



## A STUDY COMPARE POST-OPERATIVE PAIN & INCONTINENCE BETWEEN LATERAL INTERNAL SPHINCTEROTOMY VERSUS ANAL DILATATION IN CHRONIC ANAL FISSURE

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### ABSTRACT

**Background and Objectives:** Both anal dilatation (AD) and lateral internal sphincterotomy (LIS) are practiced in our hospital for treatment of chronic anal fissure (CAF). The objective of the study was to compare the two procedures especially regarding pain relief, ulcer healing, incontinence and recurrence. **Material and Methods:** This is an observational study and included 49 patients of AD (Group A) and 49 patients of LIS (Group B). The average follow-up was 1-6 months. **Results:** By the end of 1 month pain relief was observed in 44 (89.8%) and 47 (95.91%) patients and ulcer healing in 44 (89.79%) and 46 (93.87%) patients in group A and B respectively. By the end of 3 months, minor incontinence including mucous discharge was observed in 13 (26.5%) and 3 (6.12%) patients in group A and B respectively and the difference was significant ( $p=0.0062$ ). None had major incontinence. Nine (18.36%) and 1 (2.04%) patients in group A and group B respectively reported with recurrence ( $p = 0.0075$ ) during the study period and thereafter. **Conclusion:** Both AD and LIS provides early pain relief and high ulcer healing rate. However, LIS appears to be safer with regard to incontinence, and the chance of recurrence is also lower compared to AD.

**KEYWORDS :** Anal fissure, Anal dilatation, Chronic anal fissure, Incontinence, Lateral internal sphincterotomy

### INTRODUCTION

Anal fissure is a linear ulcer of the anoderm distal to the dentate line. It is generally located in the posterior anoderm in the midline. Anal fissure of less than 6 weeks duration is generally considered as acute. When it persists for more than 6 weeks it is called chronic. Additionally chronic anal fissure may also possess associated sentinel piles, hypertrophied anal papillae or visible internal sphincter fibers.<sup>2,3,4</sup>

Patients with anal fissures present with pain, bleeding during defecation, and constipation; anal fissures are one of the most common medical conditions encountered in proctology.<sup>5</sup>

The etiology of anal fissures is not known. Anal fissures generally arise with local trauma caused by difficult defecation due to hard stools and internal sphincter hypertonia caused by persistence of these conditions, which in turn reduces blood flow of the posterior wall and results in a higher anal canal pressure, even at rest. Thus, anal fissures often become chronic.<sup>6</sup>

Studies on the methods of treatment of chronic anal fissures range from medical applications to surgery; there is no general agreement on ideal therapy for chronic anal fissures.<sup>7</sup>

In a meta analysis, it was concluded that medical applications did not achieve a satisfactory result, whereas manual anal stretch methods resulted in a high-degree of sphincter damage.<sup>7</sup> Lateral internal sphincterotomy (LIS) is a surgical procedure which is performed routinely in the treatment of chronic anal fissures, especially in cases that have failed traditional medical modalities. The results of open and closed LIS techniques are similar.<sup>3</sup> Because of reports of the high incidence of incontinence (66%)<sup>1</sup> with these techniques, alternative methods have been investigated.

Controlled anal dilatation methods have been found to be promising, but these methods should be supported with prospective randomized studies.<sup>7,8</sup>

Controlled application of a Park's retractor was found to be an

alternative method<sup>9</sup> and with standardization, 88% healing with a 12% recurrence were achieved in a large series.<sup>10</sup>

In this prospective, randomized study, with the idea that a Park's speculum can reduce sphincter damage, the effectiveness of controlled-intermittent application (rather than continuous) on the treatment of chronic anal fissures was analyzed by comparison with a standard LIS method.

### MATERIALS AND METHODS

This is a prospective and observational study carried out at Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh and enrolled patients over 20 years of age operated for CAF from November 2018 to December 2019. During this period 98 patients were operated for CAF. All the patients had previously received one or more sessions of conservative treatment at various clinics outside and had recurrence of symptoms and signs of CAF. The data were recorded at admission for surgery. Approval for the study was obtained from the ethical committee of the college.

**Exclusion criteria:** Patients who had suspected or proven inflammatory bowel disease, hemorrhoids, fistula, pregnancy, and previous anal surgeries were excluded from the study.

**Diagnosis of CAF:** was based on typical symptoms present for more than 6 weeks and signs. History suggestive of fissure included pricking type of pain at defecation and bright red blood drops in lavatory pan after evacuation of stool, blood stain on the surface of the stool or on the toilet tissue paper. History of constipation was present in most patients. Examination findings include one or more of the following features: visible internal sphincter fibers, indurated margins, sentinel piles at the distal aspect and hypertrophied anal papillae at the proximal aspect of the ulcer.<sup>2,3,4</sup>

**Surgical procedure:** The patients underwent either AD or LIS depending on individual Surgeon's preference. The patients who underwent AD were Grouped A and those who had LIS were grouped B. Caudal or saddle anesthesia was used in all

the patients and the procedures were performed in the lithotomy position. AD was usually performed by technique popularized by Watts and colleagues in 1964.11 In this procedure anal canal was stretched manually beginning with two fingers and then four fingers stretching the lateral walls of the anal canal. In some cases 5 or 6 fingers were also used. Dilatation was performed for about 3-4 minutes.

A LIS with an open method was applied to patients in the lithotomy position. The internal sphincter was separated from the mucosa just under the dentate line; the distal part of the sphincter was dissected and cut with a Number 11 surgical blade was passed in the groove in left posterolateral aspect of anus. The length of cut was about 1 cm. As the sphincter fibers were divided, a "sudden give" could be felt. Also the division was confirmed by palpation of the defect in the sphincter at the site of division. Sentinel piles and anal papillae, if prominent, were also excised. Most patients were discharged on the first or second post-operative day.

All the patients received preoperative ceftriaxone 1gm and metronidazole 400mg intravenously. Postoperatively they were given oral antibiotics for 5-7 days, laxative for about two to four weeks and sitz bath for about 10 days. All were advised to take high fiber food, more of water and cut down intake of fried and spices foods.

The patients were followed up at 1 week and then at 1 month of surgery. They were interviewed for pain relief, bleeding, mucous discharge and incontinence. Anus was inspected for healing of the ulcer. Patients were asked for pain control and anal continence. Patients who had no complaint by the end of a month of surgery were advised to report in case they develop recurrence of symptoms.

Others who had persistent symptoms, ulcer and complications were further followed up to variable extent of time maximum being 9 months.

**Statistical analysis:**

Data were entered in Microsoft Excel version 2010 and analyzed using statistica. Statistical significance was set to p <0.05.

**RESULTS**

Follow-up record of 98 patients and their results are presented. Fifty four (57.5%) patients were male, and male to female ratio was 1.23:1. Group A and B included 49 (50%) and 49 (50%) patients in each group. The mean age was 34.36 ± 4.71 (range: 20-62) years, and there was no significant age difference between the two groups (Table). Pain was present in all the 98 (100%) patients and bleeding in 81 (82.6%) patients. However, pain was the main presenting symptom in 73 (74.4%) patients only while in the others bleeding was predominant. 76 (77.5%) patients complained of constipation. Average duration of symptoms was 11.16 ± 12.17 (range, 1.8-60 months) and the difference between two groups was not significant. No patient had significant intraoperative complication.

Two patients in group LIS complained of pain and some discharge on the fifth post-operative day. He was suspected of having infection based on clinical judgment. It was controlled by switching over the oral antibiotic to intravenous ceftriaxone and metronidazole combination.

The average follow-up was 6 months. Pain relief was observed in 33 (67.34%) and 38 (77.55%) patients by the end of 1 week and 44 (89.8%) and 47(95.91%) patients by the end of 1 month. One patient in group B took about two and half months but pain got relieved.

By one month, healing of the ulcer was observed in 47 (94%)

and 43 (97.7%) in group A and B respectively. By the end of 3 months, minor incontinence including mucous discharge was observed in 13 (26.5%) and 3 (6.81%) patients in group A and B respectively and the difference was significant (p=0.0062).

True fecal incontinence occurred only in 2(6.12%) patients in group A and was minor. No patient had major incontinence. A few among these patients who followed up till late, incontinence was found to gradually improve. Regarding recurrence, over the period of 6 month follow-up, 9 (18.36%) and 1 (2.04%) patients in group A and group B respectively reported with recurrence of symptoms and the fissure was evident on examination also (p =0.0075)

**Table I: Demography, ulcer details and results of surgery in AD and LIS patients**

Parameter	Group A (n=49)	Group B (n=49)	p Value
Age in years: mean (range)	33.8 ± 6.12 (20-60)	34.1 ± 7.6 (20-62)	0.434
Male to female ratio	1.38	1.32	-
Duration of symptoms (months): mean (range)	10.7 ± 11.98 (1.5-60)	11.6 ± 12.5 (2-60)	0.18
Posterior ulcer,	46(93.87%)	42(85.71%)	
Pain relief in 1 week, n (%)	33 (67.34%)	38 (77.55%)	0.25
Pain relief in 1 month, n (%)	44 (89.8%)	47(95.91%)	0.23
Ulcer healed in 1 month, n (%)	47 (94%)	43 (97.7%)	0.14
Minor incontinence and Mucous discharge, n (%)	13(26.5%)	3 (6.81%)	0.0062
Recurrence	9(18.36%)	1(2.04%)	0.0075

**DISCUSSION**

Basis of surgical treatment is founded on the cause of CAF suggested to be due to internal sphincter hypertonia. 12,13 Both AD and LIS lead to reduction of resting anal pressure. Both the techniques have been found to result in quick pain relief and high ulcer healing rate. Watt et al reported satisfactory early relief of symptoms in 95% of patients with AD.11 Hoffmann reported that about 93% patients were quite free of pain in 1 week of LIS. Little john reported 99% initial healing with tailored LIS14. Current study also revealed rapid improvement in symptoms and ulcer healing in both the groups.

Regarding incontinence there exists marked variation in literature and in between AD and LIS. AD is associated with uncontrolled damage to the internal sphincter fibers, and in some cases external anal sphincter may also be damaged.15,16,17. In 1968 Lord suggested anal dilatation technique in which four fingers of each hand are inserted into the anal canal and stretched for 3 to 4 minutes.18 Konsten et al, in a prospective randomized trial involving 138 patients treated by Lord's anal sphincter stretch technique, and 17-year follow-up, demonstrated that 52% of patients had varying degrees of incontinence after Lord's procedure.18 In 1992 MacDonald and colleagues reported incontinence as high as 27%.16 Strugnell and colleagues performed controlled digital dilatation of anus in 273 patients and over a median follow up of 7.8 years revealed that incontinence rate was as low as 9 (3.8%).19 In the current study, minor incontinence rate was relatively lower compared to studies in the past. The high

rate of incontinence reported by Lord's technique was not observed in the current study because the extent of stretch was limited to four fingers and in a few patients only to five or six fingers.

Since the description of the technique of LIS by Eisenhammer in the 1950s, practice was to divide the internal sphincter to the dentate line.<sup>20</sup> Khubchandani et al documented complication up to 35% of cases following LIS.<sup>21</sup> Littlejohn et al reported a retrospective review of 287 patients who underwent division of the internal anal sphincter tailored to the length of the fissure and there was 35% incidence of minor staining.<sup>14</sup> After the report of Littlejohn various studies have compared the results of extent of division of internal sphincter. Sphincterotomy tailored to the apex of fissure has been shown to have lower rates of mild incontinence (2%) compared with sphincterotomy to the dentate line (11%). However, this comes with a higher overall treatment failure rate on long-term follow-up (13%) compared with a larger sphincterotomy either to the dentate line (0%) or to an anal diameter of 30 mm (3%).<sup>22</sup> We adhered to traditional longer sphincterotomy with fewer treatment failures and an acceptable rate of minor staining in the form of mucous discharge and no true incontinence most of which also improved satisfactorily in due course of a few months.

Regarding incontinence, Watts et al had at least 5 month follow up of 99 patients treated by sphincter stretch and reported recurrence rate of 16%.<sup>11</sup> Sphincterotomy results in sustained reduction of maximum resting anal pressure.<sup>23</sup> Hiltunen et al, after 2 months of surgery found that the basal pressure was significantly lower in the patients who underwent LIS, however, there were 4 failures among the 19 patients who underwent AD.<sup>24</sup> This might be the reason for less chance of recurrence observed in the current study also. Several studies have demonstrated lower incontinence rate following LIS compared to AD.<sup>16,26,27</sup> A recent randomized controlled enrolling 108 patients with average follow-up were 11.2 months demonstrated that significantly more patients reported minor incontinence with the AD than with the LIS. Also recurrence occurred in 11% of AD patients versus 2% of LIS patients.<sup>25</sup> A Cochrane Review of seven randomized controlled trials significantly favored sphincterotomy over anal stretch.<sup>26</sup> The current study also demonstrated lower rate on incontinence and recurrence with LIS compared to AD.

American Society of Colon and Rectal Surgeons recommended LIS as the surgical treatment of choice for refractory anal fissures.<sup>27</sup> There are a few limitations of the current study. First the number of patients is relatively low and not all patients had long follow up record. Secondly, though there was a consistency in the technique of LIS, there was some variation in AD technique regarding the number of digits employed. Thirdly there was no provision of anal manometer to monitor anal pressure. Despite these limitations, this study demonstrates significant benefits of LIS over anal dilatation in the treatment of CAF.

## CONCLUSION

Both AD and LIS provides early pain relief and high ulcer healing rate. However, LIS appears to be safer with regard to incontinence, and the chance of recurrence is also lower compared to AD.

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