

Review Article

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UNDERSTANDING JAULAUKAVACHARANA: A CONCEPTUAL AND THERAPEUTIC STUDY IN THE LIGHT OF AYURVEDA

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ABSTRACT

Jaulaukavacharana (leech therapy) is one of the prominent *Anushastra Karmas* mentioned in Ayurveda. It is primarily indicated for *Raktaja* disorders, where vitiated blood plays a significant role in disease pathogenesis. This therapy is valued for its minimally invasive nature, natural bloodletting process, and broad therapeutic applications, making it relevant in both classical and modern clinical contexts. To study *Jaulaukavacharana* conceptually and therapeutically in the light of Ayurveda. To review classical references. To describe procedure and technique. To analyze pharmacological actions. To outline indications and contraindications. To assess therapeutic relevance in modern practice. This conceptual study draws upon classical Ayurvedic texts such as *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya*, alongside modern research articles. The methodology includes literary review, analysis of indications, procedural details, pharmacological properties of leech saliva, and clinical applications. Classical references highlight *Jaulaukavacharana* as a safe and

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effective *Raktamokshana* technique. Modern research corroborates its therapeutic value, demonstrating anticoagulant, anti-inflammatory, analgesic, and antimicrobial properties of bioactive compounds in leech saliva. The therapy has shown promising outcomes in conditions such as *Vatarakta*, *Twak Vikara*, non-healing ulcers, and venous disorders. *Jaulaukavacharana* remains a vital therapeutic modality bridging Ayurveda and modern biomedical sciences. Its conceptual foundation in Ayurveda and proven modern clinical relevance make it a safe, natural, and effective therapeutic option in specific *Raktaja* and inflammatory disorders.

Keywords: *Jaulaukavacharana*, *Raktamokshana*, *Anushastra Karma*, *Raktaja Vikara*, *Ayurveda Therapy*, Leech Therapy

Introduction

Jaulaukavacharana (leech therapy) is a classical therapeutic procedure described under *Anushastra Karma* in Ayurveda, specifically within the domain of *Raktamokshana* (bloodletting). Acharya *Sushruta* emphasized the role of *Rakta* as the fourth vital pillar of the body (*Rakta Dhātu*), highlighting its importance in maintaining health and its vitiation in numerous diseases. Since direct surgical methods of bloodletting are not always suitable, Ayurveda advocates the use of living instruments such as leeches, which provide a gentle, controlled, and natural method of removing vitiated blood.¹

References to leech therapy are found in *Sushruta Samhita* (Sutra Sthana, Chapter 13), where leeches are described as *Jeevanta Upakara* (living tools) for therapeutic use. They are categorized as *Savishaja* (toxic) and *Nirvishaja* (non-toxic), of which the latter are recommended for clinical practice. This therapy has been practiced since ancient times in India, Egypt, and Greece, with Ayurveda presenting a detailed, systematic framework for its indications, contraindications, and method of application. The continuity of its usage through centuries reflects its proven efficacy and clinical significance.²

Ayurveda explains *Jaulaukavacharana* through the concept of removing *Dushta Rakta* (vitiated blood), thereby alleviating *Dosha Dushti* and restoring equilibrium. Modern science supports this by demonstrating that leech saliva contains bioactive compounds such as hirudin, calin, and eglin, which possess anticoagulant, thrombolytic, analgesic, and anti-inflammatory properties. Thus, the ancient understanding of blood purification aligns with contemporary biomedical explanations of improved circulation, pain relief, and tissue healing.³

Traditionally, *Jaulaukavacharana* has been indicated in *Raktaja Vikara*, *Vatarakta*, *Twak Vikara*, inflammatory swellings, ulcers, and venous congestion. Present-day studies highlight its application in chronic venous diseases, varicose veins, skin disorders, osteoarthritis, reconstructive surgery, and even in microsurgical procedures for maintaining graft and flap viability. This wide spectrum of use signifies the timelessness of this therapy in both preventive and curative aspects of health care.⁴

Despite the advent of modern medicine, leech therapy continues to be recognized and practiced globally, now under the banner of hirudotherapy. However, in Ayurveda, *Jaulaukavacharana* is not just a physical intervention but a holistic procedure grounded in the concepts of *Dosha*, *Dhatu*, and *Srotas*. Understanding its conceptual foundation alongside therapeutic outcomes is essential to integrate traditional wisdom with modern scientific insights. Therefore, this study attempts to revisit *Jaulaukavacharana* from a conceptual and therapeutic perspective, analyzing its relevance in the light of Ayurveda as well as contemporary biomedical science.⁵

Aim and Objectives

Aim:

To study *Jaulaukavacharana* conceptually and therapeutically in the light of Ayurveda.

Objectives:

1. To review classical references.
2. To describe procedure and technique.
3. To analyze pharmacological actions.
4. To outline indications and contraindications.
5. To assess therapeutic relevance in modern practice.

MATERIALS AND METHODS:

This conceptual study was carried out through an extensive literary review of classical Ayurvedic texts including *Charaka Samhita*, *Sushruta Samhita*, *Ashtanga Hridaya*, and other authoritative commentaries, along with modern research articles, scientific journals, and online databases. The material collected was systematically analyzed to understand the origin, classification, procedure, and indications of *Jaulaukavacharana*. Comparative insights were drawn between Ayurvedic principles of *Raktamokshana* and biomedical findings

related to leech saliva constituents, such as hirudin and calin. The methodology included documentation of therapeutic applications, contraindications, and clinical relevance, aiming to establish a bridge between classical concepts and modern evidence-based understanding.

JAULAUKAVACHARANA

Historical Review

Jaulaukavacharana (leech therapy) is one of the oldest forms of *Raktamokshana* described in Ayurveda. Acharya *Sushruta*, the father of surgery, mentions it in *Sushruta Samhita Sutrasthana 13/4*, where leeches are described as *Jeevanta Upakara* (living instruments). He classified leeches into two groups: *Savishaja* (toxic, not fit for therapy) and *Nirvishaja* (non-toxic, suitable for clinical use). The recommended leeches were collected from clean, fresh water sources.⁶

Globally, leech therapy has been practiced in ancient Egyptian, Greek, and Unani medicine, where it was used for bloodletting and treating inflammatory diseases. In medieval Europe, it was called “Hirudotherapy” and used extensively for balancing humors. This long-standing use across civilizations highlights its universal acceptance as a therapeutic tool.⁷

According to Ayurveda, *Rakta* is considered the seat of life (*Jeeva*), and its vitiation leads to various disorders. *Jaulaukavacharana* is primarily indicated in *Raktaja Vikara*, *Vatarakta*, *Twak Vikara*, and inflammatory swellings. Leeches naturally suck vitiated blood without causing excessive tissue trauma, making them ideal for delicate patients (*Sukumar*). The therapy is based on the principle of *Dosha Dushti Prashamana* by removing *Dushta Rakta* from the affected site. Classical texts emphasize its importance in conditions where sharp surgical instruments may not be safe.⁸

PROCEDURE OF JAULAUKAVACHARANA

a) Pre-operative Measures

- **Selection of patient:** Only patients indicated for *Raktamokshana* are chosen, excluding those with anemia, debility, or bleeding disorders.
- **Selection of leeches:** Non-toxic leeches from clean water bodies are selected. They should be active, slimy, and of moderate size.
- **Preparation of leech:** Before use, the leech is kept in clean water and sometimes washed with turmeric water to remove impurities and activate its appetite.

- **Preparation of patient:** The affected site is cleaned with lukewarm water and rubbed lightly to stimulate blood flow.

b) Operative Measures

- **Application of leech:** The leech is applied at the desired site. If it does not bite, a small prick or application of milk/blood may be used to encourage attachment.
- **Process of sucking:** Once attached, the leech sucks blood until it is satiated. The patient may feel mild itching or pulling sensation during the process.
- **Monitoring:** The leech is observed closely to prevent excessive blood loss.

c) Post-operative Measures

- **Removal of leech:** Once satiated, the leech detaches on its own. If not, a pinch of turmeric powder or rock salt is applied to induce detachment.
- **Care of leech:** After the procedure, the leech is made to vomit the ingested blood by applying turmeric powder to its mouth, ensuring it is ready for reuse.
- **Patient care:** The bite site is dressed with antiseptic herbs (*Haridra, Neem*) to prevent infection. The patient is advised rest and follow-up as per the condition.

Modern research validates the Ayurvedic concept. Leech saliva contains bioactive compounds like hirudin (anticoagulant), calin (platelet aggregation inhibitor), and eglin (anti-inflammatory), which enhance blood circulation, relieve pain, and promote healing. This aligns with Ayurveda's description of *Dushta Rakta Shodhana* and *Shotha Prashamana* (anti-inflammatory effect).

MECHANISM OF ACTION

Ayurvedic Perspective

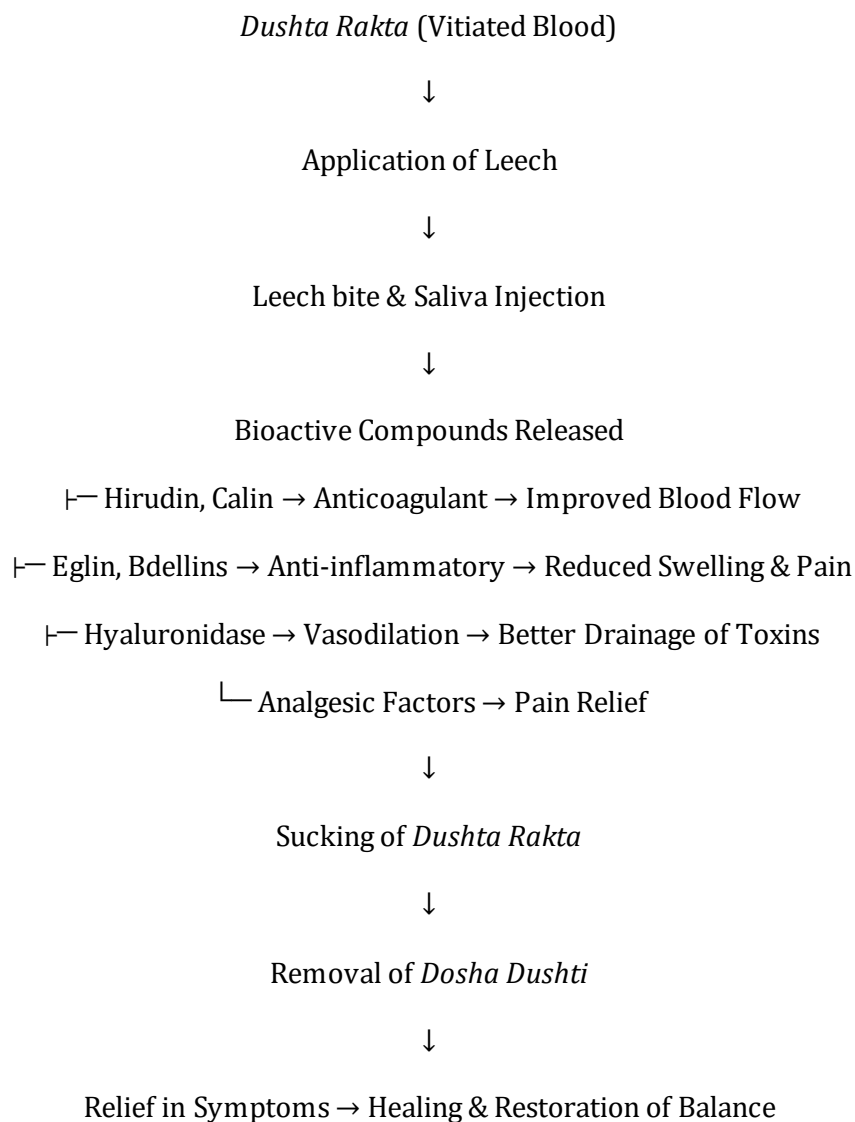
Dushta Rakta (vitiated blood) → Attachment of Leech (*Jauluka*) → Sucking of *Dushta Rakta* → Removal of *Dosha Dushti* (mainly *Pitta* and *Kapha*) → Relief in *Shotha* (swelling), *Daha* (burning), *Kandu* (itching), and *Vedana* (pain) → Restoration of *Dosha Samya* → Healing

Modern Perspective

Leech bite → Injection of saliva containing bioactive molecules (Hirudin, Calin, Eglin, Bdelins, Hyaluronidase) →

- **Anticoagulant effect (Hirudin, Calin):** prevents clotting and improves local circulation
- **Anti-inflammatory effect (Eglin, Bdegalins):** reduces swelling and pain
- **Analgesic effect:** relieves discomfort at the site
- **Vasodilatory & enzymatic action (Hyaluronidase):** increases tissue permeability and drainage of toxins → Controlled bloodletting → Reduced venous congestion & improved microcirculation → Symptom relief & tissue healing

Flow Chart



THERAPEUTIC INDICATIONS

- *Vatarakta* (gout, arthritis-like disorders)

- *Visarpa* (erysipelas, spreading skin lesions)
- *Twak Vikara* (eczema, psoriasis, leprosy)
- *Vidradhi* (abscess, inflammatory swellings)
- *Shotha* (localized or generalized edema)
- *Netra Roga* (eye disorders with congestion)
- *Dushta Vrana* (chronic/non-healing ulcers)

DISCUSSION

Jaulaukavacharana has been described in Ayurveda as a gentle and effective method of *Raktamokshana*. Acharya *Sushruta* highlighted its utility in *Sukumar* patients where sharp surgical tools cannot be used safely. The therapy is primarily indicated in *Raktaja Vikara*, *Vatarakta*, *Twak Vikara*, and *Shotha*. By removing *Dushta Rakta*, it restores *Dosha Samya* and relieves symptoms like pain, burning, itching, and swelling. This shows how deeply the therapy is rooted in Ayurvedic pathophysiology of *Rakta Dushti*.⁹

The procedural sequence—pre-operative, operative, and post-operative—reflects Ayurveda's emphasis on systematic practice. From selection of healthy, non-toxic leeches to careful monitoring of their application, every step ensures safety and efficacy. The post-operative care, including wound dressing with antiseptic herbs and proper leech detoxification, highlights Ayurveda's preventive approach. This structured method makes *Jaulaukavacharana* more than a simple bloodletting; it is a controlled therapeutic intervention.¹⁰

Modern science validates the classical wisdom by demonstrating that leech saliva contains biologically active compounds such as hirudin, calin, eglin, and hyaluronidase. These act as anticoagulants, anti-inflammatories, analgesics, and antimicrobials, explaining the symptomatic relief and healing observed after leech therapy. Clinical studies have shown significant improvement in conditions like varicose veins, osteoarthritis, and chronic ulcers, where conventional treatments often provide only temporary relief. This correlation between Ayurvedic concepts and biomedical findings strengthens its scientific acceptance.¹¹

The therapeutic success of *Jaulaukavacharana* lies in its integrative potential. Ayurveda views it as a *Shodhana* therapy that removes vitiated *Rakta* and pacifies *Doshas*, while modern research confirms its physiological benefits through microcirculation improvement,

pain reduction, and enhanced tissue healing. Together, they establish *Jaulaukavacharana* as a timeless therapy that continues to be relevant in both traditional and modern healthcare. Its acceptance as hirudotherapy in global medicine shows the enduring value of this Ayurvedic procedure.¹²

CONCLUSION

Jaulaukavacharana is a classical Ayurvedic *Raktamokshana* procedure described for safe and effective removal of *Dushta Rakta*, particularly in delicate patients. It holds therapeutic value in conditions like *Vatarakta*, *Twak Vikara*, *Shotha*, and *Dushta Vrana*. Modern research supports its efficacy through the bioactive compounds in leech saliva, which provide anticoagulant, anti-inflammatory, analgesic, and antimicrobial actions. Thus, this therapy successfully bridges Ayurvedic principles with modern biomedical science, making it a simple, natural, and effective treatment option for a wide range of disorders involving blood vitiation and inflammation.

CONFLICT OF INTEREST –NIL

SOURCE OF SUPPORT – NONE

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