



MANAGEMENT OF VARICOSE VEINS (SHIRAGRANTHI) OF LOWER LIMB BY JALAUAKAVACHARANA - A CONCEPTUAL STUDY

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ABSTRACT

Varicose veins of the lower limbs are the penalty the man to pay for its long standing posture, functionally veins have to drain against gravity which affecting men and women both. When a vein becomes dilated, elongated and tortuous due to retrograde flow of blood, the affected vein is called as "Varicose veins". The most common cause is incompetent valves in the vein, while increasing age, obesity, pregnancy, standing posture etc are risk factors. *Shira Sankocha* (tortuous veins), *Shira Vakra* (irregular surface of veins), *Shira utsedha* (inflammation of veins) and *Vishoshana* (roughness and hardness of veins) are the clinical features of *Shiragranthi*. These features are helpful in correlating *shiragranthi* with Varicose veins. *Raktamokshana* is made of two words- *Rakta* (blood) and *Mokshana* (to leave), so *Raktamokshana* means to let out blood. The treatment of disease conditions with medicinal leeches is termed as Hirudo-therapy(*Jalaukavacharana*). *Jalaukavacharana* removes not only blood from the body but also injects biologically active substances which help to manage various disorders. The probable mode of action of *Jalauka* is purification of body by removing deeply seated toxins and pacifying vitiated *Dosha*. Positive Brodie Trendelenburg test gives indication for operative measures for the management of Varicose veins. But by following conservative treatment with *Jalaukavacharana* the surgical measure can be delayed or avoided.

KEYWORDS: Varicose veins, *Shiragranthi*, *Jalaukavacharana*, *Raktamokshana*.

INTRODUCTION

Varicose vein(*shiragranthi*)- When a vein becomes dilated, elongated and tortuous due to retrograde flow of blood, the affected vein is called as "Varicose vein". Superficial venous system of lower limbs- affecting either the long saphenous or short saphenous veins or both is the common site for Varicose veins.^[1] Varicose veins of the lower limbs are the penalty the man to pay for its long standing posture, functionally veins have to drain against gravity. The superficial veins have loose fatty tissues to support them and thus suffer from varicosity. In Ayurvedic literature the particular disease has been described as "*Siragranthi*".^[2] *Sira Sankocha* (tortuous veins), *Sira Vakra* (irregular surface of veins), *Sira utsedha* (inflammation of veins) and *Vishoshana* (roughness and hardness of veins) are the clinical features of *Siragranthi*. These features are helpful in correlating *siragranthi* with Varicose veins. The Varicose veins is estimated to affecting men and women both. The most common cause is incompetent valves in the vein, while increasing age, obesity, pregnancy and standing posture are risk factors.

***Raktamokshana* –** *Raktamokshana* is made of two words- *Rakta*(blood) and *Mokshana* (to leave) so *Raktamokshana* means to let out blood. Application of leeches is the most delicate method of blood-letting prescribed for kings, wealthy person, children, old, women and delicate persons.^[3]

***Jalaukavacharana*-** The treatment of disease conditions with medicinal leeches is termed as Hirudotherapy (*Jalaukavacharana*). The first documented evidence of leeches is found in *Sushruta Samhita*. In the early 1880s Haycraft first noted the antithrombotic properties of leech saliva and in 1904 the anticoagulant factor named Hirudin was discovered in leech saliva by Jacoby.^[4] The word Leech is derived from laece which means physician. *Jalauka* is derived from Sanskrita word due to their site of dwelling and nutrition source is *jala*.^[5] Leeches are segmented worms belong to the phylum Annelida.

Jalaukavacharana is known as Leech therapy or Hirudo-therapy. Acharya Sushruta has described *Agni*, *Kshara* and *Raktamokshana* as *upayantra* and *anushastra*.^[6] *Jalaukavacharana* is a type of

Raktamokshana considered as one of the very effective method to remove vitiated Dosha from the body without using any *shastra*.

AIMS AND OBJECTIVES

- To review the literature of varicose vein (*Siragranthi*) and *Jalaukavacharana*.
- To reveal the role of *Jalaukavacharana* in Varicose veins of lower limb.

MATERIALS AND METHODS

Review of Varicose veins (*shiragranthi*) and *Jalaukavacharana* was done on basis of Brihtrayi and modern point of view.

Causative factors of Varicose veins (*Shiragranthi*)^[7]

Ayurvedic View- Emaciated/Weak person who works hard, who walks for a longer time, who does heavy exercise and who dips his legs in cold water and prolonged standing causes vata dosha aggravation.

Due to the vitiation of *Vata* and *Pitta dosha*, *rakta dhatu* gets *dushita*. *Dushita rakta dhatu* do *Sthansamshraya* in *Raktavaha Sarotas*, resulting in sign and symptoms of *Siragranthi*. *Acharya Sushruta* described that vitiated *vata dosha* gets accumulated either in one part or one *dhatu* by producing symptoms such as *shotha*, *shoola* etc. if the proper management of vitiated *vata dosha* is not done at the same time then this vitiated *vata dosha* spreads to the other part and if still neglected produces the various diseases like varicose veins (*siragranthi*).

Modern view- There are three types of Varicosity- Primary varicose veins, Secondary varicose veins and Congenital varicose veins.

1. Primary Varicose veins occurs mainly due to defect in valves- defect in sapheno-femoral valve leads to varicosity of Long Saphenous vein, defect in Sapheno-popliteal valve leads to varicosity of short saphenous vein and defects in valves of perforators leads to varicosity of either long or short saphenous vein.
2. Secondary varicose veins occur due to venous obstruction by Mechanical factors like pregnancy, tumors in the pelvis and deep vein thrombosis.
3. Congenital Varicose vein occur due to either congenital arterio-venous fistula or cavernous haemangioma.

Pathogenesis of Varicose veins (*Shiragranthi*)

Ayurvedic view- *Vata* vitiates *rakta dhatu* due to excessive walking and physical strain etc. and *shira* undergoes *sankochan*, *sampidana* and *vishoshana* causing *Shiragranthi* (Varicose veins). The change in shape and size causes veins to become *sankuchit* i.e. tortuosity of veins. Also due to *ruksha guna* (dryness) veins become rough and hard (*Visohoshana*) and finally veins look like a swelling that is painless and non pulsatile.^[8]

Modern view- During prolonged standing and hard work long column of blood along with gravity puts pressure on the weak valves of the veins. This causes failure of the valves giving rise to varicosity of the long or short saphenous vein. Forceful contraction of the calf muscles may force blood through the perforating veins in reverse direction. This will cause destruction of the valves of the perforating veins and leads to varicose veins. This can be seen in athletes and Ricksaw-pullers.

Table No. 1: Showing Clinical features Of Varicose veins (*Shiragranthi*).^[9]

| Ayurvedic view | Modern view |
|----------------------|---------------------------------|
| <i>Sira Sankocha</i> | Tortuous veins |
| <i>Sira Vakrata</i> | Irregular surface of veins |
| <i>Sira utsedha</i> | Inflammation of veins |
| <i>Vishoshana</i> | Roughness and hardness of veins |

Table No. 2: Showing types of *Raktamokshana*.^[9]

| | |
|---------------------------|------------------------------|
| <i>Shastra vistravana</i> | <i>Anushastra vistravana</i> |
| 1 <i>Pracchana</i> | 1 <i>Jalaukavacharana</i> |
| 2 <i>Siravedha</i> | 2 <i>Shrungavacharana</i> |
| | 3 <i>Alabu</i> |

Table No. 3: Showing types of *Jalauka* (leeches).^[9]

| | |
|---|------------------------------------|
| <i>Nirvisha Jalauka</i> (Non-poisonous) | <i>Savisha Jalauka</i> (Poisonous) |
| 1 <i>Kapila</i> | 1 <i>Krushna</i> |
| 2 <i>Pingala</i> | 2 <i>Karbura</i> |
| 3 <i>Shankhamukhi</i> | 3 <i>Alagarda</i> |
| 4 <i>Mushika</i> | 4 <i>Indrayudha</i> |
| 5 <i>Punderikamukhi</i> | 5 <i>Samudrika</i> |
| 6 <i>Savarika</i> | 6 <i>Gochandana</i> |

JALAUKAVACHARANA – The whole procedure is completed in 3 stages

PURVAKARMA

1. Preparation of Jalauka

- **Collection of Leeches-** As described in *Sushruta Samhita*, Leeches should be collected from ponds and lakes with the help of piece of wet leather.^[9] As described in *Charak samhita*, *Sharad rutu* (autumn season) is best for leech collection. In autumn, water is detoxified by exposure to hot climate in day time and cold climate in night time.
- **Selection of leeches-** Leeches who are bulky (*Maha sharira*), Stout (*Balavatya*), Gluttonous (*Mahashana*), fast blood suckers (*Shughrapavinyo*) which moves quickly live in fresh water and of non-poisonous varieties are suitable for Leech application.^[10]
- **Storage of leeches-** leeches should be stored in a new big wide pot containing clean water and mud from tanks or ponds. Powder of moss, dried meat and aquatic tubers should be given for feeding. After 3 days water should be changed weekly.^[11] Now a days the leeches are kept in glass bottles or jars with a lid which prevent leeches from coming out. Small holes should be made in the lid to let in fresh air. It is better to fill the jar with water from their natural habitats. The water in the container is changed once a week. The leeches are not fed in order to make them hungry, and it is believed that this would enhance the sucking ability by leeches.
- **Purification of leech-** Fresh leeches from the pitcher/ tank should be taken and a mixture of mustard and turmeric paste in water should be applied upon them. One can observe that inactive leeches become highly active and run all around the tray immediately after application of mustard and turmeric paste. After this the leeches should be transferred in another tray having clean water.^[12]

2. Preparation of Patient

- **Investigation-** Haemoglobin, Bleeding time, Clotting time, Prothrombin time, Prothrombin time index and Viral markers should be done.
- Coagulating disorders like haemophilia, anemia, hepatitis, HIV patients should be ruled out.
- **Part preparation-** Site should be cleaned with the help water or turmeric water.

PRADHANA KARMA

- The patient should be made to sit or lie down and the desired site should be cleaned with water.
- Hold the leeches from neck and 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.

- In the event of their refusing to stick to desired spot a small prick should be made at the affected site. If they do not stick even, another one should be tried.
- The *jaluka* (Leech) first sucks only the vitiated blood from a mixture of vitiated and non vitiated blood. When itching or pricking pain is produced at the site of application it should be inferred that the leech is now sucking the pure blood. When sucking pure blood *leech* should be removed. If it does not withdraw, a little turmeric powder or common salt powder should be sprinkled on the sucking part of the leech.^[13]

PASCHATA KARMA

- The site should be cleaned with normal saline and bandaging should be done after sprinkling turmeric powder to the bleeding site.
- After falling off, the leeches should be made to vomit. This is carried out by applying turmeric powder at their mouths. When the blood comes from the anterior sucker, gentle squeezing from caudal to front end is required for proper emesis. If the leech is active when placed in water, it indicates that the vomiting is proper.^[14]
- The used leeches are kept in separate jars/pots labeled with the details of patients. The leech should be applied once in a week and one leech should be reserved for a particular patient to avoid cross infection.

Sign and Symptoms of proper Jalaukavacharana^[15]

- *Vedana Shanti* (Pain decreases)
- *Laghuta* (Sense of lightness)
- *Vyadhirvega prasamana* (remission of signs and symptoms of diseases)
- *Mana Prasadana* (Happiness)

DISCUSSION

On reviewing Literature and *Brihtrayi* it reveals that *Acharya Shusruta* and *Acharya Vagbhatta* had given a great importance to *Jalaukavacharana* as they had given separate chapter of “*Jalaukaavcharniya adhaya*”^[16] and “*Jalauakavidhi adhaya*”^[17] respectively. *Jalaukavacharana* removes not only blood from the body but also injects biologically active substances which help to manage various disorders. As the leech suck peripheral blood it creates negative pressure in the vein present locally and facilitates drainage. Number of sitting may be required depending upon the disease condition of patient. The patients who suffer from pain and inflammation will feel relief from the anti-inflammatory and anaesthetic effects of the leechs saliva.^[18]

Probable mode of action of Jalaukavacharana

The probable mode of action of *jalauka* is purification of body by removing deeply seated toxins and pacifying vitiated *dosha*. Varicose Veins (*Siragranthi*) occur due to the vitiation of *Vata* and *Pitta dosha* which results in vitiation of rakta dhatu and do *Sthansamshraya* in

Raktavaha Sarotas, causes sign and symptoms of *Siragranthi*. By application of *Jalauka*, the saliva of *Jalauka* acts on the *Rakta* resulting in purification of *Rakta* and let out the impure blood and *dushita Dosha* from the body. *Jalaukavacharana* helps in clearing the Obstruction and stagnant blood in *Shira* and maintain the proper blood flow.

The secretion of salivary glands of medicinal leech contains more than hundred bioactive substances which are responsible for carrying out the desired medical effect. Important constituents present in leech saliva are as follows Hirudin, Hyaluronidase, Destabilase, Eglins, Calin, Tryptase inhibitor, Hirustatin, Bdekins, Factor xa inhibitors, Acetylcholine, Histamine like substance, Carboxypeptidase A inhibitor.^[19]

The saliva of leech contains substances that anaesthetize the wound area making the bite of leech painless to its host and dilate blood vessels to increase blood flow to the site of bite. Hirudin is a powerful anticoagulant, which inhibits blood coagulation by preventing conversion of fibrinogen to fibrin. Hirudin also helps in reducing the blood thickness, thereby promoting optimum blood flow and preventing the risk associated with sluggish blood flow.

CONCLUSION

Positive Brodie Trendelenburg test gives indication for operative measures for the management of disease. But by following conservative treatment with *jalaaukavacharana* the surgical measure can be delayed or avoided. And probable mode of action of *jalaaukavacharana* in Varicose vein is explained which helps in management of Varicose vein. The saliva of Leeches contains various active constituents which helps in purifying *rakta dosha* and dilates veins resulting in management of varicose vein. Hirudin is the main active constituent having anti thrombolytic effect. This study may be of great use in carrying out various clinical trials and further studies.

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