

## Case Report

# Takayasu Arteritis Presenting with Bilateral Common Carotid Artery Involvement in a Young Patient: A Case Report

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### Abstract:

*Takayasu's arteritis is a rare, chronic form of large- and medium-vessel vasculitis, predominantly affecting the aorta and its primary branches. Histopathologically, it is characterized by mononuclear cell infiltration and granulomatous inflammation of the vascular media, resulting in progressive arterial wall thickening, stenosis, occlusion, or aneurysmal dilation. Involvement of the common carotid arteries is a notable but atypical manifestation, often contributing to diagnostic complexity. The disease can lead to serious complications, including stroke, ischemic heart disease, pulmonary hypertension, secondary systemic hypertension, and aneurysm formation. Diagnosis is primarily based on a combination of clinical presentation and angiographic findings.*

**Keywords:** *Takayasu's arteritis, pulseless disease, clinical criteria, bilateral common carotid stenosis, angiography, morphopathology*

**DOI:** <https://doi.org/10.3329/jom.v27i1.88279>

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**Received:** 10 November, 2025

**Accepted:** 27 December, 2025

### Introduction:

Takayasu arteritis (TA) is a specific vasculitis that affects large arteries via granulomatous inflammation. The disease often begins with an insidious, asymptomatic “pre-pulseless” phase, characterized by nonspecific systemic symptoms, which later progresses to the more overt “pulseless” phase marked by ischemic complications, absent peripheral pulses, and claudication.<sup>1</sup> Clinically, it predominantly affects young people and may present with a wide spectrum of symptoms, including headache, arthralgia, weight loss, hypertension, angina, heart failure, renal insufficiency, visual disturbances, postprandial abdominal pain, dizziness, vertigo, amaurosis fugax, and cerebrovascular events such as transient ischemic attacks (TIAs) and stroke. Notably, approximately 10–20% of patients with Takayasu arteritis present with TIAs or stroke<sup>2</sup>, underscoring the condition's potential for significant neurological morbidity.

### Case Report:

A 30-year-old male presented with sudden onset left sided hemiparesis 5 days back associated with aphasia and dysphagia and all the symptoms improved within one hour. He had no history of headache, fever, visual disturbance,

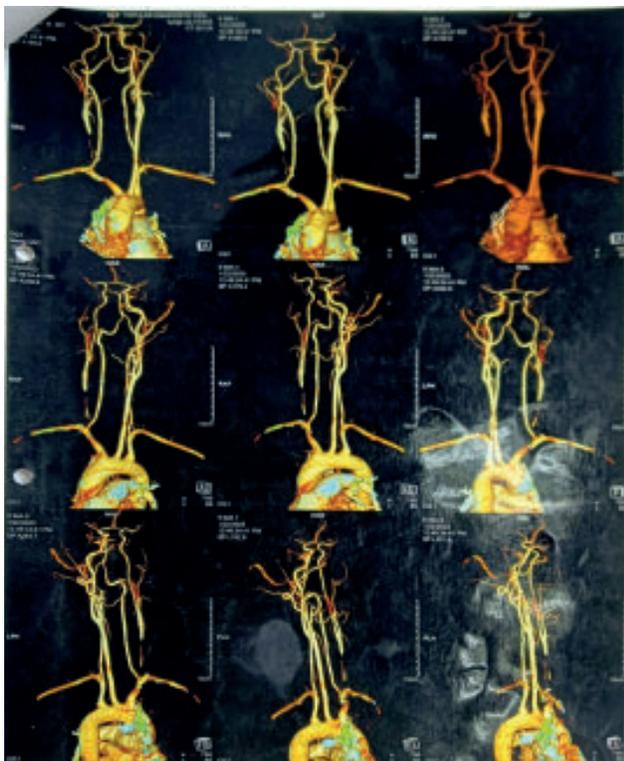
convulsion, vomiting, skin rash, joint pain, bowel and bladder disturbances. On further questioning, he reported of left-sided neck pain for 4 weeks, dull in nature sometimes aggravate neck movement and relieved partially by analgesics. He also gives history of similar type of neck pain 2 years back. Examination reveals absent radial, brachial and carotid pulses on the right side. All other pulses of left upper limb and both lower limbs are palpable with a rate of 78 b/min and regular rhythm. BP on left upper limb is 120/70 mmHg and BP on right upper limb is un recordable, right carotid bruit is present. Examination of other systems reveal no abnormality.

On investigation: ESR: 49 mm in 1<sup>st</sup> hour, CRP : 48.2 mg/L. Carotid duplex shows near total occlusion in left CCA, > 70 % occlusion in right CCA, Low vascular flow in both ICA, normal antegrade flow in both vertebral arteries. CT angiogram of neck vessels shows long segment luminal narrowing of proximal part of right CCA. CT angio of aortogram shows high-grade occlusion in left common carotid artery. Digital subtraction angiography shows bilateral CCA stenosis, diameter of both vertebral arteries is normal, both ICAs get circulation via collateral branches from vertebral arteries.

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**Figure 1:** CT angiogram of neck vessels shows long segment luminal narrowing of proximal part of right CCA

### Discussion:

Takayasu arteritis is a rare chronic granulomatous large-vessel pan-vasculitis commonly affecting young people. It was first described by a Japanese ophthalmologist, Dr Mikito Takayasu, in 1905 as a case presenting with absent pulses and retinal arteriovenous anastomoses.<sup>3</sup> A recent systematic review showed a prevalence of 3.2–40.0 cases per million and an incidence of 0.4–2.6 cases per million per year.<sup>1</sup> Its clinical presentation has a wide range of symptoms, commonly asymptomatic in the early stage, progressing to ischemic complications. Ischemic symptoms can vary according to the vessel's involvement. Chronic ischemia due to occlusion or stenosis of the aortic branches leads to neurological complications such as TIAs, and even stroke, as in our patient. Slow vascular fibrosis allows time for collateral formation to compensate for ischemia. Such patients are diagnosed incidentally on examination with findings of an absent pulse, asymmetrical blood pressure on the limbs, and vascular bruit. Inadequate collateral circulation leads to signs of claudication, whereas abrupt vascular occlusion leads to ischemic complications and end organ damage like stroke and myocardial infarction without any preceding constitutional symptoms.<sup>4</sup> Embolus can be of cardiac origin or from distant thrombosed arteries like the

carotid. The diagnosis of Takayasu arteritis is challenging due to the early asymptomatic phase.<sup>1</sup> The disease's variable presentation and asymptomatic cases in 30% to 50% of patients often delay diagnosis.<sup>6,7,8</sup> So, proper physical examination and laboratory investigations play a vital role in early diagnosis. Imaging studies play a crucial role in the accurate diagnosis of Takayasu.<sup>1</sup> In our patient, the clinical presentation of TIA and abnormal upper limb pulse and blood pressure, along with computed tomography angiography of the neck vessels, carotid Doppler, led us toward the diagnosis of Takayasu. MRA has a sensitivity of 90% and a specificity of 80% in the diagnosis of aortic lesions.<sup>5</sup> Clinical assessment and angiographic findings are used as diagnostic criteria. The American College of Rheumatology classification criteria of 1990 included an age of less than 40. Early diagnosis and the start of immunosuppressants with lifelong vascular surveillance and invasive therapy in case of complications have been pillars for the management of Takayasu arteritis.<sup>1</sup> The latest EULAR guidelines for management focus on the early starting of glucocorticoids along with conventional synthetic DMARDs like methotrexate and mycophenolate (Phase I). Response to initial therapy is assessed by EULAR disease activity. Phase I-resistant Takayasu are managed with biologic DMARDs like tocilizumab and TNF inhibitors (Phase II).<sup>1</sup> A study by showed statin and antiplatelet therapy prevent ischemic complications in Takayasu. Our patient was initially managed as per Phase I guidelines with antiplatelet and statin. The patient did not have any significant adverse effects from the medication. Stenotic lesions of vessels mainly supplying the brain are managed with endarterectomy or angioplasty, and neither was done in our case due to financial limitations.

### Conclusion:

This case underscores the clinical complexity and diagnostic challenges associated with Takayasu arteritis, particularly in young patients presenting with non-specific symptoms such as left-sided hemiparesis and neck pain. The presence of severe bilateral stenosis of the common carotid arteries in this patient highlights the potential for serious, life-threatening vascular complications if the disease remains undiagnosed or untreated. Prompt recognition through advanced imaging techniques, combined with the early initiation of corticosteroids and immunosuppressive therapy, played a pivotal role in mitigating vascular inflammation and halting disease progression.

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