All Kerala Govt. Ayurveda College Teacher's Association
KERALA JOURNAL OF AYURVEDA
An International Journal of Ayurveda Specialties

Vol 2(1): 29–34 (2023)
https://doi.org/10.55718/kja.140

CASE REPORT

THROMBO ANGIITIS OBLITERANS - A CASE REPORT

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ARTICLE HISTORY

Received: 27 February 2023
Accepted: 19 March 2023

Available online
Version 1.0 : 31 March 2023
Version 2.0 : 07 April 2023

Keywords

Thrombo angiitis obliterans, TAO, Ayurveda

Additional information

Peer review: Publisher thanks Sectional Editor and the other anonymous reviewers for their contribution to the peer review of this work.

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CITE THIS ARTICLE

Priya. S, Ajithkumar K N. Thrombo Angitis Obliterans – A Case Report. Kerala Journal of Ayurveda. 2023; 2 (1): 29–34.
https://doi.org/10.55718/kja.140

Abstract

Thrombo angiitis obliterans (TAO) is an inflammatory endarteritis associated with heavy tobacco use, affecting small and medium-sized arteries and veins of the upper and lower extremities, resulting in vaso - occlusion. Clinical features include pain, paraesthesia, moderate-to-severe claudication, paresis, and pulselessness. In Allopathy, pharmacologic or surgical therapy is not beneficial and amputation is considered the viable option.

After an assessment of the patient and the disease, based on Ayurvedic principles, a treatment protocol was formulated. The treatment principles include the re-establishment of vascularity by the removal of occlusion (*Srothorodhahara, Avaranahara*), achieving normalcy of the tissue elements (*Dhathu Samyatha*), and pacification of the bioregulatory principles (*Thridosha*). Both purification (*Sodhana*) and pacification (*Samana*) treatment protocols were incorporated to achieve normalcy.

A 65-year-old male patient was admitted and treated in the IPD of Dept. of Roganidana, Govt. Ayurveda College Thiruvananthapuram for Thrombo angiitis obliterans, with Ayurvedic medications and procedures. The signs and symptoms were completely relieved, and an arterial doppler study revealed normal vascularity of the affected limb.

Introduction

Thrombo angiitis obliterans (TAO) is an inflammatory vasculopathy which is also known as Buerger disease. It is an inflammatory endarteritis that causes a prothrombotic state and subsequent vaso-occlusive phenomena. It characteristically affects small and medium-sized arteries and veins of the upper and lower extremities and the inflammatory process is initiated within the tunica intima of blood vessels. The disease is strongly associated with heavy tobacco use, and disease progression is closely linked to continued use of tobacco. Patients often have moderate-to-severe claudication that can quickly progress to critical limb ischemia featuring rest pain or tissue loss. Features of acute limb ischemia including pain, paraesthesia, pallor, mottling, poikilothermia (the inability to maintain a constant core temperature independent of ambient temperature), paresis, and pulselessness are common findings encountered in the progression of the disease.

Pharmacologic therapy with Allopathic medicines is generally ineffective and abstinence from tobacco is the only measure known to prevent disease progression. Surgical or endovascular revascularization may not be possible because of the absence of a distal target for revascularization and amputation may be the only feasible option[1].

The annual incidence of TAO is reported to be 12.6 per 100 000 in the United States; the prevalence among all patients with peripheral arterial disease ranges from values as low as 0.5 to 5.6% in Western Europe to values as high as 45 to 63% in India[2]. It could be diagnosed clinically, which requires a compatible history, supportive physical findings, and diagnostic vascular abnormalities on imaging studies.

Patient information

A 65-year-old male patient with severe pain and loss of sensation at the right lower limb below the knee, having walking difficulty consulted *Roganidana* OPD of Govt. Ayurveda College Hospital, on 16/6/21 and was admitted. 11 days before on 5/6/2021, at 2 am the patient experienced breathlessness and restlessness and was taken to Medical College Hospital, and was admitted there. He was having heaviness without pain in the chest, palpitation, and pedal oedema. On the 6th day, he attempted to walk, but at that time he was incapable to walk due to severe pain and could not feel the touch sensation in both legs. On further investigation, atherosclerotic changes and limb ischemia were identified. A poor prognosis was explained to the patient and amputation of the limb was advised. Denying amputation, he had requested discharge and had approached Govt. Ayurveda College Hospital for better management.

The patient was a known case of Coronary Artery Disease (CAD) and Percutaneous Transluminal Coronary Angioplasty (PTCA) was done 2 years back. He also has a history of hypertension and dyslipidemia and was not diabetic. He was addicted to alcohol and tobacco and his smoking index was 420. His bowel was constipated and his appetite and sleep were reduced. He was a carpenter by profession and maintains good relations with family and friends.

Clinical findings

On examination, his vitals were pulse rate 52/minute, heart rate 52/ minute, respiratory rate 15/ minute, and BP 130/70mm Hg, and was afebrile. On CNS examination, while examining the sensory system, it was found that the superficial sensations - touch, pain, and temperature were reduced below the ankle, more on the right side compared to the left. No ulcerations were seen; the sense of passive movement, position sense, and vibration sense were reduced in the right side compared to the left.

While examining CVS, tar staining was noted over fingers indicating excess smoking, and clubbing was evidenced by a positive Schamroth window sign[3]. On examination of the knee joint, no abnormalities were detected. In the ankle joint, discoloration and tenderness (grade 3) were present bilaterally, and movements were painful.

Local Examination

Sl. No		INSPECTION	RIGHT LEG	LEFT LEG
1		Change in color	Blackish and	Blackish and congested
2		Signs of ischemia[4]		
	a	Thinning of skin	Present	Present
	b	Diminished hair growth	Present	Present
	c	Loss of subcutaneous fat	Present	Present
	d	Shininess	Present	Present
	e	Trophic changes in nails	Present	Present
	f	Ulceration in pressure points	Absent	Absent
3		Buergers postural test [4]	Positive	Negative
4		Capillary filling time [5]	Reduced	Reduced
5		Venous filling time	Reduced	Reduced
		PALPATION		
1		Temperature	Cold	Comparatively warm
2		Capillary refilling[6]	Prolonged	Better than Right Leg
3		Venous refilling	Poor	Better than Right Leg
4		Crossed leg test (Fuchsigs test)[6]	Oscillatory movement Present	Oscillatory movement Present
		PALPATION OF BLOOD VESSELS		
1		Dorsalis Pedis	Absent	Absent
2		Posterior Tibial	Absent	Absent
3		Anterior Tibial	Present	Present
4		Popliteal Artery	Present	Present
5		Femoral Artery	Present	Present

TIMELINE

Table 1. Timeline

Sl.No	DATE	DISEASE CONDITION
1	5/6/21	The patient had breathlessness and restlessness and was taken to MCH,
2	7/6/21	Arterial doppler study of lower limbs revealed diffuse atherosclerotic changes with significant narrowing
3	9/6/21	Spiral CT peripheral angiogram showed atherosclerotic changes in iliac and lower limb arteries with significant luminal narrowing
4	11/6/21	He attempted to walk after removing the catheters, but he had severe pain, could not feel any sensation, and was not able to walk.
5	14/6/21	Advised amputation; patient requested discharge and was discharged after signing the discharge against advice form.
6	16/6/21	Admitted at Govt Ayurveda College Hospital, in Roganidana Unit
7	28/6/21	The pain was persisting with feeble pulsations in the posterior tibial artery. The temperature was normal in calf but reduced in the foot. Values of blood investigations were becoming normal
8	20/7/21	The pain was relieved and pulsations were normal. Blood reports were normal except for high RBS.
9	27/7/21	The patient was able to walk normally, Arterial doppler showed normal blood flow. The patient was discharged.

DIAGNOSTIC ASSESSMENT

Arterial doppler study of lower limbs on 7/6/21 at MCH, revealed diffuse atherosclerotic changes in the common femoral artery (CFA), profunda femoral artery (PFA), the superficial femoral artery (SFA), and popliteal artery. Monophasic flow in the popliteal artery, proximal anterior tibial artery (ATA), and posterior tibial artery. Lumen showed significant narrowing and multifocal calcific plaques. No obvious vasculature was seen in the distal anterior tibial artery (ATA) and dorsalis pedis artery (DPA). Monophasic flow was seen in the proximal peroneal vein and the distal peroneal vein was not seen.

Spiral CT peripheral angiogram on 9/6/21 showed atherosclerotic changes in iliac and lower limb arteries with significant luminal narrowing and non-opacification in the right distal popliteal artery, anterior tibial artery, peroneal artery, and minimal opacification (with thin lumen) in the posterior tibial artery. ECG showed Atrial fibrillation with a rapid ventricular rate. Troponin I was 40.3 (<46.47 normal).

Table 2. Lab Investigations

Sl. No	Item	Unit	5/6/21	17/6/21	28/6/21	6/7/21	20/7/21
1	Hb	g/dl	15.5	15.6	14.7	13.9	14.5
2	TC	cells/mm^3	13650	18070	11030	9820	10130
3	Polymorph	%	93.5	86	74	72	68
4	Lymphocyte	%	4.7	9	19	21	24
5	Eosinophil	%	0.7	2	2	4	5
6	Monocyte	%	0	3	5	3	3
7	Basophil	%	0	0	0	0	0
8	ESR	mm/hr	2	43	36	22	19
9	RBS	mg%	150	152	100	132	190
10	HbA1c	%			6.64	6.67	5.59
11	Urea	mg%	28	68	29	22	
12	Uric Acid	mg%		9.8	4.4	4.3	
13	Creatinine	mg%	1.1	1.1	0.8	0.9	
14	Bilirubin (Total)	mg%	1.1	0.6	0.7	0.5	0.5
15	AST(SGOT)	IU/L	47	118	41	36	28
16	ALT(SGPT)	IU/L	23	52	40	27	39
17	Alk.Phosphatase	IU/L	97	119	127	119	123
18	CRP	mg/dl	27.8	5.8	1.6	0.5	

ROGI PAREEKSHA

Table 3. Rogee Pareeksha

Dasavidha Pareeksha	***Ashtasthaana Pareeksha***
Prakrithi- Vatha Pitha	*Nadi- Vathika*
Vikrithi-	*Moothram – Thridosha dushti*
Hethu- Dhoomapanam, Virudhaharam,	*Malam - Vathikam*
Athivyayamam	*Jihwa- Amatwam*
Dosham- Vathadhika thridosham	*Sabdam-Alpam*
Vatham-Karshnyam, Alpa cheshtatha,	*Sparsam-Sadharanam, Seetham*
Agnivaishamya, Thodam,Bhedam	*in jamgha&pada*
Pitham-Anga parushya	(*dakshina>vama*)
Kapham-Srothorodham, Thodam	*Drik- Thimiram*
Dhathu- Rasam-Srothorodham	*Akrithi-Madhyamam*
Raktham-Vatharaktham, Sirasaidhilyam	***Srotho Pareeksha***
Mamsam- Thodam, Dhamani Saidhilyam	*Srothas Involved*
Upadhathu- Kandara &Sira- Sthanbham,	*Annavaha- Anannabhilasham,*
Sankocham, Supthi	*arochakam,*
Prakrithi- Vathapitham	*Rasavaha-Thantra, Angamardam,*
Desam- Bhoomi-Sadharanam	*Srothorodham*
Deham- Jamgha & Pada (*dakshina>vama*)	*Medovaha- Madhumeham*
Kalam- Varsham	*Pureeshavaha-Athigradhitham*
Balam- Rogam-Pravaram	**Other factors examined**
Rogi- Avaram	*Rogamargam-Bahyam, Madhyamam*
Lingam-Theevraruk, Vichethanatha and	*Koshtam-Krooram*
Akarmanatha in Jamgha & Pada	*Agni- Mandam*
(*dakshina>vama*)	*Amam- Koshtagatha*
	&dhathugatha
Saram- Madhyamam	*Swedam-Romachyavanam*
Samhananam-Madhyamam	*Avastha- Amavastha*
Pramanam- Madhyamam	*Avaranam-Kaphavritha Vatha*
Satwam-Vyamisrasathmyam	*Pithavritha Vyana*
Sathmyam- Misrarasam, Madhyama vyayamam	*Kaphavritha Vyana*
Aharasakthi-Avaram	*Kaphavritha Samana*
Vyayama Sakthi-Avaram	
Vaya -Vridham	

ROGA PAREEKSHA

Nidana-Dhoomapanam, Virudhaharam, Athivyayamam, Athapaseva

Poorvaroopam- Padasupthi

Roopam- Athiruk, Swapam, Akarmanatha, and *Vichethanatha* in *Jamgha* and *Pada,* more in *Dakshina* than *vama*

Upasayam – none noted

Sampraptthi- Thridosha Dushti, *Dhathu Dushti* of *Rasa, Raktha,* and *Mamsa,* and *Upadhathu dushti of Kandara* and *Sira* developed due to the overindulgence in the said *Nidana,* and *Srothodushti* ensued. The *Srothovichara Karma* or keeping normalcy of *Srothas*, by *Samana* is deranged by its *Kapha Avarana* resulting in *Srothorodha*. The normal *Anuloma Gathi* of *Vyana Vayu* was hindered by *Srothorodha* proceeding to *Avarana* of *Vyana Vatha* by *Kapha* and *Pitha* and finally, the manifestation of the disease.

Roganirnayam: Kaphapith Avrutha Vyana

Sadhyasadhytha: Krichrasadhya

THERAPEUTIC INTERVENTION

Table 4. Internal medicines given

16/6/21	28/6/21
Ashtavargam Kashayam [7]90ml bd (7 am – 7 pm) *Gugguluthikthakam Kashayam* [8]90ml bd+ *Yogaraja guggulu* [9] (11 am-3pm) *Cap. Thrombex* (2-0-2) A/F *Vilwadi gulika*[10] (1-0-1) A/F *Sudarsanam tablet*[11] (1-0-1) A/F	*Sahacharadi Kashayam* [12] 90ml bd+ *Gugguluthikthakam ghritham*[13] (1tsp bd) (7am- 7pm) *Gugguluthikthakam Kashayam* 90ml bd+ *Yogaraja guggulu* (11 am-3pm) *Cap. Thrombex* (2-0-2) A/F *Vilwadi gulika* (1-0-1) A/F *Sudarsanam tablet* (1-0-1) A/F *Sivagulika* [14] (1-0-0)10 am *Tab. Liv 52 DS* (1-0-1)

PROCEDURES DONE

1. *Virechanam* with *Avipathy choornam* [15] 20g with warm water
2. *Kashaya Dhara* with *Thriphala Kashayam*[16] on both lower limbs 16 days
3. *Mathravasthi* with *Sahacharadi Thailam* [17] *Vasthipakam* 60ml 8 days
4. *Abhyangam* with *Murivenna* [18] 11 days
5. *Virechanam* with *Avipathy choornam* 20g with warm water
6. *Adhakayasekam* with *Murivenna* 6 days
7. *Abhyangam* with *Murivenna* 3 days
8. *Kashaya dhara* with *Thriphala Kashayam* on both legs 3days
9. *Virechanam* with *Gandharva hasthadi eranda thailam* [19] 20 ml in warm water

FOLLOW-UP AND OUTCOME

The patient was discharged on 27/7/21 with advice to continue medications. At the time of discharge, the pain subsided, sensation and temperature of the right lower limb were normal. Skin color became normal and congestion was relieved. Signs of ischemia including thin skin, diminished hair, low subcutaneous fat, shininess, and nail changes were not completely relieved. Buerger's postural test was negative bilaterally, capillary and venous filling time became normal. All arterial pulsations of the lower limbs were palpable, the patient was able to walk normally without pain and the patient's health improved. The arterial doppler study on 27/7/21 showed normal arterial flow. He was advised to continue internal medicines and to come for review on the 15th day but he didn't come due to his son's inconvenience. He informed that there is no pain and he is walking normally.

He was having hoarseness of voice and was assessed at OPD of Dept. of Salakyathantra. Rigid laryngoscopy was done on 14/7/21 and found a mass in the supraglottic area involving the right vocal cord. He was advised to go for further investigations but he denied it.

Discussion

Thrombo angiitis obliterans (TAO), a vaso-occlusive disease with an inflammatory endarteritis, is a disease where pharmacologic therapy with Allopathic medicines is generally ineffective. A surgical procedure is also not possible and amputation may be the only feasible option. The heavy financial burden of amputation and resulting disability is unbearable for the person, family, and society. Since the prevalence of the disease is high in India, as a leading health science, Ayurveda has the responsibility to formulate a better treatment protocol for this devastating disease.

After evaluation of the patient and the disease, the *samprapthi ghataka* were analysed. Medicines and procedures with *Avaranahara, Vathanulomana*, and *Ropana* properties were selected. Since the patient was admitted to the ward during the period of Covid 19 restrictions, *Vilwadi gulika,* and *Sudarsanam gulika* were added as preventive measures. At the time of admission at Govt Ayurveda College Hospital, the blood parameters including CBC, RFT LFT, and CRP were abnormal. With *sodhana* and *samana chikitsa*, those values became normal. Then the medicines were revised; *Gugguluthikthaka ghritha* was added to *Sahacharadi Kashaya* assuming that the drug delivery of *Gugguluthikthaka ghritha* to the lower limb could be done more effectively with the addition of *Sahacharadi Kashaya*. *Gugguluthikthakam kashayam* was given with *Yogaraja guggulu* since it pacifies *Sandhyasthi majjagatha vatha, Vatharaktha*, etc. *Sivagulika* was given because of its *lekhana* and *rasayana* property. Treatment Procedures were selected based on the condition of the patient. *Virechana* was done with *Avipathichoorna* initially for *koshtasudhi* and *pithavirechana*. Local *Thriphala Kashaya dhara* was done for *ropana* and to improve circulation. After attaining *niramatha, abhyangam & adhakayasekam with Murivenna* was done. *Mathravasthi* was done with

Sahacharadi thailam vasthipakam for *Vathanulomatha*. Periodic *virechanam* was done for maintaining *koshta & dhathu sudhi*. With these internal medicines and procedures, the circulation to lower limbs was re-established, the pain subsided and the patient was able to walk normally and was discharged.

Conclusion

The case study shows that Thrombo Angiitis Obliterans could be managed effectively with Ayurvedic medicines and procedures, after a proper assessment of the patient and the disease, based on Ayurvedic principles. This treatment protocol is effective in relieving pain and re-establishing vascularity. Ayurveda will thus become a prospect for TAO patients for the restoration of health.

Acknowledgement

We are enormously thankful to Dr. S. Sunilkumar, Superintendent, Govt. Ayurveda College Hospital, Thiruvananthapuram for referring the patient to the Dept. of Roganidana. We are extremely grateful to Dr. V. K. Ajithkumar, Professor and HOD (Retd.), Dept. of Roganidana, Govt. Ayurveda College, Thiruvananthapuram for his advice in treating the case. Our sincere thanks to our Asst. Professors, Dr. Ajeesh. K.K and Dr. Nithin.V, for their involvement in the treatment. We are grateful to the house surgeons Dr. Namitha.S and Dr. Revathy Raveendran for their effort in the wellbeing of the patient. We thank the paramedical staff of Ward 4 for their attention towards the patient.

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