

Ayurvedic Management of Deep Vein Thrombosis with Stroke and Hypothyroidism - A Case Report

Abstract

Deep vein thrombosis (DVT) is the third most common vascular disease, after ischemic heart disease (IHD) and stroke and it is a silent killer. It affects approximately 0.1% of persons per year. Various treatment modalities and drugs of western medicine 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. The present report deals with a case of DVT with 'Stroke' & 'Hypothyroidism' diagnosed as '*Ekanga shotha*' / '*Raktavrita vata*' & '*Pakshaghata*' according to Ayurveda. Various *Ayurvedic panchakarma* procedures and internal medicines have provided promising results especially in reducing the swelling (of left lower limb caused by DVT), decreasing the severity of thrombosis (from complete thrombosis to partial in proximal superficial femoral vein and common femoral vein) in deep veins, managing various associated conditions like hypothyroidism, hypercholesterolemia, hypertension, stroke in a better way and also improving quality of life without causing any adverse effects in present case within two months of Ayurvedic treatment. Ayurvedic treatment seems to be promising in the management of DVT with stroke and hypothyroidism.

Keywords: Deep vein thrombosis; DVT; Hypothyroidism; Stroke; *Panchakarma*, *Ayurveda*

Case Report

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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, '*Raktavrita vata*', '*Siragata vata*', '*Vatarakta*' etc., mentioned in *Ayurveda* and procedures like, '*Rakta mokshana*' (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 '*Ekanga shotha*' [7] / '*Raktavrita vata*' [8] & '*Pakshaghata*' [9] according to Ayurveda. Written informed consent was obtained from the patient for the publication of the present case report.

Case Description

A 52 year old female patient came to our care (10.10.2016) with the complaints of left side hemiparesis and swelling of left lower limb (Figure 1). Patient was diagnosed as having 'DVT' along with 'Ischemic cardio vascular stroke', 'Hypothyroidism' & 'Hypertension' and has been receiving treatment for the same since six weeks (24.08.2016). Patient has been taking anti hypertensives, aspirin, warfarins, thyroid supplements, fibrinolytic drugs, multi vitamins and laxatives. Patient didn't get satisfactory and sustained relief with these medicines. Patient has decided to get Ayurvedic treatment and came to our care. The patient was able to walk with support, fully conscious / alert and the swelling of left lower limb was not associated with pain.

Reduced hemoglobin levels (10.2gm/dl), increased prothrombin time (36.2 seconds), disturbed lipid profile and elevated TSH (Thyroid Stimulating Hormone) levels (46.66u IU/ml) were found before / initial stages of an Ayurvedic treatment (05.10.2016, 07.10.2016 & 20.10.2016). Lower limb venous Doppler showed, 'Common femoral vein (CFV) and Superficial femoral vein (SFV) shows echogenic content with no probe compressibility; Anterior tibial vein (ATV), Posterior tibial vein (PTV), Peroneal vein (PV) show normal flow and probe compressibility; DVT involving CFV, SFV & Popliteal vein (27.09.2016). X-Ray of chest (AP view) has showed, consolidation of mid zone of left lung (19.09.2016) (Table 1).



Figure 1: DVT - Left lower limb (before treatment).

No past history of head injury, diabetes, and any major medical illness found except hypertension and hypothyroidism. Negative family history of stroke, diabetes, hypertension, dyslipidemia and cardio-vascular pathology found. At the time of examination patient's vital functions were normal and patient was conscious, oriented, responding to vocal commands with no speech

Table 1: Investigation reports.

Date	Name of Investigation	Report
26.08.2016	CT scan of Head (Plain)	No evidence of intra cranial hematoma; Changes of cerebral atrophy; Thickened frontal & occipital skull valut;
01.09.2016	Lipid profile	Normal report
16.09.2016	Echocardiography	Normal report
	Hemoglobin	11.1 gm/dl
	Peripheral smear for 'Malarial parasite'	Negative
19.09.2016	X-Ray of chest (AP view)	Ill defined radio opacity with 'Air bronchogram sign' seen in mid zone of left lung; Consolidation;
25.09.2016	Prothrombin time (PT)	34.2 seconds
	Activated Partial Thromboplastin Time (APTT)	49.8 seconds (control - 30 seconds)
27.09.2016	Lower limb venous Doppler	DVT (Deep vein thrombosis) involving CFV, SFV & Popliteal vein.
30.09.2016	Urine culture and sensitivity test	No pathogen was isolated after 48 hours of aerobic incubation;
05.10.2016	Hemoglobin	10.2gm/dl
	RBC (Red blood corpuscles) count	3.94 millions / micro litre
	Hematocrit	31.3%
	Serum potassium	3.3 m Eq /litre
	Urine analysis	Normal report
07.10.2016	PT	36.2 seconds

disturbances and no facial involvement. Patient was able to walk with support. Tendon reflexes were exaggerated, muscle tone was increased and power was +2 in right upper and lower limb with positive babinski. Swelling of left lower limb was found with pitting edema. The swelling was not associated with pain and tenderness. Palpable thick veins, distended veins or discoloration or cyanosis were not found in left lower limb. Patient was non smoker, non alcoholic and not having allergy to any drug or food item.

Diagnosis, Assessment & Treatment

History and clinical examination are not reliable ways of diagnosing DVT. Lower extremity DVT may be symptomatic or asymptomatic [4]. Clinical diagnosis is difficult as the signs and symptoms are not specific in DVT. USG (Ultrasonography) of femoral and popliteal veins has both sensitivity and specificity of 97% in detecting DVT in symptomatic patients. [5] Venous USG is the investigation of choice in patients stratified as DVT likely. It is non invasive, safe, easily available and relatively inexpensive. Diagnosis of DVT is made if venous USG is positive. [4] In present case the diagnosis of DVT, ischemic stroke, hypothyroidism has been made based on the combination of positive venous USG findings, physical examination findings, imaging and thyroid profile (Table 1).

20.10.2016	Thyroid stimulating hormone (TSH)	46.66 u IU / ml
	Lower limb venous Doppler	DVT involving CFV, SFV & PV.
	Hemoglobin	10.9gm/dl
	PT	14.2 seconds
	APTT	25.4 seconds (control - 30 seconds)
	Serum cholesterol	218 mg/ dl
	Serum LDL	140.3 mg/ dl
	Serum VLDL	37.4 mg/ dl
	Cholesterol / HDL ration	5.4094
08.11.2016	Lower limb venous Doppler	CFV shows minimal flow and non compressible indicating near complete / partial thrombosis; SFV shows complete thrombosis; ATV, PTV and PV are normal;
	Hemoglobin	11.6 gm / dl
	PT	13.1 seconds
	APTT	23.5 seconds (control - 30 seconds)
	Bleeding time	2 minute 15 seconds
	Clotting time	4 minute 38 seconds
	Serum cholesterol	258 mg/ dl
	Serum LDL	173.3 mg/ dl
	Serum VLDL	33 mg/ dl
Cholesterol/HDL ration	4.9903	
07.12.2016	Lower limb venous Doppler	Partial reconciliation of proximal SFV and CFV; Complete thrombosis of SFV;

A criterion of assessment in present case was based on the findings of venous USG, lipid profile, thyroid profile, clinical improvement and other investigation reports. Total two assessments were taken, pre treatment (baseline) and post treatment (after 2 months completion of treatment). The patients was diagnosed as having '*Ekanga shotha* [7] / *Raktavrita vata* [8] and *pakshaghata*' [9] according to Ayurveda and treated with various *panchakarma* procedures like *Upanaha sweda* (applying medicated paste over affected area) (Figure 2), *Kashaya dhara* (pouring decoction over affected area) (Figure 3), *Udwartana* (powder massage), *Patra pottali pinda sweda* (medicated bolus massage), *Vasti* (oil enema's and decoction enema's) and various internal medicines along with physiotherapy (Table 2). The purpose of treatment is to withdraw the patient from western medicines and to reduce the swelling initially; later the treatment was focused on to prevent the extension of thrombus, to prevent pulmonary embolism, to manage hypothyroidism, stroke, hypercholesterolemia and hypertension (Table 2).



Figure 3: Kashaya dhara.



Figure 2: Upanaha sweda.



Figure 4: DVT - Left lower limb (after 1 month of treatment).

Table 2: Intervention.

Duration	Medicine	Dose	Frequency	Anupaana
10.10.2016 to 16.10.2016	1. <i>Lashuna erandadi kashayam</i> with <i>Kalyana ksharam</i>	80ml 1gm	Twice a day before food	
	2. <i>Rasona rasam</i>	5ml	Twice a day before food	with water
	3. Cardocalm tablets	1gm	Twice a day before food	with water
	4. Palsineuron capsules	1gm	Twice a day before food	with water
	5. <i>Gokshuradi guggulu</i>	1gm	Twice a day before food	with water
17.10.2016 to 29.10.2016	1. <i>Rasona rasam</i>	5ml	Twice a day before food	with water
	2. Palsineuron capsules	1gm	Twice a day before food	with water
	3. <i>Gokshuradi guggulu</i>	1 gm	Twice a day before food	with water
30.10.2016 to 08.11.2016	1. <i>Patola katurohinyadi kashayam</i> with <i>Kalyana ksharam</i>	8 ml 1gm	Twice a day before food	
	2. <i>Rasona rasam</i>	5ml	Twice a day before food	with water
	3. <i>Gomutra arka</i>	20ml	Twice a day before food	with water
	4. <i>Yavaloha choornam</i>	5gm	Twice a day before food	with water
09.11.2016 to 18.12.2016	1. <i>Rasona rasam</i>	5ml	Twice a day before food	with water
	2. <i>Ayaskriti</i>	20ml	Twice a day before food	with equal water
	3. <i>Guggulu panchapala choornam</i>	5gm	Twice a day before food	with water
	4. <i>Abhayadi choornam</i>	5gm	Twice a day before food	with water
	5. <i>Shaddharanam choornam</i>	5gm	Twice a day before food	with water
	6. <i>Arogya vardhini vati</i>	500 mg	Twice a day before food	with water
10.10.2016 to 18.12.2016	<i>Gudardraka prayoga</i> (combination of zinger and jaggery paste; 5gm each)	10gm	Twice a day before food	with water
Panchakarma intervention				
10.10.2016 to 08.11.2016 & 17.11.2016 to 21.11.2016 & 01.12.2016 to 05.12.2016	<i>Kashaya dhara</i> with <i>Dashamoola kashaya</i> & <i>Upanaha sweda</i> with <i>Grihadhoomadi choornam</i> / <i>Upanaha choornam</i>			

<p>09.11.2016 to 16.11.2016 (Yoga vasti schedule)</p>	<p>1. <i>Patra pottali pinda sweda</i> with <i>Prabhanjana vimardana kuzambu</i> 2. <i>Bashpa sweda</i> (in steam chamber) 3. <i>Niruha vasti</i> (A. <i>Saindhava lavana</i> - 6 gm B. <i>Madhu</i> - 150 ml C. <i>Nimbamrutadi eranda tailam</i> - 100 ml D. <i>Satapushpa kalkam</i> - 25 gm E. <i>Varanadi kwatha</i> - 500 ml F. <i>Gomutra arka</i> - 100 ml G. <i>Kalyanaka ksharam</i> - 3 gm) (or) 4. <i>Anuvasana vasti</i> with <i>Shatahvadi anuvasana tailam</i> - 80 ml</p>
<p>22.11.2016 to 30.11.2016 & 07.12.2016 to 12.12.2016</p>	<p>1. <i>Patra pottali pinda sweda</i> with <i>Kottamchukkadi kuzhambu</i> 2. <i>Anuvasana vasti</i> with <i>Pippalyadi anuvasana tailam</i> - 80 ml</p>
<p>13.12.2016 to 18.12.2016</p>	<p><i>Udwartana</i> with <i>Kola kuluthadi choornam</i></p>

Discussion

Thrombotic disorders are among the major fatal conditions affecting the society. [10] DVT is a major and common preventable cause of death worldwide. It affects approximately 0.1% of persons per year. The term thrombosis refers to the formation 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 DVT. The goal of therapy for DVT is intended to prevent the extension of thrombus, acute pulmonary embolism, to prevent recurrence of thrombosis and to prevent the development of late complications such as pulmonary hypertension and post thrombotic syndromes [4]. Several plants such as *Ocimum sanctum*, *Curcuma longa*, *Azadirachta indica*, *Anacardium occidentale*, *Molineria recurvata*, *Terminalia belirica*, *Tulbaghia violaceae*, *Melastoma malabathricum*, *Gloriosa superba*, *Jatropha curcas*, *porana volubilis*, *Synclisia scabrida*, *Allium sativum* and *Allium cepa* have been proved to possess thrombolytic activity [10]. *Tinospora cordifolia* and *Saussurea lappa* showed mild thrombolytic activity [6].

The patient has been taking various drugs like anti hypertensives, aspirin, warfarins, thyroid supplements, fibrinolytic drugs, multi vitamins and laxatives. All these medicines were gradually tapered, completely withdrawn and replaced with Ayurvedic medicines during the initial stages of treatment. Various drugs like, *lashuna erandadi kashaya* and *rasona rasam* (which contains *Allium sativum* as main ingredient), *guggulu* preparations (*Commiphora mukul*), *kalyana ksharam* (alkali preparation) and *arogy vardhini vati* were prescribed to reduce the thrombosis and to manage hypercholesterolemia. *Ayaskriti* was used to improve hemoglobin levels. Cardocalm tablets were used to manage hypertension (Table 2).

Kashaya dhara with '*Dashamoola kashaya*' and *Upanaha sweda* with '*Grihadhoomadi choorna*'/'*Upanaha choorna*' were prescribed

to reduce the swelling of left lower limb. After 9 days of these procedures the swelling of left thigh (mid thigh circumference) got reduced from 21 to 18 inches, left knee swelling from 14.5 to 14 inches and left calf (mid calf circumference) swelling from 12 to 10.8 inches (Figure 4). *Yoga vasti* schedule (alternate oil enema and decoction enema protocol for 8 days) and *Patra pottali pinda sweda* were implemented to treat the left side hemi paresis after complete disappearance of left lower limb swelling. *Rookshana* (dry / rough) procedure like *Udwartanam* (massage with herbal powders) with '*Kola kuluthadi choornam*' was prescribed after *vasti* schedule. *Gudardraka prayoga* (internal administration of equal amounts of jaggery and ginger daily) has been advised to cure and prevent the further extension of thrombosis of deep veins and also to prevent pulmonary embolism.

Patient's sleep, appetite and quality of life were improved. Left lower limb swelling was completely reduced (Figures 1 & 4). The patient has been taking western medicines for her multiple problems; all of them were successfully tapered, stopped and replaced with Ayurvedic medicines. Good improvement is noticed in hemoglobin levels, lipid profile, clotting factors like prothrombin time (PT) and activated partial thromboplastin time (APTT) with Ayurvedic treatment. From complete thrombosis of SFV, CFV and popliteal vein to partial reconciliation of proximal SFV and CFV is noticed in lower limb venous Doppler after two months completion of an Ayurvedic treatment (Table 1). Spasticity of left upper limb got reduced and patient felt better with Ayurvedic treatment. No adverse effects were reported by the patient. The patient got clinically meaningful improvement by internal medicines along with dietary restrictions (advised to avoid dairy products, salt and advised to drink hot water) and physiotherapy. Ayurvedic treatment seems to be promising in the management of DVT with stroke and hypothyroidism with in short period of time and without causing any adverse effects.

Conclusion

The Ayurvedic diagnosis of 'Ekanga shotha /Raktavrita vata' is made for 'DVT' in present case. Various Ayurvedic panchakarma procedures and internal medicines have provided promising results especially in reducing the swelling, decreasing the severity of thrombosis in deep veins, managing various associated conditions like hypothyroidism, hypercholesterolemia, hypertension, stroke in a better way and also improving quality of life without causing any adverse effects in present case. Present study findings can't be generalized and further long term follow up studies with large sample are required to substantiate these claims.

Acknowledgment

None.

Conflict of Interest

None.

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