

GLYCERYL TRINITRATE OINTMENT IN THE TREATMENT OF ANAL FISSURES

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ABSTRACT: A study was conducted to see the efficacy of glyceryl trinitrate (GTN) ointment in healing of anal fissures in local setting vis-a-vis foreign experience. Twenty-one consecutive patients of confirmed chronic anal fissure of more than 4 months duration were selected for the study. Patients were asked to apply 0.3% GTN ointment over the skin of anal verge thrice a day for 8 weeks. In all, 66.7% of fissures were healed; mean time taken for healing was 7.75% weeks. In all, 72.2% patients experienced headaches during the treatment and 5.6% had mild flatus incontinence. Relapse occurred within six months of successful healing in 25% of cases. Local application of GTN ointment is an effective, economical and alternative treatment for most of the patients with anal fissures.

KEY WORDS: Glyceryl Trinitrate Fissure in Ano Vasodilation

INTRODUCTION

Anal fissure is a common problem associated with severe pain and bleeding per rectum. Many factors are held responsible for its etiology; these include Mean Maximum Anal Resting Pressure (MMARP), that is related directly to the activity of smooth muscle of internal and external sphincters. MMARP has been found to be raised in the patients of anal fissure¹. The other factor is the resulting ischaemia of anal lining due to increased MMARP causing pain and ulceration, which also thwarts healing of the fissure². Doppler studies have shown that the blood supply to the posterior commissure is relatively poor and hence 90% of fissures occur at this site³.

The MMARP is decreased by the Lateral Sphincterotomy which is the most common operation performed for anal fissures⁴, but has a high incidence of faecal incontinence⁵⁻⁷. Recently, it has been shown that the Nitric Oxide (NO) is one of the most important inhibitory neurotransmitters in the internal sphincter^{8,9}. Many studies have shown that the topical application of glyceryl trinitrate (GTN) can cause relaxation of the internal anal sphincter in humans and thus help in healing of the fissures^{10,11}. GTN is said to provide NO to the sphincter and thus mediating its effects¹⁰.

Nitrates are valuable class of drugs in the management of Angina Pectoris. It acts by causing systemic venodilation, and dilatation of the epicardial coronary vessels and increasing blood flow in collateral vessels thereby reducing myocardial wall tension and oxygen requirements. The absorption of nitrates is most rapid and complete through the mucous membranes, hence also administered sublingually in tablets of 0.4 or 0.6 mg. Headache and a pulsating feeling in the head are common side effects of nitroglycerin, but fortunately it rarely become disturbing at the doses usually required to relieve or prevent angina⁴.

No data exists of use of GTN ointment for healing of anal

fissures in our area. The current study was designed to see the efficacy of GTN ointment in healing of anal fissures in our settings and to compare the results with foreign studies.

MATERIAL AND METHOD

Twenty-one consecutive patients (male=17; female=4) of confirmed chronic anal fissure of more than 4 months duration were selected for the study conducted over a period of one year. Patients already on nitrate treatment due to cardiac problem, pregnant ladies, patients with migraine and inflammatory bowel diseases were excluded from the study.

GTN ointment was prepared by pharmacist using yellow paraffin to attain the 0.3% GTN concentration. The authors demonstrated proper application of ointment to the patients on their first visit. They were advised to take out 0.5 ml (peasized quantity) of the ointment and apply it manually over the skin of anal verge circumferentially around the anal opening three times daily for 8 weeks. Caution was advised not to apply it intra-anal. All patients were also given the daily diary card for recording the severity of pain on a score of 0-10. Patients were followed up for clinical examination on weekly basis. If at the end of eight weeks treatment the fissure has not healed but there was clinical improvement then the treatment was continued for six weeks more before labeling as treatment failure. All patients of treatment failure were offered surgical treatment. Patients who were not able to tolerate the ointment treatment were also offered surgical treatment and were considered as treatment failure in analysis. After successful treatment patients were told to report for follow-up if symptoms recur within 6 months. Patients with recurrence were treated with same treatment for 8 weeks.

RESULTS

Out of the twenty-one patients inducted, two patients did not complete the follow-up and were excluded. One patient was

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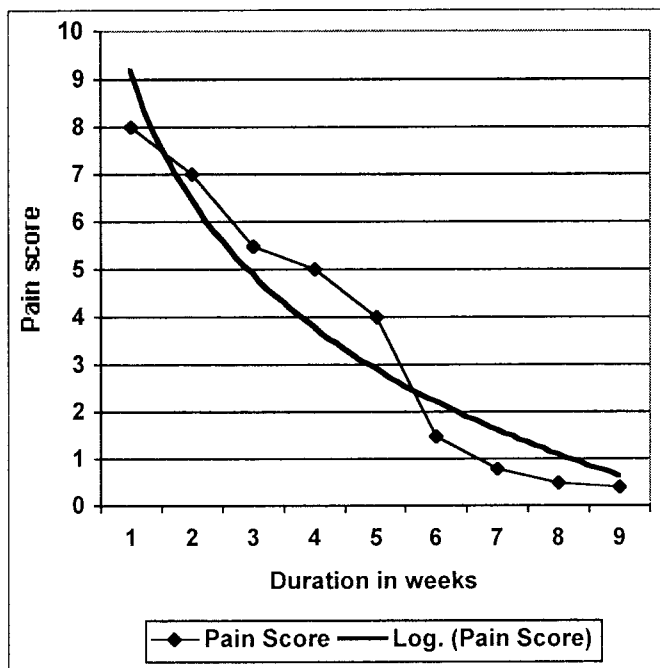


Figure 1 Plot of mean pain score and its logarithm trend

excluded for violating the study protocol. The results were thus analyzed for the remaining 18 patients (male=15, female=3). Mean age of selected patients was 47.7 ± 8.2 years. Fissures healed completely in 12/18 patients (66.7%). The mean time taken for healing was 7.75 ± 4.2 weeks (min=3, max=19). The pain severity on analog scale of 0-10 before treatment and at weekly intervals on follow-up is plotted in Figure 1.

The side effects included headache in 13 (72.2%) but of mild intensity and was tolerable. No discontinuation of therapy occurred on this account. One patient (5.6%) reported transient loss of flatus control that improved when therapy was finished. No faecal incontinence was reported.

In 3/12 patients (25%) in whom the fissure had healed successfully, recurrence was reported within six months of successful treatment with GTN ointment. They all responded to a further 8-week course of GTN ointment.

DISCUSSION

Our study confirms the results of other similar studies conducted abroad. We were able to achieve healing of anal fissures in 66.7% of cases. Various studies have shown the healing rates of about 70% by GTN ointments^{13,14}. Healing is said to be due to the sustained reduction in MMARP by GTN ointment^{8-10,14}. Majority of the studies have also showed that the GTN ointments increase the anal blood flow^{12,13,15,16}, but in one study, no significant increase in the anal blood flow occurred though healing in 65% of cases was achieved¹⁴. Reduction in the pain score was also significant as shown in Figure 1. Reduction of 50% in mean pain score was seen at 3 weeks on log scale. 13 patients reported headache during the treatment but pain was not severe enough to warrant withdrawal of treatment. One patient reported flatus incontinence but no faecal incontinence was seen in our study. The incidence of flatus incontinence after surgical sphincterotomy is reported as 2.4-36.0% in various studies^{5,6,17,18}. The flatus incontinence with GTN is temporary and improves when

treatment is discontinued while that with surgical lateral sphincterotomy is permanent. Similarly, the incidence of faecal incontinence with surgical sphincterotomy is very high. In various studies it is reported that incontinence to solid faeces occurs in 0.03-4.9% after surgical sphincterotomy^{5,6,17,18}. Such levels of incontinence are not seen during GTN ointment treatment.

GTN ointment treatment has a high recurrence rate as in our series 25% of cases had a relapse. But for the patients who tend to avoid surgery or are not fit for it, it is a preferred choice. Even in otherwise fit cases, it could be given first trial before surgery.

In conclusion, local application of GTN ointment is an effective, economical and alternative treatment option for most of the patients with anal fissures. It has no permanent side effects and is well tolerated.

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