

An Analysis Comparing Fistulotomy and Fistulectomy in the Treatment of Simple Anal Fistulas

Shanker Dharmaraj Basa¹, Dilip Punnam²

¹Associate Professor, Department of General Surgery, Prathima Institute of Medical Sciences, Nagunoor Karimnagar, Telangana State.

²Assistant Professor, Department of General Surgery, Prathima Institute of Medical Sciences, Nagunoor Karimnagar, Telangana State.

Received: 11-06-2024 / Revised: 10-07-2024 / Accepted: 12-08-2024

Corresponding Author: Dr. Dilip Punnam

Conflict of interest: Nil

Abstract

Background: Fistulotomy and fistulectomy are common surgical procedures for treating simple anal fistulas, a condition involving abnormal connections between the anal canal and skin. This study aims to compare these two methods, focusing on key outcomes such as healing time, recurrence rates, and postoperative complications, including incontinence, to determine the most effective treatment.

Methods: A simple fistula was defined as one having a single external and internal opening along with a palpable tract. Group I consisted of 25 patients who underwent fistulotomy with marsupialization, while Group II comprised 25 patients who received the fistulectomy procedure for their low-lying anal fistula. The patients were matched based on age, sex, and other physical factors.

Results: The mean duration of surgery was 29.5 minutes for fistulotomy and 32.2 minutes for fistulectomy, with no statistically significant difference (p-value = 0.891). The duration of wound healing was significantly longer in the fistulectomy group (21 ± 5.5 days) compared to the fistulotomy group (12 ± 2.5 days) (p-value = 0.004). Postoperative pain, as assessed by the Visual Analogue Scale (VAS), was comparable between the two groups, with a mean VAS score of 3.8 ± 1.51 in the fistulotomy group and 3.5 ± 2.19 in the fistulectomy group (p-value = 0.217). The incidence of anal incontinence was 10% (4 cases) in the fistulotomy group and 2.5% (1 case) in the fistulectomy group, although the difference was not statistically significant (p-value = 0.191). The recurrence rate was low and similar in both groups, with 1 case (2.5%) in each group.

Conclusion: Fistulotomy demonstrated shorter operative time and wound healing compared to fistulectomy in the management of simple anal fistulas. However, it was associated with a higher incidence of anal incontinence, although not statistically significant. Both procedures exhibited low recurrence rates. The choice between fistulotomy and fistulectomy should be individualized based on patient factors and fistula characteristics.

Keywords: Fistula in ano, Fistulectomy, Fistulotomy.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

A fistula in ano is a granulation tissue-lined tract that connects the anal canal or rectum to the skin around the anus. It typically results from an anorectal abscess that either ruptures spontaneously or follows inadequate surgical treatment [1]. Acute infection of the anal crypts can lead to an anorectal abscess, with the anal fistula representing the chronic stage of this infection [2]. Perianal fistulas may be associated with various disease processes [3] and can occur either below or above the anorectal ring. Low-level fistulas open below the anorectal ring, while high-level fistulas open at or above the ring. Most fistulas are located posteriorly (two-thirds), while the remaining one-third are anterior. The most common symptoms include

watery or purulent discharge and recurrent pain [4]. Conventional surgical treatments for simple anal fistulas include fistulotomy and fistulectomy [5]. Fistulectomy involves the complete removal of the fistulous tract, reducing the risk of missing secondary tracts and allowing for comprehensive histopathological analysis. However, due to the significant tissue loss associated with fistulectomy, there is an increased risk of compromising sphincter function [6]. In contrast, fistulotomy opens the fistulous tract, creating smaller wounds that promote faster healing. Simple fistulas are often treated with fistulotomy, followed by curettage or cauterization of the tract, with healing occurring by secondary intention. The primary goal of treatment is to eradicate sepsis while preserving

anorectal function [7]. Low anal fistulas are typically managed with fistulotomy, which can be performed with minimal loss of sphincter muscle, but for high-level fistulas, it is safer to place a seton or stage the procedure [8]. Additionally, marsupialization of fistulotomy wounds can further reduce healing time [9]. This study aimed to compare fistulectomy with fistulotomy and marsupialization in the management of simple anal fistulas through a randomized controlled trial.

Material and Methods

This cross-sectional comparative study was conducted in the Department of General Surgery, Prathima Institute of Medical Sciences, Naganoor, Karimnagar, Telangana state. Institutional Ethical permission was obtained for the study. Written consent was obtained from all the participants of the study after explaining the nature of the study in vernacular language. Those voluntarily willing to participate in the study were included.

Inclusion Criteria

1. Simple fistula in ano
2. Treated with fistulotomy or fistulectomy
3. Males and females
4. Aged 20 years and above

Exclusion Criteria

1. Recurrent fistulas
2. Complex fistulas
3. Secondary fistulas
4. Immunocompromised patients
5. Severe infections
6. Pregnancy
7. Aged below 18 or above 75 years
8. Previous Anal Surgeries

A simple fistula was defined as one having a single external and internal opening along with a palpable tract. Group I consisted of 25 patients who underwent fistulotomy with marsupialization, while Group II comprised 25 patients who received the fistulectomy procedure for their low-lying anal fistula. The patients were matched based on age, sex, and other physical factors.

Fistulotomy: After administering anesthesia, the surgeon identifies the fistula's internal and external openings. The tract is then carefully incised along its length, exposing the fistula and allowing it to heal from the base upwards. This technique involved minimal tissue removal, preserving most of the surrounding sphincter muscles, which helps reduce the risk of incontinence. The wound is left

open to heal naturally, often with marsupialization (suturing the wound edges) to promote faster healing. A fistulotomy is preferred for low-lying, straightforward fistulas.

Fistulectomy: After identifying the fistula's internal and external openings, the excision of the entire fistulous tract, ensuring no tissue is left behind was done. This approach reduces the risk of missing secondary tracts and allows for comprehensive histopathological examination of the excised tissue. However, because fistulectomy involves more tissue removal, it can result in a larger wound and a higher risk of sphincter damage, potentially leading to postoperative incontinence. The wound is left to heal by secondary intention, and this procedure is often chosen for more complex fistulas.

Intraoperative and postoperative parameters, such as surgery duration, wound healing, postoperative incontinence, pain, and recurrence, were recorded. Patients were followed up for 6 months post-surgery to monitor for recurrence and anal incontinence.

Statistical Analysis: All the available data was collected and uploaded to an MS Excel spreadsheet and analyzed by SPSS version 22 in Windows format. The continuous variables were represented as mean, standard deviation, and percentages. The categorical variables were calculated using the chi-square test for differences between the two variables. The values of p (<0.05) were considered to be significant.

Results

Table 1 presents the demographic characteristics of two groups of patients undergoing different surgical procedures for an unspecified condition. Group I underwent a fistulotomy, while Group II underwent a fistulectomy. The study population consisted of a slight majority of male patients (62%). The gender distribution was relatively similar between the two groups. The mean age of patients in both groups was comparable, with a slight difference of approximately 2 years between Group I and Group II. The demographic characteristics of the two groups are relatively similar, suggesting that the comparison between fistulotomy and fistulectomy is based on comparable patient populations the p -values were (0.339). The absence of significant differences in age and gender reduces the likelihood of confounding factors influencing the outcomes of the study.

Table 1: Demographic Variables of the Patients

	Group I N=25 (Fistulotomy)	Group II N=25 (Fistulectomy)	Total
Male	16(64%)	15(60%)	31 (62.0%)
Female	9(36%)	10(40%)	19 (38.0%)
Mean age in years	38. 15 ± 11.19	± 12.24	

Table 2 compares intraoperative and postoperative outcomes between two groups of patients undergoing fistulotomy and fistulectomy. The duration of surgery was comparable between the two groups, suggesting similar surgical complexity for both procedures. Patients undergoing fistulotomy experienced significantly shorter wound healing times 12.0 ± 2.5 days versus 21 ± 5.5 days for those undergoing fistulectomy the p values were found to be significant. There was no significant difference in postoperative pain levels between the two groups based on VAS scales. The

incidence of anal incontinence was higher in the fistulotomy group, although the difference did not reach statistical significance. Both groups exhibited a low recurrence rate, with no significant difference between them. The choice between fistulotomy and fistulectomy for the management of anal fistula should be carefully considered based on the individual patient's characteristics and the specific fistula anatomy. While fistulotomy offers the advantage of shorter wound healing time, the potential for higher anal incontinence rates should be weighed against the benefits.

Table 2: Comparison of intraoperative and postoperative outcomes in fistulotomy and fistulectomy group for simple anal fistula.

Variables	Group I N=25 (Fistulotomy)	Group II N=25 (Fistulectomy)	P value
The mean duration of surgery	29.5 min.	32.2 min.	0.891
Duration of wound healing	12 ± 2.5 days	21 ± 5.5 days	0.004*
Postoperative pain using VAS	3.8 ± 1.51	3.5 ± 2.19	0.217
Incidence of anal incontinence	4 cases (10.0%)	1 case (2.5%)	0.191
Recurrence	1 case (2.5%)	1 case (2.5%)	-

Discussion

Fistula in ano is a common clinical condition that often requires surgical intervention for effective treatment. Although various treatment options exist for managing anal fistulas, there is no consensus on the gold standard therapy. Given that each treatment modality has its advantages and disadvantages, we conducted this prospective randomized clinical study to compare two widely used surgical approaches: fistulotomy and fistulectomy. Key parameters for evaluating anal fistula procedures include recurrence rates and the incidence of incontinence. In this study, the average duration of surgery was comparable between the two groups, with no statistically significant difference. While fistulectomy generally takes longer, the inclusion of only simple fistulas in this study likely accounts for the similar surgery times between groups. These findings are consistent with those of Jain et al. [10]. The average postoperative wound healing time was significantly shorter in the fistulotomy group, with the difference being statistically highly significant. This aligns with the results of other studies [11, 12]. The quicker healing observed in the fistulotomy group may be attributed to the marsupialization of the fistulotomy tract. Postoperative pain scores were measured using a visual analog scale from 0 to 10, with 0 indicating no pain and 10 indicating unbearable pain. The difference in pain scores between the two groups was not significant. Recurrence was observed in one patient from each group, and these recurrent fistulas were addressed with revision surgery. The

low recurrence rate can be attributed to the study population, which included only patients with simple fistulas. However, the incidence of anal incontinence was higher in the fistulotomy group compared to the fistulectomy group (5 versus 1), a statistically significant difference. Other studies, such as those by Kronborg et al. [13] and Murtaza et al. [14] have reported slightly different results regarding incontinence. The higher incidence of incontinence in our study may be because fistulotomy involves cutting sphincter fibers along the fistula tract, and most patients in our study had inter-sphincteric and trans-sphincteric fistulas, as opposed to the subcutaneous tracts more commonly reported in other studies. One important limitation of this study is the small sample size and shorter follow-up periods. Conducting the study at a single tertiary care hospital may introduce biases related to institutional practices or patient demographics which may have been present in this study. Multi-center studies would provide more diverse data and increase the generalizability of the results.

Conclusion

The present study comparing fistulotomy and fistulectomy for the management of simple anal fistulas demonstrated distinct advantages and disadvantages for each surgical approach. Fistulotomy was associated with a shorter operative time and a faster healing process, making it a potentially attractive option for patients. However, the procedure carried a slightly higher risk of anal incontinence, a significant postoperative complication. Conversely, fistulectomy, while requiring a longer operative time and wound

healing period, exhibited a lower incidence of anal incontinence.

Both surgical techniques demonstrated low recurrence rates. The optimal choice between fistulotomy and fistulectomy should be carefully considered on an individual basis, taking into account factors such as fistula location, patient comorbidities, and preferences. Long-term outcomes and quality-of-life assessments are necessary to further elucidate the comparative benefits of these surgical interventions.

References

1. Williams NS. The anus and anal canal. In: Russell RCG, Williams NS, Bulstrode CJK, editors. *Bailey & Loves Short practice of surgery*. 24th Edn. London: Edward Arnold; 2004; 1242-71.
2. Kodner IJ, Fry RD, Fleshman JW, Birnbaum EH. Colon rectum and anus. In: Schwartz SI, Shires GT, Spencer FC, editors. *Principles of surgery*. 6th ed. New York: Mc Gaw Hill; 1994; 192-1306.
3. Steele RJC, Campbell K. Disorders of the anal canal. In: Cuscheri A, Steele RJC, Moosa AR, editors. *Essential surgical practice*. 4th ed. London: Arnold; 2005; 447-65.
4. Browse NL, Black J, Burnand KG, Thomas WEG. An Introduction to the symptoms and signs of surgical disease. 4th ed. London: Arnold, 1997; 425-43.
5. Parks A.G., Gordon, P.H. & Hardcastle, J.D. (1976) A classification of fistula-in-ano. *British Journal of Surgery* 1976; 63:1-12.
6. Williams, N.S. The anus and anal canal. In: Russell, R.C.G., Williams, N.S., Bulstrode, C.J.K., editors. *Bailey & Loves Short Practice of Surgery*. 24th ed. London: Edward Arnold 2004; 1242-71.
7. Al-Fallouji MAR, editor. *Postgraduate Surgery*. 2nd ed. Oxford: Butterworth – Heinemann. 1998; 282-4.
8. Khan MR, Shah HA, Alam M. Treatment of perianal fistula analysis of 42 cases. *Ann KE Med Coll* 2001; 7:44-6.
9. Qureshi H, Kamal M, Shah MHA. Management of fistula in ano. *J Coll Physicians Surg Pak* 2002; 12:361-63.
10. Jain BK, Vaibhav K, Garg PK, Gupta S, Mohanty D. Comparison of a fistulectomy and a fistulotomy with marsupialization in the management of a simple anal fistula: a randomized, controlled pilot trial. *J Korean Soc Colo-proctol*. 2012; 28:78-82.
11. Chalya PL, Mabula JB. Fistulectomy versus fistulotomy with marsupialization in the treatment of low fistula-in- ano: a prospective randomized controlled trial. *Tanzan J Health Res*. 2013;15(3):193-8.
12. Wang Q, He Y, Shen J. The best surgical strategy for anal fistula is based on a network meta-analysis. *Oncotarget*. 2017;8(58):99075-84.
13. Kronborg O. To lay open or excise a fistula-in-ano: a randomized trial. *Br J Surg*. 1985;72(12):970.
14. Murtaza G, Shaikh FA, Chawla T. Fistulotomy versus fistulectomy for simple fistula in ano: a retrospective cohort study. *J Pak Med Assoc Vol*. 2017;67(3):339-42.