

ROLE OF JALAUKAVCHARANA IN NETRAROGA - A REVIEW ARTICLE

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ABSTRACT

Raktamokshana is one of the Para surgical, detoxification methods of Panchakarma for the treatment of Raktaja Vyadhi. Jalaukavcharana i.e. Leech therapy is form of Raktamokshana, in which vitiated pitta and rakta doshas get let out from the body, practised since ancient times to treat Netrarogas. Jalaukavacharana has the property to subside immediately the pain, swelling, burning sensation and redness. Now a day's environment is being highly polluted, due to which there is increased chances of infections in the eyes. Mast cell stabilizers, NSAIDs and topical corticosteroids are the treatment options, but only symptomatic relief is the outcome. On the other hand, drug sensitivity,

increasing resistance, complications of the corticosteroids and increased risk of infections restrict the long term use of these medicines. Jalaukavcharana is free of side effects, cheaper, easier, convenient method, prevent the recurrence of disease and has a significant effect in relieving the symptoms of the patients. To spread the awareness about this therapy this study paper is designed.

KEYWORDS: Jalaukavcharana, Netraroga, Hirudin.

INTRODUCTION

Lord Dhanvantari, the father of Indian medicine, with leech in his hand indicates the importance of leech therapy in Ayurveda. The word leech is derived from 'laece' which means physician. Leeches are given the name Jalauka because of their site of dwelling and the source of their nutrition is Jala.^[1] It was used to treat a wide range of ophthalmic diseases

and many other diseases. It was practiced prophylactically as well as therapeutically. It also infers the importance of Hirudotherapy in the medical practice.^[2] In Ayurveda, bloodletting therapies through leeches are used in management of various disorders, especially which are caused due to vitiation of pitta and rakta dosha. Jalaukavcharana due to its easy applicability, painlessness, lack of serious complications be practiced in eye diseases as chikitsa. Jalauka is very much beneficial in vitiated Raktaja dosha in Kings, wealthy persons, children's, old aged, women and persons of tender constitution, it expels vitiated Rakta Dosha completely from selected part of the body. Application of leech mitigates diseases in eyes Acharya Sushruta has described jalauka under the jalaukavcharana has the property to subside immediately heading of Anushastra (Parasurgical procedure) the pain, swelling, burning sensation and redness of eyes. Leech application is also known as hirudo-therapy and leech therapy. Leeches are segmented worms that belong to the phylum Annelida.^[3]

AIM AND OBJECTIVES

To reveal the role of Jalaukavcharana in Netraroga since antiquity.

To do analytical study of Jalaukavcharana in Netraroga mentioned in Ayurveda.

MATERIAL AND METHODS

The data was studied and collected from all the literatures described in Brihatrayi, Laghutrayi, Vaidyas and through personal experiences regarding Raktamokshan therapy. The use of leeches in medicine dates beyond many years ago. Acharya Sushruta clearly mentioned Vedhya Netraroga i.e. can be treated with Vedhan by Raktamokshan therapy. Raktamokshan is of two types- Shastravisravan and Anushastra visravan. Jalaukavacharan i.e. application of leech is a subtype of Anushastra visravan i.e. done without use of metal instruments.

Types of Jalaukas

In Sushruta Samhita, diseases of netra and their treatment is described in Uttartantra in detail.

Raktamokshan is included in Panchakarma by Sushruta.

In Sushruta Samhita, 12 types of leeches are found and classify them into two main categories i.e. non-poisonous leeches (nirvisha jalauka) and Poisonous leeches (savisha jalauka).

Nirvisha Jalauka – Leeches which are born in clean water, nontoxic include Kapila, Pingala, Shankamukhi, Mushika, Pundarikamukhi and Savarika.^[4]

Table - Nirvisha Jalauka.

Nirvisha Jalauka	Description
Kapila	Smooth, oily, mudga varna on prishta bhaga, lines on sides with colour of manasila
pingala	Round body, reddish or pingala varna, speedy motion.
Sankhamukhi	Colour of Yakruth, elongated sharp mouth, speedy motion.
Mushika	Mouse in shape, colour and smell.
Pundareekamukhi	Coloured like Mudga, mouths are like Padma.
Savarika	Smooth, colour of Padma patra, length of 18 Angula.

Savisha Jalauka - Krushna, Karbura, Alagarda, Indrayudha, Samudrika and Gochandana are categorized under poisonous leeches.^[4]

Table- Savisha Jalauka.

Savisha Jalauka	Description
Krishna	Colour of lump black and thick head.
Karbura	Bodies are elongated as the fish Varmi and abdomen bulges out.
Alagardha	Hairy, thick, round at the sides and black mouth.
Indrayudha	Lines at the sides of body resembles rainbow.
Samudrika	Yellowish black in colour and floral patterns all over their body.
Gochandana	Narrow mouth and their lower end resemble scrotal sac of the bull.

Contraindications of leech application.^[6]

According to Ayurveda, leech application (bloodletting therapy) should not be performed in patients suffering from generalized anasarca (Sarwanga Shoph), kshina (emaciated), shosha (swelling), pandu (anemia), udara (ascitis) and also in garbhini (pregnancy).

Collection of leeches

According to Sustruta Samhita, leeches should be collected from ponds or lakes with the help of piece of wet leather. According to Charaka Samhita, best time for collection of leeches is autumn season. In autumn, water become hot during day time due to exposure to sun, cools in the night and is well detoxified. A popular method is collecting leeches in certain regions is by using a large tin can. The top of the can is crushed leaving the mouth opening of an inch or two wide.^[6]

Selection of leeches

According to Sustruta Samhita leeches which are having an expanded middle part of the body (sthulamadhya), ugly (pariklishta), flat and dull in movement (prutvyo mandacheshta), do not grief (bite) well (agrahi), they suck only a small quantity of blood (alpapani). Poisonous leeches (savisha) are not suitable for leech therapy. The leeches who are bulky (maha sharira), stout (balavatya), gluttonous (mahashana) fast blood suckers (shighrapavinyo) which moves quickly live in fresh water and of non –poisonous varieties are suitable for application.

Storage of leeches

According to Sustruta Samhita, collected leeches should be stored in a new big wide pot containing clean water. Powder of moss, dried meat and aquatic tubers should be given for feeding. Straw and aquatic plants should be provided for making their bed. After three days water should be changed and pot should be changed weekly. Now a day, the leeches are kept in glass bottles or jars with a lid which prevents leeches from coming out. Small holes should be made in the lid to let in fresh air. The water in the container is changed once a week.

Purification of leeches for application

According to Ayurveda, medicinal leeches should be carefully identified and properly purified before using in Jalaukavacharan. Various methods are practiced by different physicians to purify leeches. According to Susruta 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.

According to Ashtanga Hrudaya, leeches should be purified by keeping them in medicated water. This may be prepared by mixing turmeric powder, uncooked rice water, buttermilk (takra) for a short time. After purification, the leeches should be kept in pure water.

Procedure: The mode of application of Jaloukava-charanam consists of three parts.

1. Poorva karma
2. Pradhana karma
3. Paschat karma

Poorva karma

1. Preparation of leeches -Before applying it to the patients, leeches should be purified by smearing solution of paste of Sarshapa and Rajani.

2. Preparation of the patient -The patient lies down. The area selected for applying the leeches made rough by rubbing with either mud or fine powder of cow dung or dried cotton without causing pain.

Pradhana karma - Site of Jalaukavacharana is palpebral conjunctiva. Site should be cleaned with water. The lid is everted and the active Jaluka is made to suck in the palpebral part of conjunctiva Apply the leech to the site of application. If the leech does not bite that area then rub with mud, ghee or make a wound with a sharp instrument. Horse shoe shape of neck indicates leech is sucking impure blood. Then cover it with a moist cloth. Jalouka first suck only the vitiated blood from a mixture of pure and impure blood. If pain and itching develops at the site of bite, it is to be understood that it is sucking pure blood. Then it should be removed. If it does not leave off easily because of odour of blood, then sprinkle powder of Saindhava over its mouth.

Paschat karma- After it falls off; its body should be sprinkled with Haridra, held at its tail end by thumb and fingers of the left hand and its body kneaded slowly in the downward direction with thumb and fingers of the right hand and made it vomit all the blood it has consumed.

Complications- When Jalouka do not vomit the blood fully, when they are applied frequently and when they are inactive even after getting into water, should be considered as intoxicated and should be rejected.

Modern View

Leech -it is an object of zoological paradoxes.

Taxonomy -

1. Kingdom: Animalia
2. Phylum: Annelida
3. Class: Clitellata
4. Order: Arhynchobdellid
5. Family: Hirudinidae
6. Genus: Hirudo
7. Species: Hirudo medicinalis.

Bioactive Constituents of Leech Saliva

Therapeutic effect of Jalauka (Leech) is the due presence of a different bioactive constituent in Leech saliva.

Some major bioactive constituent of Leech Saliva are given below-

1. Hirudin: - Inhibits blood coagulation by binding to thrombin.
2. Calin: - Inhibits blood coagulation by blocking the binding of Von Willebrand factor to collagen.
3. Inhibits collagen- mediated platelet aggregation
4. Destabilase: - Monomerizing activity, Dissolves Fibrin, Thrombolytic effects
5. Hirustasin:- Inhibits Kallikrein, Trypsin, Chymotrypsin, Neutrophil Cathepsin G.
6. Bdelins: - Anti-Inflammatory, Inhibits Trypsin, Plasmin, Acrosin.
7. Hyaluronidase :- Increases Interstitial Viscosity, Antibiotic.
8. Tryptase Inhibitor: - Inhibits Proteolytic Enzymes of Host Mast Cells.
9. Eglins: - Anti-Inflammatory, Inhibit the Activity of Alpha Chymotrypsin, Chymase, Subtilisin, Elastase.
10. Factor Xa Inhibitor: - Inhibits the Activity of Coagulation factor Xa by forming Equimolar Complexes.
11. Complement Inhibitors: - possibly replace natural complement inhibitors if they are deficient.
12. Carboxypeptidase A Inhibitors: - Increases the inflow of blood at the bite site.
13. Histamine-like Substances: - Vasodilator. Increases the inflow of blood at the bite site.

Netrarog samprapti^[7]

Prakupit tridoshas vitiated by hetusevana 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 aashrayasrayi bhav. In such condition, Jalaukavacharan is very useful in netraroga produced by raktadushti and pittadushti. raktamokshan is useful in following netraroga.

Abhishyanda (Conjunctivitis), Adhimantha (glaucoma), Siraharsha (inflammation), Sirotpat (hyperemia), Puyalasao (dacrocystitis), Vatparyay (ocular pain), Anyatovat (ocular pain), Sashof Akshipak (purulent Conjunctivitis), Ashof Akshipak (Conjunctivitis)

Abhishyanda

It is an Inflammation of conjunctiva with discharge caused by infective organisms like bacteria, viruses and allergy.^[8]

The saliva of leeches also contains anaesthetic substances which deaden pain on the site and also bacteria-inhibiting substances which inhibit the growth of bacteria. Bdelins is an anti-inflammatory agent in the leech's saliva act by inhibiting trypsin as well as plasmin. It also inhibits the action of the acrosin.

Adhimantha

Glaucoma is not a single disease. It has multifactorial aetiology and characterized by progressive optic neuropathy resulting in a characteristic appearance of optic disc and a specific pattern of irreversible visual field defect that are associated frequently but not invariably with raised intraocular pressure.^[9]

Eye contains fluid called aqueous humor that continuously circulates in and out of the eye. Aqueous humor is produced by ciliary processes of ciliary body. Whenever there is block in drainage process intraocular pressure increases causing damage to optic nerve.^[10]

Leech therapy facilitates drainage of aqueous humor through the trabecular meshwork. As the leech suck peripheral blood it creates negative pressure in the vein present locally and facilitates drainage. A number of setting may be required depending upon the improvement of patient.

Hirudin also helps in reducing the blood's thickness, thereby promoting optimum blood flow and preventing the risks associated with sluggish blood flow.^[11] The patients who suffer from pain and inflammation will feel relief from the anti-inflammatory and anaesthetic effects of the leech's saliva.

Subconjunctival haemorrhage

Rupture of small capillaries of conjunctival vessels causes haemorrhage.^[12] The leech's saliva contains Hirudin, binds itself to thrombin's and thus effectively inhibiting blood Coagulation. Calin works as an anticoagulant by prohibiting the von Will brand factor to bind itself to collagen, and it is also an effective inhibitor of platelet aggregation caused by collagen.

Hematoma

Leeches are an excellent means to reabsorb Hematoma within the eye range. This characteristic is very common in sport, such as boxing. Boxers have been using medicinal leeches for applications around so-called "blue eye" or violet eye, to heal the acute pain, swelling and damaged tissue.^[13] the leech's saline contains Xa inhibitor factor which blocks the action of the coagulation.

DISCUSSION

According to Ayurveda, diseases are occurred by vitiation of dosha. The vitiated dosha can get accumulated in srotas which causes blockages and may lead to the diseases. Jalaukavcharana removes not only blood from the body but also injects biologically active substances which help to manage various disorders. Many diseases could be treated with leech application. The probable mode of action of Jalauka is purification of the body by removing deeply seated toxins and pacifying vitiated dosha. Biologically active substances in leech saliva help the cells to absorb necessary nutrition and eliminate toxins.

CONCLUSION

In Ayurveda, Jalaukavcharana is described under Raktamokshana of Panchakarma. It is very effective treatment for treating various Netra roga as well as in many systemic diseases. It helps to treat Raktaj Netravayadhi and many other diseases, prevent recurrence and further aggravation of the diseased conditions.

According to modern science, leech's saliva contains many enzymes like Hirudin Hyaluronidase which acts as Anticoagulant, Local anaesthetic, Anti-inflammatory Vasodialator, Antithrombotic, Hypotensive and Analgesic effect.

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