



COMPARATIVE STUDY OF OPEN VERSUS CLOSED LATERAL INTERNAL SPHINCTEROTOMY IN THE MANAGEMENT OF CHRONIC ANAL FISSURE

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ABSTRACT

Anal fissure is a painful linear tear situated in the distal anal canal extending from just below the dentate line to the anal verge. Patient presents with pain in anal region during or after defecation and passage of bright red blood per anus. Various studies investigating chronic anal fissures show a large variation in the healing rates for different modalities. The present study was carried out to evaluate the effectiveness of open versus closed lateral internal sphincterotomy in the treatment of patients with chronic anal fissure.

Key words:

Anal fissure, open and closed lateral internal sphincterotomy.

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INTRODUCTION

Anal fissure is a painful linear tear situated in the distal anal canal extending from just below the dentate line to the anal verge. It can be defined as “the presence of visible transverse internal anal sphincter fibers at the base of an anal fissure of duration not less than 6 weeks”.¹ Patient usually presents with pain in anal region during or after defecation and passage of bright red blood per anus.

It affects all age groups but is more commonly found in young adults. The disease equally affects both the sexes. Posterior midline is the commonest site but anterior midline fissures are also found. Most common etiology involved is constipation but sometimes also seen in acute episodes of diarrhoea. Patients with anal fissure had a high resting anal pressure in the anal canal which may be due to chronic overactivity of the internal sphincter.² In females, it is usually triggered during pregnancy and following childbirth.

The open technique involves making an incision across the intersphincteric groove, separating the internal sphincter from anal mucosa by blunt dissection and dividing the internal sphincter using scissors while the closed technique involves making a small incision at the intersphincteric groove, inserting a scalpel with the blade parallel to the internal sphincter and advancing it along the inter sphincteric groove and then rotating the scalpel towards the internal sphincter and

dividing it. In both techniques the lower one third to one half of the internal sphincter is divided, to lower the resting pressure without destroying the effect of the sphincter. The closed technique results in a smaller wound, but both techniques appear to be similarly effective. Both techniques can be performed under local anaesthesia.

The data available from the various studies investigating chronic anal fissures are very heterogeneous, with a large variation in the healing rates for the same modality and also a large degree of overlap between the healing rates achieved for different modalities. Thus, present study was carried out to evaluate the effectiveness of open versus closed lateral internal sphincterotomy in the treatment of patients with chronic anal fissure with regards to fissure healing, pain reduction, recurrence and incontinence after surgical treatment, if any.

MATERIALS & METHODS

A prospective study was conducted on a total of 40 patients from all age groups, of either sex presenting with chronic anal fissure after obtaining approval from ethical committee of the institute. Patients were divided into two groups alternately. Group A & group B included 20 patients each with chronic anal fissure and managed by closed and open lateral internal sphincterotomy respectively. All patients treated by the same surgeon using standard techniques of sphincterotomy. The patients having chronic anal fissure of more than 6 weeks

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duration and those having features of chronicity were included in the study whereas acute anal fissures, fissures of < 6 week duration, fissures in pregnant women and in patients with inflammatory bowel disease, HIV, malignancy were excluded from the study.

After obtaining written consent from patient, a detailed history and clinical examination was done. Group A patients were subjected to a standard closed lateral internal sphincterotomy, whereas group B patients were subjected to a standard open lateral internal sphincterotomy. Patients were discharged on the next day and asked for follow up at one, three and six weeks.

All patients in both the treatment groups were encouraged for high fibre diet and given stool softener. On follow up, patients were examined for symptomatic relief of pain by a visual analogue scale (VAS), healing of fissure, side effect or complication of the treatment, if any. The healed fissures were subsequently followed up at 3 months for any recurrence. The time taken for symptomatic relief and complete healing of fissure was recorded in each case.

Statistical Analysis

The qualitative data was presented in the form of numbered percentage. Chi-square test was used as a test of significance for qualitative data in terms of pain reduction, time taken for healing. The quantitative data was presented in the form of mean ± SD. Student t-test was used as a test of significance for quantitative data. A p value of <0.05 was considered statistically significant.

Observations

Out of a total of 40 patients of chronic anal fissure who attended the surgical OPD; 11 patients (55%) were in the age group of 20-29 years in group A, whereas in group B 7 patients (35%) were in age group of 30-39 years. Only two of them were aged 60 years and above. Out of 20 patients in group A, 13 (65%) were male and 7 (35%) were females while in group B, 16(80%) were males and 4(20%) were females.

After treatment with closed lateral internal sphincterotomy (Group A) and open lateral internal sphincterotomy (Group B) and on follow up of patients in both the groups the mean pain scores on VAS at the end of 1 week in group A and group B was not found to be statistically significant (p 0.759), whereas mean pain score at 3 week and at 6 weeks in group A and group B patients was found to be statistically significant (p<0.001, Table 1).

Table 1 Pain score at various time intervals for cases with Group A and Group B

Time interval	Group A Mean± SD	Group B Mean± SD	p value
Pain at 1week	3.95 +1.050	4.05+0.99	0.759
Pain at 3week	0.95 ±0.887	2.45+0.68	<0.001
Pain at 6week	0.45 ±0.605	1.40+0.59	<0.001

After treatment with closed lateral internal sphincterotomy and open lateral internal sphincterotomy, patients were followed at 1st week, 3rd week and 6th week to see healing of fissure. None of the patient in either group had complete healing at the end of 1st week however at the end of 3rd week, 18 patients in group A and 15 patients in group B had completely healed fissures. At the end of 6 weeks, all patients in group A had complete

healing of fissure whereas in group B, 19 patients (95%) had complete healing of fissure but it was statistically insignificant (p value >0.05, Table 2).

Most of the patients in both the groups underwent rapid healing of fissure and resolution of their symptoms with no recurrence after three months of follow up. Although delayed healing was seen in 1 patient of group B, none of the patient in group A had either delayed healing or an absence of healing postoperatively.

Table 2 Healing at various time intervals for cases with Group A and group B

Fissure Healing	Group A		Group B		p value
	Healing	Non healing	Healing	Non healing	
1wk	0	20	0	20	-
3wk	18	2	15	5	0.212
6wk	20	0	19	1	0.311

In group A, no patient developed any complications like postoperative infection and perianal hematoma while in group B, 3 patients had early cut through of sutures at 1st week, out of which one patient progressed to non-healing at the end of 6 weeks and another 2 patients had mild infection at suture line which subsequently healed after giving proper antibiotic. Another 2 patients of group B had perianal hematoma on 1st post-operative day, out of which 1 patient was managed conservatively, while the other patient required drainage of hematoma after 48 hrs of conservative management. In both the groups no patient developed incontinence to flatus and stool.

DISCUSSION

Various treatment modalities for chronic anal fissure include medical and surgical management. Medical management is done by relaxation of internal sphincter using various agents like botulinum toxin, isosorbide dinitrate, glyceryl trinitrate, calcium channel blockers such as nifedipine or diltiazem. Various surgical techniques like anal dilatation, fissurectomy, lateral sphincterotomy and newer surgical therapies like local flap procedures, calibrated and controlled procedures with anal dilators are available to treat anal fissures. But lateral internal sphincterotomy is preferable surgical technique in the management of chronic anal fissure

The aim of the treatment is to improve the blood supply of the ischemic area to facilitate healing, focusing on breaking the cycle of pain, spasm and ischemia, and decrease internal sphincter tone and hence increased blood flow with subsequent tissue healing.

In the present study, the most common symptom in patients of both groups was pain during defecation. Next to pain, bleeding per anus and constipation were the most frequent symptoms in both the groups. Most patients in group A and group B presented with posterior midline fissures.

During the present study, the mean pain score decreased from 8.65 (on VAS) to 0.45 in group A at the end of 6 weeks and from 8.70 to 1.40 in group B at the end of 6 weeks. All the patients in closed lateral internal sphincterotomy (group A) and 90% of patients in open lateral internal sphincterotomy (group B) had complete pain relief after 6 weeks of treatment and the decrease in mean pain score in group A as compared to group B was statistically significant (p<0.05). The results of present study are in agreement with the various studies.³⁻⁵

In the present study, complete healing of fissure was observed in all patients in group A whereas in group B, 95% patients had complete healing of fissure at the end of six weeks of treatment which was statistically insignificant (pvalue>0.05). Also, no patient had recurrence after 3 months of follow up. The results of the present study are in conformity with the study conducted by Gupta *et al.*⁶ However, several studies have reported no difference in fissure healing after closed or open lateral internal sphincterotomy and few of these studies have shown recurrence in both the groups.³⁻⁵

There were no complications in group A whereas in group B 3 patients had early cut through of sutures at 1st week, out of which one patient progressed to non-healing at the end of 6 weeks and another 2 patients had mild infection at suture line which was healed after giving proper antibiotic. Also, 2 patients had perianal hematoma on 1st post-operative day in group B which was managed conservatively in one patient whereas in other patient drainage was done. No patient developed incontinence to flatus and stool in both the groups. However, several studies have reported incontinence to flatus and stool which was statistically significant in open LIS as compared to closed LIS.^{3-5,7}

CONCLUSION

There was a significant difference between closed and open methods of lateral internal sphincterotomy in terms of relief in post-operative pain but as a whole both types of techniques did not show any statistically significant difference in terms of fissure healing, postoperative complications or recurrence at 3 months.

Therefore it may be suggested that closed technique of lateral internal sphincterotomy may be adopted by surgeon over and above the open lateral internal sphincterotomy but considering the technicality involved in doing closed LIS, a trainee should be first made to get verse with open technique first and then be shifted to closed technique of LIS. However, a larger study with a greater number of subjects is needed before an ideal treatment regimen can be recommended.

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