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Trans-Sphincteric Horseshoe Anal Fistula Managed with Interception of Fistulous Tract with Application of *Ksharasutra* (IFTAK) procedure: clinical outcomes and benefits: A Case Report

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ABSTRACT:

The management of complex anal fistula presents a significant challenge to surgeons due to high recurrence rates and complications such as sphincter injury. *Ksharasutra* therapy is a well-established treatment modality for managing fistula-in-ano; however, it has certain limitations, including prolonged treatment duration, the need for frequent hospital visits for dressing, and pain during *Ksharasutra* change. A 42 year old male patient presented with pus discharge from perianal area and pruritis was diagnosed as posterior horseshoe trans-sphincteric anal fistula through clinical examination and ultrasonography findings. it was successfully managed through the principle of Interception of Fistulous Tract with Application of *Ksharasutra* (IFTAK). Following an initial course of antibiotics and analgesics, the patient was transitioned to Ayurvedic oral medications. Postoperative pain was minimal, with a gradual reduction in pus drainage, and complete wound healing was achieved in less than two months, with a cosmetically acceptable scar. A follow-up period of 10 months revealed no recurrence. The IFTAK technique, a modified form of conventional *Ksharasutra* therapy, significantly reduces healing time by precisely targeting the source of infection while minimizing postoperative scarring. Proper postoperative wound assessment and care are critical to the success of the treatment.

KEY WORDS: Bhagandara, fistula-in-ano, IFTAK, *Ksharasutra.*

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INTRODUCTION:

Anal fistula is an abnormal tract characterized by unhealthy granulation tissue, with an external opening on the perianal skin and an internal opening in the anal canal, typically arising from a cryptoglandular infection.[1] The incidence of anal fistula is estimated to be approximately 2 per 10,000 individuals per year, although its true prevalence remains uncertain.[2] Advances in diagnostic imaging, such as magnetic resonance imaging (MRI) and trans-anal ultrasonography, have enhanced the accuracy of fistula diagnosis. Nevertheless, management remains complex due to the intricate anatomy and high recurrence rates associated with these conditions.

Surgical treatment aims to achieve definitive healing through closure, obliteration, or excision of the fistula tract while preserving sphincter function to avoid faecal incontinence. Approximately 40% of anal fistulas are trans-sphincteric in nature,[3] often leading to posterior horseshoeing, where external openings appear on both sides of the perianal skin, connected by an intercommunicating tract with a common internal opening at or just above the dentate line. Laying open either arm of the fistula in such cases poses a significant risk urge and gas incontinence.[4]

Ksharasutra therapy, an Ayurvedic treatment method with a long history of success in managing *Bhagandara* (anal fistula), presents a promising alternative. However, the treatment of complex fistulas involving multiple tracts can be challenging due to the need for frequent hospital visits for dressing changes and thread replacement, in addition to pain associated with the procedure. Although pain management through analgesics and sitz baths is effective, the extended treatment duration often negatively impacts the patient's quality of life.

Therefore, there is a need for treatment modalities that specifically target the cryptoglandular infection, reduce the duration of treatment, and preserve sphincter integrity. Interception of Fistulous Tract with Application of *Ksharasutra* (IFTAK), a technique developed by Prof. (Dr.) M. Sahu, addresses these needs.[5] With a low recurrence rate of 3-7%, IFTAK offers an effective solution for managing anal fistulas.[6] This case report presents the successful treatment of a posterior horseshoe anal fistula using the IFTAK technique.

CASE REPORT:

A 42-year-old male, non-diabetic, and normotensive, employed as an office assistant, presented to the Shalya Tantra outpatient department with complaints of intermittent blood-tinged pus discharge and pruritus in the perianal region for the past two months. He also reported soiling of his undergarments, particularly following prolonged periods of sitting. One month prior, he had undergone incision and drainage at a private clinic in his village, where he was diagnosed with an anal fistula. They recommended surgery for definitive treatment. Due to financial constraints, the patient sought further management at our hospital.

Clinical findings:

On examination, his vital signs were stable, and his bowel habits were normal. Local examination showed pus staining at perianal area. Two external openings (at 9 and 5 o'clock positions) with active pus discharge. The one at 9 o'clock position was situated approximately 4 to 5 cm away from the anal verge whereas that at the 5 o'clock was

situated 5-6 cm (Figure - 1). Palpation revealed a thin cord like structure was felt from both the external openings that run towards 6 o'clock in a curvilinear fashion. The cord like structure was not palpable medial to the level of external anal sphincter. Digital Rectal Examination revealed moderate tenderness and induration from 9 to 6 o'clock position. Dimpling was felt at 6 o'clock position just above the dentate line. Temperature was normal.

Diagnostic focus and assessment:

Ultrasonography of perianal and endoanal region suggested 13 to 14 cm long "horse-shoe" shaped fistula is seen in perianal region with two external openings at 9 and 5 o'clock positions & one internal opening at 6 o'clock position. Internal opening is 9 mm proximal to anal verge. Maximum width of the fistula is 6 mm. Maximum depth of the fistula is 7 mm. 37 mm long and 6 mm wide blind branch is seen extending into 10 o'clock region, 6 mm deep to skin. Seems to be Trans-Sphincteric fistula in ano. No evidence of perianal abscess at present. Inter-gluteal cleft appears normal (Figure – 2).

Therapeutic focus and assessment (IFTAK procedure):

After obtaining written informed consent and completing pre-anaesthetic assessment, routine pre-operative care was given. He was planned to treat with interception of fistulous tract with application of *Ksharasutra* (IFTAK) technique. Patient was shifted to major operation theatre and saddle block was given followed by placing him in lithotomy position. Operative site was cleaned with betadine solution followed by spirit. Draping was done with sterile cut sheet. Examination findings were confirmed through digital rectal examination, inspection after introducing sim's speculum into the anal canal and patency test through betadine and hydrogen peroxide. A malleable probe lubricated with xylocaine jelly 2% was introduced through the external opening at 9 o'clock and was gently pushed to the least resistant part. The probe came out through the internal opening at 6 o'clock position. Keeping the probe in-situ, another probe was inserted through the other external opening in similar fashion and it was also pointing towards the same internal opening at 6 o'clock position.

A vertical incision (window) was made at the level of inferior border of external sphincter at posterior midline. It was carefully deepened with the help of scissor till both probes were visualized. This suggested adequate interception of the fistulous tracts just below the level of external sphincter at posterior midline. After excising the fibrosed tissues around both the external openings, Barbor linen no.20 threads were ligated from both the external openings to the window and from window to the internal opening. Another thread was applied from one external opening to another also. Non-viable tissues were removed from the wounds through thorough scooping (Figure - 3). Complete haemostasis was achieved. Wounds were packed with gauze piece soaked in betadine solution and hydrogen peroxide. There were no intraoperative complications observed. Patient was shifted to recovery room with stable vitals. Antibiotics, analgesics and Ayurvedic medicines were give as shown in table 1 and 2.

Procedures of IFTAK:

IFTAK: interception of fistulous tract with application of Ksharasutra. in the present case interception was done at the level of external sphincter through a vertical incision. threads where applied from the interception point to the internal opening and also from external opening to the intercepted wound for ensuring adequate drainage. Interception helped in proper drainage of discharges and helped in early healing of wound

Results: The results are given in table 1 and 2.

Table- 1: Timeline of events

Date	Events	Medications
31/01/2024	Patient visited Shalya Tantra OPD, TRUS done. Diagnosed as having trans-sphincteric horseshoe fistula. Planned for *Ksharasutra* therapy.	1. *Kanchanara Guggulu* 1g, thrice in a day with luke warm water, after food.
01/02/2024	Patient admitted in IPD for Further Treatment & Management.	
02/02/2024	Pre-anaesthetic checkup done.	2. Inj. Cefotaxime + sulbactum 1.5 gm, 12 hourly (evening) 3. Inj. Ranitidine 2ml, 12 hourly (evening)
03/02/2024	Interception of Fistulous Tract with application of *Ksharasutra* done.	Continued 2, 3 (morning and evening doses) and stopped. 4. Inj. Diclofenac 75mg intramuscular (SOS)
23/03/2024	Complete healing achieved	
22/01/2025	No recurrence	

Table-2: Post-operative follow up and outcome:

Day	Wound status	Procedure	Oral medications
1st post-op day	Healthy wound. No Pus discharge. No slough. 4 plain threads were present in situ.	1. Wound was cleaned with *Triphala Kwatha* and packed with *Jatyadi Taila.*	1. Tab. Moxifloxacin 400 mg 1 OD after food 2. Cap. Rabeprazole sodium and Domperidone 1 capsule, once daily before food 3. *Kanchanara Guggulu* 1g, thrice in a day with luke warm water, after food. 4. Tab. Septilin 2-2-2 after food 5. *Varunadi Kashaya* 20 ml with 40 ml of warm water 6. Isabgol Husk 1 tsf with 1 glass of warm water early morning empty stomach 7. Tab. Zerodol sp 1-0-1 after food SOS
5th post-	Healthy wound. Mild	Continue 1	Stop 1,2

op day	pus discharge present from all post operated wounds	2. All Plane threads where changed to *Apamarga Ksharasutra*	Continue 3,4,5,6,7
12th post-op day	Healthy wound, 4 to 5 drops of pus was present on milking from all wounds	*Ksharasutra* from external-to-external wound was removed. Remaining *Ksharasutras* were replaced with new *Ksharasutra.* Continued 1	Continue 3,4,5,6 Stop 7
18th post-op day	Healthy wound. Pus discharge from both external wounds were reduced. Mild pus discharge noted from window.	Wound at 5'o clock was extended and united with the window. (Figure - 4) New *Ksharasutra*s applied. (2 in number) Continue 1	Continue 3,4,5,6
25th post-op day	Pus discharge from external wound was absent. Minimal pus was noted from window.	New *Ksharasutra*s applied. (2 in number) Continue 1	Continue 3,4,5,6
33rd post-op day	Wound healthy. No pus discharge.	Cut through was done by the surgeon and both *Ksharasutra*s were removed (Figure – 5) Continue 1	Continue 3,4,5,6
40th post-op day	Wound healthy. Good wound contraction. No pus discharge.	Continue 1	Continue 3,4,5,6
49th post-op day	Wound healed completely (Figure – 6)	Stopped 1	Continue 3,4,5,6
3 months follow up	No signs of recurrence, minimal scar		Stop 3,4,5,6
Follow up after 10 months	Healthy scar. No signs of recurrence.		

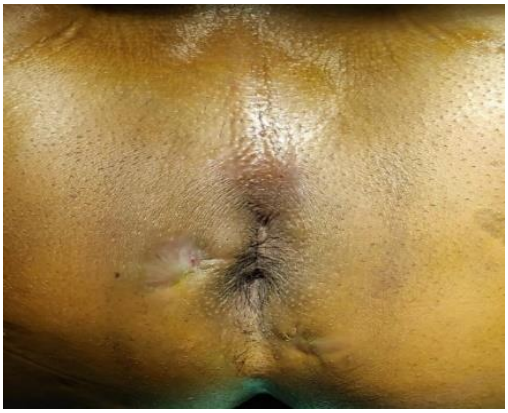

Figure - 1: Preoperative

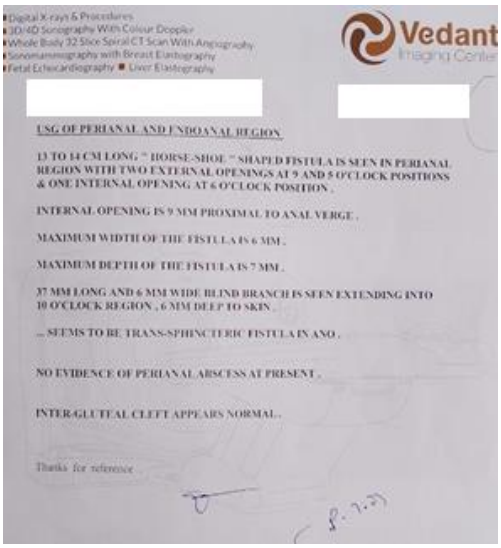

Figure 2: USG findings

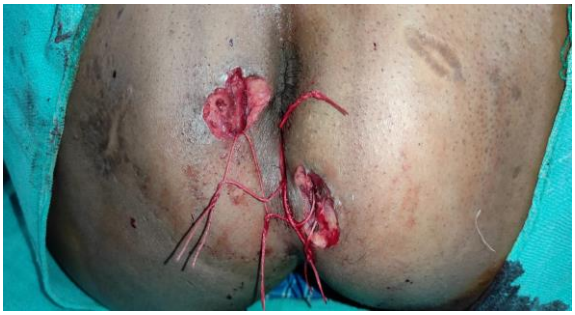

Figure 3: Post-operative wound showing external wounds at bilateral perianal areas and the intercepted vertical wound at 6 o clocks. Barbour linen threads are applied as described

Figure 4: During treatment

Figure 5: Cut through

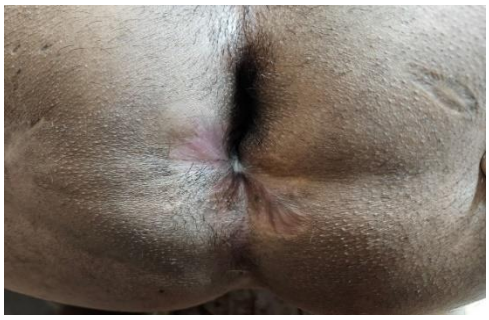

Figure 6: Completely healed

DISCUSSION:

In a trans-sphincteric fistula, the track crosses both the internal and external sphincters and reaches the ischiorectal fossa. Horseshoe fistula develops as a result of circumferential spread of sepsis through Intersphincteric, trans-sphincteric or ischiorectal as well as pararectal plane. [3] Trans-sphincteric horseshoeing of sepsis to bilateral perianal area was occurred in the present case.

Identification of the primary fistula opening at the dentate line is important to prevent recurrence. A minimally invasive procedure like IFTAK was selected in the present case to avoid the formation of a large wound, minimising the injury to sphincter complex and to reduce the recurrence. Anal glands are present in the sub-epithelium, internal sphincter, and two thirds of these glands are located within the inter-sphincteric space. It is the infection of these inter-sphincteric glands that initiates the fistula-in-ano.[7] Eradication of this cryptoglandular infection is the core concept of IFTAK technique.

Interception was done at the level of external sphincter over the posterior midline in this case. This facilitated the proper drainage of sepsis through it, and it also prevented the further spread of sepsis to both the lateral tracks. Additionally, the *Ksharasutra* which was placed from the interception site to the internal opening effectively helped in eradicating the cryptoglandular infection. Threads placed in the lateral tracts also helped in draining the pus through the window. Excision of the fibrosed tissues at both the external opening followed by curettage helped in early closure of the lateral tracts. Care was taken during the post operative dressing period to not allowing the premature closure of window. Gradual reduction of pus discharge from the external wounds was ensured. This confirmed the proper interception of the tracts. Once the sepsis at external openings was eradicated then threads were removed, tract was incised and allowed for healing by secondary intention.

Ksharasutra therapy has a high success rate and very low recurrence rate.[8,9] Hence *Ksharasutra* was ligated to the internal opening through the window. It eradicates the cryptoglandular infection by *chedana* (cutting), *lekhana* (chemical cauterization and curettage).[10,11]

In the present case, complete healing was achieved in 7 weeks time. Conventional *Ksharasutra* therapy exposes the whole fistula tract to *Ksharasutra* which take longer period of healing and increased post-operative pain.[12] But IFTAK technique reduces the post operative hospital admission, formation of large ugly scar and early return to normal life by specifically targeting the infected anal gland and allowing adequate drainage of sepsis. It is believed that the anal crypts become blocked by inspissated debris or stool and causes further sepsis.[13] Hence consistency of stool was maintained by vigilant use of bulk forming agents.

Tab. Septilin has proved to be effective in acute / chronic infection and has antibacterial, anti-inflammatory and ant exudative properties. It increases the phagocytic co-efficient which corresponds with clinical improvement in chronic infections resistant to the commonly used broad spectrum antibiotics.[14] *Kanchanar Guggulu* is indicated in *Bhagandara* and it has the potential of *Srotoshodhana* (purification of microchannels).[15] *Jatyadi taila* is known for *vranashodhana, ropana* and *raktastambhana* properties.[16] *Triphala* is beneficial in infected wound.[17] Hence it was selected to clean the wound in present case. The pathogenesis of anal fistula involves abscess

formation and *Varunadi Kashaya* is indicated in *Antarvidradhi* (internal abscess).[18]

CONCLUSION:

A case of posterior horseshoe anal fistula was successfully managed using the IFTAK technique in conjunction with adjuvant Ayurvedic medications. Complete healing was achieved in seven weeks, with minimal postoperative scarring and a reduced hospital stay. Interception of the tract and placing of *Ksharasutra* to the proximal tract allowed precise targeting of the infected cryptoglandular tissue and facilitated the drainage of pus through the intercepted area. A follow-up at 10 months revealed no recurrence of the fistula. This case report provides additional evidence supporting the efficacy of the IFTAK technique in the treatment of horseshoe anal fistulas.

Limitation of study:

This is a single case report. More similar studies are required in larger sample sizes to prove the efficacy of IFTAK technique in managing anal fistula.

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Consent of patient:

The written consent of the patient has been taken for publication and procedure without disclosing the identity of the patient.

Conflict of interest: The author declares that there is no conflict of interest.

Guarantor*:* The corresponding author is the guarantor of this article and its contents.

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