

MEDICAL THERAPY VERSUS LATERAL INTERNAL ANAL SPHINCTEROTOMY

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ABSTRACT

Background: Anal fissure is painful condition, with reduced quality of life for patients. **Objective:** To evaluate the efficacy of medical therapy versus lateral internal sphincterotomy for the treatment of patients with acute and chronic anal fissure. **Patients and Methods:** This was a comparative prospective study of 122 patients of acute and chronic anal fissure, conducted at Bahawal Victoria Hospital Bahawalpur, during a period of 2 years from 1st July, 2011 to 30th June, 2013. Medical therapy (Group A) was advised to 122 patients (32 patients with acute anal fissure and 90 patients with chronic anal fissure) with pain killer, stool softener, high fibre diet and 0.2% glyceryltrinitrate ointment applied at fissure site, thrice a day for eight weeks. The lateral internal sphincterotomy (Group B) was done in 47 patients. Patients with inflammatory bowel disease, pregnant women and patients taking nitrates for other condition were excluded. The patients were followed up, to assess fissure healing, complications and compliance for 6 months. **Results:** 29 (90.63%) patients with acute anal fissure and 46 (51.11%) patients with chronic anal fissure were cured by medical therapy and 45 (95.74%) out of 47 patients who did not respond to medical therapy were cured with lateral internal anal sphincterotomy (LIAS). Headache was the main complaint in medical group while postoperative anal itching (10.64%), fecal soiling of clothes (8.51%) and transient flatus incontinence 3 (6.38%) were main complaints and one (2.13%) patient of permanent fecal incontinence was seen in group B. **Conclusion:** As the medical therapy is simple, achieves satisfactory healing rates, the authors suggested this as the first line of treatment for anal fissures as it could be prescribed by the general practitioner in the absence of any additional anal pathology. Patients unresponsive to medical therapy can then be referred for lateral internal sphincterotomy.

Key words: Anal fissure, Medical therapy, Lateral internal anal sphincterotomy.

INTRODUCTION

Anal fissure is extremely common condition.¹ An anal fissure is a longitudinal split in the anoderm of the distal anal canal, which extends from the anal verge proximally towards, but not beyond, the dentate line.^{2,3,4,5} Anal fissures are considered to be acute if they are superficial, present for less than 6 weeks, and have well-demarcated edges. They are considered chronic, instead, if they are present for more than 6 weeks and have keratinous edges, if there is a sentinel node and hypertrophied anal papillae and if the fibers of the internal anal sphincter are visible.^{6,7,8,9} The pathophysiology of anal fissure is thought to be related to trauma from either the passage of hard stool or prolonged diarrhea. A tear in the anoderm causes spasm of the internal anal sphincter, which results in pain, increased tearing, and decreased blood supply to the anoderm. This

cycle of pain, spasm, and ischemia contributes to development of a poorly healing of wound that becomes a chronic fissure.¹ Acute anal fissures progress to chronic if not treated properly.⁵ About 90% of anal fissures occur in posterior midline.⁹ The diagnosis is based on the presence of intense pain, with possible bleeding, during or after defecation and is confirmed by a careful inspection of the posterior commissure of the anus. The following are the pain characteristics of anal fissure: intense burning pain that appears immediately or later after evacuation of the bowels, of variable duration, described as passing a "razor blade" or "broken glass".^{6,10,11} The majority of anal fissures are visible upon simple divarication of the glutei and during straining,¹² at the level of the posterior commissure (80%-90%) or the anterior commissure (10%) or more rarely the anteroposterior commissure and in these cases digital exploration can be avoided.¹³ Fissures due to an underlying disease (for example, perianal Crohn's disease where fissures are often multiple and situated laterally) are also unlikely to resolve with conservative management.¹⁴

Therapy focuses on breaking the cycle of pain, spasm, and ischemia thought to be responsible for the development of fissure in ano.¹ A reduction in

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anal sphincter tone is achievable by enhancing IAS relaxation through nitric oxide donation, direct intracellular Ca^{2+} depletion, muscarinic receptor stimulation, α -adrenergic inhibition or β -adrenergic stimulation.¹⁵ Conservative management should result in the healing of almost all acute and the majority of chronic fissures. The mainstay of current medical therapy (conservative management) is the topical application of pharmacological agents that relax the internal sphincter, most commonly nitric oxide donors (Scholefield), by reducing spasm, pain is relieved, and increased vascular perfusion promotes healing. Such agents include glyceryl trinitrate (GTN) 0.2% applied four times per day to the anal margin (although this may cause headaches) and diltiazem 2% applied twice daily.² The proposal to use botulinum toxin, based on its possible reduction of internal anal sphincter tone, faces some difficulties in daily clinical practice in connection with locating the drug, the nonstandardized dose,¹⁶ the injection site that is not well-defined,^{17,18} the invasiveness of the method and the higher cost of treatment.¹⁹ Anal stretch, reintroduced into anal fissure therapy in 1964²⁰ with significant success rates,²¹ is however associated with recurrence rates varying from 2% to 80%,^{22,23} a high risk of incontinence (up to 51%),^{24,25} and is widely criticized despite a reported cure rate of approximately 90%.²² Lateral internal sphincterotomy (LIS), performed with an open or closed technique, involves an incision of the internal sphincter, more or less extended, distal to the dentate line, with the possible excision of the sentinel node and the hypertrophied papillae.^{26,27} The cure rate after LIAS is higher than 90%.²⁸ The main purpose of this study was to evaluate the efficacy of medical therapy versus lateral internal sphincterotomy for treatment of acute and chronic anal fissure.

PATIENTS AND METHODS

This was a comparative, prospective study of 122 patients of acute and chronic anal fissure conducted in surgical department of Bahawal Victoria Hospital, during a period of 2 years from 1st July 2011 to 30th June 2013. Patients with inflammatory bowel disease, pregnant women and patients taking nitrates for other condition were excluded. All the patients (acute and chronic anal

fissure) were initially treated by medical therapy for 8 weeks and placed them in group A and those who developed failure of treatment after 8 weeks of treatment with medical therapy were placed in group B. Anal fissures were considered to be acute if they had been present for less than 6 weeks, superficial, and have well-demarcated edges. They are considered chronic, instead, if they had been present for more than 6 weeks, had keratinous edges, if there was a sentinel pile, hypertrophied anal papillae and if the fibers of the internal anal sphincter were visible. Group A patients were treated with pain killer, stool softener, high fibre diet and local application of 0.2% glyceryltrinitrate ointment (Medical therapy). Group B patients were treated by lateral internal anal sphincterotomy(LIAS). A trial of medical therapy versus LIAS was carried out after taking informed written consent from each patient. The method of application of 0.2% GTN ointment thrice a day was explained to the patients on their first visit. Lateral internal sphincterotomy was done under regional anesthesia in lithotomy position. The patients were discharged on next day morning on analgesics, antibiotics and stool softeners. The patients were followed up to assess fissure healing, complications and compliance for 6 months. All patients were followed up at 3,6,8 weeks interval then 2 monthly upto 6 months. At follow up, complaints or symptoms of fissure were documented and patients were examined for healing or recurrence of fissure. The results were analyzed using SPSS version 10.

RESULTS

The mean age of the patients was 37 years. Majority were in the age group of 30-40 years. Male to female ratio was 1:1. (Table I)

Table I: Age distribution

Age range	Patients	Percentage
15-20 years	2	1.64%
21-30 years	15	12.29%
31-40 years	45	36.89%
41-50 years	35	28.69%
51-60 years	20	16.39%
61-70 years	5	4.09%

Out of 122 patients, 32 (26.22%) patients were

suffering from acute anal fissure and 90 (73.78%) patients were suffering from chronic anal fissure. Both type of patients were initially advised medical therapy. 29 (90.63%) patients of acute anal fissure were completely cured and in 3 (9.4%) patients, fissure persisted. 46 (51.11%) patients of chronic anal fissure were completely cured but 44 (48.89%) patients including 4 patients who developed severe headache and refused medical treatment were not relieved of symptoms. These 47 patients were treated with lateral internal anal sphincterotomy. 45 (95.74%) were completely cured but symptoms persisted in 2 (4.26%) patients.

Table II: Complications in patients treated with LIAS

Complications	No of patients	Percentages
Bleeding	2	4.26%
Fecal soiling of cloths	4	8.51%
Hematoma	1	2.13%
Itching/burning	5	10.64%
Transient flatus incontinence	3	6.38%
Wound infection	1	2.13%
Permanent fecal incontinence	1	2.13%

The median time to healing was six weeks with medical therapy. All of the patients (100%) taking 0.2%GTN ointment developed headaches and 4 patients required surgery after stopping the treatment for this reason. In patients treated with LIAS, postoperative itching (10.46%) and fecal soiling of cloths (8.51%) were the main complications. (Table II)

Table : III Results of medical therapy versus lateral internal anal sphincterotomy (LIAS)

	Group A			Group B		
	No of patients	Cured	Success rate	No of patients	Cured	Success rate
Acute anal fissure	32	29	90.63%	-	-	-
Chronic anal fissure	90	46	51.11%	47	45	95.74%

One patient developed (2.13%) permanent fecal incontinence. Overall success rate was 95.74% in patients treated with LIAS, 90.63% in patients of acute anal fissure and 51.11% in patients of chronic anal fissure treated with medical therapy. (Table III)

DISCUSSION

The basal tone of the IAS(internal anal sphincter) is affected by various substances, including nitric oxide (NO).²⁹ In patients with anal fissures, the synthesis of NO in the IAS is reduced in comparison with the controls.³⁰ Manometry studies have demonstrated an increased IAS tone and a reduction in anodermal vascular blood flow, mainly in the posterior region^{31,32} and showed that in patients who benefited from sphincterotomy surgery or from anal stretch, sphincter hypertonia was reduced and blood flow increased. This pathogenetic mechanism can explain the achievement of a high rate of healing with medical therapies able to improve blood flow³³ and/or to reduce hypertonia.⁷ Since the discovery of the role of NO as an inhibitor of IAS tone,²⁹ the use of nitrates has been shown to reduce anal hypertonia³⁴ and in many clinical contexts it has become the first-line therapy for chronic anal fissures⁸ conservative management should result in the healing of almost all acute and the majority of chronic fissures.² Chemical sphincterotomy has been the first line of treatment of anal fissure.³⁵⁻³⁹ Topical GTN decreases anal resting pressure and increases anodermal blood flow, thus resulting in a high healing rates of fissure.^{36,37,40} Medical therapy is effective in most acute fissures, but will heal only approximately 50 to 60% of chronic fissures.¹ In one local study, a significant fissure healing rate was observed with GTN.³⁵ Libertiny in a similar comparative trial showed 98% healing of anal fissure with lateral internal sphincterotomy while GTN relieved 56%, with 10% recurrence.³⁹ In another local study, fissure healing was found in 66.7% with side effect of headache and a recurrence rate of 25% within six months of topical GTN.¹⁵ Other studies have shown healing rate upto 70% with GTN.^{36,41} The present study showed healing rate of 90.63% with medical therapy in acute anal fissure and 51.11% in chronic anal fissure, with medical therapy while healing rate of 95.74% in case of lateral internal anal sphincterotomy. The cure rate after LIAS was higher than 90% in a study.⁴² Sphincterotomy was first described in 1835 and can be carried out using an open or a subcutaneous technique and under local or general anaesthesia.⁴³ Lateral subcutaneous internal sphincterotomy is one of the most favored procedure. The reasons for this are the simplicity of the procedure, minimal anesthesia requirements, and good results. The lists

of complications that can arise due to the procedure are formidable; but with careful and experienced hands these could be effectively handled and the procedure could be made safe and simple.⁴⁴

Reported complications of lateral sphincterotomy, like incontinence of flatus or feces may be prevented by the use of judicious surgical techniques and by the familiarity with anorectal anatomy.⁴⁵ In our study, we encountered fewer complications and permanent incontinence of feces in one patient (2.13%). One study showed permanent incontinence of feces in 7.1% and transient incontinence of flatus in 64.3%.⁴⁶

Lewis et al found some degree of incontinence in 17% of their patients; in two thirds of these patients, this complication was only temporary.⁴⁷ Khubchandani and Reed reported post operative soiling in 22% of their study patients after lateral sphincterotomy and grade-I incontinence in 35.1%.⁴⁸ In a retrospective study of 1313 patients, who underwent lateral internal sphincterotomy, Oh observed 21 cases of flatus or liquid incontinence and 18 cases of recurrence of anal fissure as a late complication.⁴⁹ Syed et al found post-operative itching and burning in 2.6% with no post-operative infection, delayed healing, recurrence and permanent flatus/feces incontinence.⁴⁴ These results are well comparable to the present study.

CONCLUSION

As medical therapy is simple, achieves satisfactory healing rates and is cheap, the authors recommend this as the first line of treatment for anal fissures as it could be prescribed by the general practitioner in the absence of any additional anal pathology. The majority of patients will therefore receive appropriate treatment without waiting to be seen at a surgical outpatient clinic. Patients unresponsive to topical glyceryltrinitrate could then be referred for lateral internal sphincterotomy.

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