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Original Research Article

Clinical outcome of fistulectomy with partial sphincter preservation in complex fistula-in-ano in a tertiary hospital of Bangladesh

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ABSTRACT

Background: Complex fistula-in-ano poses a significant surgical challenge due to its high recurrence risk and potential for sphincter damage leading to incontinence. Sphincter-preserving fistulectomy aims to balance effective tract removal with continence preservation. This study evaluated clinical outcomes of fistulectomy with partial sphincter preservation in patients with complex fistula-in-ano.

Methods: This prospective observational study was conducted in the Department of Surgery at Dhaka Medical College Hospital, Dhaka, Bangladesh, from January 2023 to June 2024. A total of 77 patients with complex fistula-in-ano underwent fistulectomy with partial sphincter preservation. Preoperative evaluation included clinical and radiological assessment. Surgery involved careful dissection and excision of the fistula tract while preserving part of the external anal sphincter. Patients were followed up for six months and outcomes assessed included wound healing time, postoperative complications, continence status, recurrence and satisfaction. Data were analyzed using SPSS version 25.

Results: The mean age of patients was 38.6±10.4 years, with 79.2% being male. The most common fistula type was trans-sphincteric (55.8%). Mean operative time was 45±12 minutes and hospital stay averaged 2.3±1.1 days. Complete wound healing occurred in 92.2% of patients within a mean of 5.8±1.2 weeks. Recurrence was observed in 5.2%, while 2.6% experienced minor gas incontinence; no major incontinence was reported. Postoperative complications included wound infection (7.8%). Patient satisfaction was high in 85.7% of cases.

Conclusions: Fistulectomy with partial sphincter preservation is an effective surgical approach for complex fistula-in-ano, offering high healing rates, low recurrence and excellent continence preservation.

Keywords: Complex fistula-in-ano, Continence, Fistulectomy, Recurrence, Sphincter preservation, Wound healing

INTRODUCTION

Fistula-in-ano is a common anorectal disorder characterized by an abnormal communication between the anal canal and perianal skin, often resulting from a previous perianal abscess.[1] Complex fistula-in-ano, which includes high trans-sphincteric, supra-sphincteric, extra-sphincteric, horseshoe and recurrent tracts, presents a significant challenge in surgical management due to its association with a higher risk of recurrence and postoperative fecal incontinence.[2] The primary goals in the treatment of complex anal fistulas are to achieve

complete eradication of the fistulous tract, prevent recurrence and preserve continence.[3] While numerous surgical techniques exist, including seton placement, advancement flap, LIFT (ligation of intersphincteric fistula tract) and fistula plug insertion, there is no universally accepted gold standard for managing complex cases.[4] Among the available procedures, fistulectomy remains a widely practiced and definitive method, particularly in resource-limited settings.[5] However, traditional fistulectomy, which involves complete excision of the tract, may lead to significant sphincter damage and incontinence if performed without caution.

To mitigate this risk, modifications have been introduced, such as partial sphincter preservation techniques, which aim to balance the need for effective fistula eradication with the preservation of sphincter integrity.[6] These techniques involve careful dissection of the fistulous tract with selective sparing of the external sphincter fibers to minimize functional impairment.[7] Several studies have reported that sphincter-preserving approaches can offer favorable outcomes in terms of both healing and continence, especially when combined with accurate identification of fistulous anatomy using preoperative imaging.[8] However, data on the effectiveness of such techniques in the context of complex fistula-in-ano in low-resource settings like Bangladesh remain limited.

In Bangladesh, where many patients present late with recurrent or previously treated fistulas and where access to advanced imaging and surgical options may be restricted, it is essential to evaluate the safety and efficacy of conventional but modified procedures that are practical and affordable.[9,10] Fistulectomy with partial sphincter preservation, if proven effective, could serve as a viable solution in such settings.[11] Therefore, this study was designed to assess the clinical outcomes of fistulectomy with partial sphincter preservation in patients with complex fistula-in-ano in a tertiary care hospital in Bangladesh. The outcomes measured include postoperative complications, time to wound healing, recurrence rates, continence status and patient satisfaction, with the goal of providing evidence to guide surgical decision-making in similar clinical environments.

METHODS

This prospective observational study was conducted in the Department of Surgery at Dhaka Medical College Hospital, Dhaka, Bangladesh, over a period of 18 months from January 2023 to June 2024. A total of 77 patients diagnosed with complex fistula-in-ano and managed with fistulectomy along with partial sphincter preservation were included in the study.

Patients were selected based on specific inclusion and exclusion criteria. Inclusion criteria included adult patients aged 18 years or older with complex fistula-in-ano confirmed clinically and radiologically who diagnosed as complex fistula-in-ano and provided informed consent. Patients with simple fistula, active Crohn's disease, tuberculosis and malignancy were excluded.

Preoperative evaluation included detailed history taking, clinical examination, digital rectal examination and imaging such as MRI when indicated. All patients underwent routine hematological and biochemical investigations along with anesthetic fitness assessment. Surgical procedures were performed under spinal. A standard operative technique of fistulectomy was followed, with careful dissection and excision of the fistula tract while preserving a portion of the external anal sphincter to minimize the risk of incontinence. Internal openings were identified and closed primarily. Hemostasis was secured and wounds were left open for secondary healing.

Postoperatively, patients were managed with analgesics, antibiotics and sitz baths. They were monitored for pain, bleeding, infection, continence status and other complications. Patients were discharged once stable and followed up weekly for the first month and then monthly for up to six months. Clinical outcomes assessed included wound healing time, postoperative complications, continence status, recurrence of fistula and patient satisfaction. Data were collected using a structured proforma and analyzed using SPSS version 25. Descriptive statistics were used to summarize demographic and clinical data and outcomes were expressed in frequencies, percentages, means and standard deviations.

RESULTS

Table 1 baseline demographic and clinical characteristics of the 77 patients with complex fistula-in-ano show that the majority were males (79.2%), with a mean age of 38.6±10.4 years. Most patients were aged between 31–40 years. Trans-sphincteric fistulas were the most common type (55.8%) and 11.7% had a history of previous fistula surgery.

Table 2 operative and postoperative findings show that a mean operative time was 45±12 minutes. Minimal intraoperative bleeding was observed in 89.6% of cases. Postoperative pain (VAS≥4 on Day 1) occurred in 42.9% of patients, while postoperative incontinence and wound infection were noted in 2.6% and 7.8%, respectively. The average wound healing time was 5.8±1.2 weeks and mean hospital stay was 2.3±1.1 days.

Table 3 at 6-month follow-up, 92.2% of patients achieved complete healing, with a recurrence rate of 5.2% and persistent discharge in 2.6%. Most patients (97.4%) maintained full continence, with only 2.6% reporting minor gas incontinence and no cases of major fecal incontinence. Overall, 85.7% of patients reported being satisfied with the treatment outcome.

Table 1: Baseline demographic and clinical characteristics of patients (n=77).

Characteristics	Frequency (N)	%
Age (mean±SD, in years)	38.6±10.4	
Age group (in years)		
18–30	22	28.6
31–40	26	33.8
41–50	18	23.4
>50	11	14.2
Gender		
Male	61	79.2
Female	16	20.8
Duration of symptoms		
<6 months	25	32.5
6 months–1 year	29	37.7
>1 year	23	29.8
History of previous fistula surgery (yes)	9	11.7
Type of fistula		
Trans-sphincteric	43	55.8
Supra-sphincteric	18	23.4
Extra-sphincteric	10	13
Others	6	7.8

Table 2: Operative and postoperative details.

Variable	Frequency (N)	%
Duration of surgery (mean±SD, min)	45±12	
Intraoperative bleeding		
Minimal	69	89.6
Moderate	8	10.4
Postoperative pain (VAS≥4, Day 1)	33	42.9
Postoperative incontinence	2	2.6
Wound infection	6	7.8
Time to wound healing (mean ± SD, weeks)	5.8±1.2	
Hospital stay (mean ± SD, days)	2.3±1.1	

Table 3: Follow-up outcomes and recurrence (at 6 months).

Outcome	Frequency (N)	%
Complete healing	71	92.2
Recurrence	4	5.2
Persistent discharge	2	2.6
Postoperative continence status		
Full continence	75	97.4
Minor gas incontinence	2	2.6
Major fecal incontinence	0	0
Patient satisfaction (subjective)		
Satisfied	66	85.7
Neutral	9	11.7
Dissatisfied	2	2.6

DISCUSSION

The surgical management of complex fistula-in-ano remains a significant challenge, primarily due to the intricate anatomy involved and the potential risk of compromising continence. Our study demonstrates that fistulectomy with partial sphincter preservation is an effective technique for treating complex anal fistulas, offering a high healing rate (92.2%) with minimal postoperative complications and a low incontinence rate

(2.6%). These findings support the growing emphasis on sphincter-sparing approaches in the contemporary management of complex fistula-in-ano.

Our results are consistent with findings from similar studies in both local and international settings. For instance, Hong et al, reported that sphincter-preserving fistulectomy achieved high success rates with minimal impairment of continence, validating the safety and efficacy of this approach in complex fistulas.[12] Similarly, Hassan et al, found that fistulotomy with primary sphincter reconstruction in high trans-sphincteric and supra-sphincteric fistulas led to favorable outcomes, with low recurrence and incontinence rates.[4]

In the context of Bangladesh, where fistula management is often complicated by delayed presentation and previous unsuccessful treatments, our findings align with studies by Islam et al and Rahman et al, who reported favorable outcomes with various seton-based sphincter-sparing techniques.[13,14] However, our technique avoids the prolonged healing time associated with seton placement, offering quicker wound healing (mean 5.8 weeks) and shorter hospital stay (mean 2.3 days), which are crucial factors in resource-limited settings.

Partial sphincter preservation aims to balance two key objectives: effective eradication of the fistula tract and preservation of continence. This is particularly important, as traditional fistulotomy techniques, though effective in healing, are often associated with a significant risk of incontinence, especially in high trans-sphincteric and complex fistulas. The low rate of incontinence in our study (2.6%) is comparable to findings by Abbas et al, who observed minimal impact on continence when immediate sphincter repair was employed following fistulotomy.[15]

Furthermore, our recurrence rate of 5.2% is relatively low compared to other modalities. Buchanan et al, observed recurrence rates as high as 17% using the loose-seton technique, while studies evaluating laser ablation techniques also reported variable outcomes with higher recurrence rates.[16] This highlights the potential superiority of direct fistula tract excision with strategic preservation of the sphincter complex in select cases.

A number of recent Bangladeshi studies have explored modified cutting seton and partial fistulotomy methods. Suman et al and Nahid et al, documented comparable healing rates, but higher pain scores and longer healing durations were noted in their seton-treated cohorts.[17,18] By contrast, our approach offered faster recovery with acceptable pain levels and high patient satisfaction (85.7%).

International literature further supports our approach. Charalampopoulos et al, emphasized that individualized management, especially with sphincter-conserving strategies, results in better outcomes in terms of both healing and continence preservation.[19] Roig et al and Ratto et al, also advocated fistulectomy combined with sphincteric reconstruction in select high or complex fistulas to maintain continence while achieving durable healing.[20,21]

However, the success of sphincter-preserving fistulectomy depends heavily on accurate preoperative assessment, appropriate patient selection and meticulous surgical technique. In our study, preoperative classification and intraoperative visualization allowed for precise dissection, contributing to favorable outcomes.

The limitations of our study include its single-center design and short-term follow-up of six months. Longer follow-up periods are necessary to better assess recurrence, especially in patients with Crohn's disease or recurrent fistulas. Moreover, the absence of anorectal manometry or endoanal ultrasound limits our ability to objectively assess postoperative sphincter function.

CONCLUSION

The use of fistulectomy with partial sphincter preservation as a safe and effective option for managing complex anal fistulas. It offers a favorable balance between complete healing and continence preservation, particularly suited to the clinical and socioeconomic context of Bangladesh. Future multicenter studies with larger sample sizes and longer follow-up are warranted to validate our findings.

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