

## APPLICATION OF ARAGWADHADI SUTRA IN THE MANAGEMENT OF BHAGANDARA (FISTULA-IN-ANO): A CLINICAL CASE STUDY

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### ABSTRACT

**Background:** *Bhagandara*, closely mirroring fistula-in-ano in contemporary surgical science, is classified as one of the *Ashta Mahagada* (eight deeply deep-seated grave diseases) in Ayurvedic classical literature due to its chronic nature, painful presentation, and high recurrence rate.<sup>[3]</sup> Standard surgical options like fistulotomy or fistulectomy carry inherent risks of accidental anal sphincter injury, leading to incontinence and prolonged wound healing.<sup>[8]</sup> Conventional *Ksharasutra* (medicated alkaline thread) is highly effective but often causes intense burning pain and local irritation due to its high pH. **Objective:** This case study evaluates the clinical efficacy, tolerability, and healing rate of a modified, less-irritant parasurgical thread—*Aragwadhadi Sutra*—in the management of *Bhagandara*. **Methods:** A 49-year-old male patient presented with chronic perianal pain, inflammatory swelling,

and persistent purulent discharge for one month. Clinical examination and MRI fistulogram confirmed a trans-sphincteric low anal fistula measuring 6.3 cm with an external opening at the 4 o'clock position. The patient was treated with the application of *Aragwadhadi Sutra* (prepared via 11 coatings of *Aragwadha* pulp, *Madhu*, and *Ghrita*, layered with *Haridra* and *Tagara* powders) utilizing the traditional railroad technique under local anaesthesia. Weekly

thread replacements and tracking of the Unit Cutting Time (UCT) were conducted. **Results:** The fistulous tract successfully healed completely within 6 weeks (45 days) without any surgical complications. The Unit Cutting Time was recorded at 7.14 days/cm. Symptoms such as pain, discharge, and perianal itching were significantly relieved within the first two weeks. A subsequent 3-month follow-up confirmed zero recurrence and excellent scar tissue formation with intact sphincter tone. **Conclusion:** *Aragwadhadi Sutra* serves as a safe, highly economical, and minimally invasive alternative to conventional *Ksharasutra*. It exhibits significant *Vrana Shodhana* (wound debridement) and *Vrana Ropana* (healing) properties while substantially lowering the pain index during treatment.

**KEYWORDS:** *Bhagandara*, Fistula-in-ano, *Aragwadhadi Sutra*, *Ksharasutra*, *Shalya Tantra*, Case Study, Unit Cutting Time.

## INTRODUCTION

Anorectal disorders represent a significant burden in global surgical practice, with fistula-in-ano being exceptionally notorious for its challenging management. In ancient Ayurvedic jurisprudence, Acharya Sushruta meticulously detailed this condition under the nomenclature of *Bhagandara*, placing it within the *Ashta Mahagada* (eight catastrophic conditions) to highlight its recalcitrant and recurrent nature.<sup>[3,11]</sup> The condition typically begins as a *Pidaka* (perianal abscess), which, upon bursting or improper drainage, transforms into a chronic discharging fistulous tract (*Gati*) communicating between the perianal skin and the anal canal.<sup>[11,12]</sup>

In contemporary proctology, approximately 90% of cases originate from a crypto-glandular infection, where acute inflammation of the anal glands progresses to a perianal abscess, ultimately bursting externally to form a fistula.<sup>[8,9]</sup> Modern interventions such as fistulectomy, fistulotomy, and advanced flap procedures are frequently limited by complications like delayed healing, varying degrees of faecal incontinence due to sphincter division, and distressing recurrence rates.<sup>[9,10]</sup>

To circumvent these challenges, Ayurvedic surgery offers *Ksharasutra* therapy—a time-tested parasurgical modality that achieves simultaneous cutting, debridement, and healing of the tract.<sup>[12]</sup> However, the classical *Apamarga Ksharasutra*, despite its stellar success rate, induces significant chemical burning, intense pain, and local tissue irritation because of its

highly alkaline nature. This clinical challenge necessitated the evolution of *Soumya* (milder/less-irritant) or modified threads.

The *Aragwadhadi Sutra* is designed based on the classical guidelines of Acharya Sushruta in *Bhagandara Chikitsa*, where a combination of *Aragwadha* (*Cassia fistula*), *Haridra* (*Curcuma longa*), *Tagara* (*Valeriana wallichii*), *Madhu* (honey), and *Ghrita* (clarified butter) is indicated for its profound *Vrana Shodhana* (purification) and *Vrana Ropana* (healing) metrics.<sup>[12]</sup> This study aims to clinically validate the efficacy of *Aragwadhadi Sutra* as a patient-compliant, cost-effective, and tissue-friendly treatment paradigm for *Bhagandara*.

## MATERIALS AND METHODS

**Source of Data & Ethical Safeguards:** The study was conducted at the outpatient department (OPD) of Shalya Tantra, Chandra Shekhar Singh Ayurved Sansthan, Kaushambi, Uttar Pradesh. Informed written consent was obtained from the patient before intervention.

### Patient Selection Criteria

- **Inclusion Criteria:** Patients aged between 18 and 60 years exhibiting definitive clinical signs and symptoms of *Bhagandara* (fistula-in-ano).
- **Exclusion Criteria:** Patients testing positive for HBsAg, HCV, or HIV; secondary fistulae secondary to Crohn's disease, ulcerative colitis, pelvic malignancy, tuberculosis, or rectal carcinoma.<sup>[9,10]</sup> uncontrolled diabetes mellitus; pregnancy; or severe systemic comorbidities contraindicating parasurgical intervention.

**Pharmaceutical Preparation of Aragwadhadi Sutra:** The preparation was executed under strict aseptic conditions in the departmental *Ksharasutra* laboratory, adhering to the standard textual reference from *Sushruta Samhita Chikitsa Sthana*.<sup>[12]</sup>

आरग्वधनिशाकालाच्चूर्णं मधुघृताप्लुतम्।

अग्रवर्तिप्रविहितं व्रणानां शोधनं योगोऽयं नाशयत्याशु गतिं मेघनिवाशिनिलः।।

(सु.चि. ८/३०)

A high-tensile surgical linen thread (No. 20) was mounted onto the *Ksharasutra* processing hangers. The formulation steps were precisely structured:

1. **Base Coating:** A homogenous paste of *Aragwadha* fruit pulp, pure *Madhu*, and *Ghrita* was prepared. The thread was uniformly smeared with this paste and dried inside a specialized cabinet. This precise smearing-drying cycle was repeated **5 times**.
2. **Herbal Layering:** The thread was subsequently coated with the same paste and, while wet, was alternately rolled through finely powdered *Haridra* (3 coatings over 3 consecutive days) and *Tagara* powder (3 coatings over 3 consecutive days).
3. **Final Profile:** The resulting *Aragwadhadi Sutra* comprised a total of **11 functional layers** (5 paste coatings + 6 alternate herbal powder coatings). The threads were sterilized and preserved in airtight containers.

## CASE REPORT

**Clinical Presentation:** A 49-year-old male patient presented to our Shalya Tantra OPD complaining of recurrent perianal pain, inflammatory swelling, localized pruritus, and intermittent pus discharge for one month. The patient had a history of an untreated perianal swelling that had spontaneously ruptured a few weeks prior, providing temporary relief followed by persistent chronic discharge.

### Clinical & Diagnostic Examinations

- **General Assessment:** *Deha-Prakriti* was determined to be *Pitta-Kapha* dominant. Vital signs were stable.
- **Digital Rectal Examination (DRE) & Local Evaluation:** An external fistulous opening was localized at the 4 o'clock position, approximately 5 cm away from the anal verge. The area exhibited induration and hyper-granulated margins. The internal opening was palpable as a slight depression at the crypt level.
- **Laboratory Diagnostics:** Complete Blood Count (CBC), Bleeding Time (BT), Clotting Time (CT), Erythrocyte Sedimentation Rate (ESR), Liver Function Tests (LFT), Kidney Function Tests (KFT), and Fasting/Random Blood Sugar values were well within normal physiological limits. Serological markers (HIV, HBsAg, HCV) were non-reactive.
- **Imaging Profile (MRI Fistulogram):** Revealed a clear trans-sphincteric fistulous tract extending superiorly into the trans-sphincteric plane with involvement of the external anal sphincter fibers. The tract demonstrated an extension into the inter-sphincteric space from the 4 to 8 o'clock positions, with its primary active internal opening at the 6 o'clock position in the upper anal canal. The total measured length of the tract was **6.3 cm**.

### Interventional Procedure

**Primary Threading (Pre-operative Phase):** The patient was placed on a light diet the day prior and prepared with a local bowel evacuant Enema. Under all aseptic precautions and local infiltration anesthesia (Inj. Xylocaine 2%), the patient was placed in the lithotomy position. The perianal field was painted with Betadine lotion and appropriately draped.

Track patency was verified by gently injecting diluted Betadine through the external orifice using a 10 mL syringe. A malleable, silver-tipped metallic probe was carefully introduced via the external opening. Guided by the surgeon's lubricated index finger inside the anal canal, the probe was navigated along the path of least resistance until its tip emerged through the internal aperture at the 6 o'clock position. The eye of the probe was threaded with a sterile plain surgical linen thread. The probe was then gently pulled through, leaving the plain thread indwelling within the fistulous tract. The two ends were securely tied externally with a moderate, non-strangulating tension.

**Application and Replacement of Aragwadhadi Sutra (Railroad Technique):** On the 7th post-operative day, the primary plain thread was substituted with the medicated *Aragwadhadi Sutra* utilizing the classic **railroad technique**

**1. Tying the New Sutra:** Step 1.

The fresh, medicated *Aragwadhadi Sutra* is securely tied to the external knot of the existing indwelling thread.

**2. Securing the Inner End:** Step 2.

The inner end of the old thread (near the anal orifice) is firmly grasped using an artery forceps to control its traction.

**3. Cutting the Old Loop:** Step 3.

The old thread is carefully transected between the external knot and the jaw of the artery forceps.

**4. Traction and Replacement:** Step 4.

The artery forceps is steadily pulled outward. This action draws the old thread out while seamlessly pulling the new *Aragwadhadi Sutra* into the anatomical path of the fistulous tract.

**5. Securing the Medicated Loop:** Step 5.

The ends of the freshly positioned *Aragwadhadi Sutra* are tied together with optimum tension, and a sterile Betadine-soaked gauze pad is applied locally.

This replacement procedure was repeated at weekly intervals. The patient was maintained on an ambulatory protocol, allowing him to perform regular daily activities throughout the treatment period.

**Adjuvant Therapeutics:** To facilitate optimal healing and reduce microbial load, the patient was prescribed:

1. **Sitz Bath (*Avgahana*):** Warm water sitz bath with a mild antiseptic solution twice daily after defecation.
2. **Local Matra Basti:** Rectal instillation of 5 mL *Jatyadi Taila* once daily to soothe the anal canal mucosa and reduce friction during defecation.

## OBSERVATIONS AND RESULTS

The efficacy of the interventional thread was assessed based on subjective and objective parameters, utilizing a validated clinical grading framework adapted from standard proctological protocols.

### Clinical Scoring Matrix

- **0:** Absent / No symptoms
- **+:** Mild presentation
- **++:** Moderate presentation
- **+++:** Severe distress
- **++++:** Very severe symptoms markedly disrupting daily routine

**Table 1: Progress of Clinical Parameters Across 6 Weeks of Intervention.**

Clinical Parameter	Baseline (pre-treatment)	End of Week 2	End of Week 4	End of Week 6
Perianal Itching	+	0	0	0
Pain Index	+++	+	+	0
Purulent Discharge	+++	+	+	0
Burning Sensation	0	0	0	0
Local Inflammation	+++	++	++	0
Tract Length (cm)	6.3 cm	4.3 cm	2.3 cm	0.3 cm (Healed)

**Calculation of Unit Cutting Time (UCT):** The speed of the mechanical and chemical action of the thread is mathematically calculated as:

Unit Cutting Time (UCT) = Total Number of Days Taken for Complete Cut Initial Length of the Fistulous Tract in cm

Given that the tract measured 6.3 cm and achieved complete resolution in 45 days:

$$\text{UCT} = 45/6.3 = 7.14 \text{ days/cm}$$

Throughout the interventional timeline, the patient reported a progressive decline in pain and discharge indices. The tract demonstrated uniform cutting and simultaneous granulation. By the end of the 6th week, the tract was completely obliterated, leaving a smooth, flexible scar with excellent cosmetic alignment. Follow-up reviews at 1, 2, and 3 months post-healing revealed absolutely no signs of track recurrence, fluid collection, or sphincter weakness.



Before treatment



Plain thread



Argwadhadi Sutra (After 4 weeks)



After treatment

## DISCUSSION

The management of *Bhagandara* via *Ksharasutra* therapy works on the dual mechanics of **simultaneous cutting and healing**.<sup>[12]</sup> While conventional *Ksharasutra* prepared with *Apamarga Kshara* acts as a chemical scalpel due to its aggressive tissue-dissolving nature, it frequently results in high patient drop-out rates due to severe local burning pain and chemical inflammation. The *Aragwadhadi Sutra* serves as a highly effective *Soumya* (mild) alternative that matches the therapeutic outcome while significantly maximizing patient compliance.

**Pharmacodynamics of the Ingredients:** The therapeutic efficacy of *Aragwadhadi Sutra* is attributed to the synergistic action of its pharmacologically active components:

- **Aragwadha (*Cassia fistula*):** Recognized in *Dravyaguna* classics for its *Vrana Shodhana* and *Sramsana* action.<sup>[7]</sup> Modern pharmacological profiles confirm its significant

antimicrobial, tissue-regeneration, and anti-inflammatory properties, which help clear unhealthy slough from the tract.

- **Haridra (*Curcuma longa*):** Contains active curcuminoids providing potent antiseptic, anti-allergic, and anti-inflammatory properties, ensuring sustained local asepsis.<sup>[1,6]</sup>
- **Tagara (*Valeriana wallichii*):** Acts as a local analgesic and sedative agent.<sup>[6]</sup> which directly counteracts the pain induced by the tight ligation of the thread.
- **Madhu (Honey) & Ghrita:** This combination acts as a powerful *Vrana Ropana* (healing) base. Honey creates a moist environment that stimulates healthy granulation tissue via its osmotic effect, while *Ghrita* reduces friction, checks burning sensations, and prevents local tissue irritation.

**Mechanism of Action:** The sustained pressure necrosis exerted by the tight elastic ligation cuts through the tissue fibers progressively. Simultaneously, the active herbal ingredients leach into the micro-environment of the tract, chemical debriding (*Lekhana*) the dead tissues and scraping away unhealthy granulation tissue. Because the process is controlled and gradual (averaging 7.14 days/cm), the body gets ample time to deposit healthy collagen fibers at the base of the wound, allowing the tract to heal from within before the cutting loop exits. This drastically minimizes the risk of anal sphincter damage and subsequent fecal incontinence.<sup>[8,9]</sup>

## CONCLUSION

The clinical case study highlights *Aragwadhadi Sutra* as an excellent, minimally invasive, safe, and highly cost-effective parasurgical option for the management of *Bhagandara* (fistula-in-ano). The thread achieves optimal debridement and rapid tissue healing with excellent patient compliance, minimal pain scores, and zero structural complications. Further randomized controlled clinical trials with a larger sample size are recommended to establish this modification as a standard global protocol in Ayurvedic proctology.

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