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Original Research Article

A Comparative Study Between Lateral Internal Sphincterotomy Alone with Combined Lateral Internal Sphincterotomy, Fissurectomy and Primary Repair of the Defect in the Treatment of Chronic Anal Fissure: A Randomized Control Study

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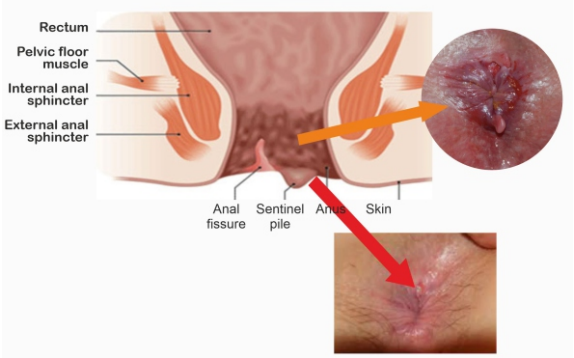
HIGHLIGHTS

Title: "Treatment Comparison: Chronic Anal Fissure"
Procedure Efficacy: "Single vs. Combined Surgical Approaches Evaluated"
Healing Rates: "Combined Approach Shows Improved Healing Outcomes"
Complication Rates: "Comparing Complications in Both Surgical Methods"
Recommendations: "Combined Approach Recommended for Better Outcomes"

GRAPHICAL ABSTRACT



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ABSTRACT

Objective: The objective of this study was to compare the effectiveness of lateral internal sphincteromy alone with combined lateral internal sphincteromy, fissurectomy and primary repair of the defect in the surgical management of chronic anal fissure, in respect of long term fissure recurrence and patient's satisfaction. ***Background:*** The effectiveness of lateral internal sphincterotomy alone versus combined lateral internal sphincterotomy, fissurectomy and primary repair of the defect were described and evaluated. ***Material and methods:*** This randomized control study was done on 30 patients attended the department of surgery with the history of chronic anal fissure and were aged between 18 years to 60 years. The patients were divided randomaly into two equal groups(Group I underwent lateral internal sphincterotomy alone and Group II underwent combined lateral internal sphincterotomy, fissurectomy and primary repair of the defect).Patients of both the groups were discharged from the hospital on third postoperative day. Both the groups were evaluated for postoperative pain, fissure healing, complications and postoperative reccurence of the symptoms. ***Result:*** In the present study, all patients of group I became pain-free within one week, whereas in group II the time elapsed to became pain-free was two weeks. Three patients(20%) of group I had retention of urine, whereas in group II it was in four(26.66%).Bleeding spots were seen in two patients(13.33%) in group I, whereas in group II it was in eight(53.33%).Incontinence of flatus seen in two patients(13.33%) in group I, whereas one patient(6.66%) in group II. There were equal number of patients having incontinence of liquid and solids in both the groups(6.66%). There were two patients (13.33%) having recuurence of symptoms within six months of follow up in group I whereas nil in group II for the same period. At one year of follow up five patients(33.33%) in group I and nil in group II patients having reccurence of symptoms. After one year of follow up eight patients(53.33%) in group I and one patient (6.66%) in group II having reccurence of symptoms. ***Conclusion:*** In the present study, it has been found that the combined lateral internal sphincterotomy, fissurectomy and primary repair of the defect was the better treatment option for chronic anal fissure than lateral internal sphincterotomy alone in respect of the reccurence of symptoms on long term basis.

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INTRODUCTION

Anal fissure (fissure in ano) is a longitudinal split in the anoderm of the distal anal canal, which extends from anal verge proximally but not beyond the dentate line [1]. The pathophysiology of anal fissure is related to trauma from either the passage of hard stool or prolonged diarrhea. A tear in the anoderm causes spasm of the internal anal sphincter resulting in pain, increased tearing and decreased blood supply to the anoderm. This cycle of pain, spasm and ischemia causes poor healing of the wound, leading to the development of a chronic fissure [2].

The fissure is almost always located close to midline of anal canal; in men, 95% are close to posterior midline and 5% near the anterior midline, whereas in women, about 80% are located posteriorly and 20% anteriorly [3]. Atypical anal fissure can occur anywhere in the anal canal, and these are associated with other diseases like Crohn's disease, HIV infection, cancer, syphilis and tuberculosis [4].

Chronic anal fissures are wider and deeper than acute fissures with indurated edges and may be a skin tag distally and a hypertrophied papilla proximally [5]. Most of the acute anal fissures heal spontaneously within three weeks with conservative medical management comprising of a higher fiber diet, laxatives, warm sitz bath, topical nifedepine with lignocaine (1.5%), nitroglycerine ointment (0.2%), diteazem (2%) [6]. But the same is not useful as a treatment modality for chronic anal fissure. Secondary anal fissure will heal only after the treatment of primary cause.

Chronic anal fissure often need surgical treatment. The modality of treatment is based upon the principal of lowering the internal anal sphincter tone and also avoiding the risk of fecal incontinence. Based upon the above principal, various surgical treatment modalities have been developed. These include lateral internal sphincterotomy, fissurectomy, anal advancement flap. The complication like anal incontinence is approximately 30% cases of lateral internal sphincterotomy [7]. Fissurectomy is associated with prolonged healing, passive anal leakage due to keyhole gutter deformity [8].

The purpose of this study was to compare the results of lateral internal sphincterotomy alone with combined lateral internal sphincterotomy, fissurectomy and primary repair of the defect in the treatment of chronic anal fissure.

MATERIALAND METHODS

This was a randomized control study, conducted during period of November 2021 to July 2023, in different surgical wards of sheikh Bhikhari Medical College and Hospital, Hazaribag. Thirty (30) patients with history of chronic anal fissure and in between 18 years and 60 years of age were selected and admitted for the surgery. The patients were divided randomly into two equal groups (Group I, underwent lateral internal sphincterotomy alone and Group II, underwent combined lateral internal sphincterotomy, fissurectomy and primary repair of the defect). Patients of both the groups were discharged on third postoperative day. Both groups were evalu-ated for postoperative pain, postoperative fissure healing and postoperative complications. All patients were followed-up on out-patient basis for one year in the study period and the recurrence of symptoms in both the groups was evaluated.

RESULTS

Total thirty (30) patients were taken for study, out of which 10 (33.33%) were male and 20 (66.66%) were female, with female to male ratio was 2:1.Out of 10 male patients 9 (90%) and out of 20 female patients 16 (80%) had posterior midline and 1 male patient (10%) and 4 female patients (20%)had anterior midline chronic anal fissure. The maximum age incidence was found in between 30-40 years of age, 15 patients (50%). In group I (15 patients) lateral internal sphincterotomy alone and in group II (15 patients) combined lateral internal sphincterotomy, fissurectomy and primary repair of the defect was performed under spinal anaesthesia.

In group I, all patients became symptoms free (pain and bleeding0 within one week, where as in group II the time taken for the same was two weeks.

The time taken for complete fissure healing was 12 weeks in group I, where as it was 8 weeks in group II.

Retention of urine was noted in 4 patients (26.66%) in group II as compared to 3 patients (20%) in group I. Bleeding spots were seen in 2 patients (13.33%) of group I, where as 8 patients (53.33%) in group II. Incontinance of flatus was seen in 2 patients (13.33%) in group I, where as 1 patient (6.66%) in group II. Incontinance to liquids and solids were same in both the groups (6.66%).

On follow up, there were 2 patients (13.33%) having recurrence of symptoms within 6 months after operation in group I, where as nil in group II for the same period. At one year of follow up 2 patients (13.33%) in group I and nil in group II having recurrence of symptoms. After one year of follow up 4 patients (26.66%) in group I and nil in group II having recurrence of symptoms. Anal stenosis was found in no any patient of either the group.

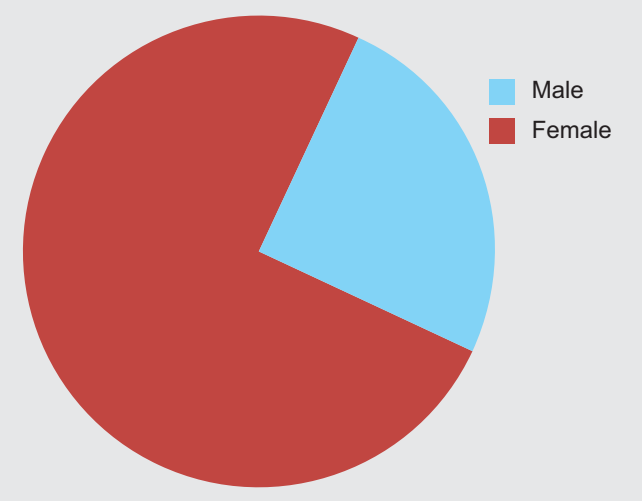

Figure 1: Gender distribution

Table 1: Age incidence

Age group(years)	No. of cases	Percentage (%)
18-29	5	16.66
30-40	15	50
41-50	6	20
51-60	4	13.33

Table 2: Location of fissure

Location	Male(10 patients)	Female(20 patients)
Posterior midline	9(90%)	16(80%)
Anterior midline	1(10%)	4(20%)

Table 3: Postoperative pain relief

No. of patients	2nd postoperative day	7th postoperative day	14th postoperative day
Group I	8	7	0
Group II	2	3	10

Table 4: Postoperative fissure healing

No. of patients	0-4 weeks	4-8 weeks	8-12 weeks
Group I	8	4	3
Group II	12	3	0

Table 5: Recurrence of symptoms after operation

No. of patients	Within 6 months	6 months-01 year	After 01 year
Group I	2	2	4
Group II	0	0	0

Table 6: Postoperative complications

No. of patients	Retention of urine	Bleeding spots	Incontinence to flatus	Incontinence to liquids	Incontinence to solids	Anal stenosis
Group I	3	2	2	1	1	0
Group II	4	8	1	1	1	0

DISCUSSION

Anal fissureis a longitudinal split in the anoderm of the distal anal canal, extending from anal verge proximally but not beyond the dentate line [1]. The cause is related to trauma from either the passage of hard stool or prolonged diarrhea. The cycle of pain, spasm and ischemia causes poor healing of wound, leading to the development of chronic fissure in ano [2]. The fissure is almost always located close to the midline of anal canal; in men, 95% are close to posterior midline and in 5% near the anterior midline. Whereas, in women, about 80% of the fissures are located posteriorly and 20% anteriorly in midline [3]. In our study, 90% males have chronic fissure in posterior midline and 10% in anterior midline. Whereas in females, 80% have posterior midline and 20% have anterior midline fissures. The female to male ratio in our study was 2:1. In our study, the highest age incidence was in 3rd decade (50% patients).No patie-nts with atypical anal fissures were taken in present study [4].

There are different methods of surgical treatment (like lateral internal sphincterotomy, fissurectomy, anal advancement flap etc.).The complications like anal incontinence are approximately 30% cases of lateral internal sphincterotomy [7] and 15% cases of fissurectomy [9]. In our study it was 26.66% in group I and 20% in group II. In our study, pain relief after operation in group I, on 2nd postoperative day was in 53% of patients and on 1st week in 100% of patients. Whereas in group II, 33% of patients have pain relief on 1st week and 100% on 2nd week after operation In study by Olfat El-sibai *et al,* it was 60% in lateral internal sphincterotomy patients on 2nd postoperative day and 100% on 1st week, whereas in sphincterotomy patients it was 10% on 2nd postoperative day and 100% on 2nd week [9]. In our study, time elapsed for fissure healing in all the patients of group I was in between 8-12 weeks whereas 4-8 weeks in group II. In study by Olfat El-sibai *et al.,* it was 3-5 weeks in lateral internal sphicterotomy group. In our study, we

excised the sentinel piles in all the cases of group II, because the left over sentinel piles causes discomfort and dissatisfaction to the patients.

The main aim of our study was to compare the long term recurrence rate of symptoms after operation. In group I, the recurrence of symptoms was 13% of patients within six months, 33% in between six months to one year and 53% after one year, whereas in group II it was zero percent up to one year and also zero percent after one year of follow up period. In the study of Mousavi *et al* [10] the fissure recurrence in fissurectomy group was 3.1%, whereas no recurrence of fissure in lateral internal sphincterotomy group. In Bipin K.B *et al* study, zero percent recurrence after 6 months in fissurectomy and 5% in lateral internal sphincterotomy group [11].

CONCLUSION

In the surgical management of chronic anal fissure, the present study found that the combined lateral internal sphincterotomy, fissurectomy and primary repair of the defect was a better treatment option than the lateral internal sphincterotomy alone in respect of long term fissure recurrence and patient's satisfaction.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interests regarding the publication of this paper.

SOURCE OF FUNDING

None to declare

ETHICAL CLEARANCE

Necessary approval has been taken from institutional ethical committee.

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