

Outcome of Bilateral Segmental Internal Anal Sphincterotomy for Treatment of Chronic Anal Fissure

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ABSTRACT

Background: Chronic anal fissures are harder to treat, and surgery may be the best option. The goal of surgery is to help the anal sphincter muscles relax which reduces pain and spasms, allowing the fissure to heal.

Objective: The aim of the present study was to assess the improving outcome of patients of chronic anal fissure.

Patients and methods: This study included 18 patients with chronic anal fissure admitted at Department of General Surgery, Faculty of Medicine, Zagazig University. All patients were subjected to full history taking, proper local examination and baseline investigations. Anorectal manometry was performed for all patients preoperatively and bilateral segmental internal sphincterotomy was done for all patients.

Results: The present study showed that 88.9% had constipation, 100.0% had pain and 77.8% had bleeding defecation. Duration was distributed as 7.55 ± 2.68 with minimum 4 and maximum 14 months and the majority were between 6-12 months. Complete healing was distributed as 5.16 ± 1.09 with maximum 8 weeks. Visual Analogue Scale (VAS) significantly decreased from pre to 1st 24 hours till the end of follow up. Incontinence score significantly decreased from pre to 1st week till the end of follow up.

Conclusion: It could be concluded that bilateral segmental internal sphincterotomy takes some extra time for the procedure and significantly a good procedure in treatment of chronic anal fissures in terms of early pain relief, reduction of resting anal pressure and complete healing rate in 5 weeks. The risks of incontinence and recurrence of fissure are negligible with superior patients' satisfaction.

Keywords: Anal Fissure, Anal Incontinence; Anal Sphincterotomy; VAS.

INTRODUCTION

Anal fissure can occur at any age, but are usually seen in younger and middle-aged adults. Both genders are affected equally. The anal fissures are most commonly seen in the posterior midline, although 10-20% in women and 1-10% in men are located in the anterior midline ⁽¹⁾. The exact cause of anal fissures is unknown but many factors appear likely, such as the passage of large, hard stools, which may be the initiating factor; inappropriate diet; previous anal surgery; childbirth and laxative abuse ⁽²⁾.

Many fissures heal spontaneously, often in two or three weeks. These are usually superficial lesions which have a relatively short history of pain. By contrast, really chronic fissures are most resistant to any form of conservative treatment, and though there may be temporary abatements of symptoms, the trouble tends to recur frequently. Therefore anal fissures are treated either conservatively or surgically ⁽³⁾.

The principle of surgical treatment for chronic anal fissures is to decrease internal sphincter tone and hence increase the blood flow with subsequent tissue healing. The lateral internal sphincterotomy is the first-line surgical option for all fissures associated with hypertrophy and hypertonicity of the internal anal sphincter ⁽⁴⁾.

Lateral internal sphincterotomy has shown to have advantages over other forms of surgical treatments, such as anal dilatation and mid-posterior

internal sphincterotomy performed through the floor of the fissure. The healing rate associated with anal fissure treated by lateral internal sphincterotomy in most series is reported as greater than 98% ⁽⁵⁾.

This study was aimed to evaluate feasibility of bilateral segmental internal anal sphincterotomy in treatment of chronic anal fissure.

PATIENTS AND METHODS

This clinical trial study included a total of 18 patients with chronic anal fissure, attending at Department of General Surgery, Zagazig University Hospitals.

Inclusion criteria: Patients with a primary chronic anal fissure of more than 6-week duration with classical symptoms of a chronic anal fissure in age above 18 years who unresponsive to medical treatment with recurrence of symptoms after initial short-term relief.

Exclusion criteria: Patients with chronic inflammatory bowel diseases, tuberculosis, positive HIV, pregnancy and anorectal tumors. Patients with previous anorectal surgery. Patients unfit for anesthesia or surgery.

All patients were subjected to complete history taking including demographic data (age, sex, symptoms with their duration and position of fissures). Proper limited local examination, symptoms with their duration



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and position of fissures, baseline investigations and anesthetic clearance were obtained.

Operative Assessment:

All the patients received a single dose of IV antibiotics (ceftriaxone 1 g) and early morning enema, and were operated under spinal anesthesia the patient in the supine lithotomy position, using an Eisenhammer speculum in the anal canal. Bilateral segmental internal sphincterotomy was done at 3 o'clock positions. Standards open technique included a 5-mm radial incision at 3 o'clock position into the perianal skin along the intersphincteric groove. Sentinel skin tags when present were also excised. Good hemostasis is achieved by using diathermy. The wounds were left open to heal with secondary intention. A hemostatic pack of gauze was left in the anal canal.

All patients were discharged on 1st postoperative day and were advised to take oral antibiotics and analgesics for a period of 5 days apart from Site baths 3-4 times a day, laxatives and fluids which were continued for at least two weeks.

Follow up:

Patients were followed up for a minimum period of 6 months, initially weekly for two weeks and then biweekly for 3 months, then every two months for rest of the study time. At 1st postoperative day and subsequently at each visit, they were examined for symptomatic relief of pain using Visual Analogue Scale (VAS of 0-10), complete healing of fissure, and associated symptoms and signs. Postoperatively, resting anal pressure evaluation was repeated.

Ethical approval:

The study was approved by the Ethical Committee of Zagazig Faculty of Medicine. An informed consent was obtained from all patients in this research.

Every patient received an explanation for the purpose of the study. All given data were used for the current medical research only. This work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

Statistical analysis

Data collected and analyzed using Microsoft Excel software. Data were then imported into Statistical Package for the Social Sciences (SPSS version 20.0) software for analysis. According to the type of data qualitative represent as number and percentage , quantitative continues group represent by mean ± SD. Differences between quantitative independent multiple by ANOVA or Kruskal Wallis,. P value was set at <0.05 for significant results &<0.001 for high significant result.

RESULTS

The present study showed that 88.9% had constipation, 100.0% had pain and 77.8% had bleeding defecation (**Table 1**). Duration was distributed as 7.55 ±2.68 with minimum 4 and maximum 14 months and the majority were between 6-12 months (**Table 2**).

Complete healing was distributed as 5.16 ±1.09 with maximum 8 weeks (**Figure 1**). VAS significantly decreased from pre to 1st 24 hours till the end of follow up (**Table 3**). Incontinence score significantly decreased from pre to 1st week till the end of follow up (**Table 4**).

Table (1): Presentation symptoms distribution among studied group

		N	%
Constipation	-VE	2	11.1
	+VE	16	88.9
Pain	-VE	0	0.0
	+VE	18	100.0
Bleeding defecation	-VE	4	22.2
	+VE	14	77.8
	Total	18	100.0

Table (2): Duration of symptoms distribution among studied group

	Duration /months	
Mean± SD	7.55±2.68	
Median (Range)	7.0 (4-14)	
Categories	N	%
<6 months	5	27.7%
6-12 months	9	50.0%
>1 year	4	22.3%

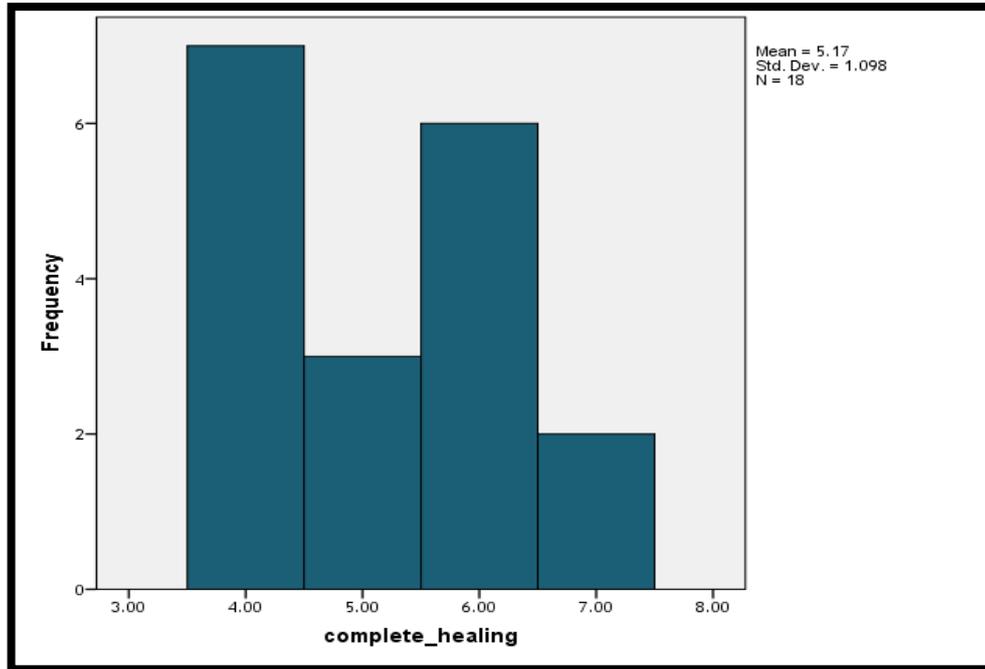


Figure (1): Time of complete healing distribution among studied group

Table (3): VAS for pain assessment at different times of follow up distribution among studied group

	VAS Pre	VAS 24H	VAS 1 st week	VAS 2 nd week	VAS 3 rd week	P
Mean± SD	7.66±0.65	3.66±0.68	1.5±0.61	0.166±0.38	0.00±0.0	0.00*
Median	8.0	4.0	1.0	0.00	0.00	*

Table (4): Incontinence score at different times of follow up distribution among studied group:

	Incontinence core pre	Incontinence score 1 st week	Incontinence score 2 nd week	Incontinence score 3 rd week	Incontinence score 4 th week	P
Mean± SD	16.44±2.7	9.11±2.08	4.0±1.37	1.44±1.13	0.55±0.42	0.00**
Median	16.0	8.0	4.0	2.0	0.00	

DISCUSSION

Anal fissure (AF) is a common disorder which affects all age groups with an equal incidence in both sexes; 90% are situated posteriorly and 10% anteriorly. The exact etiology of AF is unknown but trauma caused by fecal mass, diarrhea, constant saddle vibration in bikers, water steam from bidet toilets, and hypertonicity of the internal sphincter are thought to be initiating factors (6).

Spasm of the sphincter not only promotes constipation (thus setting up a vicious cycle) but also leads to compression of the terminal arterioles supplying the mucosa of the anal canal. Impaired blood flow in this already poorly perfused area prevents fissure healing (7).

Therefore, the aim of treatment strategies is to reduce the sphincter tone which in turn increases local vascularity, with either medical agents, such as glyceryl trinitrate, calcium channel blockers and botulinum toxin, or surgical interventions, such as lateral internal sphincterotomy (LIS). Internal sphincter is formed by circular muscle fibers and dividing it at one point of the circle opens up, relaxes and decreases the tone of the

internal sphincter, which is the rationale for doing unilateral LIS in chronic anal fissures. Dividing the internal sphincter at two places may actually relax the sphincter more effectively and help in faster healing and recovery. However, the risk of incontinence may increase (8). The current study included 18 patients with chronic anal fissure who admitted to General Surgery Department, Faculty of Medicine, Zagazig University, performance of bilateral segmental internal sphincterotomy. This clinical trial was aimed to evaluate feasibility of bilateral segmental internal anal sphincterotomy (BIS) in treatment of chronic anal fissure.

In our study, Duration of symptoms was 7.55±2.68 with minimum of 4 and maximum of 14 months. Bansal *et al.* (9) found that the mean duration of symptoms was 16.08±11.9.

Mente *et al.* (10) reported that a sphincterotomy up to the dentate line results in quick fissure healing but more incontinence. Sphincterotomy up to apex of fissure leads to no incontinence, however, the rate of healing is low and the recurrence rate is higher.

Leo et al. ⁽¹¹⁾ found that 3 (10%) out of 30 patients showed either flatus incontinence or anal seepage in lateral internal sphincterotomy group ($p=0.278$). **Siddique et al.** ⁽¹²⁾ in their study on chronic anal fissure found that 2 out of 33 patients (6%) after treatment with lateral internal sphincterotomy had minor incontinence to flatus on stress.

Lasheen et al. ⁽¹³⁾ reported no patient with incontinence on direct questioning preoperatively or postoperative after segmental lateral sphincterotomy during the period of follow-up. **Muhammad et al.** ⁽¹⁴⁾ found that 2 out of 30 (6.6%) patients had incontinence to flatus and feces after treatment with lateral internal sphincterotomy.

Mushtaque et al. ⁽¹⁵⁾ found that most of the patients had incontinence for flatus and occasionally for liquid stools which resolved by 6th week. There was no case of permanent incontinence. Prolonged incontinence for flatus was noted in two patients which resolved completely by 16 weeks.

The risk of incontinence is more with total (up to dentate line) than limited (up to fissure apex only) lateral internal sphincterotomy, because total technique produces groove extends from the anal verge to the dentate line in same continuity. Also, open lateral sphincterotomy is associated with more risk of incontinence than the closed one because the groove after the open one is deeper. Also, incontinence after lateral internal sphincterotomy is usually in a form of flatus incontinence, because flatus is easy to pass through this groove ⁽¹⁶⁾.

Also, **Mushtaque et al.** ⁽¹⁵⁾ stated that bilateral LIS resulted in better outcome in terms of early pain relief, early reduction of anal pressures, complete healing rate in 4 weeks with no recurrence. It does not increase the risk of incontinence and has better patients' satisfaction as compared to unilateral LIS.

Finally, we can say that bilateral segmental internal sphincterotomy is associated with better early reduction of anal pressures, higher earlier healing rate, improvement in quality of life and better patient satisfaction than for unilateral segmental internal sphincterotomy.

CONCLUSION

It could be concluded that bilateral segmental internal sphincterotomy takes some extra time for the procedure and significantly a good procedure in treatment of chronic anal fissures in terms of early pain relief, reduction of resting anal pressure and complete healing rate in 5 weeks. The risks of incontinence and recurrence of fissure are negligible with superior patients' satisfaction. So, we need more evaluation studies on long run about efficacy and complications of bilateral segmental internal sphincterotomy.

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Conflict of Interest: Nil.

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