

A Combined Topical Treatment versus Surgical Treatment in Chronic Anal Fissure

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ABSTRACT

Background: Chronic anal fissure is a common debilitating condition characterized by a tear in the lining of the anal canal, leading to severe pain, discomfort, and bleeding during bowel movements. The treatment modalities for this condition have been explored to alleviate symptoms and promote healing.

The aim of this study was to compare the efficacy, safety, and outcomes of combined topical treatment versus surgical treatment in the management of chronic anal Fissure.

Methods: This study was designed as a prospective, randomized controlled trial. Patients were randomly assigned to either the combined treatment group or the surgical treatment group using computer-generated randomization. Patients in both treatment groups underwent lateral internal sphincterotomy (LIS) under general or local anesthesia, performed by experienced colorectal surgeons.

Results: A total of 100 patients were included in the study, with 50 patients in each treatment group. The combined treatment groups exhibited a slightly higher mean pain relief score compared to the topical group (9.21.0 vs. 8.51.2, respectively). Healing Rate: The healing rate was higher in the surgical group (95% versus 75%, respectively), and the complication rate was slightly higher in both groups. Overall, patients in both treatments reported high levels of satisfaction with their treatment outcomes.

Conclusions: Both combined treatment and surgical treatment have demonstrated efficacious effects in promoting fission healing, with surgical intervention offering superior outcomes in terms of healing rates. However, further research and clinical trials are needed to refine treatment algorithms and improve patient outcomes. Future research with larger cohorts and extended follow-up periods is warranted to validate our findings and further refine treatment protocols.

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INTRODUCTION

Chronic anal fissure is a common debilitating condition characterized by a tear in the lining of the anal canal, leading to severe pain, discomfort, and bleeding during bowel movements. It significantly impairs the quality of life of affected individuals and poses a therapeutic challenge to healthcare providers.¹ Over the years, various treatment modalities have been explored to alleviate symptoms and promote healing in patients with chronic anal fissure. Among these, combined topical treatment and surgical treatment have emerged as primary therapeutic approaches, each with its own advantages and limitations.²

Topical treatments involve the application of medications directly to the affected area, aiming to relax the anal sphincter muscle, improve blood flow, and promote fissure healing. Commonly prescribed medications include nitroglycerin ointment, diltiazem cream, and topical nifedipine. Several studies have investigated the efficacy and safety of topical

treatments, demonstrating varying degrees of success in pain relief and fissure healing (Nelson et al., 2012; Knight et al., 2001; Menten et al., 2003).³

In contrast, surgical interventions, such as lateral internal sphincterotomy (LIS), involve cutting a portion of the internal anal sphincter muscle to reduce sphincter spasm and facilitate healing. Surgical treatment is typically reserved for cases refractory to conservative therapy or when complications arise. While surgical intervention has been shown to achieve high healing rates, it is associated with potential risks, including incontinence, infection, and anal stenosis (Schouten et al., 1996; Cross et al., 1998; Al-Ghnamani et al., 2004).⁴

Given the heterogeneity in treatment outcomes and the lack of consensus on the optimal management approach for chronic anal fissure, there is growing interest in exploring combined treatment strategies that integrate both topical and surgical interventions. The rationale behind the combined approach is to

capitalize on the benefits of both modalities, aiming to achieve faster symptom relief, enhanced healing, and reduced risk of complications. However, the optimal timing, sequence, and protocol for combining topical and surgical treatments remain areas of active investigation.⁵

This study aims to compare the efficacy, safety, and outcomes of combined topical treatment versus surgical treatment in the management of chronic anal fissure. By evaluating the respective roles of these treatment modalities and their impact on patient outcomes, we seek to contribute to the evidence base and inform clinical practice guidelines for the management of this challenging condition.

Materials and Methods:

Study Design: This study was designed as a prospective, randomized controlled trial to compare the efficacy and safety of combined topical treatment versus surgical treatment in patients diagnosed with chronic anal fissure. The study protocol was approved by the Institutional Review Board (IRB), and all participants provided informed consent before enrollment.

Study Population: The study included patients aged 18 to 65 years diagnosed with chronic anal fissure based on clinical examination and/or anorectal manometry findings. Patients with acute anal fissure, history of previous anal surgery, inflammatory bowel disease, coagulopathy, or contraindications to study medications were excluded from the study.

Treatment Groups: Eligible patients were randomly assigned to either the combined topical treatment group or the surgical treatment group using computer-generated randomization. Patients in the combined topical treatment group received a combination of topical medications, such as nitroglycerin ointment, diltiazem cream, or topical nifedipine, as per standard clinical practice guidelines. Patients in the surgical treatment group underwent lateral internal

sphincterotomy (LIS) under general or local anesthesia, performed by experienced colorectal surgeons.

Outcome Measures: The primary outcome measures included pain relief, healing rate, and complication rate. Pain relief was assessed using a visual analog scale (VAS), with scores ranging from 0 (no pain) to 10 (worst pain imaginable). Healing rate was determined based on clinical examination findings, with complete healing defined as absence of symptoms and visual evidence of fissure closure. Complications, including transient incontinence, post-operative bleeding, infection, and anal stenosis, were documented and graded according to severity.

Data Collection and Statistical Analysis: Baseline demographic and clinical characteristics of the study participants were recorded, including age, gender, duration of symptoms, and previous treatments. Outcome measures were assessed at regular intervals, including baseline, post-treatment, and follow-up visits. Data were analyzed using appropriate statistical methods, including Student's t-test for continuous variables and chi-square test for categorical variables. Statistical significance was set at $p < 0.05$.

Ethical Considerations: The study was conducted in accordance with the principles outlined in the Declaration of Helsinki and Good Clinical Practice guidelines. Institutional approval was obtained, and written informed consent was obtained from all participants before enrollment. Patient confidentiality and data privacy were strictly maintained throughout the study period.

Results:

Patient Demographics: A total of 100 patients diagnosed with chronic anal fissure were included in the study, with 50 patients in each treatment group. The mean age of the patients was 42 years (range 25-65 years), and there was a slight male predominance, with 60% of the patients being male.

Treatment Outcomes:

Table 1: Efficacy of Combined Topical Treatment versus Surgical Treatment

| Treatment Group | Pain Relief (Mean \pm SD) | Healing Rate (%) | Complication Rate (%) |
|-----------------|-----------------------------|------------------|-----------------------|
| Topical | 8.5 \pm 1.2 | 75 | 10 |
| Surgical | 9.2 \pm 1.0 | 95 | 15 |

Note: SD = Standard Deviation

Pain Relief: Patients in both treatment groups reported a significant reduction in pain following treatment. However, the surgical treatment group exhibited a slightly higher mean pain relief score compared to the topical treatment group (9.2 \pm 1.0 vs. 8.5 \pm 1.2, respectively).

Healing Rate: The healing rate was higher in the surgical treatment group compared to the topical treatment group (95% vs. 75%, respectively). This

difference was statistically significant ($p < 0.05$), indicating superior efficacy of surgical intervention in promoting fissure healing.

Complication Rate: While both treatment modalities were associated with complications, the surgical treatment group had a slightly higher complication rate compared to the topical treatment group (15% vs. 10%, respectively). The most common complications in the surgical group were transient incontinence and post-

operative bleeding, whereas local irritation and headache were more common in the topical treatment group.

Overall Satisfaction: Overall, patients in both treatment groups reported high levels of satisfaction with their treatment outcomes. However, a slightly higher proportion of patients in the surgical treatment group reported being completely satisfied with their treatment compared to the topical treatment group.

Discussion:

The results of this study align with findings from previous research on the management of chronic anal fissure.⁶ Several studies have investigated the efficacy and safety of both combined topical treatment and surgical treatment modalities, providing valuable insights into their respective roles in clinical practice.⁷ A study by Carapeti et al. (1999) demonstrated the effectiveness of glyceryl trinitrate ointment in healing anal fissures, with a high recurrence rate observed. Similarly, Lund and Scholefield (1997) reported positive outcomes with glyceryl trinitrate ointment, highlighting its potential as a non-invasive treatment option for chronic anal fissure.⁷ However, the efficacy of topical treatments may vary among individuals, as noted by Altomare et al. (2000), who found that while glyceryl trinitrate effectively healed anal fissures, it was associated with adverse effects such as headaches and local irritation.⁸

Conversely, surgical interventions, such as lateral internal sphincterotomy (LIS), have been shown to achieve high healing rates in chronic anal fissure cases.⁹ Cross et al. (1998) reported favorable outcomes with LIS, with a low recurrence rate and significant improvement in symptoms. However, Garg et al. (2014) highlighted the potential risk of long-term continence disturbances following sphincterotomy, underscoring the importance of careful patient selection and counseling.¹⁰

The findings of our study corroborate previous evidence, indicating that surgical treatment offers superior efficacy in promoting fissure healing compared to topical treatment.¹¹ Although surgical intervention may be associated with a slightly higher complication rate, including transient incontinence and post-operative bleeding, the overall satisfaction rates among patients undergoing surgery are high.¹² However, it is essential to consider individual patient factors, preferences, and the severity of symptoms when determining the most appropriate treatment approach.¹³

Limitations of our study include the relatively small sample size and the lack of long-term follow-up data to assess treatment durability.^{14,15} Future research with larger cohorts and extended follow-up periods is warranted to validate our findings and further refine treatment protocols. Additionally, comparative studies

evaluating the cost-effectiveness and quality of life outcomes associated with combined topical treatment versus surgical treatment would provide valuable insights into optimizing chronic anal fissure management strategies.

Conclusion:

In conclusion, the management of chronic anal fissure requires a tailored approach that takes into account the individual patient's characteristics and preferences. Both combined topical treatment and surgical treatment modalities have demonstrated efficacy in promoting fissure healing, with surgical intervention offering superior outcomes in terms of healing rates. However, careful consideration of the potential risks and benefits is essential when selecting the most appropriate treatment approach for each patient. Further research and clinical trials are needed to refine treatment algorithms and improve patient outcomes in chronic anal fissure management.

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