

A CONCEPTUAL REVIEW OF RAKTAMOKSHANA AS AN ADJUVANT THERAPY IN NETRAROGAS

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ABSTRACT

Eye diseases are rampant today because of the unhealthy surrounding, environmental factors and change in lifestyle. Medical science has limited number of drugs which provides only symptomatic relief and not the total cure. Netrarogas are Raktapradoshaja Vikaras. The Vitiated Doshas in the body moves to Urdhvajatru i.e, upper parts of body through the Sira and gets Sthanasanshraya in Netra which results in Netraroga. In Ayurveda, the treatment modality like Shodhana Chikitsa i.e, detoxification destroys the complete pathophysiology of disease. Raktamokshana is one of the best treatment types of Shodhana Karma which is indicated for removal of Vitiated Doshas from Rakta. Among 76 Netrarogas mentioned by Acharya Sushruta,

Raktamokshana is indicated for many Netrarogas. So in order to review all the literature and to prove the practical utility of Raktamokshana in Netrarog this study is designed.

INTRODUCTION

Ayurveda is the ancient science related to well being of human health practised wide all over. Ayurveda encompasses use of various parasurgical and surgical procedures in shalaky tantra for the management of Netrarogas such as Pakshmakopa, Puyalasa, Abhishyanda and Adhimantha etc. Raktamokshana is also one of such parasurgical procedure which is being widely practised. As in Charak Samhita the Basti Karma is regarded as partial or even the complete treatment method, similarly in Sushruta Samhita the Raktamokshana is compared to Basti said by Acharya Charak as the partial or complete treatment of diseases.^[1]

Netraroga would be best treated by Shodhana Chikitsa and being one of the Raktaja Vikaras^[2], Vitiated Dosha moves to Urdhva bhaga through Sira and Sthanasanshraya in Netra which ultimately results in Netraroga.^[3] Raktamokshana would be the choice to treat them and break their pathophysiology. Raktamokshana helps to remove vitiated doshas which are responsible for disease. It's purification approach which removes toxins, purify blood and helps get relief from symptoms.

Now a day's various eye diseases like Glaucoma, Conjunctivitis etc, needs long therapies to recover and chances of recurrence are high, regardless of such therapies or medications. So for the better results and patient goodness we can apply ancient Ayurveda knowledge to treat those diseases by Raktamokshana. Also Acharya Sushruta has clearly mentioned Vedhya Chikitsa in some Netraroga i.e. they can be treated with Vedhan which comes under Raktamokshana.^[4]

Concept of Raktamokshana

Raktamokshana is made from two words- Rakta and Mokshana. Rakta means blood and Mokshana means to leave and both these words make Raktamokshana means to let out blood. Raktamokshana is a treatment modality mentioned by Acharya Sushruta in Chikitsasthana one among 60 modules of treatment i.e, Shasthi Upakramas.^[5]

There are two main types of Raktamokshana^[6] which are:

- 1. Raktamokshana by Anushastra:-** The type of Raktamokshana procedures in which there is no use of any sharp objects or Shastra.

There are three sub-types:

- **Jalaukavacharana (Application of Leeches):-** Jalauka or Leech is a type of parasitic worm, which has ability to suck blood through its horns from human skin, due to their properties they are used for medicinal purposes. This is indicated in vitiated Pitta Dosha related Vikaras effectively.
- **Shrunga (Use of Cow's Horn):-** Here as per ancient methods a cows horn is used for purpose of blood letting. This is indicated for vitiated Vata Dosha.
- **Alabu (Vacuum extraction by using Alabu/Bottle Gourd):-** Ancient Acharyas used bottle gaurds as a measure to let out dushita Rakta from body, this is indicated for vitiated Kapha Dosha pradhan Vikaras.

2. Raktamokshana by Shastra (Sharp Instruments):- This procedure of Raktamokshana is performed by using shastra or sharp instruments.

There are two sub-types:

- **Pracchana** - Raktamokshana done by making multiple incisions on affected site.
- **Siravyadha** – As the name suggests Sira i.e vein, Raktamokshana done through puncturing the vein.

Indications for Raktamokshana in Netraroga.^[7]

Abhishyanda, Adhimantha, Siraharsha, Sirotpata, Puyalasa, Vatparyaya, Vartmavbandh, Klishtavartma, Bahalavartma, Pothaki, Anyatovata, Sashofa Akshipaka, Ashofa Akshipaka, Pittaja and Kaphaja Timira, Savrana Shukla, Anjananamika, Pothaki, Complications of Arma, Pilla Roga and many more.

Contra indications^[8]

Very young, old, emaciated, exhausted, Suffering from high fever, convulsions or unconscious patients, General swelling of body, Wasting due to unhealthy diet, Anemia, Piles, Pregnant women etc.

Shrunga and Alabu

Shrunga i.e, Horn and Alabu i.e, Bottlegaurd are used as a parasurgical procedures for Raktamokshana. It should be applied on flat, round, fleshy part of the body in order to get fixed and the vacuum created would suck the blood out. Both are not widely used in Netraroga as there is no classical reference to use Shrunga and Alabu in Netraroga, then to Shrunga is used at Apanga pradesh for Raktamokshana in some Vataja Netrarogas.

Jalaukavacharana

Acharya Sushruta has described Jalauka (Leech) under the heading of Anushastra (Parasurgical procedure). Jalauka is very much beneficial in vitiated Raktaja (Blood related) disorders, it expels vitiated Rakta Dosha (vitiating blood) completely from selected part of the body. Jalaukavacharana is best among Raktamokshana types because it is easy and convenient to the patient.

Types of Jalauka (Leeches)

According to Acharya Sushruta, Jalauka can be broadly classified into two groups,

- 1) **Savisha^[9]** (Poisonous)

2) **Nirvisha**^[10] (Non-poisonous)

Acharya Sushruta mentioned six poisonous and six non-poisonous strains of leeches. Not all the strains of leeches mentioned by Sushruta are found today but some are used for medicinal purposes.

Savisha (Poisonous leeches)		Nirvisha (Non- poisonous leeches)	
1	Krishna	1	Kapila
2	Karbura	2	Pingala
3	Alagarda	3	Shankumukhi
4	Indrayudha	4	Mushika
5	Saamudrika	5	Pundarikmukhi
6	Gochandana	6	Saavarika

Leeches secrete Hirudin, which helps them to suck blood from the body.

MODE OF ACTION OF HIRUDOTHERAPY

Leeches have various bioactive molecules in their secretions but some of them have an active role in helping leeches to suck blood. These molecules have analgesic, anti-inflammatory, platelet inhibitory, anticoagulant, and thrombin regulatory functions, as well as extracellular matrix degradative and antimicrobial effects, so let's take a broad look at modes of action.

Secreted Proteins

More than 100 particular proteins with different molecular masses are observed in leech secretions, only a few of them are discussed that have a major active role.^[11] Following a leech bite, it has to establish a sucking pathway (extracellular matrix degradation); inhibit adhesion, aggregation, and coagulation (inhibition of platelet functions, and anticoagulant effect); increase blood flow; protect itself (antimicrobial activity); and avoid detection (analgesic and anti-inflammatory effects). All mentioned metabolisms take place with secretions of various kinds of proteins and further,

Analgesic and Anti-Inflammatory Effects

Leeches exert analgesic and anti-inflammatory effects so as to avoid detection by the host while feeding.^[12] Some studies have indicated that some kininases and antistasin may inhibit the kinin-kallikrein mechanism, which is a major nociceptive route and thus play analgesic and anti-inflammatory effect.

Increasing blood flow

Leech while feeding and while used for therapeutic effects require increased blood flow. These are achieved mainly by histamine like molecules that cause vasodilatation and arise via local vascular permeability which are secreted by their own salivary glands.^[13]

Inhibition of platelet functions

Destruction of the blood vessel wall for sucking blood causes activation of platelets and the coagulation cascade, which are fatal for the leech. For this reason, leech secretions contain many bioactive molecules of some enzymes to locally inhibit these actions. These enzyme collagenase also destroys collagen particles, which initiates all these adhesion and aggregation reactions, and provides additional supportive action to the inhibitory effects.^[14]

Anticoagulant effect

Hirudin is a protein that irreversibly binds to thrombin, which causes consumption of active thrombin and results in anti-thrombin activity. Hirudin and gelin mainly work as thrombin inhibitors, breaks the chain reaction, and destabilase has a fibrinolytic effect.^[15]

Antimicrobial effect

Two main molecules, destabilase and chloromycetin, have shown potent antimicrobial activity. Chloromycetin is a potent antibiotic found in leech secretions, Additionally, theromacin, theromyzin, and peptide B have been isolated as antimicrobial peptides.^[16]

Other possible actions

Many in vitro studies have indicated the anticancer effects of leech saliva extracts. Since coagulation is related to metastasis and tumour progression, blocking the cascade can have an antitumour effect.^[17] Hirudin has been studied in this regard, with promising results for metastasis, especially from mesothelioma. In addition, other anticoagulant derivatives are claimed to have similar effects, as well as reducing cell growth and tumour angiogenesis. Leech saliva extracts have also been studied for possible effects on cerebral ischemia–reperfusion injury and many more.

PRACCHANA

The Pracchana therapy mainly includes multiple incisions with sharp instruments to induce blood flow which removes vitiated Rakta Doshas and relieves the disease.

SIRAVYADHA (VENOUS PUNCTURE)

In Siravyadha it is strongly mentioned by Acharya Sushruta that it alone manages to cure all the symptoms by puncturing the veins at specific site based on different diseases.

NETRAVYADHI

It is not possible to discuss each and every disease and its treatment so some important diseases mentioned by Acharya Sushruta. Netra is related with Ashrayashrayi of Alochak pitta. Most of the Netragata Vyadhis have Pitta and Raktadushti and their treatment includes Shodhana Chikitsa. Acharya Sushruta mentioned some specific eye diseases under the heading of Vedhya Vyadhi.^[18]

These are Sirotpata Siraharsha, Akshipaka, Anyotovata, Puyalasa, Vataparayaya, Adhimantha and Abhishyandha etc.

- 1. Puyalasa (Dacryocystitis):** It is a Sannipatika Sandhigata Netraroga which produces swelling at Kaninikasandhi (inner canthus). It can be correlated with acute dacryocystitis. Raktamokshana is the treatment of choice. The Siras of frontal region (Lalata) should be selected for Jaluakavacharana.
- 2. Upanaha:** It is a Sandhigatavyadhi, can be compared with lacrimal cyst. Yogaratnakara and Dalhana advised Pracchana for this.
- 3. Pothaki (Trachoma):** It is a chronic contagious disease of conjunctiva and cornea characterized by follicular. Pracchana karma is done at the upper tarsal conjunctiva.
- 4. Sirotpata and Siraharsha:** Acharya Yogaratnakara advised Siravedha for diseased condition which are compared with allergic hyperemia of eye on panus (as in glaucoma) or advanced stage of episcleritis and iridocyclitis.
- 5. Savrana Shukla:** Both Siravedha and Jaluakavacharana indicated. Siravedha initially expels Dushtarakta i.e, impure blood, but remaining small quantity of coagulated blood deposited in the inner side is cleared by Jaluakavacharana.
- 6. Avranasukla (Corneal opacity):** Acharya Vagbhat advised repeated Raktamokshana when the Shukla (opacity) became thick and stable.
- 7. Abhishyanda (conjunctivitis) and Adhimandha (Acute Glaucoma):** In Vataja, Pittaja and Raktaja Abhishyanda and Adhimantha leeches should be applied around the eye to induce bloodletting. It prevents further aggravation of Doshas. Jaluaka applied at frontal or outer canthus or near nose region.

8. **Anyatovata:** There will be acute pain in jugular vein region of neck, eye or temporal region due to vitiated Vata and constriction of the eye. Pracchana karma acts well in treating such disease.
9. **Vataparyaya:** The disease can be defined as a disease producing alternate attack of pain in eye, eyebrow or eyelashes with visual disturbances and structural changes in the shape and size of the eye.
10. **Akshipaka:** Acharya Sushruta advised Raktamokshana in both Sashopha and Ashophapaka. Nowadays leeches are used by Shalakis and hirudotherapists to treat inflammatory and traumatic conditions such as keratitis, chorioretinitis, uveitis, peri-orbital hematoma.

DISCUSSION

According to Ayurveda, diseases occurs due to vitiation of Dosha. These vitiated Doshas can get Sthanasanshraya in Strotas which causes blockages and lead to diseases. The basic treatment is to remove those vitiated Doshas from particular Sthana or Strotas and this can be done by Shodhan Chikitsa. Raktamokshana does the same to cure Netrarogas, so Raktamokshana may be through any method mentioned in Ayurveda could be a boon in treating different Netrarogas depending on the site or location of disease and the affecting Dosha.

CONCLUSION

It is easy to treat Netrarogas by Raktamokshana with procedure like Jalaukavacharana, also in the management of different surgical conditions where surgery is not possible to treat the condition or where there is great chance of recurrence of disease. The treatment is done with less or no side effects including post operative hemorrhage, pain etc. As we remove vitiated Doshas from Strotas we can prevent the disease from getting into complex form which makes it difficult to treat. Therefore it is very much useful to use Raktamokshana as an adjuvant treatment modality for treating Netrarogas.

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