

## HIRUDOTHERAPY (JALAUKAVACHARAN) IN NETRAROGA ACCORDING TO SUSHRUTHA: A REVIEW

Dr. Chandrashekhar Mule<sup>1</sup> Dr. Amit Chandankhede<sup>2</sup> Dr. Kavita Chandrashekhar Mule<sup>3</sup>

<sup>1</sup>PG Guide & Ph.D Guide, Head PG Department, Of Shalaky Tantra

<sup>2</sup>PG Scholar MS Ayu Shalaky Netra

<sup>3</sup>Associate Professor, PG Guide.

Yashwant Ayurved College PGT&RC Kodoli, Kolhapur, Maharashtra, India

### ABSTRACT

Hirudotherapy (LeechTherapy) is well known treatment using non toxic Leeches. *Rakthamokshana* is the procedures of *panchkarma* which help to eliminate vitiated *dosha* that accumulate in the body *Jalaukavachrana* (Hirudotherapy) is type of *Rauthamokshana* which is practiced globally in India since ancient times. *Acharya Sushruta* has described *Jaluaka* (Leech) under the heading of *Anushastras* (Para surgical procedure). Leech (*Jaluaka*) is very beneficial in vitiated *Rakta Dosha* (Blood Related) Disorders, It expels vitiated *Rakta Dosha* (vitiating blood) completely from selected part of the body. *Jalaukavachurana* takes a predominant place in the list of *shodhana Chikitsa* (Purification procedure) right from the beginning of medical history. *Sushrutasamhita*, the oldest available manual on surgery has devoted an entire chapter for the description of *Jalaukas* and a chapter on *Jalaukavacharaniya* for the purpose of bloodletting. Leeches suck impure blood (*Dushit Rakta*) from Disease site and they release pain killing (anesthetic) and blood thinning (anti coagulant) substances with their Saliva. It is much safer and less complicated Natural process, therefore indicated even for king, Rich, old, fearful, weak, women& the people of tender nature as it is a supreme therapy. There is need of understanding the applicability and scientific region to leech apply is essential so effort has been made to understand the leech application in various Eye disorder.

**Keywords:** leech, *Jalauka*, *Jalaukavacharan* (Hirudotherapy), *Rakta Drishti*,

### INTRODUCTION

#### Definition

*Shabdakalpadruma* Has considered *jaluaka* in Feminine gender& defined it as an aquatic creature employed to expel out the vitiated blood.<sup>1</sup>

#### Etymology of Jalauka

The term *Jalauka* can be split into *Jala* + *oka* i.e. water dwelling animals. The word leech is derived from laece which means physician leech are given the name *jaluaka* because of their site of dwelling and the source of their nutrition is *jala*<sup>(2)</sup>

Hirudotherapy is known since ancient times it is a treatment using medical leeches which is known from the time of extreme antiquity and is still alive now-a-days. Leeches belongs to the class of Hirudinea, inhabitant of aquatic environment<sup>(3)</sup>. These can be found in fresh water lakes, river, or ponds, which size range from 5 mm to nearly 25 cm<sup>(4)</sup>. Secret of salivary glands of medical leech contains more than 100 bioactive substances and has anti-edematous, bacterio-static, analgesic, resolving actions, It eliminates microcirculation dis-

orders restore damaged vascular permeability of tissues and organs, eliminates hypoxia. (Oxygen starvation) reduced Blood pressure, increase immune system activity, and detoxifies the organism. It is interesting to know that leeches suck 2-20 ml. of blood on an average within 10-30 min, then fall down spontaneously after being completely engorged. Leech therapy has been used for therapeutic purpose since the ancient time. Leech therapy has been successfully used in human patients to treat thromboembolic disease, in plastic surgery & other reconstructive surgeries. Leech therapy should not be used in patients who are immune compromised, hemophilia, relative pregnancy, anemia & hypotonia, udara (ascitis), shosha (swelling), generalized anasarca (sarwanga shopha)

#### **Aim and objectives:**

- To reveal the role of Hirudotherapy in *Netraroga* since antiquity according to *susruta*.
- To do analytical study of Hirudotherapy in *Netraroga* in *Ayurveda*.
- To assess the efficacy of Hirudotherapy in *Netraroga*.

#### **Material and Method**

The data was collected from *Ayurveda* text books, *vaidyas* and through personal experiences. The use of leeches in eye diseases and in medicine beyond many years ago. Now a days' leech are used in microsurgeries like cosmetic surgeries and many eye diseases.

#### **Types of Jalauka**

In *susruta samhina*, diseases of *netra* and their treatment is described in *uttartantra* in detail. 12 types of leeches are found and classify them into two main categories i.e.

- non poisonous leech (*Nirvisha Jalauka*)
- Poisonous leech (*Savisha Jalauka*)

Non poisonous leech –

- Kapila* (colour like real gar)
- Pingala* (Reddish)
- Shankamukhi* (Blackish)
- Mushika*. (Common blind moles)
- Pundarikamukhi* (greenish black)

6) *Savarika* (like lotus leaves)

#### **• Characters of Nirvisha Jalauka:**

Such types of *jalaukas* are characterized by following points:-

- Strong and large bodies
- Ready suckers
- Greedy

#### **Poisonous leech (*Savisha Jalavka*)**

- Krishna* (black in colour)
- Karbura* (Ventrul surface is convex)
- Algarda* (hairy & black mouth)
- Indrayudha* (different colour like rainbow)
- Samudrika*. (Blackish yellow)
- Gochandana* (bifurcating lines).

#### **• Characters of Savisha Jalauka :-**

Such type of *jalauka* is having the following Characters according to the *Ayurvedic* texts.

- Thick
- Slow locomotion
- Fatigues
- Middle part elongated
- Delay in suckling
- Not commandable type.
- Sucks little quantity of blood.

#### **• Features of savisha jalauka bite :**

If *savisha jalauka* is applied then a person suffers from following clinical symptoms

- Burning
- Itching
- swelling
- Drowsiness
- fever
- Delirium
- unconsciousness

#### **Geographical Distribution & collection of leech.**

According to *sushruta*, the leeches are found in *yavan* (*Turkesthana*, *pandya*, *sahya*, *pautana* etc.)

**Collection of leeches:** Acharaya *sushruta* has told that the leeches can be caught with a piece of wet leather, A popular method is collecting leeches in certain regions is by using a large Tincan. The bait, ahead of fish or piece of raw chicken is kept inside the can. The Top of the can is crushed is kept inside the can. The Top of the can is crushed leaving the mouth opening of an inch or two wide.<sup>6</sup>

### Time of collection

Acharya Dalhana has told that the best time for collection leeches is *sharad Ritu* (Autumn)

### Storage of leeches.

According to *sushruta samhita* collected leeches should be stored in a now big wide pot containing clean water and mud from tanks or ponds. Powder of moss, dried meat should be given for feeding straw and aquatic plants should be provided for making their bed. After 3 days water should be changed & pot should be changed weekly.

### Purification of leeches for application.

According to *sushruta Samhita*, a paste prepared with mustard, turmeric and water should be applied on the body of the leech. They should then be kept in a vessel of water for about 48 minutes (*muhurta*) till they get rid of their exhaustion.

### Netrarog Samprapti<sup>(7)</sup>

*Prakupit tridoshas* vitiated by *hetu sevana* goes through *urdwagami sira* of *netra* and produces *darun netraroga*. *Netra* is the site of *Aalochak pitta*. The properties of *pitta* and *rakta* are same as they have *aashraya-srayibhav*. In such condition Hirudotherapy. (*jalaukavacharan*) is very useful. In *Netraroga*. Produced by *Rakta dushti* and *pitta dushti*.

### Useful in following Netraroga.

*Abhishyanda*

*Adhimantha*

*Siraharsha*

*Sirotpat*

*Puyalasao*

*Vatparayay*

*Anyatovat*

*Sashof Akshipak*

*Ashof Akshipak*

### Hirudin

It was recognized in the saliva of leeches in 1884. It was used in early transfusion experiments 30 yrs. before Heparin was used. Since 1986, When Hirudin was genetically engineered; interest has been recharged in drug as a systemic anticoagulant free of

some of heparins side effects. It is also termed as anti-coagulin. It also works as diuretic and antibiotics.

### Chemical constituents of saliva.

The leech produces a number of important substances which contribute to the special property of the bite, including an anti-coagulant, a local vasodilator & local Anesthetic like Hirudin, Hyaluronidase, Hementin etc.

### Hyaluronidase –

An enzyme called hyaluronidase, which break down hyaluronic acid, the bonding material of connective tissue, thus fostering the flow of blood and Fluids from affected area. It is a “Spreading factors” Antithrombin, Antitrypsin and antichymotrypsin activities were found in the salivary gland secretion and intestinal chyme of forming antithrombin activity work maintained in starved leech.

**Conjunctivitis:** Inflammation of conjunctiva. Cause by bacteria, Viruses & allergy<sup>8</sup>

### Hirudotherapy –

The saliva of leeches contains anesthetic substances, bacteria-inhibiting substance & Bdelins is an anti inflammatory agent present in Saliva. Which inhibit trypsin and plasmin.

### Glaucoma –

Multifactorial aetiology increases in intraocular pressure increasing causing damage to optic nerve.

### Hirudotherapy :

It facilitates drainage of aqueous humor through trabecular meshwork. Leech suck peripheral blood It creates negative pressure In venus presence locally & facilitates drainage

**Hematoma -** Blue eye or violet eye.(on Boxers)

### Hirudotherapy –

With the application of medicinal leeches, the Trauma tables of swelling, mostly disappears already a few days after the session.

The Saliva of the leeches also contains factor Xa inhibitor which also blocks the action of the coagulation factor Xa. modern days with the revival of leech application. This method of treatment is practiced on periorbital hematoma, glaucoma, eye inflammation such as chorioretinitis, conjunctivitis, keratitis & scleritis sudden hearing loss, tinnitus, otitis media, gum diseases.<sup>11</sup>

## DISCUSSION

Hirudotherapy (*Jalaukavcharun*) removes impure blood from Disease site of *Netra* and also inject biologically active substances. 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. The probable mode of action of *jalauka* is purification of *Dushit Rakta* from *Netra sira* by removing deeply seated toxins & pacifying vitiated *dosha*. A healthy cell gets sick when. It is deprived of needed oxygen & nutrition and is unable to remove toxins accumulated during metabolism. Biologicals active substance in leech saliva helps the cells to absorb necessary nutrition & eliminate toxins.

## CONCLUSION

Hirudo therapy (*jalaukavcharan*) is described under *Raktamokshana* very effect treatment for various *Netraroga* and systemic diseases. When a leech is applied to biologically active area of the human body the bite itself gives a positive effect. There are various types of *jalauka* have been mentioned and it is a useful para surgical tool for *Ayurvedic* physician for various clinical as well as in surgical condition. "The clinician who knew all about the leeches, Habitat, and their method of application is successful in treating the diseases amenable to them". Hirudotherapy (*jalaukavacharan*) it helps to treat *Abhishyanda*, *Adhimantha*, *Siraharsha*, *Sirotpat*, *Puyalaso*, *vatparyay*, *Anyatovat*, *Sashof Akshipak* *Ashof*

*Akshipak*. As leech's saliva contains Hirudin Hyaluronidase enzyme which act as vasodilator, Antithrombotic, anaesthetic, antinflammatory effect. Hence, more efforts should be undertaken to optimize this utilization more clinical trial are require to assess leech efficacy & safety in treatment of eyes.

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### **CORRESPONDING AUTHOR**

**Dr. Amit Chandankhede**

PG Scholar MS Ayu Shalaky Netra

Yashwant Ayurved College PGT&RC Kodoli,  
Kolhapur, Maharashtra, India

**Email:** dramitwc@gmail.com

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