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A COMPARATIVE STUDY BETWEEN FISTULA TRACT BRUSHING/FLOSSING AND FISTULOTOMY IN TERMS OF POSTOPERATIVE PAIN AND WOUND HEALING IN PATIENTS WITH FISTULA-IN-ANO

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ABSTRACT

Background: Fistula-in-ano is a common anorectal disorder in which conventional fistulotomy, though effective, is associated with significant postoperative pain, wound morbidity, and delayed healing. Fistula tract brushing/flossing is a sphincter-preserving, minimally invasive alternative that mechanically debrides the tract without laying it open.

Objective : To compare fistula tract brushing/flossing with conventional fistulotomy with respect to postoperative pain, wound healing, and complication profile in patients with low anal fistula.

Methods: This prospective comparative study was conducted over 18 months in the Department of General Surgery, Saveetha Medical College and Hospital. Forty patients with low anal fistula were allocated to Group A (fistula brushing/flossing, n=20) or Group B (conventional fistulotomy, n=20). Postoperative pain (VAS at 24 hours, day 3, day 7, and week 4), wound healing time, return to activity, complications, recurrence, and patient satisfaction were assessed. Data were analyzed using SPSS v25.0 with independent t-test and chi-square test; $p<0.05$ was considered significant.

Results: The mean age of participants was 41.8 ±10.4 years, with 72.5% male predominance and predominantly intersphincteric fistulas. Group A demonstrated significantly lower postoperative pain scores and earlier wound healing compared with Group B. Complication rates were low and comparable in both groups, with no continence disturbances observed.

Conclusion: Fistula tract brushing/flossing is a safe, sphincter-preserving alternative to conventional fistulotomy, offering reduced postoperative pain and faster recovery, though fistulotomy retained a marginal advantage in recurrence rates. Larger multicentric randomized trials are recommended.

KEYWORD: Fistula-in-ano; Fistulotomy; Fistula brushing; Flossing seton; Postoperative pain; Wound healing; Sphincter preservation

1. INTRODUCTION

Fistula-in-ano develops secondary to chronic infection of anal glands and is commonly associated with recurrent perianal abscess formation. The disease often presents with persistent purulent discharge, pain, irritation, swelling, and recurrent perianal sepsis. Cryptoglandular infection remains the most common etiology, although Crohn disease, tuberculosis, trauma, and malignancy may also contribute.

The primary goal of fistula surgery is eradication of the fistulous tract while preserving anal continence. Conventional fistulotomy involves laying open the tract, curettage of unhealthy tissue, and healing by secondary intention. Although effective, fistulotomy can produce considerable postoperative pain, delayed wound healing, prolonged dressing requirements, and occasionally sphincter-related complications.

Minimally invasive approaches have therefore evolved to reduce tissue damage while maintaining adequate fistula clearance. Fistula tract brushing or flossing is a sphincter-preserving technique in which the tract is mechanically debrided using a flexible brush or flossing seton (Figure 1). The technique removes infected granulation tissue and promotes drainage while minimizing destruction of surrounding tissues, with the potential to reduce postoperative pain, hasten return to routine activity, and shorten healing duration relative to fistulotomy.

Comparative prospective data on this technique remain limited in Indian surgical practice. This study was therefore designed to compare fistula brushing/flossing with fistulotomy, with particular emphasis on postoperative pain and wound healing outcomes.

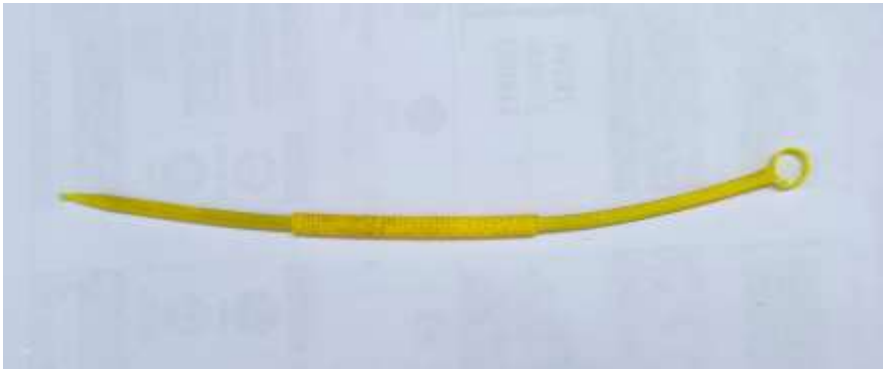

Figure 1. Flexible fistula brush/flossing thread used for mechanical tract debridement.

2. MATERIALS AND METHODS

2.1 Study Design and Setting

A prospective comparative study was conducted in the Department of General Surgery, Saveetha Medical College and Hospital, Chennai, Tamil Nadu, India, over 18 months.

2.2 Study Population and Sample Size

Patients diagnosed with low anal fistula attending surgical outpatient and inpatient services were screened for eligibility. Forty patients were enrolled: Group A (fistula brushing/flossing, n=20) and Group B (conventional fistulotomy, n=20).

2.3 Inclusion Criteria

- Patients aged above 18 years
- Clinically diagnosed low anal fistula
- Single external opening
- Patients willing for surgery and follow-up

2.4 Exclusion Criteria

- High anal fistula
- Crohn disease-associated fistula
- Tuberculous fistula
- Recurrent fistula-in-ano
- Malignancy-associated fistula
- Immunocompromised patients
- Pregnant women

2.5 Surgical Technique

Group A (Fistula Brushing/Flossing): Under spinal anesthesia, the fistulous tract was identified using a probe. A flexible fistula brush/flossing thread was passed through the tract from the external to the internal opening. Mechanical brushing and repeated flossing movements removed granulation tissue and debris, followed by saline and antiseptic irrigation, ensuring adequate drainage without laying open the sphincter complex.

Group B (Conventional Fistulotomy): The fistulous tract was identified using a probe and laid open along its entire length. Granulation tissue and unhealthy debris were curetted, hemostasis achieved, and the wound left open for healing by secondary intention with regular postoperative dressing.

2.6 Outcome Measures

- Postoperative pain (VAS) at 24 hours, day 3, day 7, and week 4
- Duration of complete wound healing
- Time to resume normal activities
- Postoperative bleeding and surgical site infection
- Recurrence during follow-up
- Patient satisfaction score

2.7 Statistical Analysis
Data were entered in Microsoft Excel and analyzed using IBM SPSS v25.0. Continuous variables were expressed as mean ±SD and compared using the independent Student's t-test; categorical variables were compared using the chi-square test. A p-value <0.05 was considered statistically significant.

3. RESULTS
3.1 Demographic Characteristics
Among the 40 patients studied, the mean age was 41.8 ±10.4 years, with males comprising 72.5% of the cohort. Most fistulas were of the intersphincteric type.

3.2 Postoperative Pain
Patients in the brushing/flossing group demonstrated significantly lower postoperative VAS pain scores compared with the fistulotomy group across all assessed time points.

3.3 Wound Healing
Wound healing occurred significantly earlier in the brushing/flossing group compared with the fistulotomy group.

3.4 Complications and Recurrence
Complication rates (bleeding, infection) were low and comparable between groups. Fistulotomy showed a marginally lower recurrence rate, while brushing/flossing was associated with fewer continence-related concerns and shorter dressing requirements.

4. DISCUSSION
The present study demonstrated that fistula tract brushing/flossing is associated with significantly lower postoperative pain compared with conventional fistulotomy. Reduced tissue dissection and preservation of sphincter structures likely contributed to improved postoperative comfort.

Patients treated with brushing/flossing also showed faster wound healing and earlier return to normal activity. Since the procedure avoids creating a large open wound, postoperative dressing requirements and wound morbidity were reduced considerably.

Conventional fistulotomy continued to demonstrate excellent tract clearance with slightly lower recurrence rates; however, greater tissue trauma resulted in higher pain scores and delayed wound healing. The complication profile in both groups remained minimal, with minor bleeding and superficial infection managed conservatively, and no continence disturbances observed during follow-up.

These findings support the growing role of minimally invasive fistula management techniques in selected low anal fistulas. Nevertheless, long-term recurrence assessment and larger randomized studies remain necessary before widespread recommendation. These results are consistent with prior literature on sphincter-preserving techniques, which similarly report improved postoperative comfort at the potential cost of slightly prolonged closure rates.

4.1 Limitations
This study was limited by its single-center design, modest sample size, and relatively short follow-up duration, which may limit generalizability and the ability to detect differences in long-term recurrence.

5. CONCLUSION
Fistula tract brushing/flossing appears to be a safe and effective minimally invasive alternative to conventional fistulotomy in selected low anal fistulas, offering lower postoperative pain, faster wound healing, earlier return to daily activities, and reduced wound morbidity. Although fistulotomy demonstrated slightly lower recurrence rates, brushing/flossing provided superior patient comfort and recovery. Further multicenter randomized studies with larger sample sizes are recommended to establish long-term efficacy.

CONFLICT OF INTEREST
The authors declare no conflict of interest.

SOURCE OF FUNDING
None.

ETHICAL APPROVAL
Obtained from the Institutional Ethics Committee, Saveetha Medical College and Hospital, prior to patient enrolment. Written informed consent was taken from all participants.

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