

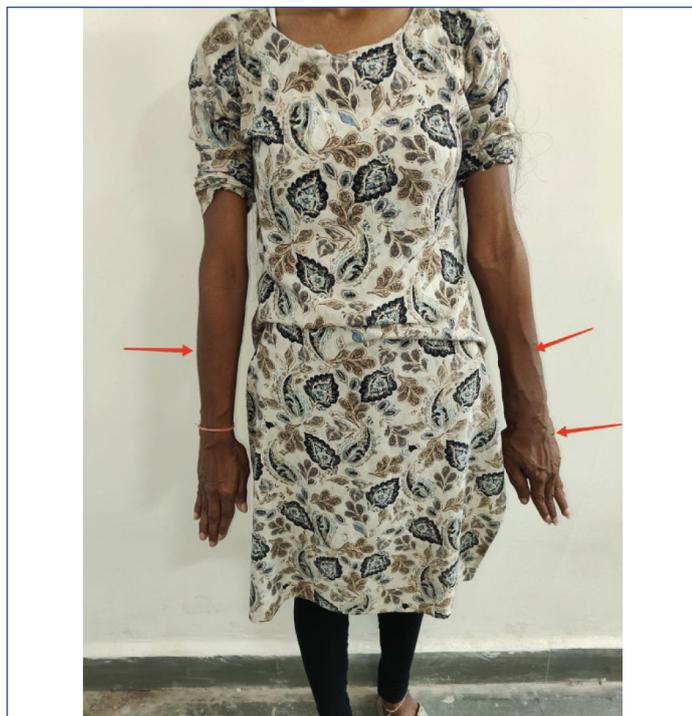
Clinical Image of Arteriovenous Malformation of the Left Upper Limb: An Uncommon Vascular Anomaly

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A 27-year-old patient visited the Outpatient Department (OPD) with a primary complaint of longstanding swelling in the left forearm and hand, accompanied by dilated veins in the same region for the past four years [Table/Fig-1]. The swelling had gradually increased over time, causing pain and discomfort during activity. There was no family history of similar symptoms. Two years ago, the patient was diagnosed with an Arteriovenous Malformation (AVM) in the thenar eminence, identified through a venous Doppler study. An embolectomy was subsequently performed; however, the condition later recurred. The patient had no significant medical history.



[Table/Fig-1]: Swelling in dorsal aspect of left forearm and arm and normalcy of right-side.

On examination, diffuse swelling was observed over the dorsal and ventral aspects of the left forearm, wrist and thenar eminence, extending to the lower third of the arm, with a firm consistency [Table/Fig-2,3]. The surrounding skin appeared shiny, with multiple engorged veins exhibiting thickened walls. Local temperature was elevated and a palpable and audible radial arterial bruit was detected. The swelling became prominent when the upper limb was in a dependent position and subsided when elevated [Table/Fig-2,4]. There were no significant aggravating or relieving factors.

The patient was administered Ayurvedic treatment for symptomatic relief, including *Kanchanar Guggulu* 2 tablets twice daily with warm water, *Mahamanjishyadi Kwath* 15 mL twice a day after food and *Chandanbala Lakshadi* oil for local application for 20 days. The patient experienced mild relief from pain and discomfort.



[Table/Fig-2]: Swelling in ventral aspect of left forearm and arm and normalcy of right-side.



[Table/Fig-3]: Swellings over left wrist and thenar eminence.

An AVM is a complex network of blood vessels forming abnormal connections between arteries and veins. AVMs are vascular anomalies caused by developmental defects in the arterial and venous vasculature, occurring without endothelial cell hyperplasia. Although rare, affecting less than 1% of the population, they can lead to significant morbidity throughout a person's lifetime [1].



[Table/Fig-4]: Swelling disappeared on the left-side after raising of arms above the head.

AVMs can occur in any organ, but they most commonly affect the head and neck, with intracranial arteriovenous malformations being significantly more prevalent than extracranial ones [2-4]. The next most frequent sites are the extremities, where they are evenly distributed between the upper and lower limbs [5].

A study reported that AVMs can be managed through embolisation, surgery, or sclerotherapy, alone or in combination. Arterial flow may be blocked using coils, glue, Onyx, or ethanol, depending on vascular anatomy. Coils are effective when there are few, large arteriovenous connections. Treatment of extensive AVMs is often palliative and requires repeated procedures for lesion control [6].

Another study reported that symptomatic AVMs may be treated with percutaneous sclerotherapy, endovascular embolisation, or surgery. Achieving a complete cure requires total removal of the AVM nidus. However, surgery alone poses a significant risk of severe bleeding and can be life-threatening. Therefore, a multidisciplinary approach is advised to minimise surgical complications [7]. No clinical trial data are available on Ayurvedic management of AVMs. However, AVMs may be correlated with the vitiation of *Vata*, *Pitta* and *Rakta dosha*, which can be treated with *siravedha* (leech therapy), *basti karma* and other Ayurvedic interventions.

Diagnostic techniques for AVMs include colour Doppler, Computed Tomography (CT) angiography, CT scan, Magnetic Resonance

Imaging (MRI) and Magnetic Resonance Angiography (MRA). Key differential diagnoses include hamartoma, hemangioma, lymphatic malformation, venous malformation (varicose veins of the upper limb) and capillary malformation [8]. Another key differential diagnosis for upper limb AVMs is varicose veins, which can be distinguished by the presence of an arterial bruit in AVMs, whereas it is absent in varicose veins [9]. Upper limb varicose veins are caused by venous valvular insufficiency, leading to venous dilation, whereas AVMs are congenital anomalies involving direct, abnormal connections between arteries and veins, bypassing the capillary system. Unlike varicose veins, AVMs present with high-flow vascular shunting and may manifest as pulsatile masses, bruits, or tissue overgrowth [10].

Although upper limb AVMs are exceptionally rare, accurate diagnosis and effective treatment, including surgical interventions, are possible. AVM management requires a multidisciplinary approach. Ayurveda should not be the primary or sole therapy; it may serve as an adjunctive or supportive therapy, providing symptomatic relief for moderate to severe AVMs. Future large-scale studies are required to evaluate the effectiveness of Ayurvedic management.

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