

JALAUKAVACHARANA (LEECH THERAPY) ITS INDICATIONS AND COMPLICATIONS - A BRIEF REVIEW

Dighade Shubhangi¹, Naringe Seema², Sangita Jain (Gupta)³

¹Professor in Kayachikitsa, Dr. Rajendra Gode Ayurved College and Hospital, Amravati 444602, Maharashtra, India

²Professor in Swasthvrutta and Yoga, Shri Ayurved Mahavidyalaya, Nagpur440035 Maharashtra, India

³Professor in Kayachikitsa, Jupitar Ayurved Medical College, Shankarpur, Nagpur 441108, Maharashtra, India

Corresponding Author: naringeseema@gmail.com

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ABSTRACT

Jalaukavacharana is the ancient technique used for *Raktmokshana*, here *Jalauka* means leeches and *avacharana* means application. *Jalauka* is one of the tools for *Raktmokshana*, among *Shring*, *Alabu* and *Prachhana* where *Jalauka*, *Shring*, *Alabu* are used for *Pitta*, *Vata*, *Kahpa Doshaj Vyadhi* respectively. *Jalaukavacharana* (leech therapy) is a non-surgical type of *Raktamokshana* and considered as the most unique and effective method of bloodletting. A lot of research work has been carried out in *Ayurveda* and Modern medicine to prove efficacy of leech therapy in various disorders. Leeches are widely used in most of the disorders ranging from skin disease to Ischemic heart disease with evidence of successful results. In the present paper effort has been made to review various scientific studies which have been conducted in *Ayurveda* as well as Modern medicine and study the indications of *Jalaukavacharana* in various disorders as per *Ayurveda* and Modern medicine. This paper also studies the possible complications of *Jalaukavacharana*.

Keywords: *Jaloukavacharana*, *Raktmokshana*, Leech therapy, Bloodletting, *Hirudo* therapy.

INTRODUCTION

As per Ayurveda, *Jalaukavacharan* is one of the procedures of *Raktmokshana*. *Raktmokshana* is the ancient bio surgical procedure described by *Sushruta*, father of Indian surgery.

Ancient history suggests that lord *Dhanwatari* evolved in this world after *Samudra manthan* with *Jalauka* along with a pitcher filled with nectar in its hand. This shows the importance of *Jalauka* in Indian system of medicine. Since *Jala* is their life or they are habituated to the water they are called *Jalauka*. *Raktmokshana* is indicated in treatment of *Rakatajroga*. Individuals with aggravated imbalance between *Rakta* and *Pitta dosha* and high level of toxicity are recommended for *Raktmokshana* therapy. Leech Therapy has been practiced by Ayurvedic Physicians since ancient times. At the end of the 19th century use of leeches began to be less prevalent due to discontinuity in flow of knowledge. At the end of the 19th century, leech therapy again emerged, due to its role as constructive surgery. Leech therapy is widely used in plastic and reconstructive microsurgery as the protective tool against venous congestion. *Raktamokshana* is also used as regimental therapy for purification of vitiated body humors and should be done in autumn season. *Raktmokshana* is of two types one is *Shastra Vistravan*: use of sharp instruments for *Raktmokshana*, this includes: *Pracchana*: letting the blood pass through several incision and second is *Siravedha* also known as Venipuncture, this include *Jalaukavacharan*, *Alabu* and *Shrunga*.

Out of these procedures *Jalaukavacharana* is the safest as no sharp instrument is used in this therefore this can be safely used in delicate people. *Jalauka* is commonly habituated in *Jala*, so it is cold in nature and commonly used in *Raktaj* and *Pittaj roga*. There are a total twelve types of *Jalauka* described in Ayurvedic text. ⁽¹⁾ These twelve types are categorized into two main types based on their therapeutic use. *Jalauka* which are fit for therapeutic purposes are called *Nirvish Jalauka*, these were further subclassified into six types each. The *Nirvish Jalauka* are *Pingla*, *Shankhamukhi*, *Mushika*, *Pundarikamukhi* and *Savarika*.

Jalauka which are not fit for therapeutic purposes are called *Savish Jalauka*. These were further subclassified into six types each. The *Savish Jalauka* are *Krishna*, *Karbura*, *Algarda*, *Indrayudha*, *Samudrika* and *Gochandana*. Only *Nirvish Jalauka* are fit for the therapeutic purpose. The proper identification of *Nirvish Jalauka* is very essential to avoid the use of *Savish Jalauka*. *Nirvish Jalauka* are identified on the basis of their breeding grounds, their characteristic appearance and behavior, which are described in Ayurveda text.

Aim and Objectives: This study is carried out to study, *Jaloukavacharana* its indications in various disorders and its complications.

Materials and Methods:

All the literature related to *Jaloukavacharana* is collected from classical texts of Ayurveda Various research publications and books. After thorough study of research carried out in the field of *Jaloukavacharana*, the subject matter related to it was compiled and critically analysed in this study.

Discussion: Here we discussed the indications of *Jaloukavacharana* as per Ayurveda as well as modern system of medicine as follows-

Indication of Jalaukavacharana in Ayurveda

The specific indications of *Jaloukavacharana* which are mentioned in Ayurvedic text are *Vidradhi* (Abscess), *Gulma* (Abdominal Swelling), *Arsha* (Piles), *Kushta* (Skin Disease), *Vatarakta* (Gout), *Koshduk-Shirsha* (Infective Arthritis), *Sandhigat Roga* (Osteo-Arthritis), *Kanharoga* (goiter), *Netra Roga* (Eye Disease) *Granthi* (Nodular Swelling), *Arbuda* (Cancer), *Shlipada* (Filaria), *Vidarika* (Cracks), *Vishadamsha* (Insect Bite), *Visharpa* (*Erysipelas*), *Shiroroga* (disease of scalp), *Dantaveshta* (pyorrhea), etc. ⁽²⁾ As *Jalauka* is indicated in diseases caused by vitiated and *Rakta Pittadosha*, it can be used in *Rakta-pradoshaj vikars* which are described in *sutrasthana* of *Charak Samhita*. These *Rakta pradoshaj vikaras* (disease caused by blood disorder) are *Mukhpaka* (Stomatitis), *Akshiroga* (redness in eyes), *Puti-nasa*, *Asyagandhata*, *Gulma* (Abdominal Swelling), *Upkusha* (Bleeding Gums), *Visarpa*, *Raktapitta*

(Hemorrhagic Disorder), *Vatashonita* (Gout), *Vaivarnya* (Discoloration of skin), *Agnisada* (loss of appetite), *Pipasa* (excessive thirst), *Gurugatrata* (heaviness in body), *Tikta Amla Udgara* (Belching with bitter and acidic taste), *Buddhi Sammoha* (Confusion), *Kampa* (Tremors), *Tandra* (Drowsiness), *Nidra Adhikya* (Excessive Sleepiness), *Tamas Atidarshana* (Frequent Blackout), *Kandu* (Itching) and *Twaka Vikara* (Skin disorders).⁽³⁾

Ayurvedic research work that has been conducted by various research scholars in the field of *Jalaukavacharan* and its resultant observation are enlisted as follows

1. **Vicharchika:** study has been carried out on 34 patients of *Vicharchika* where *Raktmokshana* was done by *Jalouka* shows significant result without any adverse effects and recurrence.⁽⁴⁾
2. **Khalitya:** A case study of a 28 years old woman of *Khalitya* shows significant results after *Jaloukavacharana* with oral medication for regular 2 months.⁽⁵⁾
3. **Thrombosed Piles:** A patient having thrombosed external piles where *Jaloukavacharana* shows significant relief in symptoms like burning in anus, itching.⁽⁶⁾
4. **Indralupta:** A case study on a patient of *Indralupta* with local *Jaloukavacharana* and application of *Gunja Beeja lepa* shows significant results.⁽⁷⁾
5. **Diabetic Foot Ulcer:** A case study of patients with Diabetic foot ulcer was advised weekly application of leech around the ulcer along with Diabetic medicine. The ulcer healed completely within 30 days.⁽⁸⁾
6. **Sandhivata:** A pilot study where 32 patients of *Sandhivata* were selected and *Jalauka* was applied once in a week for 6 weeks, show significant decrease in symptoms like pain, stiffness and tenderness.⁽⁹⁾
7. **Vatarakta:** A pilot study was carried out on 10 patients of *Vatarakta*, Leech application is done once a week for 3 times, shows significant results.⁽¹⁰⁾
8. **Siraj Granthi:** *Jalauka* is applied to the areas surrounding the varicose ulcer in 20 patients of Varicose veins with complication. After leech therapy ulcer showed healing, decrease in edema, decrease in limb girth and decrease in hyper pigmentation. This study also reveals that the medicinal leech sucks venous blood and aids ulcer healing.⁽¹¹⁾
9. **Shlipada:** A study was carried out on 13 patients of *Shlipada* with the help of leech application. *Jalauka* was applied according to the involvement of the part of the body once in a week for 6 weeks. It was found that the results are symptomatically positive and significant without any side effect.⁽¹²⁾
10. **Keloids:** In a case study a 15 years old girl having Keloid on chest was treated with *Jaloukavacharana* with significant results.⁽¹³⁾
11. **Visarpa:** A study was carried out on 40 patients suffering from *Visarpa* (Herpes Zoster). Patients were treated with *Jalauka* every alternate day for 2 weeks, showing significant improvement in the condition of the patient.⁽¹⁴⁾

Leech Therapy in Modern Medicine:

In modern medicine *Jalaukavacharan* is known as Hirudo Therapy or medicinal leech therapy (MLT). There about 650 leech species, the most frequently used leech is *Hirudo-medicinalis* which is collected from freshwater bodies. Therapeutic effect of leech is due to presence of different bioactive constituents in leech saliva. Some major constituents are Hirudin, Hyluronidase, Calin, Destabilase, Apyrase, Eglines, Bdelins, Decorsin, Hirustatin, Lipase, Esterases and Catecholamine like Acetylcholine, Serotonin, Dopamine etc. These bioactive compounds have analgesic anti-inflammatory, Platelet inhibitory, Vasodilator, Thrombolytic, Anesthetic and anti-microbial effects.^(15,16)

Indication^(17,18): Indication of Leech therapy in **Modern** medicine can be categorized as follows:

1. **Anti-inflammatory action:** The contents present in leech saliva blocks steps involving pain by contracting cytokines with anti-inflammatory agents in it. It also suppresses mast cell mediated

inflammatory reactions. Leech therapy is effective in conditions like osteoarthritis, abscess, cellulitis, Arthritis, systemic lupus erythematosus, tendonitis, fibromyalgia.

2. **Anti-metastatic action:** Many researchers delineated the effective usage of leech saliva as an anti -metastatic agent and used in a wide range of malignant tumor cells such as pulmonary carcinoma, osteo-carcinoma, breast carcinoma, leukemia, etc. It also helps in relief of cancer pain.
3. **Anti- hyperglycemic Action:** A study which is conducted to evaluate the Anti-hyper glyceemic activity of leech saliva conclude that Salivary Gland of leeches has anti- hyperglycemic effect against type-I like diabetes mellitus.
4. **Anticoagulatory Effect:** Leech saliva contains Hirudin which act as Thrombin inhibitory and found useful in Ischemic disease such as Ischemic heart disease, unstable angina, deep vein Thrombosis, postoperative Thrombosis, Peripheral circulation disorders, etc.
5. **Leech therapy in Dentistry:** Leech therapy is found very useful in Dentistry. Diseases such as Periodontal abscesses, Macroglossia, Oro dental Fistula, Periodontitis, Gingivitis etc.
6. **Leech therapy in Eye and ENT disorders:** Leech therapy proved effective in Eye and ENT disorders like Cataract, Glaucoma, Traumatic injuries of eye, Parotitis, Otitis etc.
7. **Leech therapy in Reconstructive Surgeries:** The primary indication for use of leeches in the field of plastic and Reconstructive Surgeries is to prevent Venous congestion of Flaps used for soft tissue coverage of defects. Leeches have been used in constructive surgeries like ear, nose, lip and digit replantation, surgeries of maxillofacial region, breast flap (Mammoplasty) etc.

Complication of *Jalaukavacharan* ^(19,20)

Here complications of *Jalauka*, after studying various research work some complication which were observed during Leech Therapy are listed below

- **Prolonged Bleeding time:** the most common complication of leech therapy is Prolonged Bleeding time. Leech saliva contains

Acetylcholine, Histamine like Vasodilators that prolong bleeding time. In most of the cases bleeding stops after some time, but few patients may experience prolonged bleeding for more than two hours. In such cases, local application of *Haridra Churna* is found useful also topical Thrombin and pressure can be applied for the treatment.

- **Bacterial Infection:** The most serious complication is infection at the site of bite. The leech's digestive tract contains the gram-negative bacillus, bacillus, *Aeromonas Hydrophilia*, which breaks down the ingested blood. Infection can arise two to seven days after Leech therapy and may present as an abscess or cellulitis, with progression to sepsis possible, this gram-negative bacterium may cause infection.
- **Allergic Reaction:** Many patients may experience allergic reactions such as Erythema, Edema, Swelling with central black Eschar on biting point and sometimes Ulcerative Necrosis. These allergic reactions are the result of toxins found in Leech Saliva.
- **Hypotension and Vasovagal attack:** Some patients may experience sudden drop in blood pressure, fainting or severe complications like Vasovagal attack. This can be avoided by proper history taking. If a patient **has a** history of such types of attack before or followed by any other invasive treatment methods, leech therapy should not be administered.
- **Fever:** Fever may be present due to bacterial infection or infected wound.
- **Local Pain:** Many patients experienced mild dragging pain just after the leech bite which subsided after a few minutes, due to the anesthetic effect of leech saliva. A rhythmic pulling sensation is usually noticed after the start of feeding.
- **Itching:** Mild itching may be present at the site of bite or a few days.

DISCUSSION

The numerous studies conducted in the field of Ayurveda and Modern medicines emphasizing the beneficial effect of *Jalauka* in different disease conditions. Leech therapy is found effective in various dermatological disorders like Eczema, Psoriasis, Alopecia Areata, Acne Vulgaris, Cellulitis, Herpes Zoster, Boils, Abscesses for pigment reduction in nevus Ota, Keloids, allergic skin diseases, etc. The other disease in which Leech therapy is found effective are Rheumatoid Arthritis, *Vatarakta*, *Shlipada*, Thrombosed Piles, Diabetic ulcer, Arthritis, Varicose vein, lipo-dermatosclerosis, Sciatic nerve compression, etc. The possible complications which are observed during various studies can be avoided or minimized by strictly following the exclusion criteria like Hemorrhagic Diathesis, patient on anticoagulant therapy leukemia, bone marrow suppression Cirrhosis and Cachexia, etc. The contraindications which are described in Ayurvedic text must be taken into consideration to avoid the possible complications which arise due to accidental use of *SavishJalauka* and can be avoided by proper identification of *Jalauka*. For medicinal purposes leeches breed in certified bio farms should be used. Reuse of leeches should be strictly avoided to prevent transmission of bloodborne infectious disease like HIV and Hepatitis. To avoid the secondary bacterial infection, proper purification of leech and part to be leech is must. The patients taking medicines like warfarin, Vitamin E, NSAID, Aspirin, Heparin should also be avoided. It is necessary to observe some biochemical parameters to avoid complications. These parameters are CBC, ESR, LFT, Blood Urea, S. creatinine, B.T, C.T, P.T, Blood sugar level, HIV, HCV and HbsAg etc.

CONCLUSION

After reviewing various aspects of *Jalaukavacharana* and medicinal leech therapy it can be concluded that leech therapy has immense potential to treat a wide range of challenging medical and surgical disease conditions. The various bioactive elements have been identified from leech saliva. There is a need to study the various aspects of these elements at its molecular

level and specific therapeutic action. This will help to understand the exact mechanism of action in different disease conditions. The wider studies with more precise evidence will help to clearly understand the indication and contraindication of this therapy. The large-scale clinical studies will help to re-establish our ancient therapeutic method on scientific grounds.

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