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A Conceptual Review of *Jalauka* and *Jalaukaavcharana* (Leech-Therapy) in Ayurveda

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ABSTRACT:

Jalaukaavcharana (Leech therapy) is one of the form of *Raktmokshana*. *Jalauka* (Leeches) are used for impure blood letting The two types of treatment that are advised in Ayurveda are:-1). *Shaman chikitsa* and 2). *Shodhana chikitsa*. *Shamana chikitsa* means Internal medicine and *Shodhana chikitsa* means Elimination therapy. In Ayurveda, *Panchakarma* is one of the tools to treat many disorders. Acharya Sushruta included *Raktmokshana* in *Panchakarma*. The first description about the *Jalauka* (Leech) is mentioned in Sushruta Samita. The term "*Jalauka*" (Leech) means, a creature whose life depends on water. *Jalauka* is having various names which are - *Jalita*, *Jalauka*, *Jalatani*. *Jalauka* is the only *Shodhana* treatment that can be done on Children ,Ladies , weak , old , rich and fearful person . It is mainly indicated for Vitiated *Pittaja* and *Raktaja doshas*. Modern Scientists and Physicians also describe Leech and Leech saliva having Anti -Septic, Anti-Biotic and Anti-Coagulant properties.

Keywords :- *Jalaukaavcharana* , *Panchakarma* , *Raktaja roga* , Leech , *Svisha* , *Nirvisha Jalauka*, Blood letting

INTRODUCTION

Raktamokshana (blood letting) is *Shodhana* procedure included in *Panchakarma*. It is described by Acharya Sushruta. Various methods by which *Raktamokshana* can be done are *Shring*, *Jalauka* , *Alabu* and *Siravedh* . Out of them *Jalaukaavcharana* (Leech therapy) is easy and safest method. It is called the "*Paramsukumarupaya*"¹. *Jalauka* is described under the heading of " *Anu - Shashtra* " (Para surgical procedure) by Acharya Sushruta.² *Pitta dosha* and *Rakta* are having " *Aashraya ashrayee Bhavas* " and the best way to treat *Pittaj Roga* is *Raktamokshana* . *Jalaukaavcharana* is claimed to be supreme therapy because it is highly effective in curing blood related disorders. Leeches are invertebrates. It belongs to phylum

- Annelida and class Hirudinea. Saliva that is present in leech consist of bio active substances and that are Anti-coagulants, vasodilators, prostaglandins. Hirudin a potent Anti-coagulant inhibit conversion of fibrinogen to fibrin and prevent Blood clotting. Leech therapy is used in *Atyanta Sukumaras*, *Twaka Vikaras*, *Sthanik Rakta dushti* and various other disorders.

AIM

To do descriptive literature based study of *Jalauka* and *Jalaukaavcharana*.

OBJECTIVES

- 1) Study of *Jalauka* as explained in Ayurvedic classics.
- 2) Study of *Jalaukaavcharana vidhi* as explained in Ayurvedic texts.



3) Review the literature regarding recent researches about *Jalauka*.

MATERIAL AND METHODS

Data was gathered from classical Ayurveda texts like "*Brihatrayi*" and "*Laghutrayi*" and through internet and various published research articles regarding Leech therapy (*Jalaukaavcharana*).

OBSERVATIONS

Jalaukaavcharana (Leech therapy) is a procedure for blood letting widely used now a days. This therapy is used in disorders related to *Raktaja* and *Pittaja*. Acharya Sushruta has classified *Jalauka* into two main categories .

1) *Savish Jalauka* (Poisonous leech).³

2) *Nirvish Jalauka* (Non Poisonous leech).⁴

There are Six *Savish Jalauka* and Six *Nirvish Jalauka* . (Fig 1)

a) *Savish Jalauka*

1) *Krishna* :- Large headed , black in color (similar to that of powder of "*Anjana*").

2) *Karbura* :-Grey , broad like "*Varmimatasaya*" (Fish). Abdomen is segmented .

3) *Algarda* :- Hairy , with prominent sides , black mouth .

4) *Indraudha* :- Have linear marks and thus appear in variated colors like that of Rainbow .

5) *Samudrika* :- Blackish yellow in color and are spotted and possess the feature of a Flower .

6) *Gochandana* :- Lower part is divided into two halves like scrotum of bull and have very small mouth .

b) *Nirvish Jalauka*

1) *Kapila* :- Have their sides colored like *Manashila* (Real gar) and their dorsal surface are slimy and coloured like *Moonga* (Green gram).

2) *Pingala* :- Reddish brown with round body and moves quickly .

3) *Shankumukhi* :- Brown in color like (Liver) , have pointed mouth and sucks the blood quickly.

4) *Mushika* :- Unpleasant odour and resembles the shape of mice and brown in color .

5) *Pundrika Mukhi* :-Broad mouth like lotus and greenish colour like *Mudga* .

6) *Savarika* :- 18 *Angula* long and used to treat cattle , reddish pink color like lotus petal.

For the treatment purpose *Savish Jalauka* are contraindicated as it leads to *Jwara* (fever),

Daha (burning sensation), *Vamana*, *kandu*, *Bhrama*,

Shotha (swelling).

Nirvish Jalauka are used for treatment.

Scientific classification of Leech.⁵

Domain	Eukarya
Kingdom	Animalia
Phylum	Annelida
Class	Clitellata
Order	Hirudinea
Family	Hirudinidae
Genus	Hirudo
Species	Hirudo medicinalis

Habitat and Origin of Leeches.⁶

Yavana, *Pandya*, *Pautan* are the areas where non-poisonous leeches are found. Leeches found in clear water with plants like *Utpala* , *Kumud*, *Pundrika* are non-poisonous in nature . On the other hand, Leeches originating from putrefying Urine and faeces of poisonous insects and that lives in contaminated water possess Poisonous property.

Anatomy.⁷

Leech attaining a size of 10 - 15 cm in length but a fully grown or mature specimen may be 30 -35 cm in length. A small sucker contains the mouth at its anterior end and a large at it's posterior end. All Leeches have 34 body segments. Leech has a soft, smooth, slimy Worm form elongatedand dorso ventrally flattened body. It is very flexible and can be Stretched, Contracted and Dilated . It's secretion from skin is mucus in nature and abundant quantity of mucus will be secreted from its skin. The color of dorsal surface is bright with green shade dorsally and orange red ventrally with longitudinal lines. Whole body is divided into 6 regions.(Fig 2)

Importance of Leech therapy.⁸

1) Both Acharya Sushruta and Vagbhata included leech under Para Surgical procedure. Acharya Sharangdhara says in case of emergency, Leech can be applied even in Contraindicated person for *Raktamokshana* .

2) Prof . Charles Lent , leading biologist of U.S said that, Leeches are useful in removing the blood from areas where tissue has been transplanted or reattached because when blood accumulates , tissue may die before it heals . Applying Leeches to the area once or twice a day for a week give capillaries time to grow across sutures and restore blood circulation.

Classical indication of *Jalaukaavcharana* (Leech therapy).⁹

Acharya *Vagbhata* has mentioned diseases where leech

application is indicated and they are

Gulma, Arsha, Vidhradi, Kushta, Vatarakta, Netraruka, Visarpa.

Contraindication of Leech Therapy.¹⁰

Sarvanga Shotha (Generalized edema), *Shosa* (Tuberculosis), *Pandu* (Anaemia), *Udara roga* (Abdominal diseases), *Garbhini* (Pregnancy).

Leech unfit for use (11).

Leeches which are ugly in appearance, slow in movement, sucks very little blood, very thick and that are poisonous in nature should be rejected.

Investigations prior to Leech application:-

Before leech therapy it is necessary to observe some parameters and these parameters are Haemoglobin, ESR, Bleeding time, Clotting time, Blood sugar level, HIV and HbSAg.

Procedure of Leech application (*Jalaukaavcharana vidhi*)

The leech application procedure is carried out in three steps.

- 1) *Poorvakarma* (Pre-operative)
- 2) *Pradhana karma* (Operative)
- 3) *Paachata karma* (Post-operative)

Poorva karma (Pre-operative):- It includes following steps.

- a) Collection and preservation of Leeches
- b) *Shodhana* of Leeches
- c) Preparation of Patient.

a) Collection and preservation of Leeches :-

In Sushruta samhita, collection of Leech is described in detail. In order to collect the Leeches, the fresh meat of dead animals, milk must be applied on thigh of human and then place the thigh in water for some time, *Jalauka* will attract and attach with the thigh. Then drop out the thigh from the water and remove the attached leeches with the help of "*Saindhava Lavana*" and collect them in a fresh pot filled with fresh water. Powder of moss, aquatic tubers should be given for feeding. On every 3rd day water should be changed and after every Seven days pot should be changed.

b) *Shodhana* of Leech :-

Medicinal Leeches should be carefully identified and properly purified before using for blood letting therapy. A paste is prepared by mixing Mustard, Water and Turmeric (*Rajani, Haridra*). This paste is applied on body of leech. Then leech should be kept in a Vessel filled with water for about 48 minutes, until they get rid of their exhaustion.

Leeches should be kept in pure water after purification. By purification, the appetite of Leech increases and enhance the desire of sucking blood and locomotion.

c) Preparation of Patient :-

Patient general health is examined. *Snehana and Swedana* therapy should be done on previous day, depending upon the patient's condition.

Pradhan karma (operative).¹²

Patient should be kept in comfortable position, so that affected part exposes comfortably. If affected part is woundless then scrap that part with *Mritika (soil)* or *Gomaya Churana* in order to make the part (*Virukshana*). The purified leeches are applied to the affected site. Physicians has to watch whether the applied leech sucks the blood or not. If the Leech didn't suck the blood then a drop of milk or blood is applied at the site or scratch the site with the help of scalpel for oozing of blood, to persuade the leeches to suck blood. If the leech doesn't suck blood even by above methods then another leech should be applied on the area. When the leech start sucking the blood, it sucks impure blood first. It elevates it's neck that resemble with the shape of a Horse Shoe. Depending upon the necessity 5 - 8 leeches are applied at a time. Once the leech take hold, then cover it with wet gauze. If the Patient feels pricking pain and itching at the site where Leech is applied, it indicates that they are sucking unaffected (healthy) blood. Then remove the Leech by pouring *Saindhav Lavana (Rock salt)* at it's mouth.

***Paschat karma (Post-Operative).*¹³**

After completion of therapy, the attention should paid towards Patients wound and leeches.

a) Patient care :- After detachment of leech, there is a triangular wound created by mouth of leech. Blood pours out from the wound. Blood is allowed to flow from wound for few minutes. The bleeding from the wound should be controlled by applying tight bandage with the use of *Yashtimadhu* or Turmeric powder.

b) Care of Leeches:-Leeches that are applied to the area undergoes the *Vamana* process (Emesis). So that the same leech can be applied further to a patient after a period of seven days. For the *vamana* procedure of leech, apply *Saindhav lavana* on its mouth and pour Rice water on leech body. Pressing of leech from Caudal to Front end is required for proper emesis. The leech vomits all the blood. If the leech are empty stomach after Vomiting, they move freely in water in search of food. If the leech sinks in water and doesn't move, the Physician should understand that the removal of sucked blood from Leech is incomplete and

steps should be taken to expel the remaining blood by making the leech to vomit again . An incurable disease named " *Indramada* " develop in leeches if the sucked blood didn't expel properly. After purification of leeches, these leeches are kept in separate Jar or container with water in it . A tag is attached to the container with the date on which Leech is used. Same leech can be applied further to a Patient after a period of Seven days .

Complications of Leech therapy.^{14,15}

Leech therapy rarely ever lead to serious complication. The local pain of treatment and short term itching are regular side effects. Some of the possible reported complications are :-

1) Local pain 2) Local itching 3) Prolonged bleeding time 4) Allergic reactions 5) Fever 6) Hypotension 7) Bacterial infection.

Constituents of Leech saliva.¹⁶

Saliva of leech contain following constituents -

- a) Hirudin :- Hirudin having approximately three times more anti - thrombin activity than pseudohirudin.
- b) Calin :- It prevents the blood coagulation .
- c) Destabilise :- It completely block the spontaneous aggregation of human platelet .
- d) Hyaluronidase:-It's " spreading factors " that ensures the other active substances which are active at bitten areas can be spread .
- e) Bdelin is a plasma leads to pain insensitivity (analgesic) when sucking or such pain killer chemical ,which stops you from feeling hindrance .
- f) An anaesthetic substance of bite .
- g) Piavit:- It has protective anti - thrombotic effects .

Indication : Modern Medicine¹⁷⁻²⁰

Now a days, Leech therapy is widely used in many disorders. It is highly effective in many disorders, Like Cardiovascular diseases, Cancer, Arthritis, Migraine headache, Skin diseases Psoriasis, Eczema, Herpes.

DISCUSSION

Leech therapy for blood letting is practiced since vedic period. This therapy is included under *Anu-Shashtra karma*. It is very safe and effective therapy. So, it is gaining great attention world wide .It is mainly indicated for Fearful person , Kings, wealthy person, children and women .Saliva of leech contains many anti-coagulant substances that is very effective in treating Cardiovascular Pathology etc. saliva of leech is very effective in Arthritis also, as it contain Anti – inflammatory components, which invades in tissues and reduce inflammation . In recent

research it has come to knowledge that *Jalaukaavcharana* is useful in many *Raktajapradoshaja vikaras*. Recent researches have shown its amazing result in diseases like Psoriasis ,Herpes , Eczema etc. . There is a potential for further investigative study in the role of leeches in different conditions .

CONCLUSION

Leech therapy exist in India since the vedic period and it is mentioned in ayurvedic literature in detail. In Ayurveda, *Shodhana chikitsa* has given more importance than *shaman chikitsa* .*Shodhana chikitsa* removes the disease from it's root. *Jalaukaavcharana* is included in *shodhan chikitsa*. *Jalaukaavcharana* is least Invasive procedure compared to other surgical and para surgical procedure . It is mainly indicated for *Raktaja and Pittaja* disease. The saliva of leech contain substances such as Hirudin, bdelin, Destabilise ,Hyaluronidase, eglin which act as anti coagulant ,anti oxidant ,anti biotic. It is a safe and less complicated process . This procedure shows a excellent results in various diseases. Recent researches have shown significant improvement for the wide spectrum of diseases ranging from cardiovascular diseases to Arthritis.

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Fig 1

a) *Savish Jalauka* :-



b) *Nirvish Jalauka*



Fig 2

