

## Original Article

## Safety and Efficacy of Lateral Internal Sphincterotomy in the Management of Chronic Anal Fissure

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## ABSTRACT:

**BACKGROUND:** An Anal Fissure is a painful longitudinal mucosal ulcer of the anal canal which may extend from the anal verge to the dentate line. It can significantly influence the quality of life of the affected person due to its troubling symptoms and signs such as severe pain, bleeding per rectum, spasm of the internal sphincter. Lateral internal sphincterotomy (LIS) is one of the most common procedure performed when conservative management fails in chronic anal fissure. **OBJECTIVES:** The aim of the study is to assess the safety and efficacy of lateral internal sphincterotomy for the management of chronic anal fissure. **MATERIALS AND METHODS:** This descriptive type of observational study was carried out at department of surgery of Prime Medical Hospital, Rangpur from July, 2020 to June, 2022 in 105 patients suffering from chronic anal fissure and underwent LIS after medical management failed. Age, sex, clinical presentation, symptomatic relief of defecatory pain following LIS, post-operative complications were assessed in all patients. **RESULTS:** All 105 patients were between the 18 to 68 years of age. The mean age of the respondents was  $37.32 \pm 9.92$  years and male to female ratio was 1: 2.28 with a slight predominance of female. Painful defecation (98%), Constipation (98%) and bleeding per anul (82%) were the most common complaints. Symptomatic relief of pain following operation was observed among all the patients at 6<sup>th</sup> week. The early complications in the present study were bleeding (0.7%), perianal infection (0.3%). In our study only 0.4% patients showed gas incontinence, which itself got improved after some time. In our study no patient suffered from recurrence in 3 months period. **CONCLUSION:** Our study shows that lateral internal sphincterotomy is a safe surgical option for treatment of chronic anal fissure. It improves the existing symptoms rapidly and there are few post-operative complications which can be managed. Flatus incontinence may occur but it resolves with time and there is reduced chance of recurrence.

**Key words:** LIS, Chronic anal fissure

## INTRODUCTION

An Anal Fissure is a painful longitudinal mucosal ulcer of the anal canal which may

extend from the anal verge to the dentate line.<sup>1</sup> About 90% of anal fissures occur in the posterior anal canal, due to reduced blood supply to the posterior midline anoderm; the sphincter tone in these patients is comparatively high so the blood supply is further compromised.<sup>2</sup>

Majority of the patients suffering from fissure are from young age group Although it is not a fatal condition but can significantly influence the quality of life of the affected person due to its troubling symptoms and signs such as severe pain, bleeding per rectum, spasm of the internal sphincter.<sup>3,4</sup>

Painful fissures are generally associated with involuntary spasm of the internal sphincter

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with high resting pressure in the anal canal. Incidence of fissure is on rise owing to stressful lifestyle and lack of fibers in diet. Lack of exercise, sleep and decreased water intake add to it.<sup>5</sup>

While the acute anal fissure often heals within 1–2 weeks, chronic anal fissures are less likely to heal even after 6–8 weeks of medical management.<sup>6,7</sup>

Morphologically chronic anal fissures are wider, deep, edges are indurated with skin tag distally and a hypertrophied papilla proximally.<sup>8</sup>

The American Society of Colon and Rectal Surgeons (ASCRS) guidelines recommend that for the initial nonsurgical management of anal fissure, the patient should be recommended stool softeners, high fiber diet, and warm sitz bath.<sup>9</sup> Application of pharmacological agents such as glyceryl trinitrate or calcium blockers, and botulinum toxin (BT) injection are other treatment strategies, which are also termed as “chemical sphincterotomy”.<sup>10–13</sup> However, the success rate (65–75%) of this treatment strategy is significantly lower than as observed in surgical sphincterotomy.<sup>13–15</sup>

When pharmacologic therapy fails or fissures recur frequently and patients have raised<sup>16</sup> resting anal pressure, lateral internal sphincterotomy is the surgical treatment of choice.

Lateral internal sphincterotomy remains the gold standard for definitive management of anal fissures, but comes with a risk of incontinence.<sup>17</sup>

The aim of the study is to assess the safety and efficacy of lateral internal sphincterotomy for the management of chronic anal fissure.

## MATERIALS AND METHODS

This descriptive type of observational study was carried out at surgery wards of Prime Medical Hospital, Rangpur from July, 2020 to June, 2022. Total 105 samples were taken by purposive sampling. Patients suffering from chronic anal fissure (duration more than six weeks), exposed internal anal sphincter fibers, the appearance of sentinel piles, and hypertrophied anal papilla were included in this study. Patients who were suffering from an anal abscess, anal fistulae, hemorrhoid disease, and inflammatory bowel disease were excluded from this study.

All samples were included in the study after confirming the ethical issues such as – all participants were volunteer, consent was obtained, it had been clear to them that they are free to take part or refuse any part of the study, all answers were kept confidential.

Age, sex, clinical presentation, symptomatic relief of defecatory pain following LIS, post-operative complications were regarded as various variables.

Before the surgery, medical management for all the patients was done, which included the prescription of a combination of stool softener, laxative, high fiber diet, and a warm sitz bath. LIS under sub-arachnoid block is performed when conservative treatment was failed. Post-operatively patients were monitored for complications and followed up for 3 months.

All the information's were recorded in a fixed data collection sheet. Collected data were classified, edited, coded and entered into the computer for statistical analysis. Collected data was compiled and findings were presented in the form of tables and graphs. Appropriate statistical analysis of the data was done using computer based SPSS version-22.0.

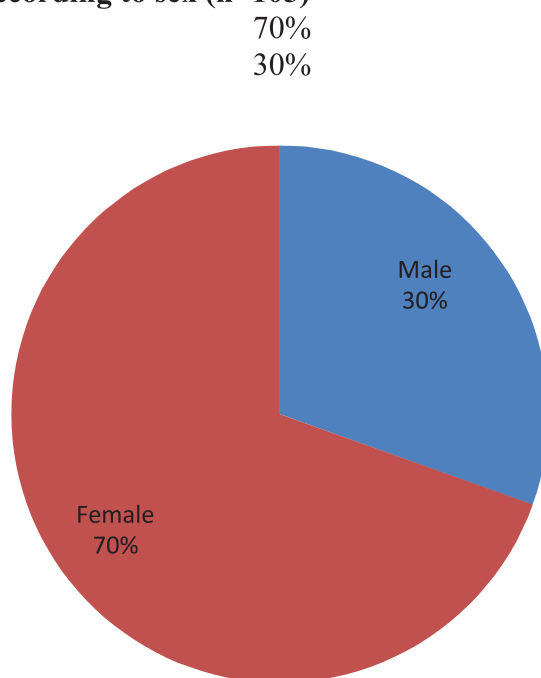
**RESULTS**

**Table I: Distribution of patients according to age (n = 105)**

Age(years)	Frequency(%)	Range(years)	Mean $\pm$ SD
$\leq 20$	2(1.91%)		
21 – 30	23(21.9%)		
31 – 40	41(39.05%)	18 - 68	37.32 $\pm$ 9.92
41 – 50	24(22.86%)		
51 – 60	13(12.38%)		
$\geq 60$	2(1.9%)		

**Figure 1: Distribution of patients according to sex (n = 105)**

**Distribution of patients according to sex (n=105)**



**Table II: Distribution of patients according to clinical presentations( n = 105)**

Clinical presentations	Frequency(%)
Pain during defecation	103 (98%)
Rectal bleeding	86 (82%)
Constipation	103 (98%)
Pruritus	22 (21%)

**Table III: Symptomatic relief of defecatory pain following lateral internal sphincterotomy (n=105)**

Time of follow up	Patients with pain relief (%)
1 <sup>st</sup> week	69 (66%)
2 <sup>nd</sup> week	82 (78%)
3 <sup>rd</sup> week	96 (91%)
4 <sup>th</sup> week	101 (96%)
6 <sup>th</sup> week	105 (100%)
8 <sup>th</sup> week	105 (100%)

**Table IV: Outcome of lateral internal sphincterotomy in 3 months follow up period (n=105)**

Complications	Frequency (%)
Bleeding	01 (.95%)
Infection	05 (4.76%)
Flatus incontinence	01 (.95%)
Fecal incontinence	00 (00%)
Recurrence	00 (00%)

## DISCUSSION

Anal fissure is the most common anorectal painful condition. Young age group is the main sufferers. Risk factors include low fibre containing diet, less water intake, constipation etc. Longitudinal tear occurs in the posterior midline of anal canal in acute case and ulceration, hypertrophied papilla and sentinel tag present in chronic case. Acute anal fissure can be treated conservatively but operation is required for chronic anal fissure. Lateral internal sphincterotomy is the choice of operation for its high rate of success.

In our study 105 patients were included. Among them the mean age was  $37.32 \pm 9.92$  years which is similar to most studies<sup>18-21</sup>, while male to female ratio was 1: 2.28 with a slight predominance of female which is comparable with studies done by Shafiq ullah et al.,<sup>18</sup> and Tauro LF et al.,<sup>20</sup>, showing more male patients than female<sup>20</sup> whereas Oh C et

al., had shown equal ratio of male and female.<sup>19</sup>

Painful defecation (98%), constipation (98%) and bleeding per anum (82%) were the most common complaints in our study as observed in other studies<sup>2,22-24</sup> as well.

Pain relief in the patients was measured postoperatively. The number of patients whose pain got relieved improved consistently from the first week of the surgery (66%) to the second week (78%), fourth week (96%), and at the end of the sixth week, all the patients (100%) experienced pain relief. These results were similar to a previous study of Arujo et al., where maximum pain relief was observed at the end of the eighth week.<sup>25</sup> In another study, it was observed that almost all the patients had pain relief after six weeks of the surgery.<sup>26</sup>

The early complications in the present study were bleeding (0.95%), infection at surgical

site (4.76%) which is similar in earlier studies.<sup>7</sup> Other complications of LIS are anal incontinence, which is a major disadvantage of LIS.<sup>25</sup> In a meta analysis, it was observed that anal incontinence resolves itself in most of the patients, but in less than 2% of the patients, major incontinence (involuntary loss of feces) was observed.<sup>27,28</sup> In our study only 0.95%, patients showed gas incontinence, which itself got improved after some time. While success rates of the LIS procedure remain high, as judged by the successful healing of the anal fissure, there is a risk of recurrence in 1.3%–25% of the cases.<sup>29,30</sup> Liang et al. also obtained similar results, where the recurrence rate was only 4%.<sup>7</sup> In our study no patient suffered from recurrence in 3 months period.

## CONCLUSION

Our study shows that lateral internal sphincterotomy is a safe surgical option for treatment of chronic anal fissure. It improves the existing symptoms rapidly and there are few post-operative complications which can be managed. Flatus incontinence may occur but it resolves with time and there is reduced chance of recurrence.

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