

## CAN AYURVEDA PLAY A ROLE IN MINIMAL INVASIVE SURGERY?

Dr. Annapurna Kadakol<sup>\*1</sup>, Dr. K. H. Pachchinavar<sup>2</sup>, Dr. R. C. Yakkundi<sup>3</sup> and Dr. Sachin Patil<sup>4</sup>

<sup>1</sup>3<sup>rd</sup> Year PG Scholar, Dept. of Shalya Tantra, SSRAMC, Inchal, Belagavi.

<sup>2</sup>Professor, Dept. of Shalya Tantra, SSRAMC, Inchal, Belagavi.

<sup>3</sup>Professor & HOD, Dept. of Shalya Tantra, SSRAMC, Inchal, Belagavi.

<sup>4</sup>Professor, Dept. of Shalya Tantra, SSRAMC, Inchal, Belagavi.



\*Corresponding Author: Dr. Annapurna Kadakol

3<sup>rd</sup> Year PG Scholar, Dept. of Shalya Tantra, SSRAMC, Inchal, Belagavi.

Article Received on 05/05/2025

Article Revised on 27/05/2025

Article Accepted on 16/06/2025

### ABSTRACT

Minimal Invasive Surgery (MIS) revolutionized modern surgical practices by reducing tissue trauma, complications, and recovery time. Ayurveda, through para-surgical techniques like Kshara Sutra, Agnikarma, and Raktamokshana, reflects principles similar to MIS. Additionally, holistic pre- and post-operative care inherent to Ayurveda enhances surgical outcomes. This review examines how Ayurvedic techniques can complement MIS, outlines integration strategies, and addresses challenges requiring future collaborative research.

**KEYWORDS:** Ayurveda; MIS; Kshara Sutra; Agnikarma; Raktamokshana; para-surgery; holistic care; immunomodulation; wound healing; evidence-based.

### INTRODUCTION

Minimal Invasive Surgery (MIS) has set new standards in surgery by limiting tissue damage, reducing complications, and promoting rapid recovery. Ayurveda's branch of Shalya Tantra has long utilized minimally invasive and para-surgical methods such as Kshara Sutra, Agnikarma, and Raktamokshana, reflecting the same ethos of gentle, focused intervention. In addition, Ayurveda places strong emphasis on pre-operative detoxification and post-operative healing protocols. This review explores the potential synergy between Ayurvedic principles and MIS.

#### Conceptual Overlap Between Ayurveda and MIS

- Kshara Karma: Utilizes alkaline pastes to chemically cauterize conditions like piles and fistulas, similar in outcome to modern chemical cauterization.

- Agnikarma: Applies thermal cauterization for musculoskeletal disorders, akin to radiofrequency or laser ablation techniques.
- Raktamokshana: Involves bloodletting via leeches or phlebotomy, comparable to modern leech therapy in microsurgery.

#### Ayurvedic Para-Surgical Techniques

##### 1. Kshara Sutra

This technique involves a specially prepared thread coated with layers of herbal alkali drugs like Apamarga, Snuhi, and Haridra. It is commonly used in the treatment of Bhagandara (fistula in ano), Nadi Vrana (sinuses), Arsha (piles), and Pilonidal sinus. The procedure facilitates gradual cutting, curettage, drainage, and healing, without extensive tissue trauma.<sup>[1]</sup>

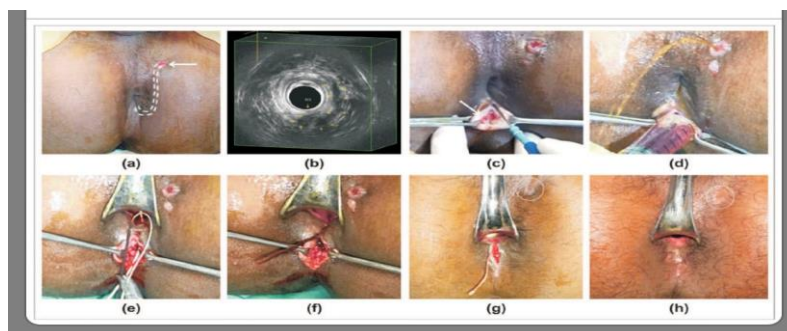


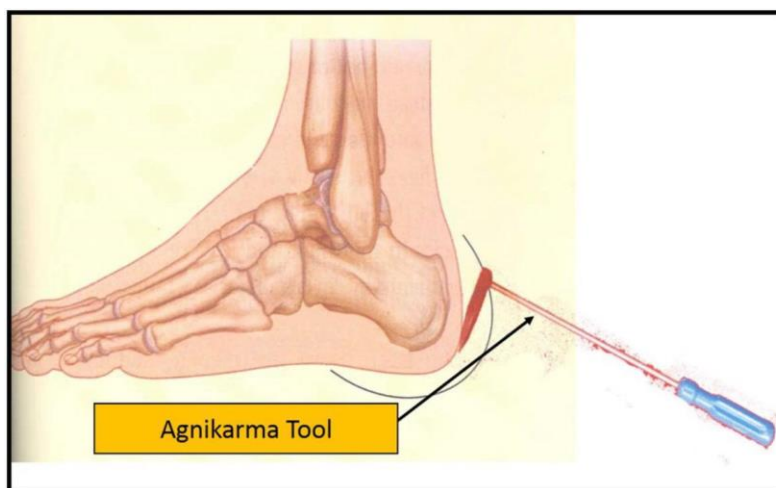
Fig. 1: Sequential demonstration of the IFTAK technique and outcome.

- (a) Left trans-sphincteric fistula from 1 o'clock (external opening) to 6 o'clock (internal opening);
- (b) 3D-TRUS showing fistulous path through external and internal sphincters;
- (c) Vertical incision at posterior midline intercepting the track;
- (d) Fluid jet from external opening confirms communication;
- (e) Probe with Ksharasutra introduced via interception site;
- (f) Ksharasutra placed in proximal track;

- (g) Healing seen after 1 week with healthy granulation;
- (h) Complete healing in 3 weeks with minimal scarring.

## 2. Agnikarma

Agnikarma involves the use of heated instruments or metals for therapeutic cauterization. It is effective in conditions such as Gridhrasi (sciatica), Sandhigata Vata (osteoarthritis), and Kantaka Shoola (calcaneal spur). The thermal energy relieves pain, reduces inflammation, and supports localized tissue repair.<sup>[2]</sup>



**Fig. 2:** Application of Agnikarma on the leg using a heated metallic instrument (Shalaka) in Bindu (dot) pattern at the site of pain, showing therapeutic cauterization for pain relief and localized inflammation control.

## 3. Raktamokshana

This technique of controlled bloodletting is used to relieve local congestion, inflammation, and vitiated Rakta Dhatu. Among its methods, Jalaukavacharana

(leech therapy) is particularly used in varicose ulcers, vascular disorders, and skin conditions. Leech saliva contains bioactive substances that enhance circulation, reduce edema, and promote healing.<sup>[3]</sup>



**Fig. 3:** Demonstration of Raktamokshana (bloodletting) therapy using Jalaukavacharana (leech application) technique. Medicinal leeches are applied to the affected site to extract vitiated Rakta (blood), promoting detoxification and relief from localized symptoms such as pain, inflammation, and discoloration.

## Pre- and Post-Operative Supportive Care in Ayurveda

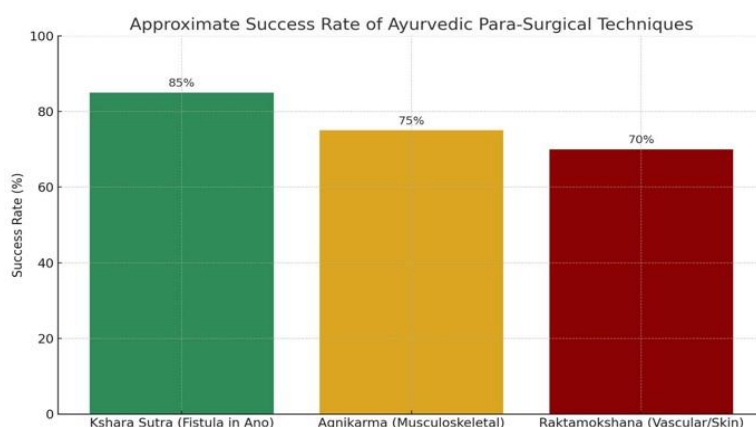
### Poorva Karma (Pre-operative)

Ayurveda emphasizes the importance of preparing the body before surgical procedures. Therapies like Virechana, Basti, and Snehana-Swedana help in balancing Doshas, improving metabolism, and strengthening immunity. Rasayana herbs like Ashwagandha, Guduchi, and Shatavari enhance physical and mental resilience.<sup>[4]</sup>

### Paschat Karma (Post-operative)

After any surgical or para-surgical intervention, Ayurveda prescribes:

- Local applications such as Jatyadi Taila, Yashtimadhu ointment, or Aloe vera gel to promote wound healing.<sup>[5]</sup>
- Anti-inflammatory herbs such as Shallaki, Guggulu, and Nirgundi to reduce swelling and pain.<sup>[6]</sup>
- Dietary regulation, including a light Satvik diet, easily digestible food, and herbal decoctions that promote Agni (digestive fire) and recovery.
- Lifestyle additions such as mild yogic exercises, Pranayama, and meditation to boost physical rehabilitation and mental wellness.



**Fig. 4: Bar graph showing approximate success rates of Ayurvedic para-surgical techniques — Kshara Sutra (~85%), Agnikarma (~75%), and Raktamokshana (~70%) — based on clinical observations and literature reports.**

## DISCUSSION

Integrating Ayurveda with MIS offers multiple benefits: reduced use of synthetic drugs, minimized surgical stress, and enhanced patient-specific care. Several studies report high efficacy and low recurrence with Kshara Sutra in fistula treatment. Pharmacological studies support anti-inflammatory and healing properties of herbs like Haridra and Guggulu. However, barriers remain.

- Lack of randomized controlled trials comparing these methods directly with standard surgical interventions.
- Variability in preparation and dosing of Ayurvedic formulations.
- Institutional and regulatory inertia against combining traditional and modern surgical techniques.
- Need for standardized protocols, training modules, and interdisciplinary communication.

Future direction includes collaboration between Ayurvedic and allopathic practitioners to conduct high-quality clinical studies, and develop integrated MIS protocols using standardized Ayurvedic procedures.

## CONCLUSION

While Ayurveda does not inherently provide modern MIS tools like laparoscopes or robotics, its para-surgical techniques inherently minimize tissue trauma and encourage natural healing. Techniques such as Kshara Sutra, Agnikarma, and Raktamokshana exemplify

Ayurveda's minimally invasive philosophy. When combined with detoxification, immunity-boosting, and wound-healing modalities, these approaches can improve MIS outcomes and patient satisfaction. Forward-thinking research and cooperative frameworks are essential to realize a comprehensive, integrative surgical model.

## REFERENCES

1. Sushruta. Sushruta Samhita, Chikitsa Sthana 17/29 – Kshara Sutra.
2. Sushruta. Sushruta Samhita, Chikitsa Sthana 5/3 – Agnikarma.
3. Sushruta. Sushruta Samhita, Sutra Sthana 16/25 – Raktamokshana.
4. Sushruta. Sushruta Samhita, Sutra Sthana 35/15 – Panchakarma.
5. Govind Das Sen. Bhaishajya Ratnavali 51/4 – Jatyadi Taila.
6. Srikantha Murthy K.R. Bhavaprakasha Nighantu – Haritakyadi Varga.