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Original Research Paper

TREATMENT OF ANAL FISSURES: PILL OR KNIFE

Surgery

KEYWORDS: Anal Fissure, Chemical Sphincterotomy, Lateral Internal Sphincterotomy, Nitroglycerine,

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ABSTRACT

Introduction: Anal fissure is a common problem that causes significant morbidity in a young and otherwise healthy population. Surgical techniques (knife) like manual anal dilatation or lateral internal sphincterotomy, effectively heals most fissures within a few weeks, but may result in permanently impaired anal continence. This has led to the research for alternative non-surgical treatment, and thus 'Chemical Sphincterotomy' (pill) is being investigated and used as the possible first line of treatment for anal fissures. The present study is thus designed to evaluate the role of topical Nitroglycerine ointment in cases of acute and chronic anal fissures.

Materials & Methods: A prospective observational study was conducted at a tertiary healthcare centre. A total of 150 patients of acute/ chronic anal fissure were included in the study by consecutive type of non-probability sampling. Nitroglycerine ointment was administered to all patients. Patients in which medical management failed were posted for lateral internal sphincterotomy. The patients were followed up for a period of 6 weeks or until fissure is healed and were evaluated for relief of symptoms. Data was analyzed using SPSS software ver. 21.

Results: Out of the total 150 patients, 75 were acute fissures and 75 were chronic fissures. Out of 75 cases of acute anal fissures, 73 (97.3%) responded to Nitroglycerine ointment and 2 (1.7%) required lateral internal sphincterotomy. Out of 75 cases of chronic anal fissures, 28 (37.3%) cases responded to Nitroglycerine ointment and 47 (62.7%) required lateral internal sphincterotomy. The relief of pain was faster with sphincterotomy than with NTG application as observed on comparison of mean pain score at the end of 6 weeks (0.51 vs 1.33; $p<0.01$).

Conclusion: Nitroglycerine ointment is very effective in the treatment of acute anal fissures and also has a role in chronic fissures. Thus, Topical Nitroglycerine should be advocated as the first option of treatment for both, acute and chronic anal fissures. Internal sphincterotomy should be reserved for patients with therapeutic failure of pharmacological treatment and those with severe pain.

INTRODUCTION

Anal fissure is a distinct clinico-pathological condition of the lower anal canal and is the most common cause of severe anal pain [1]. Anal fissure is a common problem that causes significant morbidity in a young and otherwise healthy population. It may extend from the muco-cutaneous junction to the dentate line and is maintained by the contraction of the internal anal sphincter. It can be acute or chronic. An acute anal fissure has the appearance of a clean longitudinal tear in the anoderm, with little surrounding inflammation. A chronic fissure is usually deeper and generally has exposed internal sphincter fibres in its base. It is frequently associated with a hypertrophic anal papilla at its upper aspect and with an irritated skin or sentinel pile at its distal aspect.

There has been a lot of progress in the understanding of the anatomy of the anal canal and the mechanism of continence of rectum and anal canal. This has enabled the surgeon to deal with the fissure, keeping the spastic anorectal ring intact, without interfering with continence and eradicating the disease. Surgical techniques like manual anal dilatation or lateral internal sphincterotomy, effectively heals most fissures within a few weeks, but may result in permanently impaired anal continence. This has led to the research for alternative non-surgical treatment, and thus 'Chemical Sphincterotomy' is being investigated and used as the possible first line of treatment even for chronic anal fissure [2].

Topical Nitro-glycerine ointment has been shown to be effective but has reduced compliance due to headache as side effect [3]. Topical calcium channel blockers offer a suitable alternative for fissure treatment, healing 65-95 % cases with lesser side effects. Botulinum toxin injections are also used.

The present study was designed to evaluate the role of topical Nitroglycerine ointment in acute and chronic anal fissures, its effectiveness with reference to pain relief, fissure healing and its side effect like headache. We also studied the failure rate of topical Nitroglycerine ointment and requirement of surgical intervention.

MATERIAL & METHODS

A prospective observational study was conducted at a tertiary healthcare centre. Study was commenced after taking approval of Institutional Ethical Committee.

Inclusion criteria

All consenting patients of fissure in ano situated in midline anteriorly or posteriorly or both were selected.

Exclusion criteria

1. Fissure in ano situated other than midline
2. Patients with tuberculosis, Crohns disease, AIDS
3. Associated with abscess, haemorrhoids or fistula

Methodology

A total of 150 patients of acute/ chronic anal fissure were included in the study by consecutive type of non-probability sampling. Informed consent was taken from all subjects by the principal investigator. Patients were clinically examined and a pre-formed proforma was filled.

A single brand of Nitroglycerine ointment (Nitrogesic) 0.2% was used. The dose of administration was based upon length of ointment applied. A length of 2 cm as measured by a small custom made measuring device provided by the manufacturer of the proprietary preparation. The frequency of application was advised to be thrice daily. Stool softeners, sitz bath and high fibre diet were started. In case of patient complaining of headache, dose adjustment and frequency of application was suitably adjusted. In cases where patient complained of headache, the following measures were adopted. The patient was advised to apply the ointment over the fissure twice daily using a gloved finger. Also, tablet Paracetamol 500mg was administered for symptomatic treatment for headache. Patients in which medical management failed were posted for lateral internal sphincterotomy. The patients were followed up for a period of 6 weeks or until fissure is healed and were evaluated for relief of symptoms.

Lateral internal sphincterotomy was done under spinal anaesthesia in patients where NTG was not effective.

Data Analysis

Data was analyzed using SPSS 21.0 (SPSS Inc., Chicago, IL, USA) using appropriate statistical tests.

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RESULTS

Out of the total 150 patients, 75 were acute fissures and 75 were chronic fissures. The presenting complaints were pain, bleeding PR and constipation. On Per rectal examination, there was sphincter spasm noted in all patients. On per rectal examination, sentinel tag was present in all cases of chronic anal fissure. The situation of fissure was posterior in all male patients and majority of female patients. Out of 75 cases of acute anal fissures, 73 (97.3%) responded to Nitroglycerine ointment and 2 (1.7%) required lateral internal sphincterotomy. Out of 75 cases of chronic anal fissures, 28 (37.3%) cases responded to Nitroglycerine ointment and 47 (62.7%) required lateral internal sphincterotomy (figure 1).

Out of 150 patients undergoing treatment with Nitroglycerine ointment, fissure was completely healed in 94 (62.66%) cases between 6-8 weeks, 5 patients required 8-10 weeks and 2 required 10-12 weeks to heal. A total of 67 (44.7%) were almost free from pain and 34 (22.66%) had slight pain on follow up at the end of 6 weeks (table 1 & 2). Remaining 49 (32.66%) were not relieved of pain and underwent internal sphicterotomy. Of the 150 patients, 29 patients complained of headache.

In total, 47 patients of chronic and 2 patients of acute fissure, whose fissures did not heal after 6 weeks of Nitroglycerine ointment and remained symptomatic, subsequently underwent internal sphincterotomy (figure 1). In all of these 49 patients, fissure (figure 2) was completely healed between 4-6 weeks and all of them were free of pain. Incontinence and fistula/ abscess was not seen in any case in our study. Only one patient had wound infection which resolved with antibiotics, sitz bath, daily cleaning and dressing.

The relief of pain was faster with sphincterotomy than with NTG application as observed on comparison of mean pain score at the end of 6 weeks (0.51 vs 1.33; $p<0.01$) (table 3).

The patients who had complete healing of fissures in both the treatment arms were observed for recurrence in the subsequent visit. It was observed that complete healing was not followed by recurrence in both treatment arms.

DISCUSSION

The treatment of anal fissure aims at reducing internal anal sphincter tone. Lateral internal sphincterotomy is the current gold standard for the treatment of chronic anal fissures. It involves partial division of the internal anal sphincter away from the fissure. Topical Nitroglycerine have been shown to lower resting anal pressure and promote fissure healing and chemical sphincterotomy is now the first line of treatment for acute as well as chronic anal fissures in many centres [4]. The present study thus attempted to analyse the role of Nitroglycerine in the Indian setting for the treatment of chronic and acute anal fissures.

In this study, the commonest age group affected was 20-30 years age group (48.67%) and least affected were 51-60 years age group (5.33%). According to Goligher et al. [5], the disease is usually encountered in young or middle aged adults. In Udwadia T.E. series [6], maximum incidence was seen in 31-40 years age group. The incidence was maximum in the age of 30 to 40 years in a study by Sharma et al. [7]. We observed a higher incidence of fissure in males with male to female ratio as 1.7: 1 in present study. The study by Sharma et al. also showed male preponderance with male to female ratio of 1.2:1. [7]. Although the sex distribution is equal in case of anal fissure, as supported by many other studies,[5,8] the results of our study which showed male preponderance, was may be due to various social factors prevalent in our society which leads to under-reporting of the symptoms in case of females [9].

The clinical findings, which showed that painful defecation and bleeding per rectum were most common complaints, was supported by study of Morgan et al. [10] Various other literature also supported that constipation and anal spasms were the next most common clinical features. [10-13]

In this study posterior midline fissure (96%) was more common than anterior (3.33%) midline fissure. It has been observed that posterior fissure is more common in both sexes, although anterior fissure is common in females comparatively. Both anterior and posterior fissures are common in female sex. Our results are comparable with the study by Boulous et al. [14] which says that posterior fissure (85.7%) is more common than anterior fissure (14.2%). The incidence of anterior fissure in present study is 3.33% (5 patients) and all were females.

Out of 150 patients undergoing treatment with Nitroglycerine ointment, 101 healed completely (67.3%). The average duration of healing was 6-8 weeks. A total of 67 (44.66%) out of 150 patients were free from pain and 34 had slight pain on follow up after 6 weeks. Of the 150 patients, 29 (19.3%) patients complained headache and of them 10 discontinued therapy (6.66%) following headache which was not controlled with analgesics. Two patients of acute fissures (2.6%) and 47 of chronic fissures (62.7%) which did not heal or who had pain after 6 weeks of Nitroglycerine therapy underwent internal sphincterotomy. In all of these 49 patients (100%), fissure was completely healed between 4-6 weeks and all of them were free of pain. No complications were reported in patients undergoing internal sphincterotomy after follow up of patients till 6 weeks. Only one case in sphincterotomy group had wound infection. The relief of pain was faster with sphincterotomy than with NTG application as observed on comparison of mean pain score at the end of 6 weeks (0.51 vs 1.33; $p<0.01$).

Manookian CM et al. [15] studied 81 patients of acute/ chronic anal fissure and observed healing with GTN in 29 acute (69%) and 21 chronic fissure (54%) patients. Similarly Bacher et al. [16] observed healing rate as 91.6% in acute and 12.5% in chronic fissures respectively.

Mishra R et al. [17] compared GTNand lateral sphincterotomy for chronic anal fissures. Sphincterotomy relieved pain much earlier compared to GTN (70% vs 40% at 2 weeks, $P = 0.0032$); but after 4 weeks of treatment, pain relief in both groups was comparable. Healing in the sphincterotomy group was also earlier than with GTN (55% vs 0% at 2 weeks, $P < 0.0001$; and 85% vs 30% at 4 weeks, $P < 0.0001$); but after 6 weeks, healing in both groups was comparable. Side effects noted with NTG were headache and local burning sensation. In another similar study by Aslam M et al. [18], only 15 patients (50%) were successfully treated by GTN. By contrast, 28 (93%) patients with lateral sphincterotomy were successfully treated. Two patients (6.6%) in lateral sphincterotomy Group suffered from incontinence due to flatus and feces as a complication of the procedure. El-labban et al. [19] also compared the effectiveness of local glyceryl trinitrate (Group 1) versus internal sphincterotomy (Group 2) in the management of chronic anal fissure. In group 1, healing of fissures occurred in 85% of patients after 8 weeks therapy. Headache as a side effect developed in 65% of patients. In group 2, healing occurred in 97.5% of patients after 8 weeks. Incontinence to flatus occurred in 3 patients (7.5%), mild soiling in 2 patients (5%), and one patient developed wound infection.

Observations from all these studies supports that Topical GTN should be the initial treatment in anal fissure while internal sphincterotomy may be reserved for patients who did not respond to GTN therapy and those with severe pain (as healing is faster with sphincterotomy).

CONCLUSION

Nitroglycerine ointment is very effective in the treatment of acute anal fissures and also has a role in chronic fissures. Lateral internal sphincterotomy though is the current standard treatment for chronic fissures, exposes patients to risks of surgery and anaestheisa and other complications like incontinence. In present study Topical GTN was effective in one third cases of chronic fissure with respect to

both symptom relief (pain, bleeding) and fissure healing. In contrast with surgery, chemical sphincterotomy with Nitroglycerine is reversible and therefore unlikely to have adverse effects on continence. Thus, Topical Nitroglycerine should be advocated as the first option of treatment even for chronic anal fissures while sphincterotomy should be reserved for patients with therapeutic failure of pharmacological treatment and those with severe pain.

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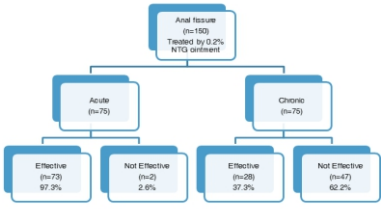
CONFLICT OF INTEREST

None declared

TABLES & FIGURES

Figure 1:



***Cases where NTG was not-effective were managed by Lateral internal sphincterotomy**

Figure 2:

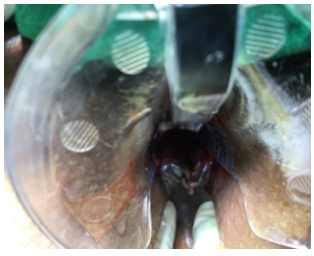


Table 1. Distribution of subjects based on assessment of healing

Healing	N	%
6-8 weeks	94	62.7%
8-10 weeks	5	3.3%
10-12 weeks	2	1.3%
Not healed	49	32.7%
Total	150	100.0%

Table 2. Distribution of subjects based on Subjective Pain assessment

Pain	N	%
No pain	67	44.7%
Slight Pain	34	22.7%
Severe Pain	49	32.7%
Total	150	100.0%

Table 3. Comparison of mean VAS Score at 6 weeks

VAS Score (6 weeks)	Group	N	Mean (SD)	p- value
	NTG	150	1.33 (0.19)	**<0.05**
	LIS	49	0.51 (0.05)	

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