

ACUTE ANAL FISSURE; EFFECT OF TOPICAL GLYCERYL TRINITRATE (GTN) ON ITS MANAGEMENT

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ABSTRACT... **Objective:** To evaluate the role of topical glyceryl trinitrate (0.2% GTN) on the clinical features of acute anal fissure. **Study design and setting:** A prospective, open label therapeutic trial was carried out at Combined Military Hospital, Kharian Cantonment during one calendar year. **Patients and Methods:** All adult males and females presenting with acute anal fissure were included. Patients with chronic anal fissure, associated pathology (hemorrhoids, fistula in ano), age < 15 years, previous surgery of anal canal were excluded. The diagnosis was based upon history and physical examination. A detailed history was taken regarding their symptoms like painful defecation, bleeding per rectum, constipation and itching. Then the patients were examined to look for anal fissure, associated mucus discharge and sphincter tone and recorded in the proforma. 0.2% topical GTN ointment was prescribed twice daily for local application in the anal canal with the help of cotton pledget on a stick (soaked completely in ointment). The duration of treatment was four weeks and their symptomatology and healing of anal fissure was assessed weekly. **Results:** A total of 40 patients were treated in this study. Age varied between 22 - 51 years. 36 patients (90%) were male while only 4 patients (10%) were females. Painful defecation (100%), bleeding PR (87.5%), constipation (50%), and itching (40%) were the main complaints. Posterior fissure was seen in 85%, anterior fissure in 12.5%, while both anterior and posterior fissures were seen in 2.5% of patients. Out of 40 patients 21 had complete healing of anal fissure while 03 patients recovered partially. Thus the healing rate was 60%. **Conclusion:** Topical glyceryl trinitrate is an effective treatment modality for acute anal fissure.

Key words: Anal fissure, glyceryl trinitrate, non surgical treatment.

INTRODUCTION

Anal fissure is a painful linear tear situated in the anal canal extending from just below the dentate line to the anal verge. It was first recognized as a disease in 1934¹. It affects 10% of patients attending proctology clinics². It is a common condition affecting all age groups but is particularly seen in young and healthy adults with equal incidence across the sexes³. In 90 percent cases, fissure is midline posteriorly and 10 percent midline anteriorly, the anteriorly located fissures are more common in females³.

The underlying principle of treating anal fissure is to reduce the internal anal sphincter tone¹. In patients with minimal symptoms this may be achieved by topical application of a local anaesthetic and bulk laxatives^{4,5,6,7}.

In patients with more severe symptoms the use of 0.2% glyceryl trinitrate (GTN) cream applied two or three times a day can produce healing of fissure in about 50% of cases^{8,9}. The surgical procedures available include forced anal dilatation but this is associated with an unacceptable level of incontinence¹⁰. The surgical treatment of choice is now a lateral sphincterotomy which involves dividing the internal sphincter at one point on the lateral wall of the anal canal up to the level of the dentate line. Lateral sphincterotomy is successful in about 95% of cases but patient should be warned that it can be associated with

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minor degrees of incontinence to flatus or mucus.¹¹ Another surgical procedure dorsal fissurectomy and sphincterotomy is reserved only for the most chronic or recurrent anal fissures. Once again incontinence might be a postoperative complication^{12,13} We planned this study to evaluate a convenient, cost effective, and outdoor treatment i.e. 0.2% glyceryl trinitrate for acute cases of anal fissure where surgery can be prevented.

PATIENTS AND METHODS

A prospective open label therapeutic trial was carried out for the treatment of acute anal fissure by topical glyceryl trinitrate ointment at Combined Military Hospital Kharian Cantonment during one calendar year. Research and ethics committee of the concerned hospitals approved the study. All the participating patients signed a written informed consent form.

All adult patients reporting to the surgical outpatient department of Combined Military Hospital Rawalpindi fulfilling the inclusion criteria were included in the study. Patients with chronic anal fissure (duration > six weeks), patients having associated pathology like hemorrhoids or fistula in ano, pediatric patients (< 15 years), recurrent cases, patients with any previous surgery of anal canal, and patients from far off places, those who could not be followed up weekly were excluded.

Counseling of the patients was done explaining the procedure of application of medicine and the possible side effects. The diagnosis was based upon history and physical examination and symptoms and signs were recorded. Physical examination included inspection, palpation, digital rectal examination and proctoscopic examination. All the male patients were examined in knee elbow position while the female patients were examined in left lateral position.

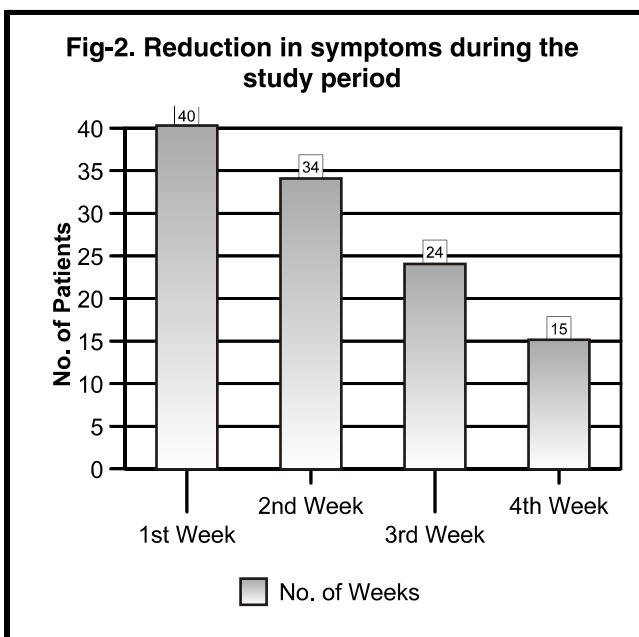
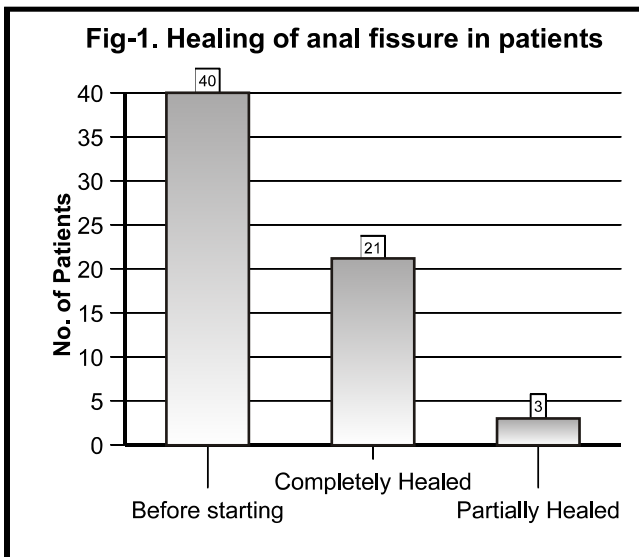
In this study patients of acute anal fissure were treated with 0.2% topical glyceryl trinitrate. The patients were followed in surgical OPD as outpatients. A detailed history was taken regarding their symptoms like painful defecation, bleeding per rectum, constipation and itching. Then the patients were examined to look for anal fissure, associated mucus discharge and sphincter tone. 0.2%

topical GTN ointment was prescribed twice daily for local application in the anal canal with the help of cotton pledget on a stick (soaked completely in ointment). The duration of treatment was four weeks and their symptomatology and healing of anal fissure was assessed weekly. Main outcome measures were the presence or absence of the following variables; pain, bleeding per rectum, constipation, itching, sphincter tone, healing of anal fissure, and mucus discharge. 0.2% glyceryl trinitrate was made in the pharmacy of Combined Military Hospital Rawalpindi by mixing tablet angised and lignocaine gel in appropriate concentrations.

Data was recorded on a separate pro forma for each patient. Later the data was transferred to statistical program SPSS version 12.0. Frequencies, descriptive analysis, percentages were reported for the variables tested.

RESULTS

A total of 40 patients were included in this study. The age varied between 22 - 51 years. 18 patients (45%) were in the age group of 30 - 40 years followed by age group of 20 - 30 years having 15 patients (37.5%). Thirty six patients (90%) were male while only 4 patients (10%) were females. The patients presented with following complaints; Painful defecation 40 patients (100%), bleeding per rectum 35 patients (87.5%), constipation 20 patients (50%), and itching was present in 16 patients (40%) at the start of study. Posterior fissure was seen in 34 (85%) patients, anterior fissure in 5 (12.5%), while both anterior and posterior fissures were seen in only 1 (2.5%) patient. At the end of follow up period 13 patients had bleeding per rectum, 5 patients had constipation, 2 patients had itching, 2 patients had decreased sphincter tone, and 2 patients had mucus discharge (Figure 1&2). Out of 40 patients 21 had complete healing of anal fissure while three patients recovered partially. Thus the healing rate was 60%.



DISCUSSION

The acute anal fissure is one of the most common ailments in proctology which causes a lot of discomfort, social embarrassment, loss of work hours and progress to chronic anal fissure if not managed properly².

We carried out this study to find out the effect of topical 0.2% GTN on the clinical features of acute anal fissure. The healing rate of anal fissure was 60% in this study. The response to pain was seen in 62.5% of patients, and same response was seen for the complaint of bleeding per rectum. In 20 patients the sphincter tone returned to

normal. An interesting observation which was made in almost every clinical feature that the more severe the symptoms and signs, the less would be the response. In other words more time is required for severe symptoms to settle down. So in a proportion of patients the duration of treatment was prolonged to six weeks, which were partially recovered from the disease and they were found to be much better after six weeks than after four weeks, but our observations were made and documented at the end of four weeks according to the protocol. The healing rate of anal fissure was less in patients presenting with constipation than those patients having no constipation.

Loder et al⁸. demonstrated that topical application of 0.2% glyceryl trinitrate (GTN) led to decreased resting anal pressure. Healing was reported in 77% of patients with anal fissure after 08 weeks of therapy 4 times a day in an uncontrolled trial.

Bacher et al.¹⁴ conducted a randomized trial of 0.2% GTN versus 2% lignocaine gel, each applied 3 times daily in a mixed group of acute and chronic fissure patients. After one month healing rates were higher with GTN in both the acute (91.6%, GTN versus 50%, lignocaine) and chronic (62.5%, GTN Vs 20%, lignocaine) fissure groups. Carapeti et al.¹⁵ conducted a double-blind randomized trial comparing 0.2% GTN versus escalating GTN doses (0.2% increasing weekly by 0.1% to a maximum dose of 0.6%) versus placebo. Healing rates after eight weeks of treatment were significantly better in both GTN groups (65% with 0.2%, 70% with escalating doses) than in controls (32%).

A study was carried out in department of surgery General Hospital Lahore, in which the overall healing rate of acute and chronic anal fissures with 0.2% GTN was 66.66% and 63.15% respectively¹⁶.

Lund and Scholefield in 1997 showed 70% healing rate after eight weeks of topical GTN therapy, in which 20% relapsed after two years (and in these 75% responded to further nitrate therapy)¹⁷.

Another study carried out at department of surgery institute of clinical science Royal Victoria Hospital UK in 2001 concluded that chemical sphincterotomy has the advantage over surgical treatment of avoiding long term complications (notably incontinence) and not requiring hospitalization. In international literature a wide variation in the results has been reported ranging from 62% to 91%. This is because of the difference in the duration of treatment and concentration of topical glyceryl trinitrate.

Anal fissure is associated with elevated resting anal pressure and topical glyceryl trinitrate therapy is directed at reducing anal tone, and thereby improve anodermal blood flow thus promoting healing of anal fissure.^{4,5,6,15,16} Headache has been reported with the use of topical glyceryl trinitrate but not seen by us in any patient¹⁸.

CONCLUSION

This treatment does not require hospitalization and can be effectively done in outpatient department¹⁹. Wound healing is quick and no time is lost from work. Perhaps the major factor which determines the outcome of the treatment is the compliance of the patient to the treatment. We believe that topical glyceryl trinitrate is an effective treatment modality for acute anal fissure.

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