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CHRONIC ANAL FISSURES;

TOPICAL GLYCERYL TRINITRATE VERSUS LATERAL INTERNAL SPHINCTEROTOMY

DR. TARIQ WAHAB KHANZADA, FCPS, FRCS (Ire)
Assistant Professor
Department of Surgery
Isra University Hospital,
Hyderabad, PAKISTAN.

DR. ABDUL SAMAD, FCPS
Associate Professor
Department of Surgery
Isra University Hospital,
Hyderabad, PAKISTAN.

ABSTRACT... tariqwahab@yahoo.com **Objective:** The objective of this study was to compare the topical GTN and lateral internal sphincterotomy for the treatment of chronic anal fissure. **Setting:** This was a prospective randomized cohort study conducted at Isra University Hospital, Hyderabad between September 2004 and August 2005. **Material and Methods:** Fifty patients fulfilling the selection criteria were randomly divided into two equal groups. One group was treated with topical glyceryl trinitrate (GTN) ointment and other group was treated with lateral internal sphincterotomy. Patients were followed up in outpatients department after regular intervals for about one year. The data was collected and two groups were compared with special reference to pain relief, fissure healing and recurrence rate. **Results:** Pain relief was observed in 96% of the patients in GTN group as compared to 92% of the patients in sphincterotomy group after 6 weeks. Complete healing of fissure was observed in 92% of the patients in GTN group as compared to 88% of the patients in sphincterotomy group after 6 weeks. Recurrence was observed in 16% of the patients in GTN group as compared to 4% of the patients in sphincterotomy group after one year. **Conclusion:** GTN and lateral internal sphincterotomy are comparable in terms of pain relief and fissure healing after 6 weeks. Topical GTN is suggested to be the initial treatment whereas lateral internal sphincterotomy is suggested to be reserved for the patients not responding to topical GTN or having recurrence after completion of treatment with GTN.

Key words: Anal Fissure, GTN, Internal Sphincterotomy.

INTRODUCTION

Anal fissure is a linear split in the distal anal canal below the dentate line. The condition is common and affects all age groups but particularly more common in young healthy adults. The classic symptoms are severe anal pain during or after defecation accompanied by passage of bright red blood per anum. Constipation exacerbates this pain significantly. Pain may last for few minutes during defecation or persists for few hours after defecation. Symptoms from fissures cause considerable morbidity and reduction in the quality of life[1]. The intense pain in anal fissure is because of the intense spasm of internal anal sphincter. All the treatments for anal fissure are directed to decrease the spasm of internal anal sphincter and thereby reducing the pain. Manual dilatation of anal canal, which was the gold standard treatment previously, is now largely abandoned because of its irreversible damage to sphincter mechanism. The

most commonly used surgical procedure for chronic anal fissure is lateral sphincterotomy. It is simple procedure resulting in prompt pain relief, rapid healing of fissure and low recurrence rate[2]. However lateral sphincterotomy may cause flatus / faecal incontinence and bleeding. With the emergence of topical glyceryl trinitrate (GTN), all of these aims of treatment (pain relief, rapid healing and low recurrence) are achieved with minimal complications. Topical use of GTN ointment reduces the spasm of internal anal sphincter and there by relieves the pain of anal fissures. The objective of this study was to compare the topical GTN and lateral internal sphincterotomy for the treatment of chronic anal fissure.

PATIENTS AND METHODS

This is a prospective randomized cohort study carried out at Isra University Hospital, Hyderabad from September 2004 to August 2005. A total of 50 patients were included after taking written informed consent and were randomly divided into two groups. Acute fissures (duration of less than 6 weeks) were not included in this study. Group A comprises of the patients, who were treated with 0.2% topical GTN ointment and group B comprises of the patients who were subjected to lateral internal sphincterotomy. Patients in group A were advised to apply 0.2% GTN ointment three times daily by using gloved finger. Group B patients were subjected to lateral internal sphincterotomy performed under general anaesthesia in lithotomy position. Park's anal retractor was inserted and internal sphincter is stretched and made easily palpable. A small incision is then made on the lateral aspect of anal canal just below the internal sphincter. An intersphincteric plane is developed between anal skin and internal sphincter by using scissors and internal sphincter is then divided by scissors. Bleeding was controlled by firm finger pressure. Patients were discharged next day. Patients in both groups were prescribed to take stool softeners and isphagul husk. Patients were followed in out patient department at regular intervals for about one year. During the follow up, patients were asked about pain relief and fissures were examined for healing. Complete absence of pain was considered as symptomatic pain relief while complete epithelialization of fissure was labeled as healed fissure.

RESULTS

Fifty patients were divided in two equal groups. Both groups were comparable in age and duration of symptoms. All the patients presented with painful defecation. Forty patients had bleeding per rectum along with hard stools. The mean duration of symptoms of these patients were 6 months (range 2 months to 10 months). Patients of both groups were followed up in OPD after 2nd, 4th and 6th weeks of treatment with main emphasis on pain relief and healing of fissure. Complete disappearance of pain was considered 'successful pain relief'. At the end of 2nd week , only 11 patients (44%) in group A (GTN group) had complete pain relief as compared to 18 patients (72%) in group B (Lateral internal Sphincterotomy group) . This shows a prompt and early pain relief in patients who were subjected to sphincterotomy as compared to GTN . At the end of 4th and 6th weeks of treatment, there is minimal difference (4%) in pain relief in both groups respectively. The pain relief with both modalites of treatment is shown in (table I).

Table-I. Pain relief

Treatment group	After 2 weeks	After 4 weeks	After 6 weeks
GTN group (n= 25)	11 (44%)	20 (80%)	24 (96%)
Lateral sphincterotomy group (n= 25)	18 (72%)	21 (84%)	23 (92%)

Fissure was labeled as "completely healed" when it was found completely epithelialized. At the end of 2nd week no patient in group A (GTN group) showed healing of fissure compared to 10 patients (40%) in group B (Lateral sphincterotomy group). During subsequent follow-up after 4th week, eight patients (32%) in group A showed complete healing of fissure as compared to 21 patients (84%) in group B. At the end of 6th week, in group A 23 patients (92%) showed fissure healing as compared to 22 patients (88%) in group B. The fissure healing with both modalities of treatment in shown in (Table-II).

Table-II. Fissure healing			
Treatment group	**After 2 weeks**	**After 4 weeks**	**After 6 weeks**
GTN group (n= 25)	00 (0)	08 (32%)	23 (92%)
Lateral sphincterotomy grou (n= 25)	10 (40%)	21 (84%)	22 (88%)

In group A (GTN group), five patients (20%) had some burning sensation at the site of application of GTN ointment and four patients (16%) had mild transient and tolerable headache. The headache subsided itself over next few days. In Group B (Sphincterotomy group), nine patients (36%) had minor bleeding at operative site and this stopped spontaneously. Wound infection was seen in two patients (8%) and localized haematoma in one patient. Four patients (16%) had flatus incontinence which improved by itself in 3–4 months. None of the patients subjected to lateral sphincterotomy had faecal incontinence. In group B (sphincterotomy group), 12 patients had short term complications as compared to nine patients in group A (GTN group). During the follow up over a period of one year, 16% (4/25) recurrence rate was seen in Group A (GTN group) as compared to 4% (1/25) in group B (sphincterotomy group).

DISCUSSION

It has been said that all patients with anorectal symptoms come to doctor reporting as hemorrhoids or worrying about cancer. Among the myriad other diagnostic possibilities, one of the most common is 'anal fissure". Anal fissure is a liner tear in the lining of distal anal canal below the dentate line. High resting anal pressure caused by increased internal sphincter tone results in reduced blood flow of the muco-cutaneous linings and leads to fissure[3]. Fissure tends to occur at the watershed of blood supply. i.e. the anterior and posterior midline in women and posterior midline in men. Multiple fissures or fissure occurring in lateral position arouse suspicion of the diseases like Crohn disease, ulcerative colitis, tuberculosis, HIV infection etc. The maximum resting anal pressure (MARP) is raised in patients with anal fissure. In one study, Schouten demonstrated reduced blood flow at the posterior commissure of anal canal compared with that in the other three quadrants using laser Doppler flowmetery[4]. Anodermal blood flow is negatively correlated with resting anal pressure. When resting anal pressure falls under anaesthesia, a rise in anodermal blood flow is noted. After lateral sphincterotomy, there is a significant fall in resting anal pressure and a significant rise in anodermal blood flow[3]. This makes clear that ischaemia plays an important part in pathogenesis of chronic anal fissure and also explains the presence of sphincter spasm, severe pain, predilection for posterior midline and poor healing[5].

The mainstay of the treatment of anal fissure is directed in reducing this raised anal pressure and thus decreasing the tonicity of internal anal sphincter. Manual anal dilatation is now abandoned as different studies have shown that it causes significant disruption of sphincter mechanism as demonstrated by endoanal ultrasonography[6]. Lateral internal sphincterotomy is now the treatment of choice in chronic anal fissure for many years. The procedure may be performed using an open / closed technique and using local / general anaesthesia. Complications like bleeding, haematoma, abscess, non healing, persistent wound discharge, pruritis and faecal or flatus incontinence have been noted in different studies[7,8]. Topical GTN ointment is an alternative non-surgical treatment. Nitric oxide (NO) has been identified as the neurotransmitter responsible in mediating the relaxation of internal anal sphincter[9]. Topical GTN ointment rapidly reduces the resting pressure in the upper anal canal in normal subjects and patients with constipation[10]. 0.2% GTN ointment applied 2 – 3 times daily to distal anal canal for up to 6 weeks results in healing of 2/3rd of chronic fissures. A significant decrease in maximum anal resting pressure was observed by 20 minutes after application of the ointment which was sustained for at least 9 hours application[3]. Blood flow to anoderm was assessed using laser Doppler flowmetery and showed a significant and sustained rise as compared to pretreatment values. Some patients experience mild transient headaches and anal burning sensations. Usually this is well tolerated and does not result in discontinuation of drug.

Oettle in his comparative study of 24 patients for treatment with GTN ointment and lateral sphincterotomy; all 12 patients showed healing of fissure following lateral sphincterotomy; 10 of the 12 healed with local GTN ointment. There were no recurrences or side effects in either group during the follow up for 22 months. He concluded that local application of GTN can avoid surgery in more than 80% of the patients with chronic anal fissure[11]. In another multicentre trial involving 82 patients (38 patients in sphincterotomy and 44 in topical GTN group) was conducted by Canadian Colorectal Surgical Trail Group; complete healing was seen in 89.5% of the patients for lateral sphincterotomy versus 29.55 following topical GTN. They concluded that lateral internal sphincterotomy is superior to topical GTN in the treatment of chronic anal fissure because of a higher rate of healing, few side effects and low risk of early incontinence[12]. Evan in his comparative study of 65 patients between these two treatment modalities found 97% of healing at 2 months following lateral internal sphincterotomy versus 61% following topical GTN. Majority of chronic anal fissures healed after topical GTN, but significant minority had some side effects and required lateral internal sphincterotomy. Poor tolerance and poor compliance with treatment were important factors in patients whose fissures did not heal with topical GTN ointment. Fissure healed significantly faster after lateral sphincterotomy compared to topical GTN[13]. A recent trial from Berkshire, UK randomized 70 patients to topical GTN ointment or sphincterotomy and resolution of symptoms and healing of fissures were assessed after 24 months[14]. They concluded that many anal fissures heal with topical GTN; lateral internal sphincterotomy remains effective but should be reserved for patients who fail to respond to initial GTN. In one local comparative study of 100 patients, it was found that 0.2% GTN was less effective in healing the fissure but some what well for initial symptomatic improvement. In its comparison, 100% healing was observed in patients undergoing lateral internal sphincterotomy with only 10% transient incontinence for flatus. They concluded that lateral internal sphincterotomy is superior to topical GTN and is the procedure of choice for fissure in ano[15].

In all these randomized trials comparing GTN with lateral internal sphincterotomy , surgery proved necessary for a large number of patients who failed initial GTN therapy (36 – 46%), and relapse following successful GTN therapy was relatively frequent (16 – 45%of those who initially healed). Thus a very substantial proportion of patients who underwent initial GTN treatment for their fissure still required surgery. Richard et al reported that patient satisfaction was significantly higher in patients randomized to lateral internal sphincterotomy, all of whom would choose the same treatment again, versus 41% of those initially treated with topical GTN[12].

The present study shows that in patients with chronic anal fissures, lateral internal sphincterotomy relieves pain much earlier as compared to topical GTN ointment. Pain relief was comparable after 4th week in both groups. Healing was also found much earlier after lateral internal sphincterotomy than topical GTN, but after 6th week healing was more in GTN group as compared to lateral sphincterotomy group. Topical GTN is safe and well tolerated by patients but some times causes few side effects like headache, syncope or local burning sensations. On the other hand, lateral internal sphincterotomy has also got significant incidence of minor complications like wound infection, bleeding and incontinence. All of these complications were short term and self limiting. It is concluded that conservative treatment for chronic anal fissure with topical GTN should be initial treatment, because it is safe, well tolerated and pain relief & fissure healing are comparable with lateral internal sphincterotomy after 4 – 6 weeks of treatment. Lateral internal sphincterotomy should be reserved for patients with severe unrelenting pain as pain relief is much quicker as compared to topical GTN. Patients not responding to topical GTN (for more than 4 weeks) and those with recurrence after topical GTN treatment should be offered lateral internal sphincterotomy.

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