain was reduced almost in all Patients in both groups ($P=0.297$). Similarly when healing of fissure was compared 15(60%) Patients has healing of fissure in group 1 and 27 (96%) in group 2 ($P=0.0001$). At 8 weeks 24 (96%) in group 1 & 25 (100%) in group 2 had healing ($P=0.28$) which was comparable.

DISCUSSION

Earlier most of the fissure were treated with lateral sphincterotomy which was gold standard treatment of anal fissure but with time passing and advent of drugs having nitrates has caused treatments of fissure mostly with acute symptoms leaning towards pharmacological sphincterotomy with local application of GTN as the surgery need to have hospital admission, more costlier and have complications like bleeding, infection and chance of having sphincter dysfunction which can be as high as 30%.⁷ These all dictated to device a simpler and cost effective therapy like pharmacological sphincterotomy which decreases the anal tone and fissure healing without disturbing anal continence^{8,9} and not to replace but as a adjunct to the well accepted therapy of lateral sphincterotomy.

Lund and Schoelfield¹⁰ showed that topical application of GTN healed most of the fissure at 8 week time. Pitt et al.¹¹ have also shown that healing of fissure occurs well with topical GTN but sentinel piles adversely affects the outcome which was not consider in my study. Oettle¹² study randomized 24 patient for treatment with sphincterotomy or GTN all 12 pt healed in surgery group and 10 out of 12 in GTN group, he concluded that local application of GTN can avoid surgery in 80% of cases of chronic fissure. Another trial randomized 70 patient GTN and surgery and resolutions of symptoms and healing of fissure assessed for 24 month, they concluded that most of the fissure heals by topical GTN and surgery should be reserved only for those failed to respond to GTN¹³.

In study conducted by Gorfine¹⁴ stated that 30% of patient experienced headache when treated with GTN ointment but the headache was tolerable and were able to continue the treatment in our study also patient had tolerable side effect but continued the study. Loder et al.¹⁵ also applied topical GTN to lower down the anal tone which was beneficial in many anal disorder including fissure similar to this another trial showed topical GTN produced dramatically drop in anal tone in fissure causing relief of pain and helping healing than local xylocaine, proctosedyl or placebo¹⁶ but in our study anal tone is not

measured which could be drawback of our study.

CONCLUSION

Hence from the above observation it is seen that topical application of GTN also effectively relieves the pain and helps in healing of fissure but the process is slow and at the duration of 8 weeks effect of both topical GTN and lateral sphincterotomy is more or less same. So according to our study topical GTN can be tried for fissure which is more cost effective and simple than surgery which requires Hospital admission, Surgeon, Anesthesia and is costlier. Though the effect of surgery in pain management and fissure healing is quick but if we consider 8 week time the effect of both the treatment are comparable, so Surgery should be reserved for the which donot respond with topical GTN or have intolerable side effects of GTN.

The limitation of the study were small sample size, study does not consider anal tone measurement and absence of longer follow up so that no conclusion can be drawn in long term recurrence of both treatment.

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