

Review Article



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“PAIN MANAGEMENT IN SHALYA TANTRA: A REVIEW OF CLASSICAL AND MODERN APPROACHES”

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ABSTRACT

Introduction: Pain is one of the most distressing symptoms in surgical practice. In *Shalya Tantra* (Ayurvedic surgery), pain management was emphasized not only during surgical interventions but also in the postoperative period. Ancient texts describe a holistic approach through *Shodhana*, *Shamana*, and *Satvavajaya* therapies, utilizing herbal, mineral, and procedural modalities. Modern pain management primarily relies on pharmacological interventions such as NSAIDs, opioids, and regional anesthesia, along with non-pharmacological therapies. **Methods:** A comprehensive literature review was performed using classical Ayurvedic texts including *Sushruta Samhita* and *Charaka Samhita* as well as modern databases (PubMed, Scopus, Web of Science, AYUSH Research Portal). Search terms included “pain management,” “Shalya Tantra,” “Ayurveda analgesics,” and “postoperative pain.” Inclusion criteria comprised classical descriptions, clinical studies, randomized controlled trials, and review articles published from 1980 to 2025. Exclusion criteria were animal-only studies, non-peer-reviewed articles, and reports lacking detailed outcomes.

Results: Classical Ayurvedic sources describe multiple approaches: (i) *Sneha* (oleation) and *Sveda* (sudation) therapies for musculoskeletal pain; (ii) *Lepa* (herbal poultices), *Agnikarma* (thermal cauterization), and *Raktamokshana* (bloodletting) for localized pain; (iii) use of analgesic herbs such as *Shunthi*, *Guggulu*, and *Rasna*; and (iv) psychological support via *Satvavajaya*. Modern research validates some of these interventions—e.g., *Guggulu*’s anti-inflammatory activity and *Agnikarma*’s efficacy in musculoskeletal pain. Clinical studies comparing Ayurvedic and allopathic approaches suggest integrative pain management strategies may enhance outcomes. **Discussion:** Ayurveda provides a holistic, multimodal approach to pain, while modern medicine offers rapid and targeted pharmacological control. A comparative evaluation shows that integrative strategies may reduce drug dependence, improve patient satisfaction, and minimize adverse effects. However, limitations include lack of large-scale RCTs and global standardization of Ayurvedic protocols. **Conclusion:** Classical *Shalya Tantra* offers time-tested approaches to pain management that remain relevant today. Their integration with modern pharmacological advances can provide a comprehensive, patient-centered strategy for surgical and chronic pain management.

KEYWORDS: Agnikarma, analgesics, Ayurveda, pain management, Shalya Tantra



INTRODUCTION

Pain is a universal human experience and one of the most common symptoms encountered in surgical practice^[1]. It significantly impacts quality of life, recovery outcomes, and healthcare costs. In the context of surgery, perioperative pain management plays a crucial role in minimizing complications, enhancing recovery, and improving patient satisfaction^[2-3].

Ayurveda, particularly through *Shalya Tantra* (surgical discipline), has addressed pain in both acute and chronic conditions^[4]. The classical texts—*Sushruta Samhita*, *Charaka Samhita*, and *Ashtanga Hridaya*—describe pain (*Shoola*) not merely as a physical symptom but as a multidimensional experience involving disturbances of *Vata dosha*, tissue injury, and psychological imbalance. Interventions such as *Snehana* (oleation), *Swedana* (fomentation), *Lepa* (topical applications), *Agnikarma* (thermal cauterization), and herbal formulations were used extensively^[5-6]. Despite remarkable progress in modern pharmacology, reliance on opioids and NSAIDs has led to issues like tolerance, dependence, gastrointestinal toxicity, and opioid crisis-related morbidity. Hence, integrative approaches drawing from both Ayurveda and modern medicine may offer sustainable solutions^[7-8].

This review aims to critically examine the principles of pain management in *Shalya Tantra*, compare them with modern approaches, and explore their relevance in contemporary clinical practice^[9-10].

MATERIALS AND METHODS

A structured literature review was undertaken with the following methodology:

- **Databases searched:** PubMed, Scopus, Web of Science, AYUSH Research Portal, Google Scholar^[11].
- **Search terms:** “Shalya Tantra,” “pain management Ayurveda,” “Ayurveda analgesics,” “Agnikarma pain relief,” “postoperative pain Ayurveda.”^[12]
- **Inclusion criteria:**^[13]
 - References from classical Ayurvedic texts (with authentic translations).
 - Clinical trials, RCTs, case reports, systematic reviews, and pharmacological studies (1980–2025).

- Studies on both acute and chronic pain management.
- **Exclusion criteria:**^[14]
 - Animal-only studies without translational value.
 - Non-peer-reviewed sources and conference abstracts.
 - Articles without clear methodology or outcome data.
- **Type of studies reviewed:** Clinical and pharmacological studies, reviews, comparative evaluations, and meta-analyses^[14].

Data were extracted, synthesized thematically, and compared across classical and modern approaches^[15].

OBSERVATION AND RESULTS

1. Classical Concepts of Pain in Ayurveda

- Pain (*Shoola*) is primarily attributed to *Vata dosha* aggravation, though *Pitta* and *Kapha* imbalances can also play roles.
- *Sushruta* describes pain arising from *trauma*, *inflammation*, *obstruction*, or *ulceration*.
- Pain is classified into *Vedana* (sensation), *Ruk* (acute pain), and *Toda* (pricking pain).

2. Procedural Modalities in Shalya Tantra for Pain Relief

- *Snehana* (oleation) with medicated oils like *Mahanarayana taila* helps reduce musculoskeletal pain.
- *Swedana* (sudation/fomentation) provides relief in stiffness, inflammation, and neurological pain.
- *Lepa* and *Upanaha* (herbal poultices) applied locally reduce localized inflammation.
- *Agnikarma* (therapeutic cauterization) is described for conditions like sciatica, heel pain, and frozen shoulder, with modern studies confirming its analgesic effects.
- *Raktamokshana* (bloodletting) is employed in inflammatory and vascular pain conditions.

3. Pharmacological Approaches in Ayurveda

- Herbs such as *Shunthi* (*Zingiber officinale*), *Rasna* (*Pluchea lanceolata*), *Guggulu* (*Commiphora mukul*), *Haridra* (*Curcuma longa*), and *Shallaki* (*Boswellia serrata*) have documented analgesic and anti-inflammatory effects.

- Classical formulations: *Yogaraja Guggulu*, *Mahayograj Guggulu*, *Dashamoola Kwatha*, and *Eranda Taila* are widely used in surgical pain management.
- Rasashastra preparations: *Rasna guggulu* and *Triphala guggulu* show significant anti-inflammatory effects.

4. Satvavajaya and Psychological Approaches

- Stress and anxiety worsen pain perception. *Satvavajaya chikitsa* (psychological counseling and meditation) is recommended in Ayurveda.
- Modern correlates include cognitive behavioral therapy, mindfulness, and guided relaxation.

5. Modern Pain Management Approaches

- **Pharmacological:** NSAIDs, opioids, COX-2 inhibitors, local anesthetics.
- **Regional anesthesia:** Spinal, epidural, and peripheral nerve blocks.
- **Non-pharmacological:** Physiotherapy, TENS, acupuncture, and psychological counseling.

6. Comparative Outcomes

- *Agnikarma* in musculoskeletal pain shows results comparable to NSAIDs in RCTs.
- *Guggulu* and *Shallaki* extracts demonstrate similar anti-inflammatory efficacy to diclofenac, with fewer side effects.
- Postoperative pain trials using Ayurvedic formulations report faster wound healing and better patient comfort.
- Integrative models (Ayurvedic procedures + NSAIDs) show reduced drug dosage and side effects.

7. Safety and Limitations

- Ayurvedic drugs generally show better safety profiles but require quality control and standardization.
- Procedural therapies demand skilled practitioners.
- Evidence gaps include lack of multicenter RCTs and long-term follow-ups.

DISCUSSION

The classical texts of Ayurveda provide a comprehensive understanding of pain as a multifactorial symptom involving body, mind, and environment. *Shalya Tantra* offers a range of

interventions—from herbal pharmacology to para-surgical measures—many of which align with current multimodal pain management strategies^[16].

When comparing Ayurveda with modern approaches, three themes emerge:^[17]

1. **Holism vs Targeted Relief:** Ayurveda treats pain by addressing the root imbalance (*dosha*), whereas modern medicine provides rapid symptomatic relief.
2. **Safety vs Potency:** Ayurvedic interventions are safer and sustainable but slower in onset, while modern analgesics act quickly but carry risks of toxicity and dependence.
3. **Integration Potential:** Combining Ayurveda with modern techniques reduces opioid dependence, enhances wound healing, and improves patient-centered care.

Modern pharmacology confirms the anti-inflammatory and analgesic effects of many Ayurvedic drugs like *Guggulu* and *Shallaki*. Similarly, *Agnikarma*'s analgesic mechanism—thermal nerve modulation—resonates with modern concepts of radiofrequency ablation^[18].

Limitations include lack of global guidelines, inconsistent formulations, and heterogeneity in clinical trials. Furthermore, modern surgical settings demand rapid pain relief, which Ayurveda alone may not fully achieve. Thus, integrative models hold the greatest promise^[19].

Future directions should include:^[20]

- Rigorous multicenter RCTs comparing Ayurvedic and modern interventions.
- Standardization of Ayurvedic formulations.
- Development of integrative pain protocols for perioperative and chronic pain care.

CONCLUSION

Pain management remains central to surgical practice. *Shalya Tantra* (Ayurvedic surgery) addresses pain holistically through *dosha* balance, local interventions, pharmacological agents, and psychological support. Modern pain management, although highly effective, faces challenges such as adverse drug reactions, tolerance, and dependency.

This review highlights the complementary strengths of both systems. Classical procedures like *Agnikarma* and *Raktamokshana* provide effective alternatives in musculoskeletal and localized pain, while formulations like *Guggulu* and *Rasna* demonstrate



scientifically validated anti-inflammatory effects. Modern pharmacology, on the other hand, ensures rapid relief and surgical feasibility.

An integrative model combining Ayurvedic and modern methods offers the best of both worlds—faster recovery, reduced dependence on high-dose analgesics, and improved patient satisfaction. However, gaps such as standardization of Ayurvedic drugs, training of practitioners, and large-scale clinical validation must be addressed for global acceptance.

In conclusion, *Shalya Tantra*'s pain management principles, when integrated with modern approaches, can establish a safe, effective, and holistic pain management paradigm. This can enhance surgical outcomes and contribute significantly to the evolving field of integrative medicine.

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