



Management of Deep Vein Thrombosis with Raktamokshana: Single Case Study

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Case report

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Abstract

Deep vein thrombosis (DVT) is the formation of blood clots (thrombi) in the deep veins. It commonly affects the deep leg veins (such as the calf veins, femoral vein, or popliteal vein) or the deep veins of the pelvis. It is a potentially dangerous condition that can lead to preventable morbidity and mortality. This case is about a 35 year-old male who was found to have partial deep vein thrombosis in the left femoro popliteal venous system detected on a doppler previously ordered for work-up of leg pain after diagnosis of pulmonary embolism. Patient has been suffering from pain swelling, discoloration in the left leg since 3 years. He had no prior risk factor; personal or familial history of venous thrombosis. He underwent conservative treatment for his complaints but got no significant relief and condition further aggravated. So for the management he came to Out Patient Department of Panchakarma, Rishikul Ayurvedic College Hospital where eight sittings of Jalaukavacharan (leech therapy) was done. After 8 sittings, he got significant relief in his problems; his daily activities and quality of life also improved.

Keywords: Deep Vein Thrombosis; Doppler; Jalaukavacharan; Panchakarma

Introduction

The term thrombosis refers to the formation, from constituents of blood, of an abnormal mass within the vascular system of a living animal. When this process occurs within the deep veins, it is referred to as deep vein thrombosis (DVT). It is most common in legs or pelvis [1]. It can restrict circulation and cause damage to the blood vessels and the surrounding tissue.

Deep vein thrombosis (DVT) is a common problem with incidence of 1/1000 population before fourth decade of life and increases rapidly after 45 years of age [2]. Among those with DVT of the lower extremities, there is an increased risk of post-thrombotic syndrome, pulmonary embolism, and death [3]. Abnormalities of blood flow, imbalanced activation

of blood coagulation and vessel wall injury are the three main factors responsible for venous thrombosis. Other risk factors include old age, obesity, varicose veins, pregnancy, oral contraceptives, immobility, trauma, surgery, drug history, family history of venous thrombosis, genetic factors affecting coagulation imbalance etc.

Management of DVT is aimed at minimizing the propagation of thrombus, to limit the damage to the venous valves and to prevent the occurrence of pulmonary embolism. Management of DVT consists of bed rest, elevation of legs, elastic stockings, use of anti-coagulants like heparin, coumarine derivatives (warfarins), fibrinolytic drugs (streptokinase) and aspirin etc [4]. Deep vein thrombosis can be compared in Ayurveda with Raktavrita Vata, Siragata Vata or Grathita Rakta Vikara mentioned in Ayurvedic classics.

Case Report

This is a single case study of a 35 years old male patient who came to OPD of Panchakarma Department, Rishikul Ayurvedic College Hospital, Haridwar (Reg No. 1848/11252) with complaint of pain, swelling, discoloration of left leg below knee and difficulty in walking and standing since last 3 years. Pain was present at rest also and increased on exertion. He underwent allopathic treatment from allopathic hospital for his complaints. His symptoms aggravated since 6 months.

Patient was hospitalized for the complaint of breathlessness and haemoptysis 4 years back and was diagnosed as pulmonary embolism. Till then he had no related complaint or symptoms of the disease and no family history. He got treatment for his problem with anti-thrombolytic injections and was given anticoagulants. 1 year later he suddenly started feeling pain and tingling sensation in the left leg. After some time he observed swelling which gradually increased to the level where his daily activities were hampered. He was unable to stand for long time or walk even for 5 minutes.

Investigations

Hematological and biochemical investigations including complete blood counts, glucose, urea, creatinine, liver function tests, lipid profile, bleeding time, clotting time were normal. Investigations for other causes including factor V Leiden mutation, Prothrombin gene mutation, MTHFR gene mutation and serum homocysteine were negative. His ESR level and LDL were mildly elevated, that is, 25 mm/hr (reference value <20) and 105.7 mg/dl (reference value 0-100) respectively. A doppler ultrasound of lower limbs (dated 20/11/2019) revealed a partial deep vein thrombus in the left femoro popliteal venous system and soft tissue edema in left lower leg and foot.

On physical examination, left limb was edematous and swollen. Pitting edema was present with local tenderness at calf region. Left calf circumference was more than right by 9.4 cm. The skin was hyperemic and warm. Small hemorrhagic spots were observed on examination. Non healing ulcer was seen at the lateral malleolus of left leg. No varicose veins were present at either of the legs. The case was diagnosed as Grathita Rakta Vikara (deep vein thrombosis) on the basis of symptoms and Doppler study.

Intervention

Treatment was planned after considering pathogenesis and Doshika assessment of the Roga and Rogi. Jalauka-avcharana (leech therapy) was done in eight sittings, each

at an interval of 7 days. 4 leeches were used in each sitting. Follow up of the patient was done after completion and starting day of each sitting. Vitals were checked each day prior to the therapy. For wound management Jatyadi Ghrita dressing was advised to the patient.

Results

Remarkable improvement was observed in the symptoms of the patient (Table 1). Pain and swelling significantly reduced. Quality of life improved. Patient was able to continue with his job. He can now stand and walk for long hours. Earlier there was complete loss of hair in left leg which has now grown back to normal.

	BT	AT
Pain(Vas)	9	1
Standing Time	5 Minutes	>1 hour
Walking Time	2 Minutes	>1 hour
Mid-Calf Circumference	24.4 cm	15 cm
Swelling	Present	Absent
Discoloration	Present	Reduced
Wound	Non-healing ulcer	Healed

Table 1: Assessment before and after treatment.

Discussion

Jalauka-avcharana is included under Raktamokshana i.e. main five karmas of Panchakarma by Acharya Susruta. Raktamokshana is a unique para surgical procedure indicated in Pitta and Rakta vitiated diseases. Acharya Vagbhata indicates leech application in the Grathita Rakta Vikara (blood clot /thrombosis) [5]. Jalauka procedure works on the principle of resolution and excretion of morbid humours and excess fluids from the body thereby maintaining homeostasis in the quality and quantity of the body humours. The saliva of the leech contains more than 100 metabolically active substances including coagulation inhibitors, platelet aggregation inhibitors, vasodilators, and anaesthetizing, antimicrobial and anti-inflammatory agents [6]. It improves the blood flow and meliorates the hyperalgesia. It contains hirudin which possesses anti thrombotic activity and prevents the blood coagulation by inhibiting conversion of fibrinogen to fibrin. It also inhibits platelet aggregation, further contributing to the process. Factor Xa is a prothrombin activator, and plays a critical role in the common pathway of the coagulation cascade and has a direct anticoagulant pathway [7]. The Kinin-kallikrein system is also connected to the coagulation cascade and has a major role in the inflammatory response [8]. Histamine like

substance increases the blood flow that helps in reducing swelling [9]. Destabilase is an enzyme with glycosidase activity and shows both antibacterial and fibrinolytic actions [10]. Antistatin, hirustatin, lantens, elgin, complement C1 inhibitor, guamerin and pigumerin, carboxypeptidase inhibitor, bdellins and bdellastasin are analgesic and anti-inflammatory substance found in secretion of leech that helps to reduce pain sensation.

Conclusion

Deep vein thrombosis should be kept as differential diagnosis in patients who develop lower limb edema to prevent the fatal complications like pulmonary embolism and also to avoid the unnecessary usage of antithrombotics in case of incorrect diagnosis. Hirudin secreted through Jalauka has an advantage over indirect thrombin inhibitors, heparin and low molecular weight heparins for they exert direct inhibitory effect on thrombin without the need of endogenous cofactors. Ayurveda gives a ray of hope in the management of venous thrombosis. Panchakarma treatment, Jalaukavacharana proves to be effective, non-invasive, pocket-friendly procedure. It gives promising results and can be a good substitute for modern medicine in the condition.

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