

## THE EFFICACY OF JALUKACHARANA IN RAKTAMOKSHANA: A SHALYATANTRA PERSPECTIVE AN ANALYSIS OF SUSHRUTHA'S SURGICAL WISDOM IN BLOOD PURIFICATION - A REVIEW

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### ABSTRACT

In the classical Ayurvedic surgical compendium, Sushruta Samhita, Rakta (blood) is recognized as a fundamental vital force, the vitiation of which leads to various inflammatory and metabolic disorders. Raktamokshana (bloodletting) is the specialized therapeutic intervention for such conditions. Among its diverse modalities, Jalukacharana (Leech Therapy) is distinguished as the most refined, non-invasive, and "Sukumara" (gentle) method, specifically indicated for Pitta-dominant blood disorders. This article explores the systemic role of Jalukacharana within the framework of Shalyatantra (Ayurvedic Surgery). It aims to analyze the classification of leeches, the procedural precision of application (Poorva, Pradhana, and Paschat Karma), and the physiological impact of leech saliva on disease pathology.

**KEYWORDS:** Sushruta, Jalukacharana, Leech, Shalyatantra, Application.

### I. INTRODUCTION

The Concept of Raktamokshana Acharya Sushruta, the "Father of Surgery," identified Rakta (blood) as the fourth Dosha in clinical practice due to its pivotal role in maintaining life.

When Rakta is vitiated by the Doshas—particularly Pitta—it leads to a variety of inflammatory, skin, and vascular disorders. Raktamokshana is the supreme treatment for blood purification. Among its various types (such as Siravyadha or Prachhana), Jalukacharana (Leech Therapy) is classified as Anushastra (para-surgery). It is specifically indicated for: Sukumar (delicate individuals like children, the elderly, or the fearful). Pitta-dominant blood vitiation (due to the cooling nature of the leech).<sup>[1]</sup>

## II. The Biology of the "Physician Leech"

Sushruta's clinical observation of leeches was remarkably advanced. In the Sushruta Samhita, he categorizes leeches into two primary groups:

Savisha Jaluka (Poisonous): Leeches that originate from putrefied water or toxic vegetation. Application of these leads to swelling, itching, and fainting.

Nirvisha Jaluka (Non-poisonous): Leeches that live in clean, fragrant waters. These are the "Surgical Leeches" (e.g., *Hirudo medicinalis*).

"The leech is like a mother to the patient; it sucks the vitiated blood without causing much pain, providing relief like a cool breeze in autumn." — Adapted from Shalyatantra principles.<sup>[2]</sup>

## III. Indications: Various Diseases and Clinical Utility

Sushruta emphasized that Jalukacharana is not a "catch-all" but a targeted therapy. Its primary role in Shalyatantra involves the management of:

### 1. Vidradhi (Abscesses)

In the early stages of an abscess, when there is intense pain, redness, and heat (Paka stage), leeches are applied to prevent suppuration. By removing the stagnant blood, the pressure is reduced, and the inflammatory markers are drained.

### 2. Kushta (Skin Disorders)

For localized skin lesions characterized by burning sensations or discoloration (Eczema, Psoriasis, or Dermatitis), leeches act as a biological filter. They extract the Dushita Rakta (vitiating blood), allowing fresh, nutrient-rich blood to circulate to the area.<sup>[3]</sup>

### 3. Granthi and Arbuda (Cysts and Tumors)

In cases of benign growths or inflammatory swellings, Jalukacharana helps in reducing the size of the mass by relieving venous congestion.

#### 4. Netra Roga (Eye Diseases)

Sushruta specifically mentions the use of leeches in inflammatory conditions of the eye (like Abhishyanda or conjunctivitis) and periorbital swelling, where more invasive surgical tools would be too risky.

#### IV. The Procedure: Pradhana Karma (The Main Act)

The procedure is divided into three distinct phases:

Phase Action

\*Poorva Karma - Purification of the leech with turmeric water and preparing the patient's skin by rubbing it to increase local circulation.

\*Pradhana Karma - Application of the leech. A drop of milk or a small prick is used to encourage the leech to bite. The characteristic "horse-shoe" shaped bite indicates attachment.

\*Paschat Karma - Removal of the leech using turmeric powder. The most critical part is the "emesis" of the leech to ensure its health for future use.

#### V. The Bio-Surgical Mechanism: Ancient Wisdom vs. Modern Science

Sushruta's observation that leeches only suck "vitiating blood" (Dushita Rakta) while leaving "pure blood" (Shuddha Rakta) can be understood through the lens of modern hemorheology. When a leech attaches to an inflamed area, it targets the site of venous congestion.

In Shalyatantra, this is explained as the removal of Avarana (obstruction) in the Srotas (channels). Modern science identifies that the leech's saliva contains a complex "cocktail" of bioactive substances:

Hirudin: A potent anticoagulant that inhibits thrombin, preventing blood from clotting while the leech feeds.

Calin: Acts as a secondary anticoagulant and inhibits platelet aggregation.

Bdellins & Hirustasin: These act as anti-inflammatory agents, reducing the heat (Paka) and redness (Raga) Sushruta described.

Hyaluronidase: Known as the "spreading factor," it increases the permeability of the tissue, allowing the leech's medicinal saliva to penetrate deeper into the affected Dhatu (tissue).<sup>[4]</sup>

Vasodilators: These ensure a steady flow of blood to the site, which in Ayurvedic terms, helps in "melting" the stagnant Kapha and Pitta localized in the area.

## VI. Clinical Application in Dushta Vrana (Non-Healing Ulcers)

One of the most profound uses of Jalukacharana in Shalyatantra is the management of Dushta Vrana (chronic, infected ulcers). Sushruta classified these ulcers based on their smell, color, and discharge.

### 1. Management of Venous Congestion

In ulcers caused by venous insufficiency (often related to Siraja Granthi or Varicose Veins), the blood is stagnant and deoxygenated. By applying leeches to the periphery of the ulcer. The negative pressure created by suction removes the "old" blood.

The anticoagulants ensure that the micro-circulation remains open for hours after the leech is removed (Post-bite bleeding). Fresh, oxygenated blood (Sarakta) can finally reach the wound bed, promoting Ropana (healing).

### 2. Pain Management (Vedanasthapana)

The saliva of the leech contains anesthetic-like substances. Sushruta noted that patients often feel immediate relief from the "throbbing pain" (Toda) characteristic of inflammatory blood disorders.<sup>[5]</sup>

## VII. Management of the Leech (Jaluka Palana)

A significant portion of the Sushruta Samhita is dedicated to the care of the "surgical instrument" itself—the leech. This ensures the therapy remains safe and effective.

### The Emesis Procedure (Vamana Karma)

Once the leech has finished feeding and falls off (or is removed with turmeric/salt), it must undergo Vamana. If the ingested blood remains inside the leech, it becomes "intoxicated" (Indramada) and may die or become unfit for reuse. The practitioner gently strokes the leech from tail to head. The leech vomits the ingested blood into a bowl of water. Sign of Success: If the leech swims vigorously in the water, it is healthy. If it sinks or moves sluggishly, it is considered "over-milked" or sick.<sup>[6]</sup>

### Storage and Re-use

Leeches should be kept in wide-mouthed earthen pots filled with clean pond water. Sushruta recommends changing the water every three days and adding algae (Shaivala) for nutrition. A leech used once should ideally not be used again for seven days to allow its internal enzymes to replenish.

**VIII. Contraindications:** When Not to Use Jaluka

Despite its gentleness, Sushruta provides a strict list of contraindications (Avarjya) to prevent complications.

Sarvanga Shotha: Generalized anasarca or full-body swelling.

Pandu: Severe anemia, where the loss of even a small amount of blood is detrimental.

Garbhini: Pregnancy.

Kshaya: Emaciation or wasting diseases.

Haemophilia/Bleeding Disorders: While not called by modern names, Sushruta warned against using them in patients with "uncontrollable blood."<sup>[7]</sup>

**IX. CONCLUSION**

The Eternal Relevance of Shalyatantra Jalukacharana stands as a testament to the surgical precision of the ancient world. While modern medicine once dismissed bloodletting as "archaic," the re-emergence of Hirudotherapy in modern plastic surgery (for flap salvage and replantation) proves that Sushruta's principles were thousands of years ahead of their time. By balancing the Doshas through the targeted removal of Rakta, the Shalyatantra practitioner achieves a result that is both minimally invasive and profoundly curative.

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