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Comparative Study Between Bilateral versus Unilateral Internal Sphincterotomy in Management of Chronic Anal Fissure

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ABSTRACT

Background: Chronic anal fissures are common disorders in Egypt. Many lines of treatment were found but the surgical one location sphincterotomy is the standard option.

Aim of the work: To compare bilateral and unilateral internal sphincterotomies.

Patients and Methods: One hundred and twenty-eight chronic anal fissure cases were studied in the General Surgery Department, Faculty of Medicine, Al-Azhar University (New Damietta). Randomized into 2 groups (A) bilateral, group (B) unilateral sphincterotomy. All patients had a thorough history-taking process, as well as a thorough physical examination and a series of baseline tests. All patients were then given bilateral internal sphincterotomies.

Result: The mean operative time for bilateral Lateral sphincterotomy (LIS) was longer than unilateral (P value<0,05). Pain is decreased in group (B) with bilateral LIS. (P value<0,05). After 28 days, 65.6% of cases among bilateral LIS group and 56.25% of patients in unilateral LIS group had completely healed fissures (P-value <0.05) while significant decrease in resting anal pressure was noted at 1 month in BLIS group.

There was one recurrence in unilateral LIS group.

Conclusion: In the treatment of chronic anal fissure, bilateral segmental internal sphincterotomy is a new, safe, and successful method: The likelihood of incontinence is decreased, and patients report higher levels of satisfaction with the treatment.

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

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INTRODUCTION

Distal anal canal fissure is a painful linear tear in mucosa that extends from the anal margin to the dentate line. Young and healthy adults are the most likely to be affected, but it occurs equally frequently in both genders, regardless of age. The most common symptoms of an anal fissure include pain, vivid red rectum bleeding, mucus production, as well as constipation.¹

After a bowel movement, the patient typically has significant pain that lasts for a few minutes to a few hours. Constipation worsens, stools get tougher, and the anal pain increases as a result of the patient's fear or reluctance to produce a bowel movement. About 70% of patients report finding bright red blood on their toilet paper or in their feces. Although some little drips may flow into the toilet bowl from an anal fissure, major bleeding does not generally occur.²

Acute and chronic fissures, as well as primary and secondary fissures, are all terms used to describe the pathogenesis of different types of fissures. If you have chronic anal fissure (CAF), it is defined by its shape or its chronology. There must be more than eight weeks of symptoms, and a digital rectal examination usually reveals an indurated fissure, fibrosis at the base, and the presence of horizontal internal anal sphincter fibers revealed on a sentinel pile, a skin tag, or an ulcer.³

Spasm of the anal sphincter and a decrease in blood flow are the most common symptoms of an anal fissure, and this results in a delayed healing of the ulcer (except in postpartum individuals).⁴

Medical medicines like calcium channel blockers and botulinum toxin can be used to lower sphincter tone and increase local vascularity, while surgical

techniques like lateral internal sphincterotomy can also be used (LIS).³

Anal fissure is being treated via lateral internal sphincterotomy. General or spinal anesthesia can be used to carry out the procedure. Even if the patient is agreeable, local anesthetic may be administered. However, it is not always suggested. Cutting the enlarged internal sphincter is the goal of the procedure, allowing the fissure to heal.⁵

The internal sphincter may be more efficiently relaxed if it is divided into two parts, allowing for quicker healing and recuperation. Incontinence, on the other hand, may become more common. Bilateral internal sphincterotomy in the treatment of fissure has only been studied in a few trials.⁵ Sphincterotomies for the treatment of persistent anal fissures were used to avoid these negative effects.⁶

Sphincterotomy and segmental sphincterotomy procedures were combined to treat chronic anal fissure using a novel technique called bilateral segmental internal sphincterotomy. Consequently, this study attempted to evaluate the improvement of chronic anal fissure patients' outcomes.

PATIENTS AND METHODS

One hundred and twenty-eight chronic anal fissure patients were included in this randomised comparative clinical trial. Al-Azhar University (New Damietta) conducted this clinical trial study from December 2019 to September 2021 in the General Surgery Department of Al Azhar Faculty of Medicine.

Inclusion criteria: Age above 18 years. Patients with a primary chronic anal fissure. Computer generated randomization was used to divide all patients into two equal groups (Group A and Group B) of 64 each. Demographic data including age, sex, symptoms with their duration and position of fissures were noted in both groups (Tables 2).

Exclusion criteria: Patients with chronic inflammatory bowel diseases, tuberculosis, positive HIV, pregnancy, associated hemorrhoids, syphilis or anorectal tumors. Patients with previous anorectal surgery. Patients unfit for anesthesia or surgery. Patient refusal.

All patients have to go through the following: A complete history is taken. Demographic information is also included (age, gender, symptoms with their duration and position of fissures). Proper limited local examination, symptoms with their duration and position of fissures, baseline investigations and anesthetic clearance were obtained.

Operative Assessment: All the patients received a single dose of IV antibiotics (cefotaximl gm.) and early morning enema, and were operated under spinal anesthesia the patient in the supine lithotomy position, Bilateral segmental internal sphincterotomy was done at 3 and 9 o'clock positions. Standards open technique included a 5-mm transverse incision at 3 o'clock position into the perianal skin along the intersphincteric groove. Sentinel skin tags when present were also excised. Good homeostasis 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. Operative time was recorded.

Statistical analysis:

For the analysis, SPSS (Statistical Package for the Social Sciences) version 22 for Windows® was used (IBM SPSS Inc, Chicago, IL, USA). Use the chi square test (2) to compare qualitative variables from two or more groups. P value < 0.05 was considered significant.

RESULTS

All patients were discharged on 1st post-operative day and were advised to take oral antibiotics and analgesics for a period of 5 days apart from Seitz baths 3-4 times a day, laxatives, high fiber diet and plenty of fluids which were continued for at least two weeks. A minimum of three months of follow-up was required for each patient, initially weekly for two weeks and then bi weekly for next two and a half months. First postoperative day and every subsequent visit, they were examined for symptomatic relief of pain using Visual Analogue Scale (VAS of 0-100), degree and type of incontinence by Jorge-Wexner score (0-20), This includes a complete healing of the fissure and any possible side effects or complications from the treatment. One and three months after surgery, the anal pressure evaluation was repeated.

	Group A Bilateral LIS n=64	Group B Bilateral LIS n=64	P value
<i>Age</i>			
Mean	34.3	33.8	0.56
Range	18-54	19-53	
<i>Sex</i>			
Male	30(46%)	28(43.7%)	0.78
Female	34(53%)	36(56%)	0.76
<i>Pain</i>	63	64	0.9
<i>Bleeding</i>	56	54	0.8
<i>constipation</i>	56	57	0.8

Table 1: Demographic and clinical characteristics.

	BLIS	ULIS	P value
<i>Mean operative Time(minute).</i>	15.8(12-15 min)	11.02(8-15 min)	0.03
<i>Mean pain score (0-100).</i>			
24 hours	21	54	0.03
1 week	10	17	0.04
2 week	0	3	0.01
3 week	0	0	1.00
<i>Complete fissure healing.</i>			
4 week	42(65.6%)	36(56.25%)	0.04
6 week	62(96.8 %)	56(87.5 %)	0.09
8week	64(100%)	64(100%)	1.0
<i>Mean wexner incontinence Score</i>			
1 week	8.3	7.9	0.12
3 week	6.2	5.8	0.23
6 week	1.6	1.1	0.06
>8 week	.3	,1	0.09
<i>Mean resting Pressure</i>			
Pre-operative	117.6	115.9	0.32
4week	92.7	110.3	0
12 week	72.8	77.1	0.04

Table 2: Surgical outcome.

DISCUSSION

All age groups are equally affected by anal fissure (AF), a frequent condition that occurs in both men and women equally; 90% are situated posteriorly and 10% anteriorly surgical treatment include lateral sphincterotomy.⁶

In chronic anal fissures, the internal sphincter can be opened, relaxed, and its tone decreased by splitting the circular muscle fibres that make up the internal sphincter at a single spot on the circle. However, these surgical techniques come with an inherent risk of incontinence.⁷

Our study aims to compare surgical outcome of bilateral to unilateral LIS in patients with 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

Both groups in our study had comparable demographic and clinical characteristics, however in each group, females marginally over numbered males (M:F=1:1.2). This is in discordance with most of the previous studies. Which have reported male preponderance for anal fissures.⁸

As we live in a conservative society, most of our female patients present late with chronic fissures as compared to males who probably receive early treatment for their acute fissures and do no progress to chronic stage. Mean operative time for bilateral LIS, as expected, was longer than that for unilateral LIS and was statistically significant (p-value <0.05), but this did not have any major impact on perioperative (surgical/anesthetic) outcome. Visual analogue scale (VAS) is used to assess the intensity of pain post-operatively.⁹

One-sided LIS patients had significantly higher 24-hour and 1-week VAS scores than non-unilateral LIS patients in the current investigation. No significant differences in pain scores between the two groups were seen after week two; all patients were free of discomfort by week three. Stacks of smooth muscle bundles form the internal anal sphincter, which is made up of 20-30 rings, each of which is protected by its own fascia. They produce three columns that extend distally into the lumen and are distinct in shape from the other anal columns because they combine at three evenly spaced places along the anal canal.⁹

It is possible that the sphincter divides and relaxes more effectively with bilateral LIS than with unilateral LIS, resulting in early considerable pain alleviation for the former group. After internal sphincterotomy, most of the chronic anal fissure take 4-8 weeks for complete healing.⁷

Although Oettle,¹⁰ reported complete healing in 2 weeks but his sample included only 12 patients. At the conclusion of the second week, none of our patients had fully recovered. Although 65.6 percent and 56.25 percent of patients in groups A and B, respectively, had fully healed fissures at the conclusion of the fourth week (p-value <0.05).

No statistical difference in complete healing was noticed in two groups on further follow up. Even though internal sphincterotomies were done up to the length equal to that of the fissure, better healing of fissures in 4 weeks for BLIS group in our study was probably due to more effective reduction of sphincter pressure in initial few weeks. All the patients in both groups had completely healed fissures at 8th week.

Mente et al.¹¹ reported that A sphincterotomy that extends to the dentate line has the advantage of speeding up the healing process, but the downside is

increased incontinence (11). Despite the fact that sphincterotomies performed all the way to the tip of the fissure cause no incontinence, the healing process is slow, and recurrences are more common.¹¹

In the present study, mean Wexner continence score after surgery was not statistically different in the two study groups. Most of the patients had incontinence for flatus and occasionally for liquid stools which resolved by 6th week. In BLIS group, as the sphincterotomy was done bilaterally and only up to level of fissure apex, this resulted in early and better fissure healing rates with no recurrence, probably secondary to better decrease in anal pressures. As the extent of sphincterotomies were selective and not up to dentate line, there were no cases of permanent incontinence in either groups.

Preoperatively all patients in our study had high anal resting pressure. A better degree of reduction of these values was observed at 4 weeks in patients who underwent BLIS (p-value 0.0021). At the final evaluation at 3 months, the mean resting anal pressure was still higher in ULIS as compared to BLIS groups (p-value 0.0468), although it had become normal or close to the normal reference. According to the most accepted theory regarding anal fissure etiology relies on a relative ischemia of the posterior anal midline. At a glance, the average blood pressure of the terminal arteries that cross the internal sphincter is 85 mmHg.

This pressure would not be great enough to overcome the high resting anal pressure (90 mmHg) observed in anal fissure patients. As a result, the blood flow to fistula area would be decreased, preventing its healing.⁹

Bilateral LIS 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 LIS.

CONCLUSION

Bilateral segmental internal sphincterotomy is 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.

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