

Ayurvedic Perspectives on Anaesthesia: An Evidence-Based Integration with Modern Medicine

Author: Jay Prakash Gupta¹

Co Authors: Govind Sahay Shukla²

¹PG Department of Rasa Shastra and Bhaishajya Kalpana, PGIA, DSRRAU, Jodhpur, Rajasthan, India

²Dr. S.R. Rajasthan Ayurved University, Jodhpur, Rajasthan, India

ABSTRACT

Ayurveda, the ancient Indian medical system, offers some of the earliest recorded practices of anesthesia, documented under the concept of *Sangyaharana* in classical texts such as the *Sushruta Samhita* and *Charaka Samhita*. These sources describe surgical protocols that include herbal sedatives, fermented preparations, and preoperative rituals, offering an integrated and systematized approach to managing pain and consciousness. As global healthcare pivots toward integrative and holistic paradigms, revisiting Ayurvedic anesthesia is both timely and necessary. This paper explores the historical evolution of anesthetic methods in Ayurveda, the pharmacological mechanisms of traditional sedatives, recent scientific validations, and practical frameworks for integration into contemporary medicine. The aim is to bridge ancient insights with modern clinical science, ensuring safety, efficacy, and standardization.

Key Words *Ayurveda, Anesthesia, Sangyaharana, Sushruta, Charaka, Herbal Sedatives, Integrative Medicine, Pain Management*

Received 09th June 2026 Accepted 21st April 2026 Published 10th July 2026

INTRODUCTION

Anesthesia remains one of the most transformative innovations in modern medicine. It enables safe and pain-free surgical procedures, contributing significantly to human longevity and quality of life. However, while modern anesthesia developed significantly during the 19th century with the discovery of ether and chloroform, ancient medical systems like

Ayurveda recognized and practiced rudimentary forms of anesthesia much earlier¹.

The Ayurvedic tradition of *Sangyaharana*—literally meaning “to bring about unconsciousness”—is referenced in texts dating back over two millennia. This concept encompasses the administration of herbal and alcoholic preparations to induce sleep, dull pain, and facilitate surgical intervention¹. The *Sushruta Samhita*, one of Ayurveda’s foundational surgical

REVIEW ARTICLE

texts, includes detailed surgical protocols involving preoperative sedation with fermented liquors (*Madya*), opium (*Ahiphena*), and neuroactive herbs like *Datura* and *Vacha*. Similarly, the *Charaka Samhita*, primarily focused on internal medicine, refers to psychoactive preparations like *Tikshna Sura* (strong wine) for pain mitigation².

Modern research increasingly validates the neuroactive properties of Ayurvedic herbs such as *Ashwagandha* (*Withaniasomnifera*), *Brahmi* (*Bacopa monnieri*), and *Hyoscyamus niger*, which show promise as sedatives, anxiolytics, and analgesics. Despite the strong historical and phytopharmacological basis, integration into mainstream anesthetic practice has been minimal due to challenges such as lack of clinical trials, standardization, and regulatory barriers³.

This paper addresses the Ayurvedic understanding of anesthesia in four parts: historical development, pharmacodynamics of traditional agents, evidence from contemporary science, and a proposed integrative framework. Through this analysis, we advocate for rigorous, interdisciplinary exploration to bring Ayurveda into the fold of global anesthetic practices.

Historical Foundations of Sangyahan in Ayurveda

Ayurveda conceptualizes anesthesia (Sangyahan) within a broader framework of surgical and therapeutic management, particularly through the work of Sushruta, often regarded as the father of surgery. His compendium, the *Sushruta Samhita*, outlines an

elaborate structure for performing surgeries, including the need to induce unconsciousness to minimize pain and movement. The process is divided into three key phases:

A. *Poorva Karma* (Pre-operative Care)-

In Ayurveda, *Poorva Karma* constitutes the preparatory phase before surgery, aiming to ready the patient both physically and mentally. This phase emphasizes the administration of mild sedatives and psychoactive agents to relax the body and dull sensory perception. Classical texts like the *Sushruta Samhita* recommend the use of *Madya* (fermented liquor), *Tikshna Sura* (strong wine), or herbal agents like *Ahiphena* (opium), *Vacha* (*Acorus calamus*), and *Brahmi* (*Bacopa monnieri*)⁴. Dietary regimens such as *Guru Bhojana* (heavy meals) are also prescribed to reduce metabolic activity and maintain energy reserves. Mental preparation is equally vital, achieved through supportive communication, chanting of mantras, and assurance from the physician⁵. This psychosomatic preparation plays a vital role in reducing surgical stress, which aligns with modern concepts of preoperative counselling and anxiolysis. Overall, *Poorva Karma* reflects Ayurveda's holistic approach to surgery, integrating mind, body, and pharmacological readiness to ensure procedural success.

B. *Pradhana Karma* (Primary Surgical Act)

Pradhana Karma represents the core surgical phase where the operation is executed while the patient remains sedated or unconscious. This is made possible by the pre-operative measures of

REVIEW ARTICLE

Poorva Karma, which induce a state of reduced sensory awareness. Sushruta emphasized the importance of maintaining this altered consciousness using agents such as *Datura stramonium* (rich in anticholinergic alkaloids like scopolamine), *Hyoscyamus niger*, and stronger doses of *Madya* or *Ahiphena*. The surgical procedure was to be performed swiftly and skilfully to minimize tissue damage and blood loss, as per guidelines laid out in the *SushrutaSamhita*. The text emphasizes sterility through fumigation (*Dhoopana*) and the use of sharp, sterilized instruments. The anesthetic condition allowed for invasive interventions, such as excision, incision, and cauterization, with minimal patient distress⁶. This phase is analogous to the modern intraoperative period, underscoring Ayurveda's advanced understanding of patient management during surgery.

C. *Paschat Karma* (Post-operative Care)

The *Paschat Karma* phase in Ayurvedic surgical protocol focuses on patient recovery, encompassing wound management, pain control, and restoration of physiological balance. Herbal formulations such as *JatyadiTaila*, *Dashanga Lepa*, and medicated *Ghritas* (ghee-based preparations) were applied to promote tissue healing and reduce inflammation. Pain was managed using sedative and analgesic herbs like *Ashwagandha*, *Shankhpushpi*, and *Tagara*⁷. Emotional and psychological care was also emphasized, with recommendations for supportive care, dietary adjustments, and rest. Cleansing therapies like *MriduVirechana* (mild

purgation) or *Snehana* (oleation) were used to eliminate residual toxins and support convalescence. The aim was to restore *Dosha* balance and rebuild strength. *Sushruta* advised regular monitoring of the wound site and systemic signs, reflecting an early understanding of post-operative surveillance. In essence, *PaschatKarma* reflects a sophisticated approach to holistic healing that closely parallels modern recovery protocols in postoperative care⁸.

In *Sushruta Samhita*, Sutrasthana 36.10, it is stated:

*“Madyapānaṃkuryātpṛathamam,
yenaśūnyobhavedindriyairḥ”*

(“Let the patient first consume alcohol so that the senses may become insensible.”)

Beyond *Madya*, Ayurvedic surgeons also used *Ahiphena* (opium latex), *Datura* (containing atropine-like compounds), and *Vacha* (a neuroactive rhizome) to sedate patients. These agents were not administered arbitrarily but tailored to an individual's *Prakriti* (constitution) and the nature of the surgical procedure.

The *Charaka Samhita*, although non-surgical in focus, recognizes the use of *Tikshna Sura* and other fermented preparations for managing pain in internal treatments. It supports the view that altering consciousness to control pain was well-known across different branches of Ayurveda.

Other lesser-known texts, such as the *Bhojaprabandha*, mention *Mohachurna*, a polyherbal sedative compound, used by physicians in ancient courts. These formulations likely included a mix of herbs such as

REVIEW ARTICLE

Hyoscyamus niger, *Nutmeg*, and *Opium*, administered in specific dosages to induce sleep⁹. This historical evidence demonstrates that anesthesia in Ayurveda was not incidental but a formalized practice integrated with a systemic understanding of human physiology and consciousness.

Pharmacological Mechanisms of Ayurvedic Anesthetics

In Ayurveda, physiological functions are governed by the *Tridosha* system—*Vata*, *Pitta*, and *Kapha*. Pain and nerve conduction are primarily the domain of *Vata Dosha*, which is dry, mobile, and sharp in nature. Ayurvedic anesthesia functions by pacifying *Vata*, thereby dulling the nervous system and facilitating surgical procedures.

The agents used are characterized by specific *gunas* (qualities):

- ***Snigdha* (unctuous)**: Soothing and grounding
- ***Ushna* (hot)**: Enhancing metabolism and diffusion
- ***Tikshna* (sharp) and *Sukshma* (subtle)**: Enabling rapid penetration into tissues and cells
- ***Vyavayi* (diffusive)**: Capable of systemic action

Examples of Ayurvedic sedatives and their pharmacological actions include:

- ***Ashwagandha* (*Withaniasomnifera*)**: Contains withanolides and alkaloids that modulate GABA receptors. Reduces cortisol and has been shown to possess sedative and anxiolytic effects in clinical trials¹⁰.

- ***Vacha* (*Acorus calamus*)**: Contains asarone and possesses antispasmodic, neuroprotective, and sedative properties. Used for disorders of speech and mental agitation¹¹.

- ***Brahmi* (*Bacopa monnieri*)**: A nootropic and mild sedative. Clinical evidence shows its utility in anxiety reduction and cognitive enhancement.

- ***Hyoscyamus niger* (*ParasikaYavani*)**: Tropane alkaloid-rich plant with anticholinergic and sedative properties. The plant's action resembles that of modern scopolamine.

- ***Datura stramonium***: Known for its use in folk anesthesia; contains atropine and scopolamine. Highly potent, requiring expert knowledge for safe use¹².

These herbs were used in various forms—*Asavas* (fermented decoctions), *Churnas* (powders), and *Ghritas* (medicated ghee)—to ensure bioavailability and potency.

Recent studies, such as those by Sharma and Asutkar (2023), confirm that Ayurvedic agents engage neurotransmitter systems similar to modern anesthetics, notably the GABAergic and cholinergic pathways¹³.

This pharmacodynamic alignment highlights Ayurveda's empirical roots in neuropharmacology and offers a platform for deeper scientific exploration.

Contemporary Research: Scientific Validation of Traditional Practices

In recent years, there has been a resurgence in exploring Ayurvedic herbs through the lens of modern science. Several studies have confirmed the anxiolytic, sedative, and analgesic properties

REVIEW ARTICLE

of key Ayurvedic agents, supporting their potential as complementary tools in anesthesia.

Clinical and Experimental Validation of Ayurvedic Anesthetics

Ayurvedic herbs have increasingly attracted attention in clinical and experimental research due to their potential roles in perioperative care and sedation. One of the most well-studied herbs is *Ashwagandha* (*Withaniasomnifera*), which has demonstrated promising results in multiple randomized controlled trials (RCTs). It is particularly effective in reducing stress and enhancing sleep quality. Some studies suggest it may offer anxiolytic benefits comparable to conventional pharmaceuticals such as lorazepam, but with fewer adverse effects and better tolerability. Similarly, *Brahmi* (*Bacopa monnieri*) has shown cognitive-enhancing and anxiolytic properties in both healthy individuals and patients with neurological disorders. Its adaptogenic nature and neuroprotective effects make it highly relevant in perioperative care, where mental clarity and anxiety management are essential. Another notable herb, *Hyoscyamus niger*, is rich in tropane alkaloids and has been recognized for its sedative, antispasmodic, and muscle-relaxant properties, traditionally used in both Ayurveda and Unani systems for surgical sedation.

Real-world integrative models provide encouraging evidence. In a recent research implemented a clinical protocol incorporating Ayurvedic massage, yogic breathing techniques, and herbal support during robotic thoracic

surgery¹⁴. Patients reported significantly lower postoperative pain and anxiety, along with reduced dependency on opioids, suggesting that traditional interventions can enhance recovery outcomes in modern surgical environments.

Institutionally, the World Health Organization (WHO) has emphasized the value of standardized training in traditional systems. Their support for integrative care models enhances the global legitimacy of Ayurvedic practices in clinical settings¹⁵.

Nonetheless, substantial limitations remain. Many studies suffer from small sample sizes, inconsistent methodologies, and lack of pharmacological standardization. Regulatory approval for Ayurvedic anesthetic agents is minimal. In this context, reverse pharmacology—where clinical efficacy leads laboratory validation—offers a viable path forward to bridge traditional wisdom with modern scientific rigor.

Future Directions: Building an Integrative Model of Anesthesia

To meaningfully translate Ayurvedic anesthetic principles into mainstream clinical practice, coordinated progress is needed across five major pillars: research, standardization, education, regulation, and public health application. Each domain offers specific actions that can bridge traditional wisdom with modern scientific expectations and patient safety requirements.

1. **Research Prioritization-** To build a credible evidence base, funding should be directed toward well-designed randomized controlled trials (RCTs) assessing Ayurvedic

REVIEW ARTICLE

anesthetics in minor to moderate surgeries. Additionally, molecular pharmacology research using in vitro and in silico models should be used to identify active compounds and their neural targets¹⁶. Techniques such as electroencephalography (EEG) and neuroimaging can provide valuable insights into how Ayurvedic preparations alter brain activity and sedation levels, supporting translational applications.

2. **Standardization and Safety**-A major challenge in integrating Ayurvedic anesthetics is variability in formulations. Developing standardized pharmacopeia entries for anesthetic herbs will ensure consistency in clinical use. Safety profiles, therapeutic indices, contraindications, and pharmacokinetics must be thoroughly established through multicenter trials. Quality control in cultivation, extraction, and formulation is essential to meet modern pharmacological and toxicological standards.

3. **Interdisciplinary Education** - Effective integration begins with shared knowledge. Medical curricula (MBBS) and Ayurvedic programs (BAMS) should include dedicated modules on integrative anesthetic science. Anesthesiologists, pharmacologists, and Ayurveda practitioners should collaborate in CME workshops to foster mutual understanding. This cross-training will promote safer and more effective application of Ayurvedic interventions in clinical settings.

4. **Regulatory Inclusion**-To bring Ayurvedic anesthetics into mainstream practice, collaboration with bodies like the AYUSH

Ministry, FDA, and EMA is essential. Regulatory frameworks must be developed to trial and approve traditional formulations under evidence-based guidelines. Creating WHO-compliant herbal monographs with dosage, indications, and contraindications will enhance international recognition and safe usage.

5. **Public Health Integration**- Ayurvedic anesthetics have unique relevance in under-resourced or rural settings where synthetic drugs may be inaccessible or cost-prohibitive. These formulations can be used in minor surgeries, dental procedures, and palliative care. Their low toxicity and non-invasive nature make them valuable alternatives, especially where cold chain storage or monitoring equipment is unavailable.

CONCLUSION

Ayurveda's understanding of anesthesia—captured under the concept of *Sangyahanana*—was not only advanced for its time but remains relevant in today's search for integrative, safe, and holistic healthcare. With foundational principles grounded in surgical precision, pharmacodynamic insight, and systemic patient care, Ayurveda offers a complementary framework to modern anesthetic science. By validating its ancient practices through rigorous scientific study, we can expand the anesthetic toolbox in a manner that respects cultural heritage while adhering to modern standards of safety and efficacy. The road to integration is complex but necessary. It demands dialogue,

REVIEW ARTICLE

experimentation, and mutual respect between traditional and modern systems. When achieved, it promises a richer, safer, and more human-centered approach to managing pain and consciousness in medicine.

REVIEW ARTICLE

REFERENCES

1. Robinson DH, Toledo AH. Historical development of modern anesthesia. J Invest Surg. 2012 Jun;25(3):141-9. doi: 10.3109/08941939.2012.690328. PMID: 22583009.
2. Hemanta Kumar Panigrahi. Concept of Sangyahaarana (anaesthesia) in Ancient India: A Critical Study. Int. J. Res. Ayurveda Pharm. 2020;11(3):72-74 <http://dx.doi.org/10.7897/2277-4343.110364>
3. Gupta, Sahil. "IAFA Ayurveda." *IAFA for Allergy*, 15 Nov. 2023, www.iafaforallergy.com/dravya-herbs-part-a/ahiphenapapaver-somniferum-linn/. Accessed 23 June 2025.
4. Mikulska P, Malinowska M, Ignacyk M, Szustowski P, Nowak J, Pesta K, Szeląg M, Szklanny D, Judasz E, Kaczmarek G, Ejiohuo OP, Paczkowska-Walendowska M, Gościński A, Cielecka-Piontek J. Ashwagandha (*Withaniasomnifera*)-Current Research on the Health-Promoting Activities: A Narrative Review. *Pharmaceutics*. 2023 Mar 24;15(4):1057. doi: 10.3390/pharmaceutics15041057. PMID: 37111543; PMCID: PMC10147008.
5. Mavale, D. A., & Dasar, D. D. (2023). Conceptual Study of TrividhChikitsa Karma in Shalya Tantra— A Review: LifeScience-Surgery. *International Journal of Life Science and Pharma Research*, 13(6), L300-L310. <https://doi.org/10.22376/ijlpr.2023.13.6.L300-L310>
6. Chouhan, Poona & Rajpurohit, Hemant & Gehlot, Amit & Gupta, Jay & Kumar, Praveen. (2024). A Holistic Recovery Protocol For Post-Surgical Care: Integrating Nutrition, Yoga, And Mental Health Strategies. *African Journal of Biomedical Research*. 27. 6590-6595. 10.53555/AJBR.v27i3S.5623.
7. Chouhan, Poona & Rajpurohit, Hemant & Jayprakash, Dr. (2023). IMPORTANCE OF AYURVEDA AND YOGA IN PREVENTION OF LIFESTYLE DISEASES. 11. e867-e871.
8. Chouhan, Poona. (2023). Chaturavidh Nigrah Hetav in the Cancer Management: A Brief Review. *International Journal of Green and Herbal Chemistry*. 12. 209-222. 10.24214/IJGHC/HC/12/3/20922.
9. Rais A, Bhatt S. Clinical study to evaluate the effect of Virechanakarma on serum electrolytes. *Ayu*. 2013 Oct;34(4):379-82. doi: 10.4103/0974-8520.127719. PMID: 24696575; PMCID: PMC3968700.
10. Capasso, Francesco, et al. *Phytotherapy*. Berlin, Heidelberg, Springer Berlin Heidelberg, 2003. Accessed 23 June 2025.
11. Della Porta M, Maier JA, Cazzola R. Effects of *Withaniasomnifera* on Cortisol Levels in Stressed Human Subjects: A Systematic Review. *Nutrients*. 2023 Dec 5;15(24):5015. doi: 10.3390/nu15245015. PMID: 38140274; PMCID: PMC10745833.
12. Sharma V, Sharma R, Gautam DS, Kuca K, Nepovimova E, Martins N. Role of Vacha
July 10th 2026 Volume 25, Issue 1 Page 105

REVIEW ARTICLE

- (*Acorus calamus* Linn.) in Neurological and Integr Med,
Metabolic Disorders: Evidence from <https://doi.org/10.1016/j.jaim.2022.100677>
Ethnopharmacology, Phytochemistry,
Pharmacology and Clinical Study. J Clin Med.
2020 Apr 19;9(4):1176. doi:
10.3390/jcm9041176. PMID: 32325895;
PMCID: PMC7230970.
13. Soni P, Siddiqui AA, Dwivedi J, Soni V.
Pharmacological properties of *Datura*
stramonium L. as a potential medicinal tree: an
overview. Asian Pac J Trop Biomed. 2012
Dec;2(12):1002-8. doi: 10.1016/S2221-
1691(13)60014-3. PMID: 23593583; PMCID:
PMC3621465.
14. Philip, A.B., Brohan, J. &Goudra, B. The
Role of GABA Receptors in Anesthesia and
Sedation: An Updated Review. *CNS Drugs* **39**,
39–54 (2025). [https://doi.org/10.1007/s40263-
024-01128-6](https://doi.org/10.1007/s40263-024-01128-6)
15. Khan AZ, Pillai GG. From 200 BC to 2015
AD: an integration of robotic surgery and
Ayurveda/Yoga. J Thorac Dis. 2016 Feb;8(Suppl
1):S84-92. doi: 10.3978/j.issn.2072-
1439.2016.01.74. PMID: 26941975; PMCID:
PMC4756240.
16. Boost to Global Reporting of Clinical Data
and Evidence-Based Research in Ayush with
WHO 2025 Update to ICD-11.” *Pib.gov.in*, 2025,
[www.pib.gov.in/PressReleasePage.aspx?PRID=2
104767](http://www.pib.gov.in/PressReleasePage.aspx?PRID=2104767). Accessed 23 June 2025.
17. J.T. Arnold, Integrating ayurvedic medicine
into cancer research programs part 2: Ayurvedic
herbs and researchopportunities, J Ayurveda