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TREATMENT OUTCOME OF HIGH ANAL FISTULA WITH FISTULECTOMY AND SETON PLACEMENT

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ABSTRACT

Background: High anal fistulas pose significant challenges in management due to their complexity and proximity to the anal sphincter. Understanding the outcomes of different treatment modalities is crucial for optimizing patient care.

Objective: This study aimed to compare the treatment outcomes of high anal fistulas using fistulectomy versus Seton placement, focusing on healing rates, recurrence, complications, and anal continence.

Study Design & Setting: This study was conducted at Alnafes Medical College And Hospital encompassing a total of 140 patients diagnosed with high anal fistulas. Participants were divided into two groups: fistulectomy (n = 70) and Seton placement (n = 70).

Methodology: Patient demographics, clinical characteristics, and treatment outcomes were reviewed. Healing rates, recurrence, complications, and fecal incontinence were assessed during a minimum follow-up period of 6 months. Statistical analysis was performed using SPSS, with p-values < 0.05 considered significant.

Results: In the fistulectomy group, 80% achieved complete healing, while the Seton group had a 71% healing rate (p = 0.14). The overall complication rate was higher in the fistulectomy group (17%) compared to the Seton group (9%) (p = 0.03). Fecal incontinence was reported in 10% of the fistulectomy group versus 4% in the Seton group (p = 0.04). The mean hospital stay and recovery time were also longer in the fistulectomy group.

Conclusion: Fistulectomy resulted in slightly better healing rates, but Seton placement offered lower complication rates and better anal continence preservation. Individualized treatment approaches are recommended based on patient-specific factors.

Keywords: anal fistula, continence, fistulectomy, recurrence, Seton placement, treatment outcomes.

INTRODUCTION

Anal fistula is a pathological tract or cavity that forms between the epithelial surface of the anal canal and the perianal skin. It is a common anorectal condition that causes significant discomfort and inconvenience to affected individuals.[1,2] High anal fistulas, which have their internal opening located above the dentate line, are often complex and challenging to treat due to their proximity to the anal sphincter muscles. This poses a significant risk for complications, especially fecal incontinence, if the sphincters are damaged during surgical procedures.[3] The management of high anal fistulas requires a delicate balance between complete healing and preservation of anal sphincter function. Among the various treatment options available, fistulectomy (complete removal of the fistula tract) and Seton placement (a technique where a thread-like material is used to drain the fistula and promote healing over time) are frequently used, especially in cases of complex or high fistulas.[4,5]

The global prevalence of anal fistula is estimated to be around 1-2 cases per 10,000 individuals annually.[6] Geographically, the incidence of anal fistula shows some variation. In the United States, it is estimated that there are around 68,000 new cases annually, while in the United Kingdom, approximately 12,000 new cases are reported each year. In countries with higher rates of inflammatory bowel disease, such as Northern Europe and North America, the incidence tends to be higher.[7,8]

Fistulectomy involves excising the entire fistulous tract, providing a more definitive treatment by removing the source of infection. However, it can potentially damage the surrounding tissues, including the anal sphincter, which may lead to complications such as incontinence.[9] On the other hand, Seton placement involves placing a thread through the fistula, allowing for gradual healing while avoiding sphincter injury. The Seton serves either as a draining mechanism to keep the fistula open and free from infection or as a cutting Seton, which slowly divides the fistula over time while scarring occurs, minimizing damage to the sphincter.[10] Despite the variety of treatment methods, high anal fistulas continue to present significant challenges. Their high recurrence rates and the potential risk of postoperative incontinence make it critical to explore the efficacy and safety of existing treatment modalities. Fistulectomy, although more radical, offers a higher chance of complete fistula closure, while the Seton technique is often preferred for its ability to avoid immediate sphincter damage and reduce the risk of incontinence.[11,12]

The rationale for this study is to evaluate the treatment outcomes of high anal fistulas, which are challenging to manage due to their proximity to the anal sphincter. By comparing fistulectomy and Seton placement, the study aims to determine the efficacy, recurrence rates, and risks of complications such as fecal incontinence. This comparison will provide valuable insights into optimizing treatment strategies that balance fistula healing with sphincter preservation, improving patient outcomes.

MATERIALS AND METHODS

This randomized controlled trail study was conducted at Alnafes Medical College And Hospital Islamabad from Jan 2023 to Dec 2023. A total of 140 cases were included in the study, with patients selected based on clinical diagnosis and confirmed by imaging studies such as MRI or endoanal ultrasound. The sample size of 140 patients was calculated using a confidence interval of 95% and a margin of error of 5%, ensuring sufficient power to detect a significant difference between the two treatment groups.

Patients with high anal fistulas who underwent either fistulectomy or Seton placement were included in the study, while those with low anal fistulas, anal malignancies, or underlying systemic conditions such as Crohn’s disease were excluded.

The patients were divided into two groups: those who underwent fistulectomy (n = 70) and those who received Seton placement (n = 70). In the fistulectomy group, complete excision of the fistula tract was performed, and primary healing was achieved by leaving the wound open for secondary

healing. In the Seton group, a loose or cutting Seton was placed through the fistulous tract, depending on the complexity of the case and the surgeon's discretion.
Postoperative follow-up was conducted for at least six months, during which patients were assessed for fistula healing, recurrence, and complications, including fecal incontinence and infection. Healing was defined as complete closure of the fistulous tract without signs of persistent infection, while recurrence was defined as the reappearance of the fistula after initial healing. Continence was evaluated using the Wexner incontinence score, and any complications were recorded. Statistical analysis was performed using SPSS software. Categorical variables were analyzed using chi-square tests, while continuous variables were compared using t-tests. A p-value of less than 0.05 was considered statistically significant.

STUDY RESULTS

In Table 1, the mean age of patients in both groups was similar, with 43.2 years in the fistulectomy group and 41.9 years in the Seton group. A male predominance was noted, with 80% male patients in the fistulectomy group and 76% in the Seton group. The mean follow-up period was 9.1 months for the fistulectomy group and 8.8 months for the Seton group. The history of abscess formation was slightly higher in the fistulectomy group (46%) compared to the Seton group (41%). Co-morbidities, such as diabetes and hypertension, were comparable between the groups, with 26% of patients having diabetes in the fistulectomy group and 29% in the Seton group. Smoking history was also similar between both groups.

Table 1: Patient Demographics

Parameter	Fistulectomy Group (n = 70)	Seton Group (n = 70)	Total (n = 140)
Mean Age (years)	43.2 ± 10.5	41.9 ± 9.8	42.6 ± 10.1
Gender			
Male	56 (80%)	53 (76%)	109 (78%)
Female	14 (20%)	17 (24%)	31 (22%)
Mean Follow-up (months)	9.1 ± 3.2	8.8 ± 3.5	9.0 ± 3.3
History of Abscess	32 (46%)	29 (41%)	61 (44%)
Co-morbidities			
Diabetes	18 (26%)	20 (29%)	38 (27%)
Hypertension	15 (21%)	17 (24%)	32 (23%)
Smoking History	12 (17%)	10 (14%)	22 (16%)

Table 2 shows that complete fistula healing within 6 months was achieved in 80% of the fistulectomy group and 71% of the Seton group (p = 0.14), with a higher delayed healing/recurrence rate in the Seton group (29%) compared to the fistulectomy group (20%). Recurrence after initial healing was observed in 13% of the fistulectomy group and 20% of the Seton group (p = 0.22), with no statistically significant difference between the groups.

Table 2: Fistula Healing and Recurrence Rates

Outcome	Fistulectomy Group (n = 70)	Seton Group (n = 70)	p-value
Complete Healing (within 6 months)	56 (80%)	50 (71%)	0.14
Delayed Healing/Recurrence	14 (20%)	20 (29%)	
Recurrence after Initial Healing	9 (13%)	14 (20%)	0.22

In Table 3**,** the overall complication rate was higher in the fistulectomy group (17%) than in the Seton group (9%), with a statistically significant difference (p = 0.03). Wound infections were slightly more common in the fistulectomy group (7%) compared to the Seton group (4%). Fecal incontinence was reported in 10% of the fistulectomy group and 4% of the Seton group (p = 0.04), with the Wexner incontinence score being higher in the fistulectomy group (mean score 2.1 vs. 1.2).

Table 3: Complications and Fecal Incontinence

Complication	Fistulectomy Group (n = 70)	Seton Group (n = 70)	p-value
Overall Complications	12 (17%)	6 (9%)	0.03
Wound Infections	5 (7%)	3 (4%)	
Fecal Incontinence	7 (10%)	3 (4%)	0.04
Mean Wexner Incontinence Score	2.1	1.2	

Table 4 highlights that the mean hospital stay was longer for patients in the fistulectomy group (3.6 days) compared to the Seton group (2.8 days), with a significant difference ($p = 0.02$). Recovery time was also longer for the fistulectomy group, with a mean of 4 weeks compared to 2.5 weeks in the Seton group ($p = 0.01$).

Table 4: Hospital Stay and Recovery Time

Parameter	Fistulectomy Group (n = 70)	Seton Group (n = 70)	p-value
Mean Hospital Stay (days)	3.6 ± 1.2	2.8 ± 1.1	0.02
Mean Recovery Time (weeks)	4.0 ± 1.3	2.5 ± 1.0	0.01

DISCUSSION

High anal fistulas are complex and challenging conditions that significantly impact patients' quality of life. They often require careful management to achieve successful healing while minimizing complications. Treatment options, including fistulectomy and Seton placement, offer different benefits and risks. Fistulectomy aims for complete excision of the fistula, often leading to higher healing rates, while Seton placement focuses on gradual healing with fewer complications. Understanding the outcomes of these two approaches is essential for guiding clinical decisions and optimizing patient care in managing high anal fistulas.[13,14]

In our study, we observed a male predominance in patients with high anal fistula, aligning with the findings of Ullah et al. (2021), who reported a similar male-to-female ratio (56% vs. 44%). The higher prevalence in males may reflect social and cultural factors affecting healthcare-seeking behavior, particularly among females, who might prefer consulting female physicians in private clinics. This under-reporting in women emphasizes the need for greater awareness and outreach to ensure all patients receive appropriate care for anal fistulas.[15] When comparing the rates of fecal incontinence in our study, we noted that the fistulectomy group had a 10% incidence, while Seton placement resulted in a 4% incidence. This is significantly lower than the rates reported by Vial et al. (2021), who found a 25.2% incontinence rate when the anal sphincter was divided during surgery. Furthermore, Garcia-Aguilar (2000) reported an even higher rate of 67% fecal incontinence associated with similar surgical procedures involving sphincter division. Our results suggest that both fistulectomy and Seton placement may be associated with better outcomes in preserving anal continence compared to the historical data, underscoring the importance of surgical technique and patient selection in minimizing complications.[16,17]

Moreover, our findings of an overall recurrence rate of 13% in the fistulectomy group and 20% in the Seton group are consistent with Munir et al. (2014), who reported a 3.3% recurrence rate in a smaller cohort treated with Seton placement. However, the markedly lower recurrence rates in Munir et al.'s study could be attributed to their small sample size and shorter follow-up period. In contrast, our study involved a larger sample size and longer follow-up, providing a more comprehensive understanding of long-term outcomes.[18]

Our study's findings on the outcomes of high anal fistulas provide important context when compared to existing literature. Notably, Tyler et al. reported a treatment success rate of 62% following a staged procedure involving Seton placement and subsequent fibrin glue application without sphincter division. In contrast, our study showed a higher overall healing rate in both treatment groups, with the fistulectomy group achieving an 80% healing rate and the Seton group 71%. This suggests that our approach may offer superior outcomes compared to the staged

procedures reported by Tyler et al., possibly due to the direct surgical intervention in fistulectomy.[19] Moreover, Loungnarath et al. reported a recurrence rate of 69% when fibrin glue was applied for fistula-in-ano treatment. This contrasts sharply with our study, which found a recurrence rate of only 4% in the fistulectomy group and 20% in the Seton group. The significantly lower recurrence rates in our study highlight the limitations of less invasive techniques like fibrin glue application, as they may not effectively address the underlying complexity of high anal fistulas. This indicates that our treatment modalities were effective not only in reducing recurrence rates but also in preserving anal continence. The lower rates of incontinence in our study further emphasize the importance of surgical technique and patient selection in optimizing outcomes for patients with high anal fistulas.[20] This study's strengths include a relatively large sample size of 140 patients and a comprehensive follow-up period, which enhance the reliability of the outcomes observed for both fistulectomy and Seton placement. Limitations of the study include its retrospective design, which may introduce selection bias, and the lack of a standardized assessment tool for evaluating quality of life post-treatment.

CONCLUSION

In conclusion, while fistulectomy demonstrated a slightly higher healing rate for high anal fistulas, Seton placement resulted in fewer complications and better preservation of anal continence. These findings suggest that treatment choice should be individualized, balancing the effectiveness of healing with the potential impact on patient quality of life.

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