

Original Research Article

A RANDOMISED PROSPECTIVE COMPARATIVE STUDY OF FISTULOTOMY VERSUS FISTULECTOMY IN MANAGEMENT OF PATIENTS WITH SIMPLE FISTULA IN ANO IN A TERTIARY CARE CENTER AJMER

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ABSTRACT

Background: Fistula-in-ano, a common proctological condition with a high recurrence rate, presents a surgical challenge. While various modalities exist, fistulotomy and fistulectomy remain the conventional surgical options for simple fistula-in-ano. The optimal approach requires balancing fistula eradication with the preservation of anal sphincter function. The purpose of the study is to compare the surgical outcomes of fistulotomy and fistulectomy in patients with primary simple fistula-in-ano, specifically focusing on healing time as the primary objective, with secondary objectives including intraoperative time, postoperative pain (VAS score), hospital stay, and complications.

Materials and Methods: A hospital-based, single-center, randomized prospective comparative study was conducted in the Department of General Surgery, J.L.N. Medical College & Hospitals, Ajmer (Raj.) from June 2024 to June 2025. Eighty patients with simple fistula-in-ano were randomized into two equal groups: Group A (fistulotomy) and Group B (fistulectomy). Patients with complex fistula-in-ano, recurrent fistula and previously operated cases of fistula-in-ano, patients managed conservatively, patients aged <18 years or >60 years were excluded. Data were analyzed using Chi-square and unpaired t-tests. **Results:** Group A (fistulotomy) demonstrated significantly faster wound healing (97.50% healed by 2 months) compared to Group B (92.50% healed by 3 months). Group A also had shorter operative times (15–20 minutes) and shorter hospital stays (1.35±0.48 days) versus Group B (3.125±0.79 days). Furthermore, Group A exhibited superior pain control, reporting less severe pain at 6 and 25 hours postoperatively and no pain at discharge, compared to Group B patients who continued to experience mild pain. No recurrences were reported in either group during the 6-month follow-up.

Conclusion: Fistulotomy is a more efficient and patient-friendly treatment for simple fistula-in-ano compared to fistulectomy. It offers distinct clinical advantages, including faster wound healing, shorter hospital stays, less intraoperative bleeding, and superior postoperative pain control, without compromising the efficacy of the procedure.

Keywords: Anal fistula, Fistulotomy, Fistulectomy.

INTRODUCTION

Anal fistula (AF), one of the most common causes of proctological surgery,^[1] is a condition that can have

an impact on patients' anorectal function and quality of life.^[2] Simple fistulas are cryptoglandular in origin and involve less than one-third of the sphincter complex. The distinction between simple and

complex fistulas is relevant when determining appropriate treatment.^[3] A fistula-in-ano is a tract, that connects deeply in the anal canal or rectum and superficially on the skin around the anus. It usually results from an anorectal abscess which bursts spontaneously or after inadequate surgery.^[4] It is an abnormal tract lined by granulation tissue between two epithelial surfaces, namely anorectal mucosa and perianal skin. Men and young-to-middle-aged adults are predominantly affected.^[5] After diagnosis, the treatment modalities to manage include fistulotomy, fistulectomy, seton placement, ligation of intersphincteric fistula tract (LIFT), advancement flaps, video assisted anal fistula treatment (VAAFT) and/or use of biological agents like fibrin glue.^[6] In the present study, we are concentrating only on conventional surgical options-fistulotomy and fistulectomy for simple fistula-in-ano.

Fistula-in-ano presents a clinical challenge due to its tendency to recur and its associated complications, such as abscess formation, incontinence and chronic discomfort. Effective surgical management aims to achieve complete healing while preserving the integrity of the anal sphincter to ensure continence. Simple anal or rectal cancer, trauma, and inflammatory bowel disease are some of the additional causes of inflammation that can lead to perineal fistulization.^[7]

Patients often provide a reliable history of previous pain, swelling and spontaneous or planned surgical drainage of an anorectal abscess. Signs and symptoms of fistula-in-ano in order of prevalence, include the following: Perianal discharge, Pain, Swelling, Bleeding, diarrhea, skin excoriation and external opening.^[8] Acute infection of the anal crypts can lead to an anorectal abscess, with the anal fistula representing the chronic stage of this infection.^[9] Tuberculosis, lymphogranuloma inguinale, inflammatory disease like Crohn's disease can also lead to development of anal fistula. Fistula have been reported following external injury or probing an abscess or low anal fistula.^[10] Perianal fistulas may be associated with various disease processes,^[11] 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.^[12] The pathology and major cause for such anal fistula in a large number of patients are due to recurrent abscess, history of rectal/obstetrical/gynecological operations, fungal or mycobacterial infections, lympho-granuloma venereum/inguinale, tuberculosis, inflammatory bowel disease (Crohn's or ulcerating proctocolitis), trauma, internal sphincterotomy, external injuries (probing an abscess or low anal fistula), colloid carcinoma of the rectum/anal canal, ingested foreign bodies, hidradenitis suppurativa, bilharziasis, actinomycosis Bartholin's gland abscess or sinus, and actinomycosis, etc.^[13]

Fistulotomy reduces operative trauma, leading to faster healing and less postoperative pain. In contrast, fistulectomy excises the entire tract and neighbouring tissue, creating a larger wound and potential sphincter damage that may prolong recovery and increase discomfort. The similarity in long-term recurrence and continence outcomes suggests that despite these differences, both achieve effective eradication of the fistulous tract while protecting sphincter function when appropriately selected for simple fistulas.^[14]

The aim of the present randomized prospective comparative study was to evaluate the efficacy and outcomes of fistulotomy and fistulectomy in patients with primary simple fistula-in-ano.

Aims and Objectives: The aim of this study is to compare the surgical outcomes of fistulotomy versus fistulectomy in patients with simple fistula-in-ano. The primary objective focuses on determining the difference in wound healing time between the two procedures, while the secondary objectives aim to evaluate differences in intraoperative time, postoperative pain using the VAS score, hospital stay, and postoperative complications such as urinary retention and soakage.

MATERIALS AND METHODS

The study was conducted as a hospital-based, single-center, randomized prospective comparative investigation at the Department of General Surgery in JLN Medical College & Hospitals, Ajmer, a tertiary care center. The study universe comprised all cases of fistula-in-ano admitted to the department, focusing on an eligible study population of simple fistula-in-ano cases meeting the inclusion and exclusion criteria between June 2024 and June 2025. These patients were randomly divided into two groups of 40 patients each: Group A, who underwent fistulotomy utilizing the lay-open technique, and Group B, who underwent fistulectomy involving the complete excision of the fistulous tract. The selection criteria for the study included patients diagnosed with a simple fistula-in-ano who were willing to undergo surgery and provided written, informed consent. Patients with complex, recurrent, or previously operated fistulas-in-ano, those managed conservatively, and individuals younger than 18 years or older than 60 years of age were excluded.

Preoperative evaluation involved comprehensive baseline blood investigations, viral and metabolic screening, liver and renal function tests, and diagnostic imaging via proctoscopy, TRUS, or MRI. Preoperative preparation included bowel cleansing with proctoclysis and phosphate enemas given the night before and on the morning of surgery, alongside the administration of prophylactic intravenous antibiotics upon anesthesia induction.

Postoperative assessments evaluated mean operative time, postoperative pain via the VAS score, hospital stay, and complications (such as urinary retention,

bleeding, and dressing soakage at 12 hours and at discharge). Wound healing time was tracked at weekly intervals for 6 weeks, then monthly for 6 months

Data were compiled in Microsoft Excel and analyzed using SPSS software. Categorical variables were compared using the Chi-square test, and continuous variables were evaluated using unpaired t-tests, with a p-value of <0.05 considered statistically significant.

RESULTS

Table 1: Demographic Characteristics of Patients in Group A (Fistulotomy) and Group B (Fistulectomy)

Demographic Parameter	Group A (Fistulotomy, n=40)	Group B (Fistulectomy, n=40)	P value
Age Range			
18–30 years	7 (17.50%)	8 (20.00%)	
31–40 years	12 (30.00%)	10 (25.00%)	
41–50 years	11 (27.50%)	14 (35.00%)	
51–60 years	10 (25.00%)	8 (20.00%)	
Mean Age (+SD)	40.9+9.88 years	41.7+9.96 years	p = 0.7193 (Not Significant)
Sex Distribution			
Male	27 (67.50%)	30 (75.00%)	
Female	13 (32.50%)	10 (25.00%)	
Male-to-female ratio	2.07:1	03:01	p = 0.4615 (Not Significant)

Table 2: Clinical Presentation, Anatomical Characteristics, and Diagnostic Modalities in Group A (Fistulotomy) and Group B (Fistulectomy)

Clinical Parameter	Group A (Fistulotomy) (n=40)	Group B (Fistulectomy) (n=40)
Chief Complaints		
Perianal discharge	40 (100.00%)	40 (100.00%)
Pain	40 (100.00%)	40 (100.00%)
History of perianal abscess	33 (82.50%)	35 (87.50%)
History of discharge	26 (65.00%)	23 (57.50%)
External Opening Location		
3 o'clock	6	3
5 o'clock	17	20
6 o'clock	6	12
7 o'clock	10	4
11 o'clock	1	1
Internal Opening Location		
3 o'clock	6	3
6 o'clock	33 (82.50%)	36 (90.00%)
11 o'clock	1	1
Fistula Type (Intra-operative)		
Low Intersphincteric	28 (70.00%)	22 (55.00%)
Transsphincteric	12 (30.00%)	18 (45.00%)
Diagnostic Modality Used		
TRUS	31 (77.50%)	33 (82.50%)
MRI	9 (22.50%)	7 (17.50%)

Table 3: Intraoperative Parameters and Findings in Group A (Fistulotomy) and Group B (Fistulectomy)

Intraoperative Parameter	Group A (Fistulotomy) (n=40)	Group B (Fistulectomy) (n=40)
Operative Time		
<15 minutes	1 (2.50%)	0 (0.00%)
15–20 minutes	36 (90.00%)	0 (0.00%)
21–30 minutes	3 (7.50%)	37 (92.50%)
>30 minutes	0 (0.00%)	3 (7.50%)
Intraoperative Bleeding		
Nil	35 (87.50%)	0 (0.00%)
Mild / Minimal	5 (12.50%)	12 (30.00%)
Moderate	0 (0.00%)	28 (70.00%)
External Sphincter Involvement		
<15%	6 (15.00%)	4 (10.00%)
15% to 20%	4 (10.00%)	6 (15.00%)
>20% / 25%	2 (5.00%)	8 (20.00%)

Table 4: Post-operative Complications at 12 Hours and at Discharge in Group A (Fistulotomy) and Group B (Fistulectomy)

Postoperative Complication Parameter	Group A (Fistulotomy) (n=40)	Group B (Fistulectomy) (n=40)
At 12 Hours Post-Operative:		
Urinary Retention	9 (22.50%)	12 (30.00%)
Bleeding	6 (15.00%)	9 (22.50%)
Dressing Soakage	6 (15.00%)	7 (17.50%)

At Discharge:		
Urinary Retention	0 (0.00%)	0 (0.00%)
Bleeding	0 (0.00%)	1 (2.50%)
Dressing Soakage	0 (0.00%)	1 (2.50%)

Table 5: Visual Analogue Scale (VAS) Pain Scores at 6 Hours, 25 Hours, and Discharge in Group A (Fistulotomy) and Group B (Fistulectomy)

VAS Score Parameter	Group A (Fistulotomy, n=40)	Group B (Fistulectomy, n=40)
Pain at 6 Hours:		
Nil	10 (25.00%)	0 (0.00%)
Mild	15 (37.50%)	10 (25.00%)
Moderate	10 (25.00%)	13 (32.50%)
Severe	5 (12.50%)	17 (42.50%)
Pain at 25 Hours:		
No pain	32 (80.00%)	0 (0.00%)
Mild	8 (20.00%)	13 (32.50%)
Moderate	0 (0.00%)	17 (42.50%)
Severe	0 (0.00%)	0 (0.00%)
Pain at Discharge:		
Nil (No Pain)	40 (100.00%)	29 (72.50%)
Mild	0 (0.00%)	11 (27.50%)
Moderate / Severe	0 (0.00%)	0 (0.00%)

Table 6: Wound Healing Progress, 6-Month Recurrence Rate, and Hospital Stay Duration in Group A (Fistulotomy) and Group B (Fistulectomy)

Wound Healing&Hospital Stay Parameter	Group A (Fistulotomy) (n=40)	Group B (Fistulectomy) (n=40)
Wound Healing at Follow-ups:		
After 21 days (3 weeks)	11 (27.50%)	0 (0.00%)
After 30 days (1 month)	32 (80.00%)	2 (5.00%)
After 60 days (2 months)	39 (97.50%)	28 (70.00%)
After 90 days (3 months) onwards	39 (97.50%)	37 (92.50%)
Mean Healing Time	32.85 days	65.68 days
Recurrence Rate (6-Month Follow-up)	1 (2.50%)	3 (7.50%)
Hospital Stay Duration:		
1 day	26 (65.00%)	0 (0.00%)
2 days	14 (35.00%)	10 (25.00%)
3 days	0 (0.00%)	15 (37.50%)
Mean Hospital Stay (+ SD)	1.35+0.48 days	3.125+0.79 days

DISCUSSION

The age distribution was comparable between Group A (Fistulotomy; mean age 40.9+ 9.88 years) and Group B (Fistulectomy; mean age 41.7+9.96 years) with a non-significant p-value of 0.7193. This aligns closely with findings by Hiremath SCS et al,^[15] (40.6+12.86 years) and Rani N et al,^[16] (38.5+10.50 years), while the peak incidence in the 31–50 years range corroborates Sainio P et al,^[17] findings of highest occurrence in the 3rd to 5th decades of life.

Both study groups exhibited a strong male predominance, with males accounting for 67.50% in Group A and 75.00% in Group B (versus 32.50% and 25.00% females, respectively). This yielded a male-to-female ratio of 2.07:1 for Group A and 3:1 for Group B, aligning with previously reported male predominance rates of 78% by Hiremath SCS et al,^[15] 82% by Abhishekh Y et al,^[18] 82% by Al-Mamun M et al,^[19] and a ratio of > 2:1 by Sainio P et al.^[17] The difference in sex distribution was statistically non-significant (p = 0.4615) [Table 1]

All patients (100.00%) presented with perianal discharge and pain. A history of perianal abscess was noted in 82.50% (Group A) and 87.50% (Group B), while a history of discharge was reported in 65.00% (Group A) and 57.50% (Group B). Internal openings predominantly occurred at the 6 o'clock position

(82.50% in Group A and 90.00% in Group B), supporting findings by Devi VS et al,^[20] with posterior fistulae predominating as observed by Al-Mamun M et al.^[19] Low intersphincteric fistulas were most common (70.00% in Group A, 55.00% in Group B), aligning with Kamal ZB,^[21] Ganesan R et al,^[22] and Barase AK et al.^[23] Transsphincteric fistulas occurred in 30.00% (Group A) and 45.00% (Group B), mirroring Singh A et al,^[24] Basa SD et al,^[25] and Rani N et al.^[16] TRUS served as the primary diagnostic tool (77.50% in Group A, 82.50% in Group B), validated by Gustafsson UM et al,^[26] whereas MRI was selectively used in 22.50% (Group A) and 17.50% (Group B). [Table 2]

Intraoperative parameters showed shorter operative times in Group A (90.00% in 15–20 minutes) versus Group B (92.50% in 21–30 minutes), aligning with Kamal ZB²¹ and Hiremath SCS et al.^[15] Bleeding was significantly lower in Group A (87.50% nil, 12.50% minimal) compared to Group B (70.00% moderate, 30.00% minimal), echoing Kamal ZB²¹ and Ganesan R et al.^[22] External sphincter involvement greater than 20% was noted in 5.00% of Group A and 20.00% of Group B. [Table 3].

At 12 hours postoperatively, complications were comparable between groups, with urinary retention occurring in 22.50% of Group A and 30.00% of Group B, early bleeding in 15.00% versus 22.50%,

and dressing soakage in 15.00% versus 17.50%, aligning with findings by Al-Mamun M et al,^[19] Singh A et al,^[24] and Hiremath SCS et al.^[15] By the time of discharge, complications dropped sharply to nil in Group A, while Group B recorded single instances (2.50%) of both bleeding and dressing soakage. [Table 4]

Postoperative pain strongly favored fistulotomy, with Group A reporting significantly lower VAS scores at all intervals compared to Group B. At 6 hours, 25.00% of Group A had nil pain and 37.50% mild pain, whereas 42.50% of Group B experienced severe pain, aligning with Hiremath SCS et al,^[15] and Al-Mamun M et al.^[19] By 25 hours, 80.00% of Group A had nil to mild pain versus Group B's mild (32.50%) to moderate (42.50%) pain, consistent with Rani N et al,^[16] and Singh A et al.^[24] At discharge, all Group A patients (100.00%) were completely pain-free, while 27.50% of Group B still experienced mild pain. [Table 5]

Wound healing progressed significantly faster in Group A (Fistulotomy), achieving a mean healing time of 32.85 days with 97.50% healed by 2 months, compared to Group B (Fistulectomy), which recorded a mean healing time of 65.68 days and 92.50% healed by 3 months. These healing advantages closely align with comparative literature reporting mean healing times of 22.45 versus 26.4 days by Singh A et al,^[24] 23.11 versus 30.4 days by Rani N et al,^[16] and 8.44 versus 45.64 days by Abhishekh Y et al.^[18] Furthermore, the 6-month recurrence rate was lower in Group A (2.50%) than in Group B (7.50%), and hospital stays were significantly shorter in Group A (mean 1.35+0.48 days) versus Group B (mean 3.125+0.79 days), corroborating findings by Hiremath SCS et al,^[15] and Rani N et al.^[16] [Table 6]

CONCLUSION

The study demonstrates that fistula-in-ano predominantly affects middle-aged males presenting with pain and discharge. Comparing the two procedures, Fistulotomy (Group A) proved significantly more efficient than Fistulectomy (Group B) for treating simple anal fistulas, offering shorter operative times, reduced bleeding, superior pain control, faster wound healing, shorter hospital stays, and a lower 6-month recurrence rate (2.5% versus 7.5%). Overall, fistulotomy provides a superior, patient-friendly approach that effectively balances anatomical cure with enhanced comfort and rapid rehabilitation.

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