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Research Article

An Analytical Comparison of Fistulectomy and Fistulotomy in the Treatment of Low Anal Fistula

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Abstract

Background: Fistula-in-ano is a common surgical condition that remains challenging to manage. Current treatment largely relies on two conventional surgical techniques fistulotomy and fistulectomy—chosen based on the surgeon's preference and experience. **Objective:** This study aimed to compare fistulotomy and fistulectomy in the management of low anal fistula with respect to operative time, duration of hospital stay, wound healing time, postoperative complications (urinary retention, bleeding, infection, and incontinence), and recurrence rate. **Methodology:** This retrospective comparative study was conducted at a tertiary care hospital. A total of 80 patients with low anal fistula were included and equally divided into two groups: Group A underwent fistulotomy and Group B underwent fistulectomy. **Results:** The outcomes of both surgical procedures were analyzed and compared between the two groups. **Conclusion:** Fistulotomy demonstrated a slight advantage over fistulectomy in the treatment of low anal fistula, as it was associated with shorter operative time, reduced postoperative hospital stay, and faster wound healing. However, the rates of postoperative complications and recurrence were comparable between the two procedures.

Keywords:
Fistula-in-ano; Low anal fistula; Fistulotomy; Fistulectomy; Surgical management

Introduction

An anal fistula is an abnormal pathological communication between the anal canal and the perianal skin, most commonly arising from infection of the anal crypt glands [1]. It is a chronic inflammatory condition characterized by a tubular tract with one internal opening in the anorectal canal and one or more external openings in the perineal or perianal region. In Indian traditional medicine, this condition is referred to as *Bhagandar*

and is listed among the *Aṣṭamahāgada* (eight major diseases) [2].

The incidence of fistula-in-ano is approximately 1 in 10,000 individuals per year, with a higher prevalence in males compared to females. Nearly 5% of proctological outpatient consultations are attributed to this condition. Patients with a prior history of anal abscesses or anal ulcers are at increased risk of developing anal fistulas, as these fistulas often result from inadequate healing or improper drainage of perianal abscesses secondary to infection of the anal glands [3].

Clinically, anal fistulas commonly present with symptoms such as perianal pain, cellulitis, pruritus ani, foul-smelling or blood-stained purulent discharge, and occasionally fecal incontinence. These symptoms significantly impair the patient's quality of life, causing considerable physical discomfort and psychological distress [4].

Various surgical treatment modalities are available for the management of anal fistula, including fistulotomy, fistulectomy, draining seton placement, anal fistula plug (AFP), ligation of intersphincteric fistula tract (LIFT), advancement flap procedures, and abscess drainage [5]. However, controversy persists regarding the optimal surgical approach for low-lying simple anal fistulas, particularly whether fistulectomy offers any advantage over fistulotomy. Early clinical trials discouraged fistulectomy due to prolonged wound healing time [6]. Moreover, the absence of robust, well-designed comparative studies has resulted in inconclusive findings even in available meta-analyses [7–9].

The majority of anal fistulas originate from infection of the anal glands and often follow a perianal abscess that may rupture spontaneously or be inadequately drained. Anal fistulas may also be associated with other disease conditions such as tuberculosis, Crohn's disease, malignancy, ulcerative colitis, lymphogranuloma venereum, hidradenitis suppurativa, and actinomycosis. Based on their anatomical location, anal fistulas are broadly classified into low-lying fistulas, which open into the anal canal below the anorectal ring, and high-level fistulas, which open at or above the anorectal ring. Fistula-in-ano may further be categorized as simple fistulas without extensions or complex fistulas with multiple tracts and extensions. Clinically, fistulas may present with a single external opening or multiple external openings, the latter commonly seen in conditions such as tuberculosis and inflammatory bowel disease. According to Parks' classification, anal fistulas are categorized as: intersphincteric, transsphincteric, suprasphincteric, and extrasphincteric types, based on their anatomical relationship with the sphincter complex.

The most common presenting symptom is persistent watery or purulent discharge accompanied by recurrent episodes of pain. Pain typically intensifies until temporary relief occurs following spontaneous discharge of pus. Recurrent superficial healing may occur, but pus often reaccumulates beneath the skin, leading to repeated abscess formation and discharge through the same or a new opening. In some cases, communication between the ischiorectal fossae behind the anus results in the formation of a horseshoe fistula.

The fundamental principle in the management of low anal fistula is

eradication of the fistulous tract while preserving anal sphincter function and continence. Low anal fistulas are commonly treated by fistulotomy or fistulectomy. In fistulotomy, the fistulous tract is laid open, curetted, and allowed to heal by secondary intention. In contrast, fistulectomy involves complete excision of the fistulous tract using a knife or diathermy, followed by healing by secondary intention.

In view of the ongoing debate regarding the optimal surgical approach and the lack of definitive evidence favoring either technique, the present study was undertaken to compare fistulotomy and fistulectomy in the management of low anal fistulas at a tertiary care center.

Materials and Methods

The present study was a retrospective comparative study conducted in the Department of Surgery, NC Medical College, Israna, Panipat. A total of 80 patients diagnosed with low anal fistula and those managed surgically were included in the study.

Inclusion Criteria

- Patients aged between 20 and 50 years
- Patients of either gender
- Patients diagnosed with simple low anal fistula

Exclusion Criteria

- Recurrent anal fistula
- Complex anal fistula
- High anal fistula
- History of previous anorectal surgery
- Anal fistula secondary to Crohn's disease or other specific pathologies
- Patients receiving cancer chemotherapy
- Patients on immunosuppressive therapy
- Patients aged less than 20 years or more than 50 years
- Pregnant females

Variables Studied

- Operative time
- Duration of postoperative hospital stay
- Wound healing time

Complications:

- *Intraoperative:* Bleeding
- *Postoperative:* Urinary retention, wound infection, fecal incontinence
- Recurrence rate

Surgical Technique

All procedures were performed under spinal anesthesia with the patient in the lithotomy position. Preoperatively, a cleansing enema was administered, and shaving of the perineal and perianal region was carried out. The operative field was prepared using 10% povidone-iodine solution.

Proctoscopic examination was performed to visualize the anal canal and exclude any associated anorectal pathology. Gentle probing was carried out through the external opening using a fistula probe to identify the tract. Probing up to the internal opening was avoided to prevent the creation of a false passage. Methylene blue dye was injected through the external opening to accurately localize the internal opening and delineate the fistulous tract.

Fistulotomy

In fistulotomy, the fistulous tract was laid open completely along its length. Curettage was performed to remove the epithelial lining and granulation tissue, and the wound was allowed to heal by secondary intention.

Fistulectomy

In fistulectomy, the fistulous tract and its openings were identified and confirmed. A 5-Fr nasogastric tube was passed through the tract to aid delineation. The entire tract was excised using either a scalpel or diathermy. Hemostasis was achieved, and the excised tract was sent for histopathological examination.

Postoperative Management

Postoperatively, patients received antibiotics (amoxicillin-clavulanate and metronidazole), oral analgesics (diclofenac sodium), and local application of lignocaine jelly. A laxative syrup was prescribed from the day of surgery to prevent constipation. Daily sitz baths were initiated from the first postoperative day.

Operative time, wound healing time, and length of hospital stay were recorded. Patients were discharged once pain was adequately controlled and there was no evidence of immediate postoperative complications, with instructions for regular wound dressing.

Follow-Up

Patients were followed up on a bi-weekly basis in the surgical outpatient department until complete wound healing to assess postoperative pain, wound infection, and fecal incontinence. Thereafter, monthly follow-up was conducted for a period of six months to detect any recurrence. All observations were recorded and tabulated.

Statistical Analysis

Data were analyzed using appropriate statistical methods. Mean and standard deviation were used for descriptive statistics. Inferential statistics were performed using the Chi-square test and paired *t*-test. A *p*-value of ≤ 0.05 was considered statistically significant.

OBSERVATIONS AND RESULTS:-

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Group A – fistulotomy,n=40
Group B – fistulectomy,n=40
In our study,out of total 80 patients,85% (n=68) patients were males and 14% (n=12) were females.

Table 1. Baseline demographic comparison of group A and group B

Demographic	Group A (N=40)	Group B (N=40)	P-value
Age (years)	39.1±6.3	40.4±6.2	0.355

Table 2: Comparison of operative time between Group A and Group B

In Group A, mean operative time was 11.9 ± 1.6 minutes.
In Group B, mean operative time was 25.6 ± 7.3 minutes.
It is clear that the operative time for Fistulectomy group was longer than that of the Fistulotomy group.

	Group A (N=45)	Group B (N=45)	P-value
Operative time in minutes	11.9±1.6	25.6±7.3	0.0001

Table 3: Comparison of hospital stay between Group A and Group B

Post-surgery hospital stay:-
In Group A,mean hospital stay was 3.5 ± 1.2 days.
In Group B,mean hospital stay was 5.1 ± 0.97 (SD) days.
In the Fistulotomy group,the patients were discharged earlier as compared to the Fistulectomy group.

	Group A (N=45)	Group B (N=45)	P-value
Duration of hospital stay in days	3.5±1.2	5.1±0.97	0.0001

Table 5: Comparison of wound healing between Group A and Group B

	Group A (N=40)	Group B (N=40)	P-value
Wound healing time	23.7 ± 5.1	33.3± 4.9	**0.0001**

Wound healing time:-
In Group A,Wound healing time was 23.7 ± 5.1 days.
In Group B,Wound healing time was 33.3± 4.9 days.
In the Fistulotomy group,the wound healing time was shorter as compared to the Fistulectomy group and as the p-value was <0.0001,it was statistically significant.

Table 6: Complications:-

Intra Operative Complications		Fistulotomy (N=40)		Fistulectomy (N=40)		P-value
		n	%	n	%	
Bleeding	Yes	4	10	6	15	0.498
	No	36	90	34	85	
Post Operative Complications						
Urinary Retention	Yes	3	7.5	5	12.5	0.456
	No	37	92.5	35	87.5	
Infection	Yes	4	10	9	22.5	0.129
	No	36	90	31	77.5	
Incontinence	Yes	0	0	2	5	0.556
	No	40	100	38	95	
Recurrence	Yes	2	5	0	0	0.556
	No	38	95	40	100	

In Group A, 2(5%) patients had recurrence during the follow up period of 6 months.
In Group B, no patient had recurrence during the follow up period of 6 months.
The difference was statistically not significant between both the groups.(p >0.05)

Discussion

Anal fistula is a commonly encountered surgical condition with multiple

operative techniques available for its management. The present study focused on comparing two conventional surgical modalities—fistulotomy and fistulectomy—for the treatment of low-lying, uncomplicated anal fistulas. The ideal surgical procedure for fistula-in-ano should achieve complete eradication of the fistulous tract with minimal recurrence, preservation of anal continence, and improvement in the patient's quality of life.

Fistula-in-ano predominantly affects the male population, a finding corroborated by the present study, in which 85% of patients were males. The most frequent presenting symptom was persistent discharge from an external opening, often associated with pruritus of the surrounding skin. These findings are consistent with existing literature.

On comparison of operative parameters, the mean operating time was significantly shorter in the fistulotomy group. Fistulectomy requires meticulous dissection of the fistulous tract from surrounding tissues and careful hemostasis, which contributes to prolonged operative duration. In contrast, fistulotomy involves laying open the tract, resulting in a comparatively quicker procedure. Postoperative hospital stay was also shorter in the fistulotomy group, likely due to reduced postoperative pain and smaller wound size.

Although fistula-in-ano has long been recognized as a common surgical disorder, its management strategies are not uniformly standardized. Multiple treatment options are currently employed depending on fistula anatomy and sphincter involvement, including fistulotomy, fistulectomy, seton placement, fibrin glue injection, and other sphincter-preserving techniques [10–11]. Fistulotomy and fistulectomy remain the most commonly used procedures for low anal fistulas [12].

Several studies have demonstrated that marsupialisation following fistulotomy may reduce postoperative bleeding and promote faster wound healing by decreasing the area of raw, unepithelialized tissue [13–14]. Although marsupialisation facilitates quicker wound healing, it does not prevent postoperative deformity and is not considered mandatory; its use largely depends on the surgeon's preference and experience [10]. Patient satisfaction following fistula surgery is influenced by multiple factors, including postoperative pain, bleeding, hospital stay, wound healing time, and time to return to routine activities [13–14].

Recurrence was evaluated over a follow-up period of six months. Given this relatively short duration, definitive conclusions regarding recurrence could not be drawn. In the present study, two recurrence was noted in the fistulotomy group, while no recurrence was observed in the fistulectomy group. Previous studies have reported recurrence rates ranging from 5% to 9% following both fistulotomy and fistulectomy [15–18].

In the present study, no statistically significant difference was observed in baseline demographic or operative characteristics between the two groups. Additionally, two cases of postoperative fecal incontinence were recorded during the follow-up period, which aligns with findings from earlier studies [14,19]. There was also no significant difference in lifestyle impairment between the two groups, indicating comparable functional outcomes.

Limitations

- The study compared only two surgical techniques for low-lying anal fistula; other treatment modalities were not included.
- The follow-up duration of six months was relatively short, limiting

meaningful assessment of long-term recurrence.

- Most patients were from a single geographical region, which may limit generalizability to the broader Indian population.
- Antecedent etiological factors and detailed assessment of postoperative pain were not evaluated.
- Surgical procedures were performed by multiple surgeons, and inter-surgeon technical variation was not accounted for.

Conclusion

Both fistulotomy and fistulectomy are effective and relatively simple surgical procedures for the management of low anal fistulas, with excellent healing rates and minimal risk of sphincter damage. However, fistulotomy demonstrates a slight advantage over fistulectomy, as it is associated with shorter operative time, reduced postoperative hospital stay, faster wound healing, lower risk of incontinence, and a comparable recurrence rate. Therefore, fistulotomy may be considered the preferred surgical option for uncomplicated low anal fistulas.

References

1. Gosselink MP, van Onkelen RS, Schouten WR. The cryptoglandular theory revisited. Colorectal disease : the official journal of the Association of Coloproctology of Great Britain and Ireland. 2015;17(12):1041-3.
2. Shindhe PS. Management of rare, low anal anterior fistula exception to Goodsall's rule with Kṣārasūtra. Ancient science of life. 2014;33(3):182-5.
3. Adams D, Kovalcik PJ. Fistula in ano. Surgery, gynecology & obstetrics. 1981;153(5):731-2.
4. Nelson RL, Abcarian H. Epidemiology, Incidence and Prevalence of Fistula in Ano. In: Abcarian H, editor. Anal Fistula: Principles and Management. New York, NY: Springer New York; 2014. p. 1-3.
5. Bubbers EJ, Cologne KG. Management of Complex Anal Fistulas. Clinics in colon and rectal surgery. 2016;29(1):43-9.
6. Ganesan R KK, Heber Anandan. A comparative study between fistulotomy and fistulectomy in management of low anal fistulae. International Surgery Journal. 2017 4(11):3665-9.
7. Xu Y, Liang S, Tang W. Metaanalysis of randomized clinical trials comparing fistulectomy versus fistulotomy for low anal fistula. SpringerPlus. 2016;5(1):1722.
8. Ratto C, Litta F, Donisi L, Parello A. Fistulotomy or fistulectomy and primary sphincteroplasty for anal fistula (FIPS): a systematic review. Techniques in coloproctology. 2015;19(7):391-400.
9. Gafar A. Fistulotomy versus fistulectomy as a treatment for low anal fistula in infants: A comparative study. Annals of Pediatric Surgery. 2013;9:103-7.
10. Malik, A.I. & Nelson, R.L. (2008) Surgical management of anal fistulae: a systematic review. Colorectal Diseases 10, 420-30.
11. Pescatori, M., Ayabaca, S.M., Cafaro, D., Iannello, A. & Magrini, S. (2006) Marsupialization of fistulotomy and fistulectomy wounds improve healing and decreases bleeding: a randomized controlled trial. Colorectal Diseases 8, 11-14.
12. Kronborg, O. (1985) To lay open or excise a fistula-in-ano: a randomized trial. British Journal of Surgery 72, 970.
13. Bhatti Y, Fatima S, Shaikh GS, Shaikh S. (2011) Fistulotomy versus fistulectomy in the treatment of low fistula in ano. Rawal Medical Journal 36, 284-286.
14. Jain, B.K., Vaibhaw, K., Garg, P.K., Gupta, S. & Debajyoti Mohanty, D. (2012) Comparison of a Fistulectomy

and a Fistulotomy with Marsupialization in the Management of a Simple Anal Fistula: A Randomized, Controlled Pilot Trial. Journal of the Korean Society of Coloproctology 28, 78–82.

15. Shouler PJ, Grimley RP, Keighley MR,Alexander- Williams J. Fistula-in-ano is usually simple to manage surgically.Int J Colorectal Dis.1986;1(2):113-5.
16. Khubchandani M.Comparison of results of treatment of fistula-in-ano.J R Soc Med.1984;77(5):369-71.
17. Vasilevsky CA, Gordon PH. Results of treatment of fistula-in-ano. Dis Colon Rectum.1985;28(4):225- 31.
18. Kronborg O. To lay open or excise a fistula-in-ano: a randomized trial. Br J Surg.1985;72(12):970
19. Lindsey, I., Smilgin-Humphreys, M.M., Cunningham, C., Mortensen, N.J, George, B.D. (2002) A randomized, controlled trial of fibrin glue vs. conventional treatment for anal fistula. Diseases of the Colon and Rectum 45, 1608– 1615.