



Ayurveda management for acute upper limb ischemia - a case report

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ABSTRACT

Acute upper limb ischemia (AULI) is a medical and surgical emergency involving sudden decrease in limb perfusion resulting in threat for limb viability. A 52 years old male patient was suffered from AULI. He had the complaints of numbness and pain in left upper limb, headache and pale discoloration of left-hand fingers and acute onset left upper extremity weakness. The Ayurveda diagnosis was considered as *Vatarakta*. He was advised oral medications - *Kaishor guggulu* in the dose of 750 mg twice a day with *Jwarhar kashaya* 40 ml twice a day, *Ashwagandha Churna* 3 g, *Guduchi churna* 1g, *Shatavari churna* 2 g, *Chopchini churna* 1 g with milk twice a day, *Shilajawadi loha* 500 mg and *Mahavatvidhvansana rasa* 250 mg twice a day with honey. All these medications were continued for 12 months. Two courses of *Mustadi yapana basti* (medicated enema enriched with milk) and *Shalishastika pinda swedana* (a specific type of sudation with a poultice of rice bolus) and *Nasya* (nasal therapy) with *Shadabindu* oil were given. Initial computed tomography (CT) angiogram revealed the abrupt cutoff of the left brachial artery in distal part due to hypodense lesion (thrombus) in the lumen while after 12 months of treatment CT angiogram revealed 70–80 % luminal narrowing in proximal part of left ulnar artery. It suggests the revascularization of left ulnar artery. All the symptoms of AULI were also resolved. We report a unique case of AULI managed with Ayurvedic interventions

1. Introduction

Acute upper limb ischemia (AULI) is a medical and surgical emergency involving sudden decrease in limb perfusion resulting in threat for limb viability. The approximate incidence of AULI is 1.5 cases/10,000 people per year [1]. Arterial embolism and arterial thrombosis are the major causes of AULI [2]. In acute limb ischemia involvement of upper limb is less seen than lower limb. Various pharmacological interventional and surgical revascularization techniques are being used for the condition. However pharmacological interventional have varying results and surgical intervention are preferred. The surgical revascularization and endovascular intervention approaches have the similar effect in recurrent ischemia, short-term and 12-month mortality and limb amputation [3]. Here we represent a case of AULI which was satisfactorily resolved by Ayurveda medicine and Panchakarma (~bio-purification) procedures. *Vatarakta* (~diseases of rheumatic spectrum) was considered as the Ayurveda diagnosis of the case and line of management was adopted accordingly.

2. Patient information

A 52 years old male patient visited National Institute of Ayurveda (NIA) Out Patient Department on 20/11/21 for complaints of numbness and pain in left upper limb, headache and pale discoloration of left-hand fingers and acute onset left upper extremity weakness. He was admitted in the in-Patient Department of NIA on 23/11/21. Five days before visiting the hospital patient was squeezing the towel when he felt weakness and pain in left hand. The patients had applied cow ghee and mentioned a relief in weakness and pain. On next day he felt normal but on the third day fingers become pale, cold and weak. On same day the patient visited Sawai Maan Singh Medical College and Hospital, Jaipur where angiography was conducted which revealed the blockage in brachial artery. He was advised and admitted for immediate surgery, however patient was reluctant for surgery and he visited NIA hospital in search of an alternative option. Given the urgency of limb salvage, we recommended proceeding with immediate medical and surgical revascularization. The patient's current allopathic regimen, including anticoagulation therapy, was advised to be continued. However, the patient

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expressed reluctance for surgical intervention and denied receiving any prior medical treatment. He insisted on taking Ayurveda management even after explaining the risk of losing the limb, functionally in absence of medical management. Considering all these facts high risk informed consent was taken from the patient before initiating Ayurveda management. His medical history included tuberculosis in year 2004–2005 which was completely resolved with medication. Patient used to smoke 15 to 20 cigarettes/day and was chewing tobacco about 15 years ago but had refrain from them since then. One week prior to the appearance of the symptoms of AULL, patient had the complaint of itching all over body for which he visited a private clinic. Patient had taken some IV injections in his upper left hand and oral medication for 7 days. Patient reported pain in left hand and dizziness after that injection.

3. Clinical findings

The patient's blood pressure was 150/90 mm Hg and 90 beats per minute on right hand. The left brachial, radial, and ulnar pulses were not palpable, and the left upper extremity was colder than the right upper extremity. On neurologic examination, the left upper extremity strength revealed no effort against gravity with some preserved strength in wrist and finger extension. Diminished sensation to gross touch on the left forearm compared to the right. Findings from the remainder of the neurological examination, including speech and language, cranial nerves, coordination, and left lower extremity strength and sensation, were normal. His cardiac rhythm was regular. The rest of his vital signs were normal. Laboratory investigation revealed, total erythrocyte counts 5.4 K/ μ L, white blood cell counts 5.3 K/ μ L, hemoglobin 15.7 g/dL, platelet count 185 K/ μ L, Erythrocyte sedimentation rate 13mm/hour, liver function test, renal function test, lipid profile, blood sugar fasting and post prandial were within normal limits. A CT Angiography of the left upper extremity revealed left distal brachial artery occlusion.

4. Timeline

The timeline of the case is described in Table 1.

5. Diagnosis and differential diagnosis

Symptoms of pain, pallor, weakness, pulse deficit, paresthesia and poikilothermic upper left limb indicates the diagnosis of AULL. It was confirmed by the CT angiography dated 19/11/21 which revealed the abrupt cut off of the left brachial artery in distal part due to hypodense lesion (thrombus) in the lumen [Fig. 1]. *Vishwachi* (~ Cervical Radiculopathy), *Bahushosha* (~ emaciation of upper limb), *Pittavrita-Vyanvata* (~ occlusive pathology) and *Vatarakta* (~ diseases of rheumatic spectrum) was considered as the Ayurveda differential diagnosis. Although muscle wasting was observed in thenar region, *Bahushosha* was ruled out due to presences of pain and pallor. Absence of pulse and presences of pallor with pain caused ruling out of *Vishwachi*, which is purely neurological in nature. Absence of *Sarvangadaha* (burning sensation in whole body), *Klama* (lethargy), *Gatra vikshepa sanga* (Cessation of normal motor functions), *Santaap* (feverish) ruled out *Pittavrita - Vyanvata*. [4] In *Pittavrita-vyanvata* symptoms affecting whole body appears whereas in this case symptoms affecting upper left limb were present. The *Gambhira vatarakta* exhibits symptoms like *Shavathu* (swelling), *Sthabadhata* (restricted movements), *Bhrinsha-arati* (pain), *Syavastamra* (discoloration of the skin), *Daha* (burning sensation), *Toda* (pricking sensation), *Sphurana* (tingling sensation) and *Paka* (gangrene). In this case reduced limb perfusion, pain, discoloration was present that might have progressed in gangrene. Thus, the Ayurveda diagnosis was established as *Vatarakta*.

6. Treatment protocol

As *Vatarakta* is a *Rakataja vikara* (~ disease of blood) and its line of

Table 1
Timeline of the case

Date	Incidence/intervention
2004–2005 17/11/21	Patient was treated for tuberculosis of lungs for 2004–2005. Patient felt weakness and pain in left hand while squeezing the towel. He applied cow ghee and experienced relief in weakness and pain. The day after, he reported pain and left arm become pale, cold, and weak.
19/11/21	Patient visited the SMS Medical college where CT angiography revealed the abrupt cutoff of the left brachial artery in distal part due to hypodense lesion (thrombus) in the lumen and he was advised and admitted for immediate surgery.
20/11/21	Patient was reluctant for surgery and visited the O.P.D. of National Institute of Ayurveda Jaipur. He was advised oral medications- <i>Kaishor guggulu</i> in the dose of 750 mg twice a day with <i>Jwarh, ar kashaya</i> 40 ml twice a day, <i>Ashwagandha churna</i> (Powder of <i>Withania somnifera</i>) 3 g, <i>Guduchi churna</i> (Powder of <i>Tinospora cardifolia</i> L.) 1 gm, <i>Chopchini churna</i> 1g with milk twice a day, <i>Shilajatwadi loha</i> 500mg and <i>Mahavatvidhvansana rasa</i> 250mg twice a day with honey.
23/11/21	Patient was admitted in the IPD ward of the National Institute of Ayurveda, Jaipur. One course of <i>Mustadi yapnabasti</i> and <i>Shalishastika pinda swedana</i> were given from 23/11/21 to 20/12/21 along with above said oral medication.
20/12/21	CT Angiography of left upper limb dated 20/12/21 revealed the thrombosis of left sided lower brachial artery with complete occlusion and attenuated flow in radial and ulnar artery due to collaterals formation.
20/12/21–10/03/22	Above said oral medications were continued.
11/03/22–05/04/22	<i>Mustadi yapnabasti</i> and <i>Shalishastika pinda swedana</i> was repeated for 16 days. <i>Nasya</i> with <i>Shadabindu</i> oil – 6 drops/nostril was also done for next 7 days after completion of <i>Mustadi yapna basti</i> . Same oral medications were continued.
06/04/22–06/09/22	Same oral medications were continued.
06/09/22	CT Angiography of left upper limb dated 06/09/22 revealed the filling defect in distal left brachial artery extending in proximal part of left ulnar artery causing moderate 70–80 % luminal narrowing – suggestive of non occlusive thrombus. It suggest that complete occlusion was removed and flow in vessels was restored.
07/09/22–11/11/22	Same oral medications were continued. Patient was asymptomatic for AULL. After this period medications were discontinued and patient was followed for observation. Patient was last followed on December 8, 2023 and no recurrence of symptoms was observed

management is followed in it. The management includes use of *Tikta sarpi* (bitter medicated ghee), *Shilajeet* (resin from sedimentary rocks) and *Rasayana* (~Immuno-modulation) along with management of *Raktapitta* (blood disorders related with coagulopathy) [5]. The *Vatarakta* is managed with *Snigdha* or *Ruksha mridu virechana* (oleaginous or non - oleaginous mild laxative), *Basti* (medicated enema), *Seka* (medicated shower), *Abhyanga* (Ayurvedic massage), *Pradeha* (medicated paste application), uses of *Avidahi-amasneha* (anti-inflammatory food and medication) etc. [6] Thus considering all these *Mustadi yapna basti* (medicated enema), *Shalishastika pinda swedana* (Ayurvedic bolus massage) and *Nasya* (Ayurvedic nasal treatment) were adopted for the case.

7. Treatment

The oral medications consist of *Kaishor guggulu* in the dose of 750 mg with *Jwarhar Kashaya* 40 ml twice a day, a combination of *Ashwagandha churna* (Powder of *Withania somnifera*) 3 g, *Guduchi churna* (Powder of *Tinospora cordifolia* L.) 1 g, *Chopchini churna* (powder of *Smilax china* L.) 1 g with milk twice a day, *Shilajatwadi loha* 500 mg and *Mahavatvidhvansana rasa* 250 mg twice a day with honey (Table 2). These oral medication were continued for next four months. Patient was also advised to apply *Ashwagandha* oil on affected part. A course of 24 *Mustadi yapna basti* and *Shalishastika pinda swedana* were given as per the standard procedure [7] After three months, 16 days course of *Mustadi*

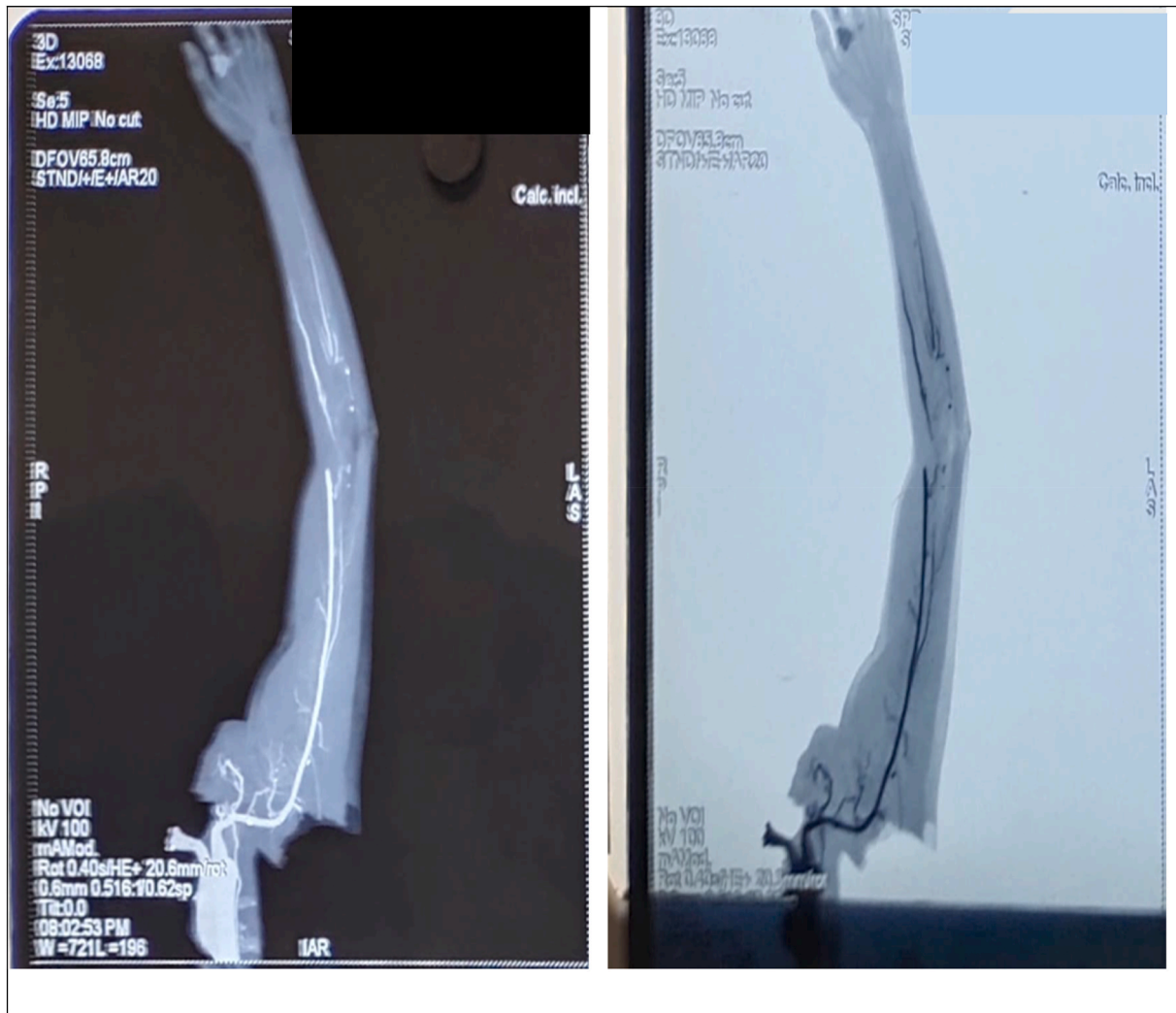


Fig. 1. CT Angiography of left upper limb dated 19/11/21

Table 2

Medications used for the case of AULI

Name of the drug used orally	Dose (twice a day)	Days of treatment
Kaishor guggulu	750 mg	12 months
Ashwagandha churna (Powder of <i>Withania somnifera</i> L.)	3g	12 months
Guduchi churna (Powder of <i>Tinospora cardifolia</i> L.)	1g	12 months
Chopchini churna (powder of <i>Smilax china</i> L.)	2g	12 months
Shilajawadi loha	500 mg	12months
Mahavatavidhavansana rasa	250 mg	12 months
Jwarhar kashaya	40 ml	12 months

yapna basti and *Shalishastika pinda swedana* was repeated. *Nasya* with *Shadabindu* oil – 6 drops/nosril was also done for next 7 days after completion of *Mustadi yapna basti* course as per standard procedure [8].

8. Outcome measures and follow up

After starting of oral medication, the patient got relief in pain and pallor in 2 days. Weakness in left hand was improved after 24 days. The left brachial, radial, and ulnar pulses were also palpable. BP was 124/80 mmHg in both hand. CT Angiography of left upper limb dated 20/12/21 revealed the thrombosis of left sided lower brachial artery with

complete occlusion and attenuated flow in radial and ulnar artery due to collaterals formation [Fig. 2]. The left upper extremity strength was normal. CT Angiography of left upper limb dated 06/09/22 revealed the filling defect in distal left brachial artery extending in proximal part of left ulnar artery causing moderate 70–80 % luminal narrowing – suggestive of non occlusive thrombus [Fig. 3]. It suggested that occlusion was removed and flow in vessels was partially restored. Patient was under continuous follow up and he was last assessed on December 08, 2023. He showed no recurrence of any symptom of the disease. Complete blood count, liver function test and renal function test were within normal limits.

9. Discussion

The root cause of thrombus for this case was not clear. Since, the patient had history of IV injection (drug unknown) in left upper limb and oral medication 7 days before for somewhat urticaria like symptoms, it might be associated with the development of the pathology. Thrombosis in Ayurveda is indicated as *Grathita Rakta pitta* (coagulated blood) [6, chapter 4 verse 72,93] where coagulation of blood occurs. In this condition blood is vitiated along with *Kapha dosha* and *Pitta dosha* and it leads to obstruction in blood flow. Pathology for the vitiation of *Raktadhatu* (blood) in *Raktapitta* disease and *Vatarakta* and *Grathit rakta* (coagulated blood) are similar. The vitiated *Vata* causes obstruction in flow of blood thus affecting the normal pathway. Thrombo-embolism



Fig. 2. CT Angiography of left upper limb dated 20/12/21

which obstructed the brachial artery has a resemblance with *Grathitha* (coagulated) *raktapitta*.

As the main aim of management in this case was to maintain the blood flow to the affected tissue, to rejuvenate the tissues, dissolve the embolus for recanalization, for this purpose *Rasayana* indicated in *Vatavyadhi* (various disorders of the Neuro-musculo-skeletal system) and *Vatarakta* condition were the choice of drug [9]. *Tikta rasa* (bitter taste) predominant *Rasayana* drugs like *Shilajatwadi loha*, *Ashwagandha*, *Guduchi* were selected, as *Tikta rasa* have *Lekhana* (scraping) property which owes to dissolution of thromboembolism. This action was further supported by the presences of *Katu rasa* (pungent taste) in the drugs [10]. *Kaishor guggulu* is indicated in *Vatarakta* and it can be used safely for longer duration [11]. No reports of abnormality in biochemical parameters for safety assessment during follow up, that confirms the safety for uses of *Kaishor guggulu* for longer duration. *Ashwagandha* (*Withania somnifera* Dunal) possesses the *Brumhana* (anabolic) and *Rasayana* (immunomodulatory) properties, so it is useful in emaciation of the area affected with brachial artery blood flow [12]. *Guduchi* (*Tinospora*

cordifolia (WILLD.) HOOK.F. & THOMS.) *churna* (powder) is indicated for *Vatarakta* [13] while *Chopchini* (*Smilax china* L.) has *Vedanahara* (relieving pain) and *Shothanashaka* (anti-inflammatory) properties thus useful for this case [14]. *Jwarhar kashaya* comprises of drugs having *Tikta Rasa* (bitter taste) predominance and having *Mridu-virechaka* (mild-purgative) property [15]. *Shilajeet* (black bitumen), main content of *Shilajatwadi loha* is indicated as *Rasayana*. *Shilajatwadi loha* can be used in *Raktapitta* to promote the production of new tissue [16]. *Maha-vatavidhvansana rasa* is indicated for acute pain hence used for treatment [17].

Preoperative procedures (*Snehana* and *Swedana*) are compulsory before any *Panchakarma* procedures, which pacifies the vitiated *Vata*. In *Vatarakta*, *Mridu snehana* and *Mridu swedana* (mild massage and sudation) is indicated to alleviated the vitiated *Vata* which is not too provocative for vitiating *Rakta dhātu*. *Shalishastika pinda Swedana*, a mild form of *Snehana* and *Swedana* was adopted for this case, as poultice of *Saksheera-mudaga-payasa* (petite yellow lentils pudding processed in milk and other *Vata dosha* pacifying medicines) is indicated for

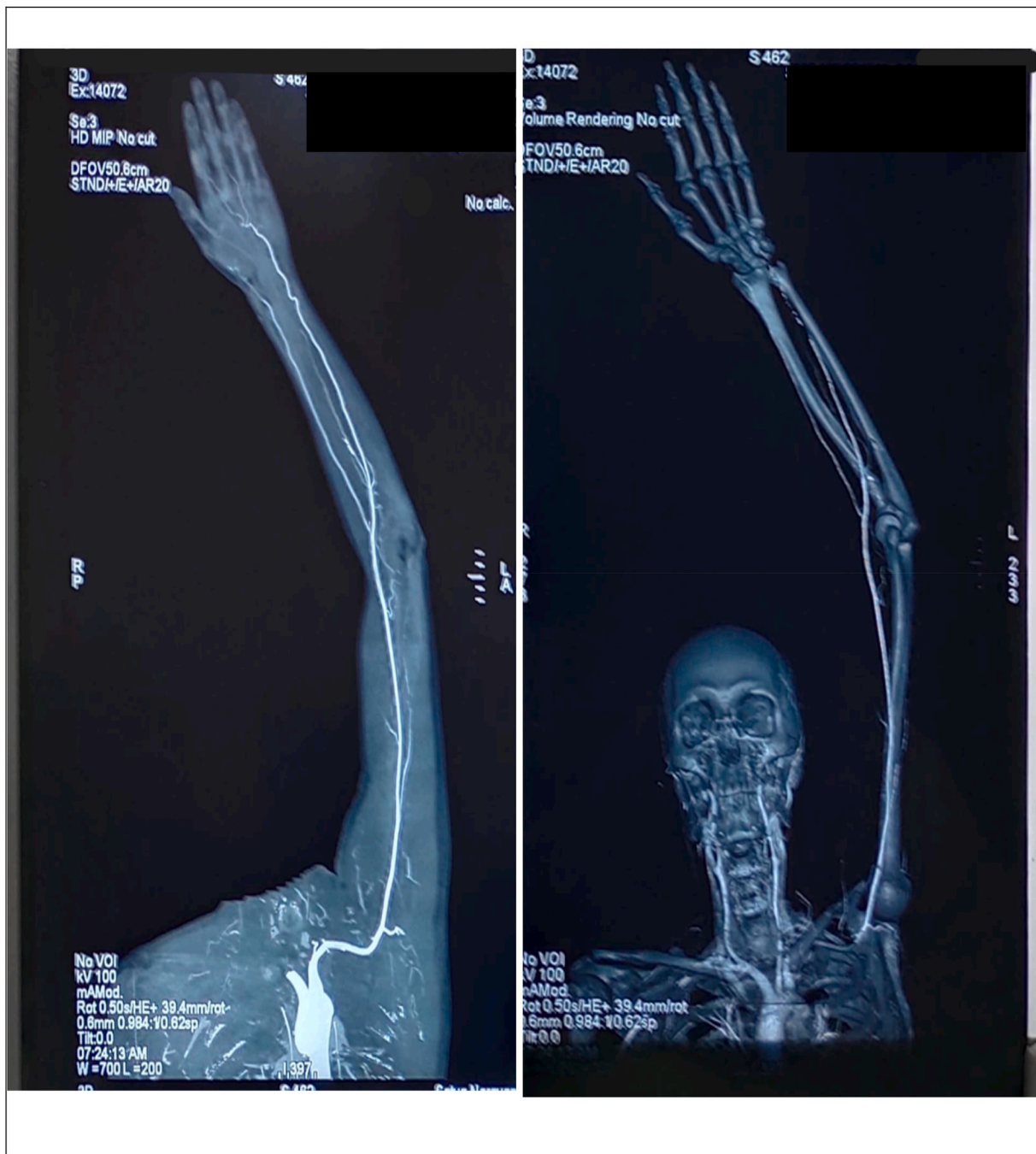


Fig. 3. CT Angiography of left upper limb dated 06/09/22

improvement of pain in *Vatarakta* [18]. *Shalishastika pinda swedana* might have also impart the nourishing action and improvement in muscle wasting. Similarly mild massage and mild sudation like *Parisechana* (sprinkling of medicated liquid), *Seka* (medicated shower) *Avagaha* (medicated tub bath) were indicated to dissolve this *Grathit raktapitta* (~thrombus) [6, chapter 4 verse 91–92]. Hence this mild form of *Abhyanga* and *Swedana* removed/minimized the possibilities of thrombo-embolism or dislodging of thrombus by dissolving the thrombus similar as with anticoagulants. *Mustadi yapna basti* is indicated for *Vatarakta* and *Raktapitta* and also having the *Shoolaghna* (~alleviating pain) effect hence it was useful for this case [19]. It is effective in *Raktavikara* (blood disorders), has *Balajanana* (strengthening) and *Rasayana* properties [20]. The *Panchatikta ghrita* (added in basti) is indicated in the treatment of *Vatarakta* and *Vatavyadhi* [21].

Ashwagandha oil (added in basti) is indicated for *Raktagata vata* (a disorder of *Vata dosha* in blood), *Raktapitta* and *Vata vikara* (diseases due to *Vata dosha*) [22]. It has *Mansa vardhana* (increasing the muscles mass/strength) property hence was effective in this case, and *Raktapitta* (blood disorders related with coagulopathy). The thenar and hypothenar muscles atrophy in this case were reduced by these treatments. *Nasya* with *Shadabindu* oil was effective for *Srotosodhana* (purification of micro-channels) and for providing the strength in affected upper limb [23].

CT Angiography was conducted at various timeline that depicted the attenuated flow in radial and ulnar artery due to collaterals formation in early stage to supply the blood to the affected tissues and recanalization in later stage. Ayurveda medicines and *Panchakarma* (bio-purification) procedures may be helpful in collateral formation and recanalization.

10. Conclusion

We report a unique case of AULI managed with Ayurvedic interventions, without conventional approaches like open surgical revascularization, endovascular revascularization, or anticoagulation therapy. This case highlights the potential of Ayurvedic principles in managing ischemic conditions, particularly those potentially aligned with concepts like *Raktaja vikaras* (blood vessel disorders) and *Vatarakta* (obstructions). Confirmation of successful revascularization was obtained through CT angiography following the Ayurvedic intervention. These Ayurveda medicines and therapy may be effective in revascularization and serving as anticoagulation.

Patient consent

Written permission for publication of this case study has been obtained from the patient.

Patient's perspective

Patient was satisfied with the given treatment.

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