

JALAUKAVACHARANA: A PARA-SURGICAL MEASURE IN VARTMAGATA ROGA*Ranjana Negi, ¹Gunjan Sharma, ²Renu Rao and ³Priyanka Rani

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ABSTRACT

Jalaukavacharana is one of the oldest and widely used Para surgical procedures in ancient Indian medicine for the treatment of *Pitta* and *Rakta pradhan* diseases (blood borne diseases). It is described as one of the methods of *Raktamokshana* (bloodletting) by great pioneer of Ayurveda, *Acharya Sushruta* and it can be easily done for bloodletting in children, delicate people, females, and in those who are afraid of surgery. According to *Ayurveda*, *Jalauka* is used to expel out the vitiated blood safely, quickly and effectively. From modern perspective, the saliva of leech contains about a hundred biological active substances that help to cure the disease. *Vartmagata Rogas* (Lid disorders) occurs mainly due to involvement of *Rakta* and *Mamsa* and *Tridosha* which are responsible for inflammatory conditions in eyes. Many *Acharyas* have indicated *Jalaukavacharana* for the treatment of inflammatory eye diseases. In the present article efforts are made to elaborate the significance of *Jalaukavacharana* in *Vartmagata Roga* in a very candid way and review of various salivary gland secretions in terms of its pharmacological action for future perspective of its role in treating eye diseases.

KEYWORDS: *Jalaukavacharana*, *Ayurveda*, *Vartmagata*, *Raktamokshana*.**INTRODUCTION**

Shalakya tantra is one of the eight branches of *Ashtang Ayurveda* which mainly elucidate *Urdhwajatrugata Rogas* and *Acharya Sushruta* has elaborated these *Roga* in detail in *Uttaratantra* of *Sushruta Samhita* and *NetraRoga* has given prime importance as the disease in *Uttaratantra* are starting from *Netra*. On the basis of *ashreya* 21 *Vartmagata Rogas* are described by *Acharya Sushruta*^[1] and 24 *Roga* are given by *Acharya Vagbhata*.^[2] *Acharya Sushruta* while describing the pathogenesis of *Vartmagata Roga* considers the involvement of *mamsa* and *rakta* as *pradhan dushya* along with *tridosha* which affects the *Vartmagatasira* and causes the *Roga*.^[3] There are different treatment modalities given for *VartmagataRoga* in *Ayurvedic* classics including medicinal, surgical and parasurgical procedures. Among the para-surgical measures, *Raktamokshana*^[4] is a technical term employed to denote a procedure to expel out the vitiated blood from selected areas of the body, by specific methods and *Jalaukavacharana*^[5] is one of them. The very first reference of *Jalaukavacharana* is found in *Vedic* period as a method of *Raktamokshana* in *Koushik Sutra* of *Atharveda*.^[6] *Acharya Sushruta* has devoted an entire chapter for the description of *Jalaukas*^[7] and considered

it as an *Anushastra* and best method in *Pittaj* or *Raktapitta* disorders. *Jalauka* is *Sheeta* (glacial) and *Madhura*^[8] (soothing) by property and its saliva contains anticoagulant, anti-inflammatory, anti-microbial and analgesics properties and as there is main *Dusti* of *Rakta* in *Vartmagata Roga* it can be easily advocated. Also it is described as^[9] *Paramsaukumar* method of Blood-Letting and hence can be applied easily in all patients.

Indications of leech application: Only *Acharya Vagbhata* in *Sutasthana* chapter 26 has specifically mentioned diseases where leech is used as treatment and they are: – *Gulma*, *Arsha*, *Vidradhi*, *Kushtha*, *Vatarakta*, *GalaRoga*, *NetraRoga*, *Visha*, *Dvashta* and *Visarpa*.

In reference to the treatment of *NetraRoga* (eye diseases) different *Ayurvedic* literature has mentioned the use of *Jalauka* at various places. These are:

- As *Samanya Chikitsa* of *Netraroga* given in *Chakraduti*^[10], *Yogaratanakar* and *Bhesajyaratnawali*.
- As a treatment modality for *Netrapaka* by *Chakradutta*, *Yogaratanakar*^[11] and *Bhesajyaratnawali*.^[12]
- For the treatment of *Anjananamika* given by *Chakradutta*^[13] and *Yogaratanakar*

- For the treatment of *Pothaki* as mentioned by *Acharya Vagbhata*.^[14]
- In the treatment of *Kukkunaka* by *Acharya Vagbhata*.^[15]

MATERIALS AND METHODS

Various texts including *Ayurvedic* literature, Sanskrit literature, modern literatures and various articles from internet related to the subject were studied and all the related points were considered.

Etymology

In *Sushruta Samhita (Su.Su. 13/9) Jaluaka* (Leech) is defined as:

S.NO.	SAVISHA JALAUKA	NIRVISHAJALAUKA
1	<i>Krishna</i>	<i>Kapila</i>
2	<i>Karbura</i>	<i>Pingala</i>
3	<i>Alargada</i>	<i>Shankumukhi</i>
4	<i>Indrayudha</i>	<i>Mushika</i>
5	<i>Samudrika</i>	<i>Pudarikmukhi</i>
6	<i>Gochandana</i>	<i>Savarika</i>

General characters of *Savisha Jalauka*^[16]

The *Savisha Jalauka* originates in the decomposed urine and faecal matter of toads and poisonous fishes in ponds of stagnant and turbid water.

Their features are: Thick, Slow locomotion, Fatigues, Middle part elongated, Delay in sucking, Not commendable type and sucks little quantity of blood.

Characteristics of *Savish Jalauka* bite include Burning, Itching, Swelling, Drowsiness, Fever, Delirium, Unconsciousness, Irresistible inclination to scratch the seat of bite.

General characters of *Nirvisha Jalauka*^[17]

Nirvisha Jalauka originates in decomposed vegetable matter, as the purified stems of the several aquatic plants known as Padma, Utpala, Nalina, Kumuda, Pundarika and common zoophytes, which live in clear water.

Their features are: Strong and large bodied, ready suckers and Greedy.

Scientific classification of leech^[18]

Kingdom:Animalia

Phylum: Annelida

Class: Clitellata

Order: Hirudinida

Family: Hirudinidae

Genus: Hirudo

Species: medicinalis

Geographical distribution:

According to *Sushruta*, the leeches are found in Yavana, Pandya, Sahya, Pautana^[19] etc.

Habitat: Such leeches swim about in sweet scented water, live on, non-poisonous weeds, and lie on the leaves of flowering water plants in spite of on the dark and oozy

An organism whose *Ayu* (age) depends on *Jal* (water) or whose *Oaka* (habitat) is water.

Shabdakalpadruma has considered *Jalauka* in feminine gender and defined it as an aquatic creature employed to expel out the vitiated blood.

It is of Twelve types and are divided into *Savisha* (Poisonous) and *Nirvisha* (Non-Poisonous), with six each.

beds of pools and suck blood from the affected part of a human being without causing any discomfort.

Collection and Preservation of leech: *Acharya Sushruta* has told that the leeches can be caught with a piece of wet leather, in tanks streams and where there are lotuses.^[20]

Time of collection: *Acharya Dalhana* has told that the best time for collecting leeches is Sharad Ritu.

Preservation of leeches: After collecting the leeches they should be kept in a wide and new pot. The pure water of tank with lotus is put into the pot. Feed it with Shaivala, the meat of pig and other animals, which are living in watery and marshy areas, and powder of stem of small plants; in order to make the leech to move and the grass and leaves of plants must be kept inside water in the pot. On every third day the water should be changed and feeding should be dropped inside the pot. After seven days the pot should be changed.

Procedure of Jalaukavacharana

Site of Jalaukavacharana: In *Netraroga*, *Acharyas* have clearly explained *Raktamokshana (Jaloukas)* are generally applied at *Apangasandhi* (outer canthus), *Upanasika siras* (inner canthus), *Lalatapradesha* (frontal region)^[21]. The ophthalmic artery & vein supply various parts of eyeball & orbit so on application of leech in these areas, the biological active substances of saliva easily reached to different parts of eyes and performed their anti-inflammatory action.

The treatment procedure of *Jalaukavacharana* is very well explained in *Ayurvedic* texts and on the basis of that this procedure can be divided as *Purva*, *Pradhan* and *Paschat Karma*.

Purvakarma^[22]: The first step is to examine the patient for *Jalaukavacharana*, making him/her lie down in supine position. Before the application of leech, it should be kept in the *Haridra* and mustard mixed water for a *muhurata* and apply to the patient when it becomes active. Then the site of application is cleaned with sterile gauze and that place is done wet with clean water.

Pradhana Karma: *Acharya Sushruta* has indicated to grab the leech with wet gauze^[23] or in today's practice, can be grabbed after wearing the rubber gloves. In case of non-attachment; *kshirbindu* or *raktabinduis* applied or the part is pricked with a needle or another leech should be taken as per *Sushruta Samhita*. The leeches should be held at its neck and should be applied directly to the affected part. The leech when starts sucking the blood, elevates its neck assuming the shape of a horse shoe. Once leeches start sucking the blood, they should be covered with wet gauze and cold water should be poured on them from above time to time, so as to make the leeches comfortable during sucking. It sucks only impure blood first. If the patient notices pain at the time of sucking the blood by the leech, it should be noted that the leech is sucking pure blood. It should be removed instantaneously by pouring *Saindhava lavana* or *Haridra Churna*^[24] on its mouth.

Pashchat Karma: After falling off, the leeches should be made to vomit as described in classic texts. This is carried out by applying turmeric powder at their mouths or dusted over with rice powder and their mouths should be lubricated with oil and salt.^[25] Then they should be caught by the tail end with the thumb and the forefinger of the left hand and their backs should be gently rubbed with the same fingers of the right hand from tail upward to the mouth with a view to make them eject the full quantity of blood. If the leech is active when placed in water, it indicates that the vomiting is proper. If there is no complete ejection they would be lying dull and it gives rise to an incurable disease particularly known as

Indramada^[26] or *Raktamada*^[27]. The used leeches are kept in separate jars/pots labelled with the details of the patient (name, OPD/IPD number, date of application etc.). The leech should be applied once in a week and one leech should be reserved for a particular patient to avoid cross infection. As soon as the leech is removed from the body, treatment for the wound is given according to *yoga* or *ayog* basis as mentioned in *Ayurvedic* texts^[28] i.e. in case of *Samyak raktsrutu* use of *Shatadhauta Ghrita* as *Abhyanga* (massage) or *pichu* dipped in *Shatadhauta Ghrita* is to be applied on wound. In *Hinayoga* (scanty bleeding) *madhu* should be rubbed whereas in *Atiyoga* (copious bleeding) *Parishechan* (fomentation) is to be done with cold water. If there is *Mithayoga* (insufficient) then wound should be covered with paste of *Kashya* (astringent), *Madhura* (soothing), *Snigdha* (smooth) and *shita* (cold) *Pradeha*.

DISCUSSION

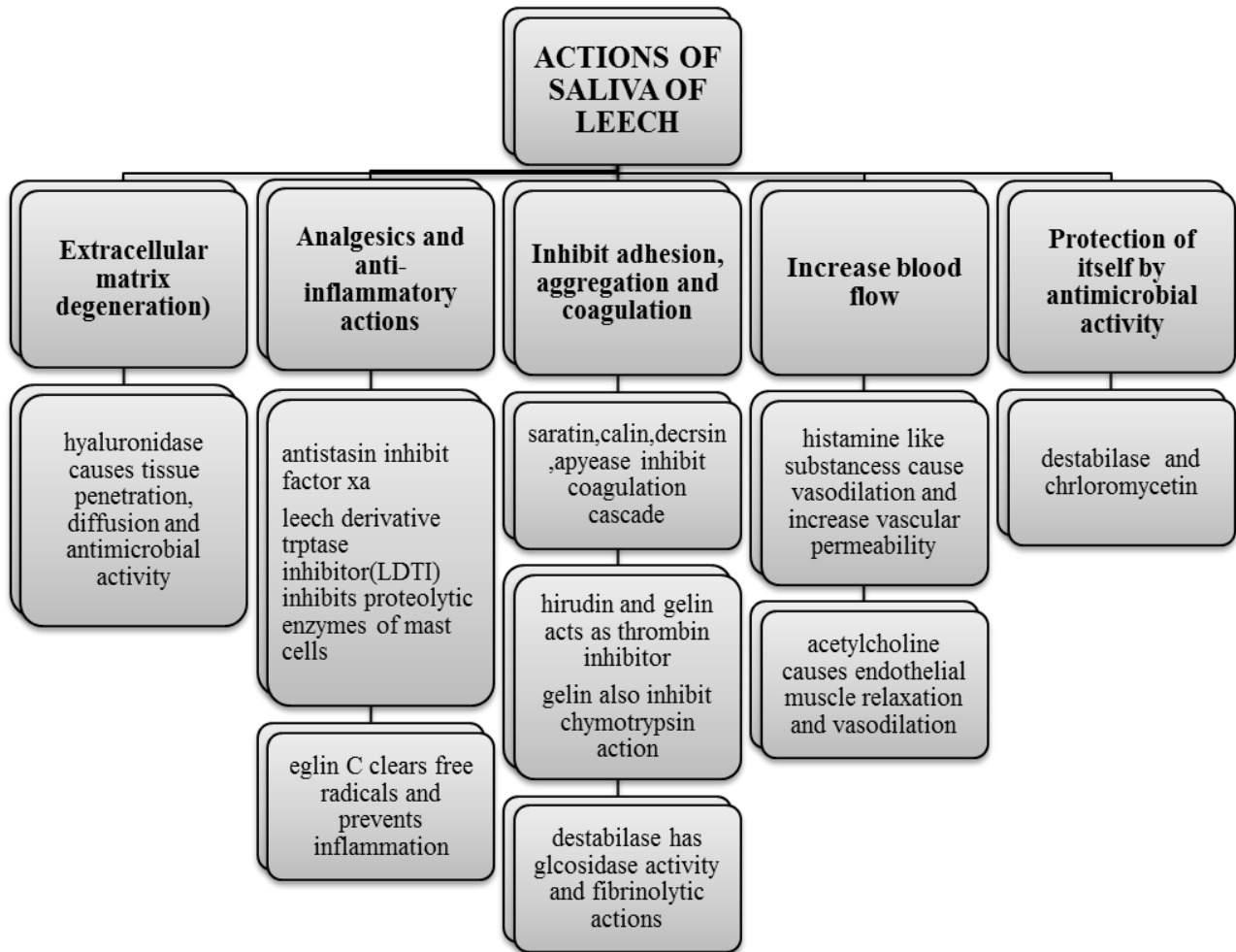
Acharya Vagbhata has first given the reference of *Jalaukavacharna* in *Netra Roga* and later other pioneers of *Ayurveda* describe *Jalauka* in *Netra Roga* according to the *ashraya* (location). In context to *Netra Roga* the description of *Jalauka* in treatment of *Anjananamika* (Stye) and in *Netrapaka* (infection) is given. *Acharya Vagbhata* has advised *Jalaukavacharna* in *Kukkunak Chikitsa* (Ophthalmia neonatorum) for children which signify its *Paramsukumar* property. These references of *Jalauka* indicate its benefits in the *Vartmagata Roga*. Many research have been done to find the mechanism of *Jalauka* (leech) with which it performs the bloodletting and provides better results with very less complication in comparison to present modalities available. Medicinal leeches have been found to secrete saliva containing different proteins.^[29] The saliva of *H. medicinalis* contains more than 100 bioactive substances, including coagulation inhibitors, platelet aggregation inhibitors, vasodilators, and anaesthetizing, antimicrobial and anti-inflammatory agents^[30] and some of them are as follows:

COMPONENT	PROPERTIES
Hirudin, Calin, Destabilase, Hirustasin	Anti-coagulant, hence increase blood circulation locally and alleviate inflammation and revitalize cells at local site
Bacteriostatic and Anaesthetic substance	Inhibit growth of bacteria, anaesthetic substances which reduce pain on site
Bdellins, Eglins	Anti-inflammatory
Hyaluronidase	Increases permeability and circulation of blood at local site
Histamin	Vasodilatation
Tryptase inhibitor	Inhibit proteolytic enzyme of mast cells

Probable mode of action of leech therapy

The mechanism of action of leech therapy can be understood as following^[31]:

- Establishment of sucking pathway (extracellular matrix degeneration)
- Analgesics and anti-inflammatory actions
- Inhibit adhesion, aggregation and coagulation
- Protection of itself by antimicrobial activity
- Increase blood flow.



CONCLUSION

Jalaukavacharana (leech application) is helpful to remove impure blood from affected site of *Netra* and also inject biologically active substances into it. In *Ayurveda*, diseases are occurred by vitiation of *Dosha*. The vitiated *dosha* can get accumulated in *Netra sira* which causes bio changes and may lead to the Eye disorders. In *Vartmagata Roga* main *dushya* are *rakta* and *mansa* and for *raktadusti Jalaukavacharana* is considered best. *Vartma* are outer mandala of eyes and the most superficial layer and in modern ophthalmology it can be correlated with eyelid area which is rich in blood supply. Hence it can provide easy *access* to remove *dushit* (infected) blood from the site. All the properties of leech saliva helps in removing toxins, reduce inflammation, providing antimicrobial contents and healing of the tissue. It is therefore considered as *Paramsukumar* method of bloodletting in *Ayurveda*.

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