

Snuhi Ksheera and Haridra Ksharasutra: A Literature Review of Preparation, Pharmacology, and Clinical Efficacy in Anorectal Disorders-A Narrative Review

Dr Satish Shelkar¹, Dr Datta Kumavat²

¹P.G Scholar, Shalyatantra Department, SMBT Ayurved College and Hospital, Igatpuri, Nashik

²Professor, Shalyatantra Department, SMBT Ayurved College and Hospital, Igatpuri, Nashik

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ABSTRACT

Background: Ksharasutra is an Ayurvedic para-surgical thread used mainly for Bhagandara (fistula-in-ano), Arsha (haemorrhoids), and pilonidal sinus. This review focuses specifically on two of its constituent drugs — Snuhi Ksheera (latex of *Euphorbia neriifolia* Linn.) and Haridra (*Curcuma longa* Linn.) — examining their preparation, pharmacological rationale, proposed mechanism of action, and the clinical evidence base. **Methods:** A narrative (non-systematic) review of peer-reviewed literature published between 1991 and 2026 was conducted across PubMed/MEDLINE, PMC, ScienceDirect, and Google Scholar. Twenty-three sources meeting relevance and reporting-quality criteria were included; methodological quality of the clinical studies was appraised narratively. **Results:** Snuhi latex acts chiefly as a binding medium with proteolytic and haemostatic properties, while Haridra contributes antiseptic, anti-inflammatory, and pro-granulation activity at the tissue interface. Comparative clinical studies suggest recurrence and continence outcomes at least comparable to, and in several small trials better than, conventional fistulotomy/fistulectomy, though the evidence is drawn largely from small, single-centre, unblinded studies with heterogeneous methodology. **Conclusion:** Snuhi Ksheera and Haridra provide a biologically plausible and clinically supported basis for Ksharasutra therapy, but stronger, standardised, multicentric trials are needed before firm efficacy claims can be made.

Keywords: Ksharasutra; Snuhi Ksheera; *Euphorbia neriifolia*; Haridra; *Curcuma longa*; Bhagandara; fistula-in-ano

INTRODUCTION

Fistula-in-ano and related anorectal conditions carry a persistent risk of recurrence and, with aggressive surgery, a risk of sphincter injury and incontinence. Ksharasutra — a linen thread repeatedly coated with medicinal preparations — is described in classical Ayurvedic surgical texts and has been re-standardised in modern research settings as a sphincter-conserving alternative to conventional fistulotomy or fistulectomy.

Among its constituents, Snuhi Ksheera and Haridra Churna are applied throughout the coating process and are considered principal contributors to the thread's binding capacity, biological activity, and healing-promoting action. This review synthesises the available literature specifically on these two components — their preparation, pharmacology, proposed mechanism of action, and clinical evidence — while critically appraising the strength of that evidence.

METHODS

This is a narrative literature review; it was not registered and did not follow a formal PRISMA protocol, and no quantitative pooling (meta-analysis) was performed. Electronic searches were conducted in PubMed/MEDLINE, PubMed Central, ScienceDirect, and Google Scholar for literature published between January 1991 and June

2026, using combinations of the terms "Ksharasutra," "Kshara Sutra," "Snuhi Ksheera," "Euphorbia neriifolia," "Haridra," "Curcuma longa," "curcumin wound healing," "Bhagandara," and "fistula-in-ano."

Inclusion criteria: peer-reviewed clinical trials, comparative or observational clinical studies, and pharmacological studies specifically addressing Ksharasutra therapy, Snuhi Ksheera, or Haridra/curcumin in a wound-healing or anorectal context; English-language publications; classical Ayurvedic textual references cited within retrieved secondary literature. Exclusion criteria: studies concerned solely with other Ksharasutra components without reference to Snuhi or Haridra; non-peer-reviewed promotional or clinic-marketing material; duplicate reports of the same dataset; and abstracts without accessible methodological detail sufficient for appraisal.

Approximately 60 unique records were identified across the databases searched; after removal of duplicates and screening of titles and abstracts, 34 records were assessed for eligibility, of which 23 met the inclusion criteria and form the reference base of this review (seven clinical/comparative studies, four pharmacological/phytochemical studies, and the remainder narrative reviews, case series, or classical textual sources). Because this is a narrative rather than systematic review, study selection and synthesis were performed by a single reviewer and are subject to selection bias; this limitation is discussed further .

RESULTS

Composition and Preparation

Classical references (e.g., Chakradatta) describe a medicated thread coated with Snuhi Ksheera and Haridra Churna for Bhagandara and Arsha. In the modern standardised protocol, a surgical linen thread (No. 20) is suspended in a cabinet with controlled heat and ultraviolet sterilisation and is coated with multiple layers of fresh Snuhi latex, each dried before the next application; the final layers combine Snuhi Ksheera with Haridra Churna, concentrating the antiseptic, healing-promoting component at the tissue-contact surface. The finished thread is reported to be alkaline (pH approximately 9-10). Because Snuhi latex coagulates rapidly, it must be freshly collected, which imposes seasonal and logistical constraints on preparation (Section 3.6).

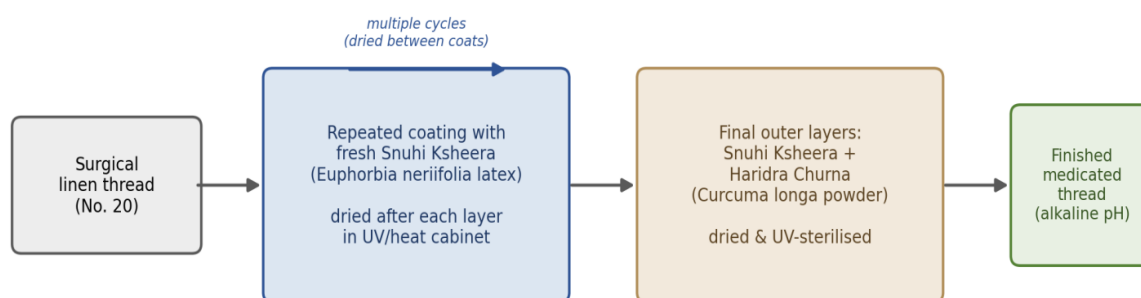


Figure 1. Schematic of the layered preparation of Snuhi Ksheera-Haridra Ksharasutra.

Pharmacology of Snuhi Ksheera

Euphorbia neriifolia latex has been reported to possess anti-inflammatory, antimicrobial, antioxidant, and wound-healing activity, with a phytochemical profile including triterpenoids (euphol, nerifoliol, cycloartenol) and proteolytic enzymes. Proteolytic and gelatinase activity in Euphorbia latex has been linked experimentally to reduced whole-blood clotting time, supporting a plausible haemostatic and debriding role for Snuhi Ksheera

as the binding medium of the thread. Most of this evidence derives from in-vitro or animal pharmacological studies rather than from studies isolating Snuhi's contribution within the assembled Ksharasutra itself.

Pharmacology of Haridra

Curcuma longa and its principal curcuminoid, curcumin, are well studied for antioxidant, anti-inflammatory, antibacterial, and wound-healing activity, including downregulation of pro-inflammatory cytokines during the inflammatory phase of healing and support for fibroblast migration and collagen deposition during proliferation. Within Ksharasutra, Haridra Churna is concentrated in the outer coatings that directly contact tissue, plausibly limiting local infection and inflammatory oedema as the thread transects the tract. Curcumin's known bioavailability limitations are less relevant in this sustained topical application than in oral use, though this has not been directly tested within Ksharasutra specifically.

Proposed Mechanism of Action

The action of Snuhi- and Haridra-coated Ksharasutra is generally described as simultaneously mechanical and biochemical: continuous thread tension produces slow, progressive division of the enclosed tissue, while the proteolytic/haemostatic activity of Snuhi assists debridement and limits bleeding, and the antiseptic/anti-inflammatory activity of Haridra at the outer layer supports orderly granulation. This combined action is often termed "cutting-cum-healing." It should be noted that this mechanistic model is inferred from separate pharmacological studies of the individual components rather than demonstrated directly within the intact thread in situ.

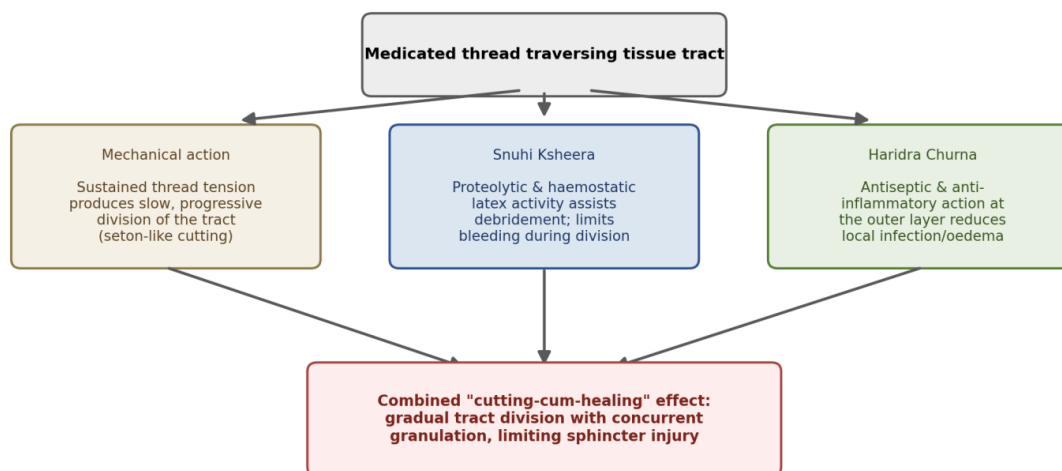


Figure 2. Proposed combined mechanism of action of Snuhi Ksheera- and Haridra-coated Ksharasutra.

Clinical Evidence

Clinical evidence for Ksharasutra therapy in fistula-in-ano derives from a mixture of one large multicentric trial, several smaller randomised comparative studies, and uncontrolled case series/case reports. A multicentric trial comparing Ksharasutra with conventional surgery in 150 patients per arm reported one-year recurrence of 4% versus 11% respectively, with less anal incontinence in the Ksharasutra group, though initial healing took longer; this remains the largest comparative dataset available, but it is now over three decades old and predates contemporary standards of trial reporting (e.g., CONSORT), so allocation concealment and blinding of outcome assessment cannot be verified from the published account.

A single-centre randomised comparison with open fistulotomy (n = 50; 26 Ksharasutra, 24 fistulotomy) reported overall efficacy of 92% with Ksharasutra versus 78% with fistulotomy, less severe postoperative pain (7.7% versus 25% reporting severe pain), but more prolonged wound discharge (15.3% versus 8.3%) and longer healing

time (mean 53 versus 35.7 days) in the Ksharasutra group; treatment cost was also substantially lower with Ksharasutra. A larger randomised trial restricted specifically to low anal fistulae (n = 168) reported one-year recurrence of 2.4% with Ksharasutra versus 7.1% with fistulectomy, alongside lower treatment cost, though its exclusion of high/complex fistulae limits generalisability to more difficult disease. An uncontrolled, single-arm prospective study of 50 patients (conducted 2007-2008) reported an overall recurrence rate of 5.9% with Ksharasutra therapy and minor incontinence limited to high-type fistulae; as an uncontrolled series, it cannot establish comparative efficacy, only describe outcomes within the treated cohort.

A comparative clinical study evaluating three medicated-thread variants, including a Snuhi Ksheera-based thread, reported broadly comparable healing outcomes across variants, though per-arm sample sizes were small, limiting statistical power to detect meaningful differences between thread types. More recent retrospective work (2024-2025) describes modified, minimally invasive Ksharasutra techniques and automated thread-preparation protocols intended to improve standardisation and reduce sphincter disruption in trans-sphincteric fistulae; these represent an encouraging methodological direction but, being retrospective or protocol-stage studies, do not yet provide confirmatory comparative efficacy data. Small case series using transrectal ultrasonography to visualise progressive tract obliteration provide mechanistic, imaging-based support for gradual healing but are similarly limited by small sample size and absence of a comparator arm.

Taken together, these figures should be interpreted cautiously rather than as a single precise effect estimate. Reported recurrence rates span roughly 2-12% across studies, and reported efficacy/cure rates span roughly 78-96%, reflecting real differences in fistula complexity (low versus high, simple versus complex), follow-up duration (many studies report only 6-12 months), thread coating protocol, and outcome definitions, compounded by the general absence of blinding and the predominance of single-centre designs. No study in this literature reports formal sample-size/power calculations comparable to contemporary surgical trials, and most were conducted at specialist Ayurvedic surgery units, which may limit generalisability to broader clinical settings.

Study	Design / N	Comparator	Key Outcome
ICMR multicentric trial (1991)	Multicentre RCT; n = 150/arm	Conventional surgery	1-yr recurrence 4% vs. 11%
Dutta et al. (2015)	Single-centre RCT; n = 50	Open fistulotomy	Efficacy 92% vs. 78%; longer healing time with Ksharasutra
Narasimha Rao et al. (2018)	RCT; n = 168 (low fistulae only)	Fistulectomy	1-yr recurrence 2.4% vs. 7.1%; lower cost
Panigrahi et al. (2009)	Uncontrolled, open-label; n = 50	None (single-arm)	Recurrence 5.9%; minor incontinence in high fistulae only
Lobo et al. (2012)	Comparative clinical study; small per-arm N	Alternate thread variants	Snuhi-based arm showed comparable healing outcomes

Critical appraisal: Judged qualitatively, only the 1991 ICMR trial approaches the scale of a definitive comparative trial, and even this predates modern reporting standards. The remaining comparative studies are single-centre, modestly powered (n = 42-168), and unblinded by necessity, which raises the risk of performance and detection bias, particularly for subjective outcomes such as pain scoring.

The single-arm studies (Panigrahi et al.) and thread-variant comparison (Lobo et al.) provide descriptive rather than comparative evidence and are correspondingly weighted lower in the synthesis above. None of the included clinical studies reported a priori sample-size calculation, and long-term (>2-year) continence outcomes are not systematically reported across the literature.

These factors collectively place the current evidence base at a low-to-moderate certainty level by conventional evidence-hierarchy standards (e.g., GRADE), notwithstanding the consistency of direction of effect across studies.

Modifications and Practical Limitations

The need for freshly collected, rapidly coagulating Snuhi latex has prompted exploration of alternative binding media (e.g., Guggulu resin, papaya latex) in some trials, generally while retaining Haridra in the outer layers. Reported adverse effects of Ksharasutra therapy include local discomfort during thread traversal, prolonged serous discharge, and, uncommonly, mild incontinence, generally less frequent than after fistulotomy in comparative series. Overall treatment duration is typically longer than surgery.

DISCUSSION

The reviewed literature offers a biologically plausible rationale for combining Snuhi Ksheera and Haridra in Ksharasutra: Snuhi supplies an adhesive, proteolytic, and haemostatic medium, while Haridra contributes antiseptic and anti-inflammatory action at the healing tissue interface. Comparative clinical studies generally favour Ksharasutra over conventional fistulotomy/fistulectomy on recurrence and continence outcomes, at the cost of longer healing time. However, this conclusion should be held tentatively: most comparative trials are small, single-centre, and unblinded (blinding is largely infeasible given the visibly different interventions), fistula complexity and follow-up duration vary between studies, and only one large multicentric trial exists, dating to 1991. Direct pharmacological evidence isolating the specific contribution of Snuhi and Haridra within the assembled thread — as opposed to each compound studied in isolation — remains limited.

CONCLUSION

Snuhi Ksheera and Haridra appear to be mechanistically complementary components of Ksharasutra, plausibly underlying its cutting-cum-healing action, and available comparative studies cautiously support efficacy at least comparable to conventional surgery for fistula-in-ano. Given the heterogeneity and methodological limitations of the current evidence base, these findings should be regarded as promising rather than conclusive, pending larger, standardised, multicentric randomised trials with quantified latex and curcuminoid content and longer Sphincter-Function Follow-Up.

Limitations of this Review

- As a narrative rather than systematic review, study selection and weighting were not governed by a pre-registered protocol and may reflect selection bias.
- Formal risk-of-bias tools (e.g., Cochrane RoB2, Newcastle-Ottawa) were not applied; the appraisal in Section 3.5 is qualitative.
- Included clinical studies are heterogeneous in design, sample size, blinding (largely absent), and follow-up duration, limiting direct comparison or pooling of effect estimates.
- Several clinical trials evaluated the classical multi-component Ksharasutra thread as a whole; the specific, isolated contribution of Snuhi Ksheera and Haridra within that thread is inferred rather than directly demonstrated.

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