

Review Article



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“EVOLUTION OF KSHARA KARMA IN THE MANAGEMENT OF ANORECTAL DISORDERS: A CRITICAL REVIEW”

Ms. Shital Gaikwad¹

AFFILIATIONS:

1. Research Assistant, Ira Consultancy & Research Organisation, Bhosari, Pune, Maharashtra 411026

CORRESPONDENCE:

Ms. Shital Gaikwad

EMAILID:

shitalbgaikwad1999@gmail.com

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ABSTRACT

Introduction: Kshara Karma, an Ayurvedic para-surgical procedure employing alkaline preparations, has been a cornerstone in the management of anorectal disorders such as *Arsha* (hemorrhoids), *Bhagandara* (fistula-in-ano), and *Nadivrana* (sinus). Acharya Sushruta described Kshara as the most superior among surgical and para-surgical tools, owing to its ability to excise, incise, and drain without significant complications. Over centuries, Kshara Karma has evolved from crude herbal alkali applications to standardized therapeutic interventions validated through clinical research.

Methods: A literature review was conducted using classical Ayurvedic texts (*Sushruta Samhita*, *Ashtanga Hridaya*, *Chakradatta*), commentaries, and modern surgical treatises. Databases including PubMed, Scopus, AYUSH Research Portal, and Google Scholar were searched with keywords: “Kshara Karma,” “Ayurveda anorectal surgery,” “Ksharasutra therapy,” and “alkaline cauterization.” Inclusion criteria comprised experimental studies, randomized controlled trials (RCTs), review articles, and clinical reports on anorectal disorders. Non-scientific articles and anecdotal evidence were excluded. **Results:** Classical texts detail two primary applications of Kshara: *Pratisaraniya Kshara* (topical application) and *Apamarga Ksharasutra* (alkali-coated thread). Historically, Kshara Karma was applied in hemorrhoids, fistula-in-ano, and sinus diseases with significant efficacy. Modern validations highlight Ksharasutra therapy as a minimally invasive, cost-effective alternative to conventional fistulectomy, reducing recurrence rates and improving wound healing. Comparative studies show Kshara Karma to be superior or complementary to modern surgical techniques in select cases.

Discussion: Kshara Karma demonstrates remarkable continuity from ancient to modern surgical practice. Its mechanisms align with cauterization, chemical debridement, and seton therapy in contemporary medicine. However, large-scale RCTs, long-term outcome data, and standardization of formulations are needed for wider global acceptance. **Conclusion:** The evolution of Kshara Karma highlights Ayurveda’s scientific foresight in anorectal surgery. With further validation and integration into modern surgical frameworks, it holds promise as a globally accepted minimally invasive therapy.

KEYWORDS: Anorectal disorders, Ayurveda, Fistula-in-ano, Hemorrhoids, Kshara Karma

INTRODUCTION

Anorectal disorders are among the most common surgical conditions encountered worldwide, significantly affecting the quality of life of patients^[1]. Hemorrhoids, fistula-in-ano, and chronic anal fissures are prevalent diseases with high recurrence rates, often requiring surgical interventions^[2-3]. Conventional surgical treatments, though effective, are associated with complications such as pain, incontinence, and recurrence^[4].

Ayurveda, the ancient Indian system of medicine, describes unique approaches to anorectal diseases under *Shalya Tantra*. Among these, Kshara Karma—a para-surgical procedure using alkaline preparations—holds a significant role. Acharya Sushruta emphasized its superiority by stating it can perform the functions of excision, incision, and drainage while being minimally invasive. Kshara is prepared from alkaline ashes of medicinal plants such as *Apamarga* (*Achyranthes aspera*), ensuring both therapeutic and caustic properties^[5-7]. Over centuries, Kshara Karma has undergone remarkable evolution. From topical Kshara application in hemorrhoids to the development of the *Apamarga Ksharasutra* in the management of fistula-in-ano, this therapy has gained recognition in modern surgical practice. Contemporary studies confirm its clinical utility, safety, and cost-effectiveness, positioning it as a bridge between traditional and modern surgery^[8-9].

This review critically evaluates the evolution of Kshara Karma in the management of anorectal disorders, analyzing its classical roots, modern adaptations, clinical validations, and future research prospects^[10].

MATERIALS AND METHODS

- Literature Sources:** Primary sources included *Sushruta Samhita*, *Ashtanga Hridaya*, *Chakradatta*, and classical commentaries. Secondary sources included Ayurvedic surgical treatises and modern surgical literature^[11].
- Databases:** PubMed, Scopus, Web of Science, AYUSH Research Portal, and Google Scholar^[11].
- Keywords:** “Kshara Karma,” “Ksharasutra therapy,” “Ayurvedic surgery in anorectal disorders,” “fistula-in-ano Ayurveda,” “alkaline cauterization.”^[12]
- Inclusion Criteria:** Clinical trials, systematic reviews, experimental studies, and authentic Ayurvedic references^[13].
- Exclusion Criteria:** Anecdotal case reports, non-peer-reviewed material, and non-anorectal applications of Kshara^[14].
- Type of Studies Reviewed:** Historical, experimental, clinical, and comparative studies^[15].

OBSERVATION AND RESULTS

1. Classical Foundations of Kshara Karma

- Described in *Sushruta Samhita* under *Shastra and Anushashastra Karma*.
- Two main types: *Pratisaraniya Kshara* (local application) and *Panneya Kshara* (internal use).
- Properties: *Chedana* (excision), *Bhedana* (incision), *Lekhana* (scraping), *Shodhana* (cleansing), and *Ropana* (healing).
- Indications: Hemorrhoids (*Arsha*), fistula-in-ano (*Bhagandara*), sinus (*Nadivrana*), warts, and non-healing ulcers.

2. Preparation of Kshara

- Medicinal plants such as *Apamarga*, *Arka*, *Chitraka*, *Palasha*, and *Snuhi* are used.
- Ashes are dissolved, filtered, and concentrated to obtain Kshara.
- Adjuvants like lime and conch-shell powder enhance caustic properties.
- Standardization attempts in recent research emphasize pH, alkali concentration, and chemical fingerprinting.

3. Kshara Karma in Hemorrhoids (Arsha)

- Pratisaraniya Kshara* is applied directly to the pile mass.
- Causes necrosis, sloughing, and healing of hemorrhoidal tissue.
- Advantages: Less invasive, minimal bleeding, outpatient procedure.
- Modern validation: Comparable to infrared coagulation and cauterization in efficacy, with fewer recurrences.

4. Ksharasutra Therapy in Fistula-in-Ano (Bhagandara)

- Developed by Charaka and later refined by Chakradatta and modern researchers.
- Kshara-coated thread passed through fistula tract; periodic tightening ensures gradual cutting and healing.
- Clinical advantages: Low recurrence, preservation of anal sphincter, faster healing.
- Validated by multiple RCTs against fistulectomy, demonstrating superior outcomes.

5. Applications in Nadivrana (Sinus Disorders)

- Ksharasutra or direct Kshara application used for sinus tracts.
- Promotes drainage, debridement, and healing.
- Modern studies show efficacy in pilonidal sinus management.

6. Comparisons with Modern Surgical Approaches

- Hemorrhoids:** Comparable to rubber band ligation, cauterization, and laser therapy.

- Fistula-in-ano: Comparable to cutting seton, fistulectomy, and advancement flap surgeries.
- Pilonidal sinus: Alternative to excision with primary closure.

7. Pharmacological Basis and Mechanisms

- Alkalinity induces protein coagulation and tissue necrosis.
- Antimicrobial action reduces infection risk.
- Stimulates wound healing through debridement.

8. Research Evidence

- RCTs on Ksharasutra demonstrate reduced recurrence and complications compared to fistulectomy.
- Pharmacological analyses confirm antimicrobial and wound-healing properties of Apamarga Kshara.
- Systematic reviews emphasize its cost-effectiveness and minimal invasiveness.

DISCUSSION

Kshara Karma represents a unique convergence of Ayurveda's surgical foresight and modern minimal invasive surgery. The evolution from simple topical applications to sophisticated Ksharasutra therapy illustrates the adaptability and scientific foundation of Ayurveda^[16].

The therapeutic superiority of Ksharasutra in fistula-in-ano management is well-documented. Unlike fistulectomy, which carries risks of incontinence and recurrence, Ksharasutra gradually cuts the tract while promoting simultaneous healing. This aligns with modern principles of sphincter-preserving surgery. Similarly, Kshara application in hemorrhoids resembles cauterization and chemical sclerotherapy, emphasizing its rational basis^[17].

Modern research has validated many aspects of Kshara Karma. Clinical trials highlight its safety, efficacy, and cost-effectiveness. Pharmacological studies have confirmed the antimicrobial and wound-healing properties of Kshara formulations. Yet, global acceptance remains limited. Barriers include lack of standardization, insufficient mechanistic studies, and limited interdisciplinary collaboration^[18-19].

The future of Kshara Karma lies in standardization of preparation methods, chemical fingerprinting, and dosage regulation. Collaborations between Ayurveda institutions and biomedical researchers can generate robust clinical evidence, making Kshara Karma acceptable in mainstream surgical practice worldwide^[20].

CONCLUSION

Kshara Karma, as envisioned by Acharya Sushruta, remains a hallmark of Ayurvedic para-surgical procedures, particularly in anorectal disorders. Its unique

ability to excise, incise, and debride tissue with minimal invasiveness has ensured its relevance across centuries. The evolution from topical Kshara application to the development of Ksharasutra therapy highlights the scientific ingenuity of Ayurveda.

Modern clinical research validates its efficacy, particularly in fistula-in-ano and hemorrhoids, where it has demonstrated reduced recurrence and complication rates compared to conventional surgery. Its pharmacological properties, including protein coagulation, antimicrobial action, and wound healing, provide a mechanistic basis aligning with modern surgical science.

Despite its promise, challenges such as lack of large-scale trials, formulation standardization, and international recognition limit its wider adoption. Addressing these gaps through interdisciplinary research and policy support can enable Kshara Karma to emerge as a globally recognized, minimally invasive, cost-effective therapy for anorectal disorders.

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