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Original Research Article

Evaluating the Efficacy and Outcomes of Chemical Sphincterotomy Compared to Lateral Internal Sphincterotomy in the Treatment of Chronic Anal Fissures

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Abstract

Background: Anal fissure is a painful condition characterized by a longitudinal tear in the anoderm. It can cause significant physical discomfort and emotional stress, reducing patients' quality of life. Treatment methods for chronic anal fissures range from conservative medical management to surgical interventions like lateral internal sphincterotomy (LIS).

Aim: The study aims to evaluate the safety, effectiveness, and patient satisfaction following LIS for chronic anal fissures.

Methodology: This retrospective study was conducted over a year at Jannayak Karpoori Thakur Medical College and Hospital, Bihar. A total of 100 patients with chronic anal fissures unresponsive to medical treatments were included. LIS was performed, and patients were followed up postoperatively to assess pain relief, complications, and recurrence rates. Statistical analysis was conducted using SPSS, and significance was determined with a p-value < 0.05.

Results: Of the 100 participants (mean age: 45.77 years), 90% experienced pain relief by the eighth week post-surgery. Complications were minimal, with only 1.1% reporting rectal bleeding. No cases of perianal abscess, hematoma, or incontinence were observed. Patient satisfaction was high, with 96.7% expressing positive outcomes and 97.8% achieving complete fissure healing.

Conclusion: LIS is a highly effective treatment for chronic anal fissures, with minimal complications and high patient satisfaction. The procedure provides significant long-term relief from pain and promotes healing, making it a preferred option for patients unresponsive to conservative management.

Keywords: Anal Fissure, Chronic, Complications, Lateral Internal Sphincterotomy, Patient Satisfaction, Pain Relief.

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Introduction

An anal fissure is a prevalent anorectal condition characterized by a painful longitudinal laceration in the anoderm distal to the dentate line. Patients are often identified upon exhibiting symptoms, including considerable discomfort during feces accompanied by varying degrees of rectal bleeding [2]. This illness can lead to significant mental distress, resulting in a marked deterioration in an individual's quality of life, in addition to the physical discomfort experienced. Ninety percent of anal fissures are often found in the posterior midline; however the remaining ten percent are less prevalent (10%) and more common in women [4]. Acute anal fissures often heal within 1–2 weeks, however chronic anal fissures are less likely to resolve even after 6–8 weeks of medical treatment. The management of anal fissures aims to alleviate the pressure of the internal sphincter muscle using physical or pharmacological interventions. The therapeutic approach for chronic anal fissures ranges from conservative medicinal therapy to surgical intervention.

Anal fissures are first healed by conservative medical care techniques. Medical interventions, including the administration of local anesthetic,

dietary fiber, and topical nitroglycerin, facilitate the rapid healing of fissures. The American Society of Colon and Rectal Surgeons recommendations advocate for the first nonsurgical care of anal fissures should include the use of stool softeners, a high-fiber diet, and warm sitz baths. The utilization of pharmacological drugs, such glyceryl trinitrate or calcium channel blockers, together with botulinum toxin (BT) injection, constitutes alternative therapy techniques referred to as 'chemical sphincterotomy' [6]. The success rate of this therapeutic technique (65–75 percent) is considerably lower than that reported in surgical sphincterotomy [7]. For the past 30 to 40 years, lateral internal sphincterotomy has been the recommended treatment for chronic anal fissures [8]. Lateral internal sphincterotomy is regarded as the gold standard for the surgical treatment of chronic anal fissures, achieving a success rate of 96 percent to 100 percent when conservative medicinal therapies are ineffective. Nevertheless, around 3% of patients experience wound-related problems, including hemorrhage, abscess formation, non-healing wounds, and fistulas [9]. The primary significant problems linked with LIS are the recurrence of anal fissures and incontinence. The findings indicate that the recurrence rate often remains around ten percent; nevertheless, elevated rates of anal incontinence, reaching up to 30%, have been reported in few investigations [10]. However, the majority of patients recover following surgical care, and incontinence is often temporary.

The main aim of this study is to evaluate the safety also efficacy of 'lateral internal anal sphincterotomy' for treating chronic anal fissure in a patient cohort. The preoperative symptoms of patients were documented and subsequently assessed in the weeks following surgery to assess pain alleviation from anal fissures. Additionally, we examined the early and late problems associated with the LIS, focusing on the recurrence of anal fissures and incontinence as significant issues in the individuals we evaluated. Ultimately, patient satisfaction, as an indicator of enhancement in overall health quality, was documented following LIS. This study aims to evaluate the safety, effectiveness, and patient satisfaction following LIS for chronic anal fissures.

Methodology

Study Design

This retrospective study was conducted over a period of one year in the Department of General Surgery, Jannayak Karpoori Thakur Medical college and Hospital, Madhepura, Bihar, India.

Sample Size

A total of 100 patients were included in this study. These patients presented with intra-articular fractures of the calcaneum and were treated surgically.

Inclusion and Exclusion Criteria

Inclusion Criteria:

Patients with anal fissures persisting for more than 3 months.

Both male and female patients were included.

Patients unresponsive to prior medical treatments.

Patients with recurrent anal fissures.

Exclusion Criteria:

Immunocompromised patients.

Patients with a history of previous anorectal surgeries.

Pregnant patients.

Patients diagnosed with anorectal malignancies.

Patients unwilling to participate in the study.

Procedure

After obtaining informed consent, patients underwent a thorough medical history review using a pre-designed proforma, followed by clinical anal examination to confirm the diagnosis. Routine blood tests and other investigations necessary for anesthetic fitness were conducted. Under spinal anesthesia, patients were positioned in the lithotomy position with proper draping and strict asepsis. A digital rectal examination and proctoscopy were performed to confirm the diagnosis and rule out other pathologies. If sentinel piles or papilloma were present, they were excised. Unilateral Internal Sphincterotomy (UIS) was carried out at the 3 o'clock position, where a 2–3 mm incision was made and dilated with a curved hemostat. Using the left index finger as a guide inside the anorectal lumen, the tight internal sphincter was identified and hooked externally with the hemostat through the incision, and its fibers were gradually transected using diathermy. Bilateral Internal Sphincterotomy (BIS) was similarly performed at the 3 o'clock and 9 o'clock positions.

Statistical Analysis

The statistical analysis was conducted using SPSS software, specifically version 27. The results were interpreted to assess the effectiveness of the partogram in managing labor. The Chi-square test was used to analyze categorical data. The P-value below 0.05 was indicated the statistical significance of result.

Result

Table 1 shows a detailed summary of the clinical characteristics of the research cohort, comprising just 90 female patients. 'The average age of the

group is around 45.77 years, with a standard deviation of 8.96 years.' A predominant number of individuals indicated suffering discomfort during feces (97.8%) and a history of constipation (97.8%), while a considerable percentage also reported rectal bleeding (77.8%). Additional symptoms were pruritus in 16.7% of instances and perianal discharge in 4.4%. Regarding the kinds of anal fissures, 66.7% of subjects exhibited posterior anal fissures, whilst 33.3% presented with anterior anal fissures.

Table 1: Clinical profile of the study group

Clinical features	(%)
Gender	
Female	100
Age (years); Mean ± SD	45.77 ± 8.96
Complaints	
Pain during defecation	88 (97.8%)
Rectal bleeding	70 (77.8%)
History of constipation	88 (97.8%)
Pruritus	15 (16.7%)
Perianal discharge	4 (4.4%)
Anal fissure type	
Anterior anal fissure	30 (33.3%)
Posterior anal fissure	60 (66.7%)

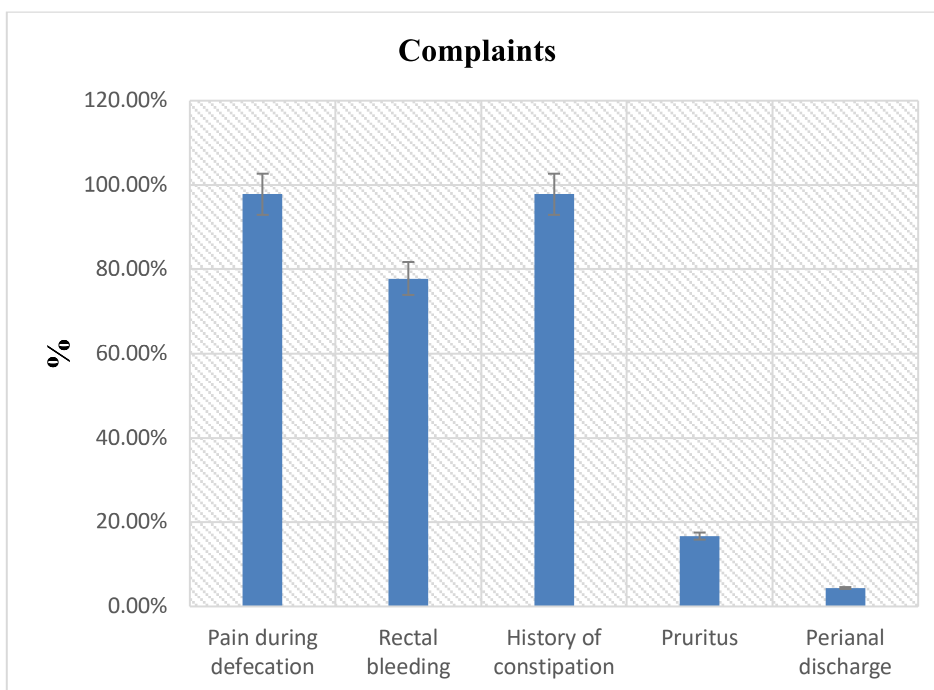

Figure 2: Clinical profile of the study group

Table 2 displays the outcomes of pain alleviation during an eight-week duration. During the initial week, 54 patients (60%) reported alleviation of discomfort. By the second week, this figure rose to 68 patients (75%). By the fourth week, 77 patients (85%) reported alleviation of pain, and by the eighth week, 81 patients (90%) attained pain relief. The data demonstrates a steady rise in the number of patients achieving pain alleviation over time.

Table 2 Results of pain relief

Week	Number of Patients (n)	Percentage (%)
First week	54	60%
Second week	68	75%
Fourth week	77	85%
Eighth week	81	90%

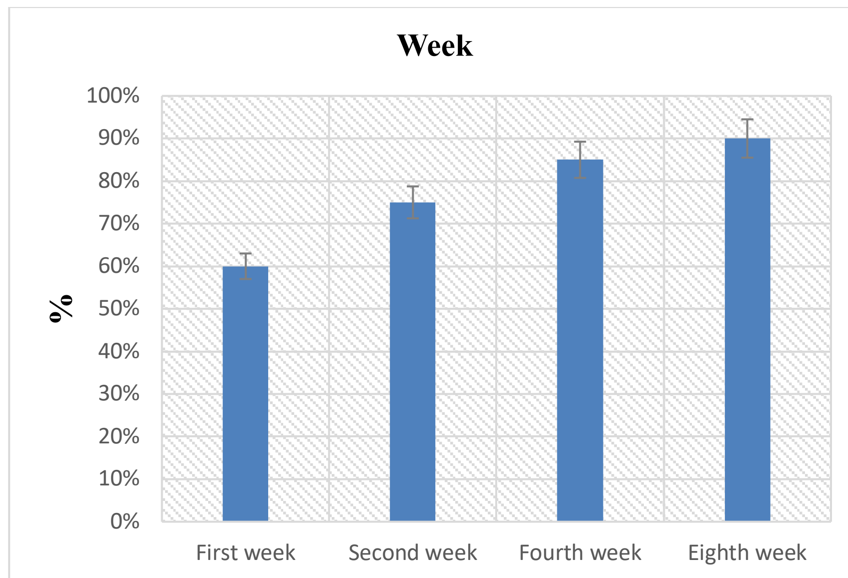

Figure 2: Outcomes of pain relief

Table 3 provides information on early and late problems throughout a 16-year follow-up duration. The occurrence of problems was minimal, with just 1 patient (1.1%) experiencing rectal hemorrhage. No instances of perianal abscess, perianal hematoma, recurrence, or incontinence were noted. Patient satisfaction was significantly elevated, with 87 of 90 patients (96.7%) indicating contentment. Furthermore, fissure healing was accomplished in 88 patients (97.8%), demonstrating a substantial success rate in long-term therapy outcomes.

Table 3: Outcomes of early and late problems over a 16-year follow-up

Complications	n (%)
Rectal bleeding	1 (1.1%)
Perianal abscess	0 (0.0%)
Perianal hematoma	0 (0.0%)
Recurrence	0 (0.0%)
Incontinence	0 (0.0%)
Patient satisfaction	87 (96.7%)
Fissure healing	88 (97.8%)

Discussion

The clinical profile of the participants, all of whom were female with a mean age of 45.77 years, revealed that nearly all (97.8%) experienced pain during defecation and had a history of constipation, while 77.8% reported rectal bleeding. These symptoms highlight the severe impact of anal fissures on daily functioning. The division of fissures into anterior (33.3%) and posterior (66.7%) types further emphasizes the need to consider fissure location when assessing treatment options and outcomes. Comparable studies evaluating the efficacy of surgery against 2% diltiazem in the treatment of chronic anal fissure. Vaithianathan et al. randomized 90 patients, with 45 assigned to each group [11]. In the diltiazem group, 71% achieved full fissure healing at 6 weeks, accompanied by moderate pain alleviation (mean VAS- 3.38). In contrast, the surgical group had a 96% healing rate, with superior pain relief (mean VAS- 1.87). Two patients had headache and flushing after applying 2% diltiazem, however no patients who underwent surgery suffered incontinence [12].

The progression of pain relief over an eight-week period showed promising improvements, with 60% of patients experiencing relief within the first week and a steady increase to 90% by the eighth week. This trend indicates that the treatment administered was effective in providing gradual and sustained pain relief, which is essential for improving quality of life in affected individuals. Giridhar et al. randomized 60 patients into two groups: group 1 received 2% diltiazem gel, and group 2 underwent internal sphincterotomy at Bangalore Medical College from September 2009 to September 2011. After 4 weeks, 85% of the surgical patients were pain-free, while 78% of those who applied diltiazem reported being pain-free [13].

Complication rates over the 16-year follow-up were minimal, with only one patient reporting rectal bleeding, and no cases of serious complications such as perianal abscess, hematoma, recurrence, or

incontinence. The high healing rate (97.8%) and patient satisfaction (96.7%) further demonstrate the success of the treatment approach. This Studies show that with proper therapy, individuals with anal fissures can get significant symptom reduction, healing, and enduring satisfaction, while incurring low risk of consequences. They are related to adverse consequences, including headache and perianal dermatitis [14]. Shrivastava et al. [15] Healing rates of chronic anal fissures in other research ranged from forty-seven percent to eighty percent, however our study observed a rate of 88.46%. Adverse effects associated with Diltiazem varied from zero percent to ten percent in other trials, however no patient had adverse effects in our investigation. Chemical sphincterotomy with Diltiazem is reversible, unlike surgery, and is hence less likely to negatively impact continence.

Conclusion

The study shows that lateral internal sphincterotomy is a highly effective treatment for chronic anal fissures, with significant pain relief, high rates of healing, and minimal complications over a long-term follow-up period. The results show that LIS is safe also effective in giving patients with this illness both short-term also long-term comfort, with 97.8% of patients experiencing fissure healing and a 96.7% patient satisfaction rating. Additionally, the low complication rates, including the absence of recurrence and incontinence, further highlight LIS as the gold standard for patients unresponsive to conservative treatments.

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