

## A STUDY ON THE OUTCOME OF FISTULECTOMY VERSUS FISTULOTOMY IN MANAGEMENT OF LOW ANAL FISTULAE WITH SPECIAL REFERENCE TO SPHINCTERIC FUNCTION

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### Abstract

**Background:** The management of low anal fistulae presents a significant challenge, necessitating a choice between fistulectomy and fistulotomy. This study evaluates the outcomes of these surgical options with a focus on their implications for sphincteric function.

**Methods:** A total of 50 patients were equally divided into two groups to undergo either fistulectomy or fistulotomy at the Medical College Kolkata. The study aimed to compare operation duration, postoperative pain, wound health, recurrence rates, and incidences of incontinence.

**Results:** Fistulotomy was associated with significantly shorter operation times (88% of cases were <30 min,  $p < 0.001$ ) and lower postoperative pain scores (76% scored <4,  $p < 0.001$ ) compared to fistulectomy. No significant difference was observed in wound complications and recurrence rates between the two procedures (fistulectomy 4% vs. fistulotomy 8%,  $p > 0.05$ ). Both methods showed a high rate of sphincteric function preservation, with minimal incidences of incontinence. Histopathological examination

predominantly identified non-specific inflammation, with one case of tuberculosis noted in the fistulotomy group.

**Conclusion:** Fistulectomy and fistulotomy are both effective for treating low anal fistulae, with the choice of procedure depending on patient-specific factors and clinical judgment. The study underscores the importance of surgical technique selection to optimize patient outcomes while maintaining anal continence.

**Keywords:** Low anal fistula, Fistulectomy, Fistulotomy, Sphincteric function, Postoperative pain, Incontinence, Surgical outcomes.

## **Introduction**

Anal fistulae, intricate anorectal disorders characterized by abnormal connections between the epithelialized surface of the anal canal and the perianal skin, pose significant challenges in colorectal surgery. Their management aims at eradicating infection, preventing recurrence, and preserving continence. However, the choice of surgical procedure, particularly between fistulectomy and fistulotomy, remains a subject of ongoing debate, especially in the treatment of low anal fistulae. This article embarks on a comprehensive examination of the outcomes of fistulectomy versus fistulotomy in the management of low anal fistulae, with a special focus on sphincteric function, thereby illuminating the path towards optimized patient care.

The anatomical complexity of anal fistulae and the potential risk of compromising sphincteric integrity underscore the necessity for meticulous surgical intervention. Anal fistulae are predominantly classified based on their relationship with the anal sphincters into low and high types, with low fistulae involving less sphincteric muscle and theoretically presenting a lesser risk to continence when surgically managed [1].

Fistulotomy, the surgical opening and flattening out of the fistulous tract, has been traditionally favored for its simplicity and high success rate in healing fistulae [2]. However, the procedure's association with sphincter damage and subsequent fecal incontinence, especially in cases involving significant sphincter division, has prompted the exploration of alternative treatments [3].

Fistulectomy, entailing the excision of the fistulous tract and surrounding infected tissue, offers an alternative approach with a potentially lower risk of impairing sphincteric function, albeit at the cost of a more extensive surgical wound and possibly a longer healing time [4]. The delicate balance between achieving a high healing rate and preserving continence has led to varied recommendations and practices, reflecting a tailored approach to the management of anal fistulae based on individual patient anatomy and fistula characteristics [5].

Recent studies have endeavored to delineate the efficacy and safety profiles of fistulotomy and fistulectomy, particularly in the context of low anal fistulae. A meta-analysis by Soltani and Kaiser (2010) highlighted the lack of a consensus regarding the optimal surgical technique, pointing to the necessity for further research focusing on postoperative continence and recurrence rates [6]. Similarly, a randomized controlled trial by Williams et al. (2011) comparing fistulotomy with fistulectomy in patients with low anal fistulae emphasized the importance of considering sphincteric function in the decision-making process, as both procedures showed comparable healing rates but differed in their impact on continence [7].

The significance of preserving sphincteric function cannot be overstated, given its critical role in maintaining fecal continence. The potential of surgical intervention to

compromise this function warrants a careful evaluation of surgical outcomes, particularly in light of advancements in surgical techniques and a better understanding of anorectal physiology. Innovations such as the use of anal fistula plugs, the advancement of flap procedures, and the application of biomaterials for tissue regeneration represent contemporary efforts to address the limitations of traditional surgery, aiming to provide effective healing while minimizing the risk to continence [8,9].

In synthesizing the current body of evidence, this article seeks to provide a rigorous analysis of the outcomes of fistulectomy versus fistulotomy in the management of low anal fistulae, with a nuanced consideration of the implications for sphincteric function. Through this exploration, it aspires to contribute to the ongoing discourse on optimizing surgical management strategies, underpinning the commitment to patient-centered care in the treatment of anal fistulae.

### **Aims and Objectives**

The primary aims and objectives of the study were meticulously outlined to ensure a comprehensive understanding of the clinical presentations of patients with low anal fistula in ano admitted to the Medical College Kolkata and to evaluate the outcomes following fistulectomy and fistulotomy treatment. Specifically, the study aimed to identify various clinical presentations of patients, compare healing times post-fistulectomy and fistulotomy, evaluate the benefits of both procedures in terms of hospital stay, postoperative pain, wound complications, postoperative dressing, and preservation of sphincter function, and to determine the recurrence rate in both types of operations.

The study was carried out in the Department of General Surgery, Medical College Kolkata. The study population comprised patients who presented to the surgical outpatient department with clinical manifestations of Fistula in ano. The study period spanned from January 2018 to June 2019, with an anticipated sample size of approximately 50, based on previous records. The study exclusively included cases of low anal fistula in ano, with inclusion criteria set for patients aged between 20 and 50 years, of both sexes, and presenting with low anal fistula in the surgery outpatient department. Exclusion criteria were rigorously defined to omit patients with recurrent fistula, complex fistula, horseshoe fistula, high anal fistula, neurological lesions, fistulae associated with tuberculosis and Crohn's disease, and those with previous anorectal surgery.

### **Materials and Methods**

This prospective study was conducted in the surgical department of the Medical College and Hospital Kolkata. A total of 50 patients admitted and treated in the surgical unit were selected for the study and randomly divided into two groups of 25 each. Group A patients were treated with fistulectomy alone, while Group B patients underwent fistulotomy with antimicrobial cover. All patients were admitted to the surgical department and received pre-operative antibiotics and bowel preparation. The operations were performed under regional (spinal) anesthesia in the lithotomy position, with special emphasis on identifying the internal opening as the first step of the procedure.

The parameters studied included clinical presentations such as discharge, pain, pruritus, per rectal bleeding, condition of perianal skin, site of external opening, presence of

fissure in ano, palpation for the course of the fistula tract towards the anal lumen, and general examination to exclude associated tuberculosis. Proctoscopic examination was conducted to assess ano-rectal mucosal pathology and the position of the internal fistula. Investigations included a complete hemogram with ESR, blood sugar, blood urea and serum creatinine levels, serum albumin, chest x-ray PA view, and the Mantoux test.

Statistical analysis was performed using SPSS (version 25.0; SPSS Inc., Chicago, IL, USA) and Graph Pad Prism version 5. Data were summarized as mean and standard deviation for numerical variables and count and percentages for categorical variables. Various statistical tests were employed, including two-sample t-tests, paired t-tests, chi-squared tests, and Fisher's exact test, with a p-value  $\leq 0.05$  considered statistically significant.

The study was elaborately designed, incorporating detailed inclusion and exclusion criteria, a comprehensive approach to patient examination and investigation, and a rigorous statistical analysis to evaluate the outcomes of fistulectomy versus fistulotomy in the management of low anal fistulae, with a particular focus on sphincteric function.

## **Results**

In the patient demographics, the study encompassed a total of 50 patients, equally divided between those undergoing fistulectomy and fistulotomy. Among these, 40 were male, representing 80% of the total population, with 22 (88%) in the fistulectomy group and 18 (72%) in the fistulotomy group. The remaining 10 patients were female, with 3 (12%) undergoing fistulectomy and 7 (28%) fistulotomy. Age distribution indicated a broader representation in the 31 to 40 years category, with 13 (52%) patients in the fistulectomy group and 9 (36%) in the fistulotomy group. The age groups of 21 to 30 and 41 to 50 years also showed participation but to a lesser extent.

Clinical details highlighted that all patients presented with perianal discharge and an external opening, signifying a 100% occurrence rate among the participants. Pain and pruritus were reported in over half of the cases, with pain occurring in 27 patients and pruritus in 29. The internal opening was identified in 46 patients, while bleeding per rectum was the least common symptom, reported in only 4 cases. Associated conditions varied, with ano-rectal abscess being the most prevalent, found in 14 patients. Fissures and hemorrhoids were less common, identified in 3 and 2 patients, respectively, while 31 patients did not present any associated conditions.

Surgery outcomes revealed a significant difference in the duration of operation between the two surgical methods. In the fistulectomy group, the majority, 21 (84%), had operations lasting more than 30 minutes, whereas in the fistulotomy group, 22 (88%) completed the procedure in less than 30 minutes, yielding a statistically significant variance ( $p < 0.001$ ). Postoperative pain assessed by a visual analogue scale showed that 20 (80%) patients in the fistulectomy group reported higher pain scores ( $>4$ ), contrasted with only 6 (24%) in the fistulotomy group, indicating a significant difference in postoperative pain levels between the two surgical techniques ( $p < 0.001$ ). Postoperative wound condition was another area of comparison, with 5 (20%) patients experiencing unhealthy wound conditions in the fistulectomy group compared to 2 (8%) in the fistulotomy group, although this difference did not reach statistical significance. Recurrence of fistula was observed in 3 cases, with 1 (4%) in the fistulectomy group and 2 (8%) in the fistulotomy group, indicating no significant difference in recurrence rates between the two treatments.

Regarding incontinence, the results were reassuring with very low incidence rates. Incontinence of gases was reported in 2 patients (4% overall), with one case in each surgical group. Incontinence of liquid was slightly less prevalent, with only one case (2% overall) reported in the fistulectomy group and none in the fistulotomy group. There were no reports of incontinence of solid in either group. The HPE reports showed non-specific inflammation in the majority of cases, with 49 patients (98% overall) presenting this condition. Only one case of tuberculosis was identified, occurring in the fistulotomy group, which did not represent a significant difference in the context of the study.

The study meticulously compared the outcomes of fistulectomy and fistulotomy in the treatment of low anal fistulae, with significant findings in terms of operation duration and postoperative pain. The occurrence of associated conditions and the low incidence of postoperative incontinence and recurrence suggest that both surgical techniques are viable, with specific considerations for patient selection based on individual clinical presentations and desired outcomes.

**Table 1: Patient Demographics and Surgery Type**

Demographic	Age in Years	Fistulectomy	Fistulotomy	Total
<b>Sex</b>				
Female	-	3 (12%)	7 (28%)	10
Male	-	22 (88%)	18 (72%)	40
<b>Age</b>	21 to 30	4 (16%)	6 (24%)	10
	31 to 40	13 (52%)	9 (36%)	22
	41 to 50	8 (32%)	10 (40%)	18
<b>Total</b>	-	25 (100%)	25 (100%)	50

**Table 2: Clinical Details and Associated Conditions**

Clinical Detail	Fistulectomy	Fistulotomy	Total
<b>Symptoms/Signs</b>			



Clinical Detail	Fistulectomy	Fistulotomy	Total
Pain	27	-	27
Perianal discharge	50	-	50
Pruritus	29	-	29
External opening	50	-	50
Internal opening	46	-	46
Bleeding per rectum	4	-	4
<b>Associated Conditions</b>			
Ano-Rectal Abscess	14	-	14
Fissure	3	-	3
Hemorrhoids	2	-	2
NONE	31	-	31
<b>Total</b>	50	-	50

**Table 3: Surgery Outcomes**

Outcome	Fistulectomy	Fistulotomy	Total
<b>Duration of Operation</b>			
<30 min	4 (16%)	22 (88%)	26
>30 min	21 (84%)	3 (12%)	24
<b>Post Operative Pain</b>			
<4 SCORE	5 (20%)	19 (76%)	24
>4 SCORE	20 (80%)	6 (24%)	26
<b>Wound Condition</b>			
P/O Wound Unhealthy	5 (20%)	2 (8%)	7
Retention Of Urine	2 (8%)	0 (0%)	2
<b>Recurrence</b>	1 (4%)	2 (8%)	3
<b>Total</b>	25 (100%)	25 (100%)	50

**Table 4: Incontinence and HPE Report**

Outcome	Fistulectomy	Fistulotomy	Total
<b>Incontinence of Gases</b>	24 (96%)	24 (96%)	48
<b>Incontinence of Liquid</b>	24 (96%)	25 (100%)	49
<b>Incontinence of Solid</b>	25 (100%)	25 (100%)	50
<b>HPE Report</b>			
Non-Specific Inflammation	25 (100%)	24 (96%)	49
Tuberculosis	0 (0%)	1 (4%)	1

Outcome	Fistulectomy	Fistulotomy	Total
<b>Total</b>	25 (100%)	25 (100%)	50

## Discussion

The management of low anal fistulae remains a significant challenge in colorectal surgery, with the primary goals being to eradicate the infection, ensure the fistula does not recur, and preserve anal sphincteric function. Our study compared the outcomes of fistulectomy and fistulotomy, focusing on operation duration, postoperative pain, wound condition, recurrence, and incontinence.

Our findings indicate that fistulotomy is associated with shorter operation times and less postoperative pain compared to fistulectomy, which aligns with the results of a study by Sileri et al. [10], where fistulotomy was similarly associated with a quicker recovery and reduced postoperative discomfort. However, unlike Sileri et al., our study did not find a significant difference in the rate of postoperative wound complications between the two procedures, suggesting that with appropriate wound care, the risk of infection or unhealthy wound conditions can be minimized regardless of the surgical approach.

The incidence of recurrence was low in our cohort, with no significant difference between the two surgical techniques. This contrasts with findings by Joy et al. [11], who reported a higher recurrence rate following fistulotomy. It is possible that the discrepancy could be attributed to differences in patient selection, with our study strictly including only low anal fistulae, which are generally associated with a lower risk of recurrence [12].

Concerning incontinence, our study reported minimal impact on sphincteric function post-surgery, which is consistent with the literature suggesting that both fistulotomy and fistulectomy, when appropriately selected for low anal fistulae, have a minimal risk of causing incontinence [13]. This is an important consideration for surgical decision-making, as preserving continence is paramount. A meta-analysis by Chen et al. [14] reinforced this notion, demonstrating no significant difference in incontinence rates between fistulotomy and fistulectomy for low anal fistulae, further supporting our findings.

Interestingly, the occurrence of non-specific inflammation in the majority of HPE reports in our study emphasizes the benign nature of most low anal fistulae, a finding that echoes the pathology reported in similar cohorts [15]. The singular case of tuberculosis-associated fistula in our fistulotomy group serves as a reminder of the importance of considering differential diagnoses in atypical cases, as discussed by Malhotra et al. [16].

Our study has limitations, including its sample size and the inherent biases of a single-institution study. Future research should aim to include larger, multicentric cohorts and potentially utilize randomized controlled trial designs to minimize bias and variance.

Both fistulectomy and fistulotomy present viable options for the surgical management of low anal fistulae, with the choice of technique being influenced by factors such as the surgeon's experience, patient preference, and specific fistula characteristics. The key to optimizing patient outcomes lies in meticulous patient selection, thorough preoperative assessment, and adherence to surgical principles that prioritize the preservation of sphincteric function.

## **Conclusion**

The comparative analysis between fistulectomy and fistulotomy for the treatment of low anal fistulae, with a special emphasis on sphincteric function, yielded notable insights. Our study, involving a balanced cohort of 50 patients, equally divided between the two surgical options, illuminated the distinct benefits and limitations associated with each procedure. Among the male-dominated study population (80%), no significant bias towards either procedure was observed based on gender distribution, underscoring the universal applicability of both treatments.

Clinical outcomes revealed that fistulotomy offers a shorter operation time (<30 min in 88% of cases,  $p < 0.001$ ) and less postoperative pain (<4 SCORE in 76%,  $p < 0.001$ ) compared to fistulectomy, aligning with the procedure's less invasive nature. However, the incidence of postoperative complications such as wound conditions and recurrence did not significantly differ between the two groups, indicating a comparable safety profile. Notably, the preservation of sphincteric function post-surgery was achieved in the vast majority of cases, with minimal incidences of incontinence, thereby fulfilling one of the critical objectives of anal fistula treatment.

The histopathological examination underscored the predominantly benign nature of the fistulae, with a singular case of tuberculosis-associated fistula in the fistulotomy group, suggesting the importance of preoperative diagnostic diligence.

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