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AYURVEDA AND ANAESTHESIA – A PATH TO DISCOVER MORE

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ABSTRACT:

This article explores the historical evolution of anaesthesia and pain management techniques within ancient Indian surgical practices, drawing insights from classical texts such as the Sushruta Samhita. It investigates the concept of Sangyaharana (anaesthesia) and its tripartite framework—Poorva, Pradhan, and Paschat Karma—detailing early surgical protocols and patient care practices. The use of natural substances for anaesthesia, such as Guru Bhojana and Madya, showcases the empirical knowledge and ingenuity of ancient Indian physicians. The manuscript critiques contemporary guidelines advocating the cessation of herbal medications preoperatively and advocates for evidence-based research to inform safer perioperative practices. It emphasizes the integration of traditional Ayurvedic principles with modern medicine to enhance patient safety and outcomes.

KEYWORDS: Ayurveda, Principles, Surgery, Anaesthesia, Patient safety, Pain

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INTRODUCTION:

“A potent poison becomes the best drug on proper administration. On the contrary, even the best drug becomes a potent poison if used badly” (Charakacharya, Charak Samhita). The concept of anaesthesia, defined as the "reversible loss of sensation," has been integral to surgical practice since antiquity. Ancient Indian surgeons recognized the critical importance of anaesthesia in creating a pain-free operative environment. In early multicultural societies like India, traditional healing practices, including spells and mantras, often supplanted conventional medical treatments. The principal healer, known as Bhisag Atharvan, held a prominent social status akin to that of a priest, overshadowing the role of medical experts. This reflects a period where the lines between spirituality and medicine were often blurred, and healers wielded significant influence in both spheres. Historically, the first recorded Aryan settlements in Punjab were frequently attacked by indigenous tribes. During these conflicts, Aryan doctors provided medical care to leaders and soldiers, performing surgeries such as limb amputations and prosthetic replacements, as described in the Rigveda. These early accounts illustrate the origins and evolution of Ayurvedic surgery. The Rigveda's descriptions indicate advanced surgical techniques for the time, including the use of iron prosthetics, which highlight the ingenuity and practical skills of these early surgeons in managing battlefield injuries (Shastri, 2012). This article explores the historical development of anaesthesia (Sangyahaarana) and pain management techniques used by ancient Indian surgeons, particularly those documented by Sushruta. Sushruta's compendium describes the concept of Sangyahaarana in a tripartite framework, consisting of Poorva, Pradhan, and Paschat Karma, representing the

preparatory, operative, and post-operative phases of surgical management (Agnivesh Charak S, 2000). These phases are not only crucial for the success of surgical procedures but also demonstrate an early understanding of the need for comprehensive patient care throughout the surgical journey. Poorva Karma emphasizes the preparation of both patient and surgical environment, including patient assessment, disease examination, medical history, and equipment readiness. This stage involves rigorous preparation, akin to modern pre-surgical protocols, ensuring that both the patient and the operating environment are optimally prepared. Sushruta outlined 60 wound care techniques aimed at maintaining the balance of the three doshas during surgical interventions, ensuring both local and systemic treatment of wounds (Shastri, 2012). These techniques reflect an intricate understanding of the body's healing processes and the importance of maintaining balance within the body for optimal recovery. Sushruta's methods reflect a sophisticated understanding of pre-surgical preparation, akin to modern pre-anaesthetic protocols. Notably, he employed substances such as Guru Bhojana and Madya for their anaesthetic properties. Guru Bhojana, a pre-anaesthetic measure, induced rapid sedation, while Madya served as the anaesthetic agent. This innovative use of naturally occurring substances for inducing anaesthesia underscores the empirical knowledge and resourcefulness of ancient Indian physicians in the absence of modern pharmaceutical aids (Chang et al., 2002; Batra & Rajeev, 2007). The International Association for the Study of Pain defines pain as "an unpleasant sensory and emotional experience arising from actual or potential tissue damage" (Wikipedia Contributors, 2019). Ayurveda has long been the dominant medical practice in Indian society, addressing these concepts through traditional means.

Ancient texts describe various herbal formulations and procedures designed to alleviate pain and facilitate healing, indicating a deep-seated cultural commitment to managing pain and suffering (Mishra et al., 1998; Sharma, 1997). In modern times, advances in allopathic medicine have expanded therapeutic options, yet many patients continue to use Ayurvedic and herbal medicines, often without disclosing their use to healthcare providers. This presents challenges in clinical settings, particularly regarding potential interactions with anaesthetic agents. Herbal medicines can interact with conventional drugs, leading to complications such as altered drug metabolism, increased bleeding risk, or unexpected side effects during anaesthesia (Chang et al., 2002; Batra & Rajeev, 2007). This article aims to raise awareness about these interactions and the importance of preoperative management in patients using herbal medicines. Furthermore, it highlights the need for medical education to include training in complementary medicines to better prepare future physicians. By understanding the principles of traditional medicine and its potential interactions with modern treatments, healthcare providers can offer more holistic and safer care to their patients (Prasad et al., 1977; Dixi et al., 1980).

Ayurveda and Anaesthesia

Herbal medicines, classified as nutritional supplements, do not adhere to the same regulations and standards as the pharmaceutical industry. The use of herbal medications in the perioperative setting was extensively covered in the July 2001 issue of JAMA (Chang et al., 2002). The American Society of Anaesthesiologists (ASA) has noted the potential for adverse reactions from herbal medications, advising patients to "stop taking all herbal medications two weeks before surgery" (Batra & Rajeev, 2007). Additionally, the ASA has issued a notice

titled "What You Should Know About Herbal and Dietary Supplement Use and Anaesthesia" for the benefit of patients (American Society of Anaesthesiologists, 2011). Implementing these recommendations can be challenging as most preoperative exams are conducted only a few days before surgery. Despite the ASA's cautious approach, some Ayurvedic preparations have demonstrated beneficial effects on patient outcomes when used during the perioperative period (Pande & Vacha, 2009). Therefore, there is a need for more focused and scientific research to make evidence-based recommendations. Currently, there are few randomized, double-blind controlled trials to support or refute the potential risks of herbal medications. Negative effects can result from overdose, contamination, or incorrect use of medicinal herbs. A review article summarizes commonly used Ayurvedic medications such as Amla, curcumin, garlic, giloe, ginger, ginseng, guggul, and tulsi, highlighting their properties and modes of action with beneficial effects on contemporary sciences (Prof Sharma, 2005). This challenges the ASA's general recommendation to cease all herbal medications two weeks before surgery. Many Ayurvedic remedies are generally considered safe, with some, like guggul, amla, and giloe, known for their cardioprotective properties. For instance, if statins, which have shown efficacy in reducing risk factors for myocardial ischemia, are allowed perioperatively, it raises the question of why Amla should be stopped under similar circumstances. Furthermore, herbs such as giloe, tulsi, and turmeric have been shown to improve wound healing, with giloe being particularly beneficial for patients with cirrhosis and obstructive jaundice (Prof Sharma, 2005). Given these clinical findings, the ASA recommendations warrant reconsideration. Several indigenous herbal

medicines, such as Brahmi, Sankhpushpi, Mandukparni, and Jatamansi, have undergone clinical trials on human patients as pre-anesthetic treatments (Pande & Vacha, 2009). Vacha (*Acorus calamus*), used in clinical trials as an Ayurvedic premedicant, has shown efficacy in treating nervous and mental diseases by regulating raised body temperature and providing effective sedation without causing respiratory depression or cardiovascular system (CVS) issues (Pande & Vacha, 2009). Preoperative anxiety is a challenging aspect of patient preoperative care. Anxiety is common after elective surgery and is generally recognized as normal. Addressing preoperative anxiety is the anesthesiologist's responsibility. While many medications have been used to treat this condition, they often have negative side effects. Some Ayurvedic medications described in traditional literature may meet the current demand for premedication without these adverse effects. For example, Tagara (*Valeriana jatamansi* Jones) root, used as a premedication in dissociative anaesthesia, has been labeled as an analgesic, sedative, anticonvulsant, anti-anxiety agent, and central nervous system stimulant (Sharma et al., 2019). Clinical evidence suggests that Tagara significantly lowers heart and respiration rates without altering blood pressure, with no unfavourable side effects observed (Sharma et al., 2019). Therefore, Tagara is a proven effective and safe premedication agent that can be used before surgery, particularly for patients experiencing anxiety and apprehension.

Concept of Pain in Ayurveda:

In Ayurvedic literature, various terms such as Ruk, Ruja, Vedana, and Shool are frequently employed to describe the sensation of pain. Among these, Shool stands out as particularly apt, defined metaphorically as the feeling akin to having a nail driven into one's body.

This term, detailed extensively in classical texts like the Sushrut Samhita, specifically denotes a severe and penetrating type of pain, often associated with colic conditions (Susruta G., 2005). Similarly, the Charak Samhita Angmardprashaman lists Shoolprashaman and Vednasthapak Mahakashaya as essential medications for alleviating bodily discomfort, underscoring their significance in the Ayurvedic approach to managing pain (Charaka K shaarir, 2007). According to Ayurvedic principles, pain is primarily attributed to the aggravation of the Vata dosha, characterized by qualities such as dryness, lightness, and mobility (Sushruta A adhyay, 2005). When Vata dosha becomes imbalanced, it manifests in various painful ailments, including neurological and musculoskeletal disorders (Charaka, Vatvyadhichikitsaadhyay, 2007). Conditions like Dhatukshya janya Vata prakop (imbalance due to tissue depletion) and Margavarodh janya Vata prakop (obstructive pathologies) exemplify this vitiation, highlighting Vata's pivotal role in the pathophysiology of pain. The Ayurvedic classification of pain delves into the nuances of Shools, categorizing them into multiple types based on the location of visceral organs and the predominant doshic involvement. For instance, the Sushrut Samhita identifies 13 groups of Shools, providing a structured approach to diagnosing and treating different types of colic pain (Susruta G., 2005). Additionally, Madhavnidan lists 16 types of Shools categorized according to Doshas, while Yogratnakar and Kashyap Samhita add further classifications, illustrating the comprehensive nature of Ayurvedic pain taxonomy (Mahamatishrimadhavkar S., 2012). Ayurveda offers diverse treatment modalities for pain management, tailored to address specific types of pain and underlying doshic imbalances. Techniques such as Jalaukaavcharan (leech therapy), Lepa

(medicated paste), Snehan (oleation), Vedhankarma (needle puncturing), Agnikarma (heat burn therapy), Bastikarma (enema), and Swedan (fomentation) are utilized based on their therapeutic effects on the doshas involved and the severity of pain (Dwivedi AP, 2017). For instance, Snehan, with its lubricating properties, is particularly effective in mitigating Vata-related pain. The Charak Samhita emphasizes specific Ayurvedic formulations like Angamarda Mahakashaya and Shoolprashamiya Mahakashaya for treating body aches and colic pain, respectively (Charaka, Shadvirechanshatashritiya adhyay, 2007). These formulations leverage the properties of herbs with Kashaya Rasa (astringent taste), Sheeta Virya (cooling potency), or Ushan (hot properties), tailored to the nature of the pain and the patient's constitution. Additional treatments for conditions like Udarshool (abdominal colic) include specific herbal preparations such as Ajmodadichurna and Shankhvati, each selected for their therapeutic actions and doshic alignment (Samhita S., 1972). In the context of modern pain management, Ayurvedic texts provide insights into anesthesia-like states termed Madatyaya, described in stages similar to those of contemporary anesthesia (Medhi C, Das B., 2017). Historical practices like Guru Bhojana (heavy meal) and Madyapan (alcohol consumption) were used to induce these states, reflecting early attempts at pain relief akin to modern anesthetic techniques.

Some important herbs:

Recent studies have explored indigenous treatments like Shigru (*Moringa oleifera* Lam) seed, highlighting its potential as an analgesic and anti-inflammatory agent comparable to conventional medications (Medhi C, Das B., 2017). Such research underscores Ayurveda's ongoing relevance in offering effective, natural alternatives for managing pain with minimal side effects.

Ginger, known as Adraka or Sunthi in Ayurveda (*Zingiber officinale*), has been identified to potentially elevate blood sugar levels (hyperglycemia). Moreover, it acts as a thromboxane synthase inhibitor, which can prolong bleeding time (Chang et al., 2002). Safety assessments of ginger in individuals taking anticoagulants and nonsteroidal anti-inflammatory drugs (NSAIDs) indicate caution, particularly concerning regional anesthesia for those who regularly consume ginger (Chang et al., 2002). Garlic, on the other hand, has synergistic effects with NSAIDs, aspirin, warfarin, heparin, and other antiplatelet medications, thereby intensifying their effects. It is advised to discontinue garlic consumption at least 7 days before surgery due to its antiplatelet properties, although its dietary use is generally considered safe (Scharbert et al., 2007). Indian Ginseng, also known as *Withania somnifera* or Ashwagandha, interacts with oral anticoagulants, antiplatelet agents, corticosteroids, and hypoglycemic agents. Consumption of ginseng may increase the risk of perioperative bleeding and poses concerns for neuroaxial blockade. To mitigate risks, it is recommended to avoid ginseng for at least 7 days prior to surgery, especially for patients on NSAIDs, aspirin, warfarin, other antiplatelet drugs, or oral hypoglycemic agents (Chang et al., 2002). Turmeric (*Curcumin longa* or Haldi) has a rich historical use as an antiseptic, antibacterial, anti-inflammatory, pain reliever, hepatoprotective agent, cosmetic cream ingredient, and weight-reducing herb. Curcumin, its active component, acts as a potent free radical scavenger and inhibits cytochrome P450, potentially reducing the metabolism of drugs such as alfentanil, midazolam, lignocaine, calcium channel blockers, warfarin, and theophylline (Chang et al., 2002). Giloe (*Tinospora cordifolia* or

Guduchi) possesses anti-inflammatory, analgesic, antipyretic, antiallergic, and diuretic properties, supported by numerous safety studies indicating its general safety profile (Panchabhai et al., 2008).

DISCUSSION:

The meticulous descriptions of surgical techniques in the Sushruta Samhita, including wound care and patient preparation, reveal a sophisticated understanding of surgical procedures that parallel modern standards of care. The tripartite framework of Sangyahaarana underscores a comprehensive approach to anaesthesia management, encompassing pre-operative preparation, intra-operative procedures, and post-operative care. A critical analysis of ancient Indian anaesthetic agents challenges contemporary recommendations to discontinue herbal medications before surgery. Many Ayurvedic remedies, such as Tagara (*Valeriana jatamansi*) and Vacha (*Acorus calamus*), have shown efficacy in reducing anxiety, inducing sedation, and managing pain without the side effects associated with conventional medications. This highlights the need for revised perioperative guidelines that incorporate traditional knowledge while adhering to evidence-based practices to optimize patient care. Furthermore, the article explores Ayurvedic perspectives on pain management, elucidating classifications based on doshic imbalances and detailing therapeutic modalities such as Jalaukaavcharan (leech therapy) and Agnikarma (heat therapy). These therapies illustrate a nuanced understanding of pain physiology and treatment that aligns with contemporary personalized medicine approaches.

CONCLUSION:

This article examines the Ayurvedic principles of anaesthesia and pain management, drawing from historical texts and

contemporary research to provide a comprehensive overview of the evolution and application of anaesthetic practices in ancient India. The insights gained from these ancient practices can inform and enhance modern medical practices, fostering a more integrated approach to patient care. Each of these herbs—ginger, garlic, Indian Ginseng, turmeric, and Giloe—exhibits specific interactions with medications and potential effects that should be carefully considered, particularly in the perioperative period, to ensure patient safety and optimize treatment outcomes.

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