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An innovative advancement in Kshara sutra therapy for complex fistula in ano: A case study

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Abstract
Kshara Sutra therapy, a para-surgical Ayurvedic technique involving the use of a medicated alkaline thread, has been traditionally employed for managing *Nadi Vrana* (sinus) and *Bhagandara* (fistula-in-ano), as described by Acharya Sushruta, often regarded as the "Father of Surgery." This method has significantly transformed the management of fistula-in-ano, a condition known for its tendency to recur and the potential risk of incontinence. While the classical Kshara Sutra technique likely predates modern seton procedures, and remains a valuable surgical option, it also presents challenges such as prolonged treatment duration, repeated hospital visits, post-procedural discomfort, and patient anxiety.
To address these limitations, a modified technique IFTAK (Interception of Fistulous Tract with Application of Kshara Sutra) has been developed. This approach aims to reduce treatment duration, minimize post-operative scarring, and alleviate the drawbacks associated with the conventional method. The surgical plan is illustrated in Figure 1 to aid in procedural understanding. In the case presented, complete healing was observed within four weeks, with no recurrence reported during a one-year follow-up period.

Keywords: IFTAK, Bhagandara, Fistula-in-ano, Jatyadi taila, Kshara Sutra

Introduction
The treatment of complex fistula-in-ano remains a significant challenge for surgeons worldwide due to its high recurrence rates, risk of incontinence, and the complexity involved in surgical management even with multiple treatment options currently available [1]. In Ayurvedic medicine, Kshara Sutra therapy has been recognized as a time-tested and effective method for managing fistula-in-ano. This technique has been practiced as a primary treatment modality for both simple and complex cases at institutions like Banaras Hindu University since 1965, boasting a high success rate of 96.67% without any reported cases of incontinence.
The conventional Kshara Sutra technique involves passing a medicated alkaline thread through the entire fistulous tract from the external to the internal opening. Its therapeutic aim is to gradually cut through and heal the tract via partial fistulotomy. However, the method is often limited by its slow cutting rate, prolonged treatment duration, and the need for frequent hospital visits, making it less convenient for patients particularly in cases involving long or complex tracts [2].
To address these limitations, a refined technique known as IFTAK (Interception of Fistulous Tract with Application of Kshara Sutra) was introduced. Also referred to as the BHU technique or “window technique,” this approach has been practiced successfully since 2012 at CSMSS Hospital for managing complex and recurrent fistula-in-ano cases.
The IFTAK method is grounded in Parks’ theory of the cryptoglandular origin of fistula-in-ano. According to this theory, about 90% of fistulae originate from infections in anal glands situated in the intersphincteric space, which open into the anal canal via small ducts located in the anal crypts [3].
In the IFTAK approach, the proximal portion of the fistulous tract is intercepted surgically by creating an artificial opening (window) at the level of the external or internal sphincter, depending on the tract's orientation whether anterior or posterior. A Kshara Sutra is then applied from this interception site up to the infected internal opening in the anal canal. This process facilitates chemical cauterization of the infected anal crypt using the alkali content of the medicated thread, while the artificially created window ensures effective drainage. The distal portion of the tract left behind after interception typically heals on its own.

Materials and Methods

Case Study

A 45-year-old female from Chhatrapati Sambhaji Nagar, Maharashtra (India) presented to the Shalya OPD at CSMSS Hospital, Kanchanwadi, with complaints of mild perianal pain and intermittent pus discharge from a small opening on the left buttock. Symptoms had persisted for over a year.

Following detailed clinical history-taking, physical examination, and local assessment, the patient was diagnosed with a transsphincteric complex fistula-in-ano, without any secondary extensions. Based on the diagnosis, an anterior IFTAK procedure was planned and conducted on an outpatient basis.

Kshara Sutra Used

For the procedure, a standardized Guggulu Kshara Sutra was utilized. The preparation included:

- Guggulu
- Apamarga Kshara
- Haridra (turmeric)

This medicated thread was prepared in-house by the Department of Shalya Tantra, Faculty of Ayurveda, CSMSS, Kanchanwadi, following classical methods [2].

Clinical Examination

Local inspection revealed:-

- An external opening at the 4 o'clock position, approximately 5 cm from the anal verge, with surrounding hypergranulated tissue.
- An internal dimple located at the 12 o'clock position, just below the dentate line.
- A palpable tract extending from the external opening on the left buttock, curving beneath the anal canal, and terminating at the internal opening.

This tract was further confirmed through bimanual examination and MR fistulography, which validated the anteriorly curved transsphincteric fistulous tract.

- **Past history:** No any relevant past history.
- **Drug history:** Not specific.

Investigations

CBC & ESR-Within normal limits
RBS-Within normal limits
HIV I & II-Negative HbsAg-Non reactive
HCV-Non reactive

Treatment

The procedure was performed with the patient positioned in the lithotomy position. Following aseptic precautions, the perianal region was cleaned, draped, and local anesthesia was administered.

A small vertical incision was made at the 12 o'clock position, approximately 1 cm anterior to the anal verge. Through this incision, blunt dissection was carried out using artery forceps to access the underlying fibrous fistulous tract. Once the tract was identified, it was intercepted using the fine tip of surgical scissors, and the area of interception was carefully widened with artery forceps to ensure proper access.

A metallic probe was then inserted through the newly created surgical window and guided along the tract until it emerged through the internal opening in the anal canal. A primary threading was performed using sterile Barber Linen No 20, which served as a temporary guide for later placement of the Kshara Sutra.

Additionally, hypergranulation tissue present at the external opening was excised to promote clean healing and minimize the risk of persistent infection or sinus formation.

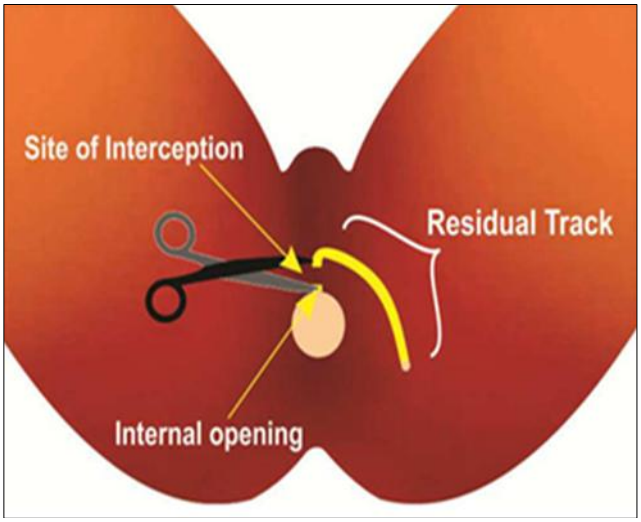

Fig 1: During interception after making window

Follow-Up

The patient was encouraged to continue with her normal daily activities throughout the course of treatment, as the procedure was designed to minimize disruption to routine life. Regular follow-up visits were scheduled to monitor healing progress and overall response to the therapy.

The initial sterile linen thread was replaced with Kshara Sutra using the railroad technique on a weekly basis. During the first week, there was noticeable pus discharge, which is expected as part of the drainage process. However, this discharge gradually decreased and had completely resolved by the end of the second week.

By the third week, the external opening had fully healed. In the fourth week, the fistulous tract was completely cut through on its own, indicating successful completion of the Kshara Sutra action. During this phase, dressing with Jatyadi Taila-soaked gauze was continued to support local healing and prevent infection.

At the next follow-up, conducted 15 days later, further healing was assessed and found to be satisfactory.

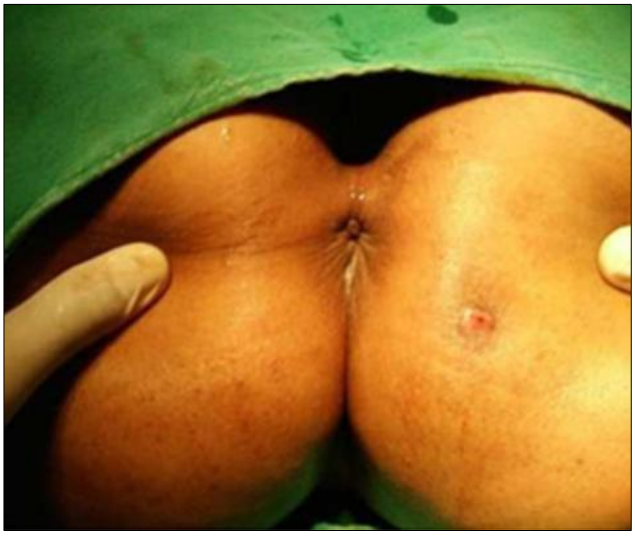

Fig 2: Before Procedure

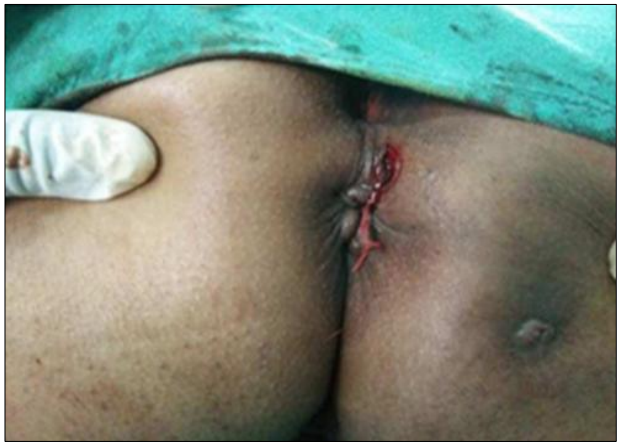

Fig 3: After Procedure (Primary threading done from window residual track is left without threading)

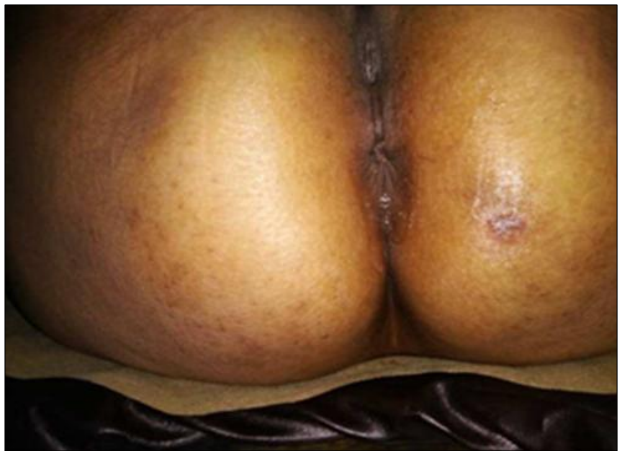

Fig 4: After Healing

Results

The fistulous tract healed completely within five weeks, leaving behind a minimal scar. Throughout the treatment period and follow-up, no adverse effects were observed. The patient remained asymptomatic for up to one year after completion of therapy, indicating long-term success.

Discussion

Managing complex fistula-in-ano poses a unique challenge for surgeons. A meticulous effort to eliminate the underlying sepsis may increase the risk of sphincter damage, whereas attempting to preserve the sphincter can result in a higher recurrence rate.

Although the conventional Kshara Sutra technique remains effective, it comes with limitations such as:

- Extended treatment duration
- Frequent hospital visits
- Significant patient discomfort
- Cosmetic concerns due to scarring
- Long periods of anxiety during the healing process

The IFTAK technique, as used in this case, offers several distinct advantages:

- **Shorter treatment duration:** By intercepting the tract at an optimal point and focusing treatment only on the infected cryptoglandular area, the length of the tract to be treated was minimized. The residual curved portion was left undisturbed, eliminating the risk of increased infection from incorrect axis treatment.
- **Reduced pain and discomfort:** Since only a smaller segment of the tract (from the window to the internal opening) was treated, less tissue exposure occurred during weekly Kshara Sutra changes. This significantly reduced pain and burning sensations, unlike the conventional approach where the entire tract is exposed.
- **Minimal scarring:** Cosmetic outcomes were notably improved, with barely visible scarring, thereby preserving the natural contour of the buttocks.
- **Targeted therapeutic approach:** The focus was on eliminating the infected anal crypt, which is the primary source of infection. Once this source was eradicated, the secondary tract healed naturally, as it was no longer supported by active infection.

Overall, the IFTAK approach effectively simplifies complex fistulae into manageable forms, offering a balance between efficacy and patient comfort.

Conclusion

The IFTAK technique proves to be a highly effective, minimally invasive option for managing complex fistula-in-ano, especially those with distant external openings or secondary tracts. Unlike conventional methods that require laying open the entire tract, IFTAK focuses treatment on a smaller, more targeted section, resulting in:

- Faster healing
- Reduced postoperative scarring
- Minimal discomfort throughout therapy

This method can be a valuable surgical advancement for both patients and practitioners in proctology.

Recommendation

As this report presents the outcome of a single case, broader validation through structured, randomized controlled clinical trials is strongly recommended. Further studies could help standardize the IFTAK technique and evaluate its long-term outcomes across larger patient populations.

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