

Role of Jalaukavacharan (Leech Therapy) In The Management of Deep Vein Thrombosis**Dr. Shubhada Lonikar¹ and Dr. Bhagyashri Tathe²**

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Abstract

Panchakarma is a therapeutic way of eliminating toxic elements from the body. According to Sushruta, Panchakarma include five Shodhana (purification) process or therapies in which Raktamokshana (bloodletting) is one among them. Jalaukaavcharana (Leech therapy) is Shodhana type of treatment under raktamokshana. In Ayurveda, raktamokshana has been mentioned mainstay of treatment for raktapradoshajavikara. Deep vein thrombosis, or deep venous thrombosis, (DVT) is the formation of a blood clot (thrombus) within a deep vein, predominantly in the legs. Non-specific signs may include pain, swelling, redness, warmth, engorged superficial veins. D.V.T. formation typically begins inside the valves of calf veins where the blood is relatively oxygen deprived which activates certain biochemical pathways. The lifestyle of an individual can increase the risk for venous diseases. If a person is obese, or smoker, drinks excessive amount of alcohol, or consume fatty foods, it can lead to blood thickening and obstruction of the vessels by fatty deposits or plaque formation. This is the case presentation of 38 years old male patient had a history of D.V.T., having complaints of pain and numbness in right leg since 8 months. A Colour Doppler Ultrasound was positive for D.V.T. The Jalaukaavcharana was done weekly along with oral medication for total duration of 30 days with continuation of the previous medication. The patient got relief in clinical sign and symptoms of D.V.T.

Keywords: Panchakarma, Raktamokshana, Deep vein thrombosis, Jalaukaavcharana

Introduction

Deep vein thrombosis (DVT) is the third most common vascular disease, after ischemic heart disease (IHD) and stroke and it is a silent killer. The mechanism underlying DVT, known as Virchow's triad, are venous stasis, hypercoagulability and endothelial injury. DVT may cause life threatening condition like pulmonary embolism due to dislodgement of thrombus [1]. DVT has an estimated annual incidence of 67 per 100 000 among the general population [2]. DVT commonly affects the leg veins like femoral vein, popliteal vein and the deep veins of the pelvis. Immobility, hypercoagulability and trauma to the vein are the common causes for development of DVT [3]. Increasing age and stroke/paralysis etc clinical conditions predispose to venous thrombo embolism (VTE) in adults [4]. Patients may complain of pain in the calf muscles and thighs and may present with swollen legs. There may be tenderness, palpable thick vein, distended veins, discoloration or cyanosis [5].

Treatment of DVT aimed at reduction the propagation of thrombus, to limit the damage to the venous valves and to prevent pulmonary embolism.

Management of DVT by western medicine consists of, bed rest, elevation of legs, elastic stockings, use of drugs like heparin, coumarine derivatives (warfarins), fibrinolytic drugs (streptokinase) and aspirin etc [1]; Various treatment modalities and drugs such as surgical interventions, urokinase, streptokinase or tissue plasminogen activators to dissolve the blood clots have their own limitations and side effects apart from being expensive [6]. DVT can be correlated with various conditions like, 'Raktavritavata', 'Siragatavata', 'Vatarakta' etc., mentioned in Ayurveda and procedures like, 'Raktamokshana' (bloodletting) / 'Jalookavacharna' (leech application) have been proved beneficial in the management of DVT [1,3]. The present report deals with a case of DVT with 'Stroke' & 'Hypothyroidism' diagnosed as 'Ekangashotha' [7] / 'Raktavritavata' [8] & 'Pakshaghata' [9] according to Ayurveda. Written informed consent was obtained from the patient for the publication of the present case report.

Case Report

Sex - male
Age - 38 yrs
Occupation - Barber
Desh - Sadharan
Religion - Hindu

A male patient of 38 years of vatapittajaprakruti, Hindu by religion, living in Aurangabad, Maharashtra, India approached OPD of CSMSS AYURVED RUGNALAYA and registered with Cr.NO.-2779/381 on jan 27th 2018. Patient was asymptomatic 8 months ago. 8 months back, he developed pain in the Right leg. He consulted a nearby physician but had no relief. Later, his condition got worsened and he was not able to bear weight on the Right leg and unable to walk for which he visited Private Hospital and he was suggested to go for colour Doppler study for both legs. The color Doppler suggestive of Ac. Thrombosis in left femoral vein and partial recanalization of thrombus in right femoral vein. Tab. Warfarin 2 mg 1BD, Tab. Monotrait 20 mg 1BD, Tab. Dolo-650 mg 1BD for 20 days was given to patient but he did not get any relief with this treatment. Hence, he approached to CSMSS AYURVED RUGNALAYA for better management. He came to us with complaints of Pain in Right leg since 8 months, Numbness in both legs since 8 months, not able to walk properly, Slight swelling over the Right lower leg. According to patient statement, it was found that pain was constant, severe aching in nature, not radiated to any other part, aggravated on standing for long time and relieved by elevation of Right leg. He had no history of Hypertension, diabetes mellitus, trauma, previous surgery. On examination, in upper thigh and calf region tenderness was present, in right lower leg redness and oedema was present. Homan's Sign (dorsiflexion of foot may cause pain in calf region) was positive. Moses' sign (when the calf muscle is compressed forwards against the tibia, but not when the calf muscle is compressed from side to side) was positive. All the laboratory investigations were normal excluding Prothrombin time-15 sec, Prothrombin Ratio-1.07, I.N.R.-1.16. In Urine examination, albumin was traceable. The patient was treated with both internal and external medications for four weeks. The details of treatment are given below

Internal medications was

- Ekangaveer Rasa 150 mg 1 Tab. BD,
- Mahayograjuggulu 325 mg 1 Tab. BD
- Maharasnaadi Kwatha 60 ml. B.

External medications was

- Abhyanga with Vishgarbh Tail.
- NadiSawedana with Rasanasaptak Kawath.
- Jalaukaavcharana- started on jan 27th 2018 and repeated after every 7th day.

Materials And Method**Method of Jalaukavacharana****Purva karma (pre-operative procedure):**

The patient who is curable by blood-letting treatment through the leeches should be made to sit or lie down, and if the site of the lesion is painless, it should be dried by rubbing with earth and powdered cow dung.

Pradhana karma (operative procedure):

The leeches should then be grasped and a mixture of mustard and turmeric paste in water should be applied upon them and then for a muhurta (48min) they should be kept in a vessel of water till they get rid of their exhaustion and there after they may be made to stick at the site of the lesion. They should be fully covered with a fine wet white cloth except for their mouth which should be left exposed. If they do not stick, a drop of milk or blood may be applied (at the site of application) or scratching may be done there. If they do not stick even then, another one may be tried. When its mouth gets suck (to the site) and middle portion gets elevated assuming the shape of a horse shoe it should be known it is sucking well. The sucking leeches should be held covered by wet cloth.

Withdrawal of leeches:-When pricking pain or itching is produced at the site of application it should be inferred that the leech is now sucking pure blood (after having sucked the vitiated blood) and then the leech can be removed. If it does not withdraw due to the smell of blood, common salt powder should be sprinkled upon its mouth.

Paschatkarma (post-operative procedure):

When it has fallen away its body should be massaged by rice powder and its mouth by oil and common salt; its hind portion should then be held by the left hand in the between the thumb and fingers and its should be slowly and gently squeezed (beginning from the tail end to) as far upwards as the mouth by the thumb and fingers of the right hand and it should be made to vomit till it shows the symptoms of

complete emptying. When the leech completely emptied of blood, it is left in a vessel of water while it moves to and fro in search of food. The leech which sinks down and does not move after left in water should be known to have vomited incompletely; it should again be made to vomit properly. After proper vomiting it should be replaced in water as described previously. After assessing the amount of bleeding, whether appropriate or incorrect, the wound should simply be anointed by Satadhaughrta (ghrita washed one hundred times) or else should be compressed by= gauze (soaked) in the same. The wound caused by the leech should further be rubbed with honey and cold water should be sprinkled over it; or else it should be bandaged; or astringent, sweet, greasy and cold paste may be applied over the wound.

Total treatment period was four weeks. On the basis of visual analogue scale (VAS), patient was assessed weekly.

Pain gradation was as follow

0-1 No Pain

2-3 Mild

4-5 Uncomfortable

6-7 Distressing

8-9 Intense

10 Worst Possible

Result

After the completion of therapy patient was in supervision up to 1 month without intervention follow up and it was observed that the patient is symptomless and cured. As we observed in VAS, before treatment pain grade was 8. After 7 days of treatment pain grade comes down 6, further on the completion of 2nd week, 3rd week and 4th week pain grade was 5, 3 and 1 respectively. Before treatment patient was having swelling on right leg which later completely subsided in two weeks. Gradual improvement in walking distance of patient was as following i.e. initially he was not able to walk, after the treatment of one week he was able to walk of the distance 25 meters and later after the treatment second, third week and four weeks he was able to walk up to the distance 70 meters, 90 meters, 200 meters respectively. Patient was suggested to continue treatment and advise to attend the OPD

after one month. Patient was observed that he has no problem in walking.

Discussion

The purpose of Ayurveda is to maintain the health of healthy individual and treat the patient. Basically the Ayurveda is the complete science of life, which has various drugs and techniques for treatment of mankind. Raktamokshana is one of the biggest innovations in the field of Ayurveda, which also includes the Leech therapy in the form of ashstrakritaraktamokshana. It is safe, painless and highly effective. Once the leech's bites a target, the saliva enters the puncture site along with enzymes and compounds responsible for all the positive effects. Because of anticoagulation agents the blood becomes thinner, allowing it to flow freely through the vessels. The anti-clotting agents also dissolve clots found in the vessels, eliminating the risk of them travelling to the other parts of the body and blocking an artery or vein. The vasodilation agents help widen the vessel walls by dilating them and this causes the blood to flow unimpeded too. Patients who suffer from pain and inflammation will feel relief from the anti-inflammatory and anesthetic effect of the leech's saliva.

Anti-coagulating effect of leeches–

The leech's saliva contains enzymes and compounds that act as anticoagulation agent. The most prominent of these anticoagulation agents is hirudin which binds itself to thrombin's, thus effectively inhibiting coagulation of the blood. Another compound that prevents coagulation is calin. This on the other hand work 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. The saliva of leech also contains factor Xa inhibitor which also block the action of the coagulation factor Xa.

Clot dissolving effect of leeches.

The action of destabilize is the break up any fibrins that have formed. It also has a thrombolytic effect, which can also dissolve clots of blood that have formed.

Vasodilating effects of leech

There are 3 compounds in the leech's saliva that act as a vasodilator agent, and they are the

histamine-like substances, the acetylcholine and the carboxy-peptidase inhibitors. All these act to widen the vessels, thus, causing flow of blood of the site.

Bacteriostatic and Anaesthetic effect of leech

The saliva of leeches also contains anaesthetic substances which relieve pain on the site and also bacteria inhibiting substances which inhibit the growth of bacteria. There were no adverse events throughout the management. The mode of treatment was found to be cost effective, safe and easy to implement. So Jalaukaavcharana (hirudotherapy) is safe and effective method in management of D.V.T. than modern treatments.

Conclusion

In present study, the leech application in case of DVT is found to be effective. Leech therapy is beneficial in reduction of pain, swelling, tenderness in the patient of DVT. With the help of leech therapy we can improve the quality of life of the DVT patients. We can avoid the hazards of prolong use of heparin like drugs by using leech therapy. In addition to these benefits, this method is cost effective, less time consuming.

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