

Vertebrobasilar Dolichoectasia as a Rare Cause of Recurrent Episodes of Vertigo: A Case Report and Literature Review

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Abstract

Vertebrobasilar dolichoectasia (VBD) is a rare form of arteriopathy characterized by elongation, widening and tortuosity of the artery in the posterior circulation of the brain. Usual presenting symptoms include ischemic stroke, hemorrhagic events and compressive features. Although a very commonly encountered neurologic symptom, vertigo is not an usual primary manifestation of VBD. We are reporting a case of a 50-year-old hypertensive lady who presented with recurrent vertigo. Neurological examination was significant for gait abnormality and left sided weakness. MRI of brain with MRA showed dilated and tortuous vertebral-basilar arteries. We managed the patient conservatively with strong focus on hypertension management and antiplatelet medications. This case is an example of why it is important to consider vascular pathology in cases with recurrent vertigo, especially in the presence of common cerebrovascular risk factors like hypertension. It is possible to reduce the incidence of future cerebrovascular events with early diagnosis and prompt risk factor management.

Keywords: Dolichoectasia, Vertigo, Vertebrobasilar.

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Introduction

Vertigo is among the most common clinically encountered neurological symptoms and is often attributed to benign peripheral vestibular disorders. However, in rare cases, it may be the first presentation of serious underlying pathologies like vertebrobasilar dolichoectasia.

Vertebrobasilar Dolichoectasia is a rare form of arteriopathy characterized by elongation, widening, and tortuosity of the artery in the posterior circulation of the brain¹, with the basilar artery being involved in 80% of the cases.² The reported prevalence varies from 0.05% to 18%.³ The condition is thought to arise from an imbalance between matrix metallo-

proteinases and antiprotease activity within the connective tissue of the arterial wall⁴ resulting in rarefaction of elastic tissue in the tunica media and fragmentation of the internal elastic lamina.²

Majority of the cases are asymptomatic⁵ and are often diagnosed incidentally on CT or MR angiography⁴. When symptomatic, patients may present with ischemic, hemorrhagic or compressive symptoms.⁴⁻⁶ Compressive symptoms can vary widely, ranging from dizziness, dysarthria, dysphagia, ataxia and vertigo to full hemiplegia and hemisensory loss.^{7,8}

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Risk factors for dolichoectasia have been primarily investigated in patients with stroke and includes age, male sex, hypertension and coronary artery disease.²

We are presenting a case of vertebrobasilar dolichoectasia in a female patient, with no prior history of stroke, who presented with long-standing recurrent vertigo. While vertigo in the setting of dolichoectasia is often accompanied by sensorineural hearing loss, owing to the compression of the eighth cranial nerve, only a small number of cases are reported to primarily present with symptoms of vertigo.¹

Case Report

A 50-year-old female presented with altered level of consciousness for 1 day, along with a 2 years history of dull aching headache, progressive vertigo associated with an unsteady gait, weakness of the left side of the body and intermittent tingling sensations not restricted to a single body part. Her vertigo have been getting worse for the last 1 month to the point of hampering her daily activities. She is hypertensive and not adherent to medications. Neurologic examination revealed a wide-based, unsteady gait. Power was reduced in both upper and lower limbs on the left side. Deep tendon reflexes were brisk on the left side with the plantar response being extensor. The initial CT scan of the head revealed a calcified vascular abnormality. (Figure 1) Later, MRI with MRA revealed Vertebrobasilar dolichoectasia causing compression and thinning of the brainstem. (Figure 2, 3) MRV was suggestive of CVST involving the left transverse sinus & left sigmoid sinuses. For further evaluation, DSA was done. The findings were consistent with dolichoectatic change of vertebral-basilar system from left V4 up to basilar tip. The right posterior communicating artery was larger and of fetal variety. Neurosurgery recommended to undergo point occlusion of the left V4 distal to the origin of PICA with STA-SCA bypass. The patient was discharged with antiplatelet, anti-lipid and anti-hypertensive medications with a scheduled follow-up after 1 month.

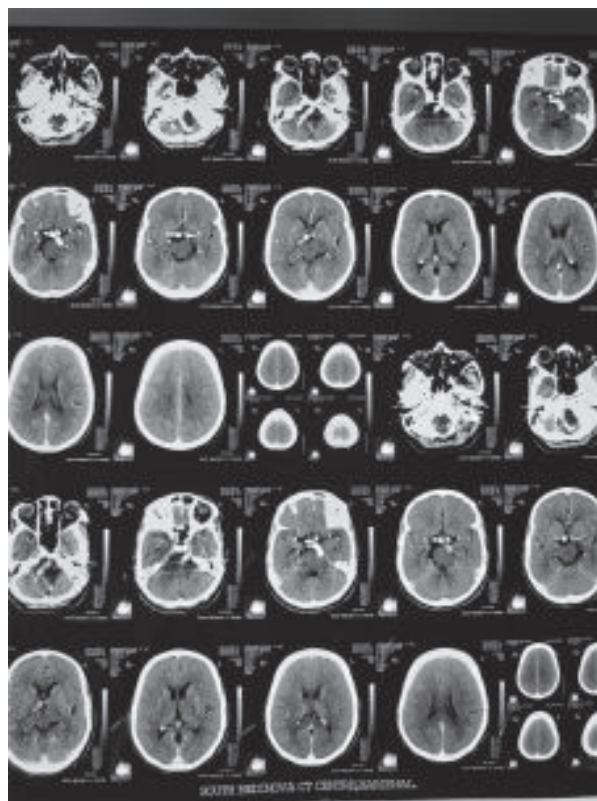


Fig: 1

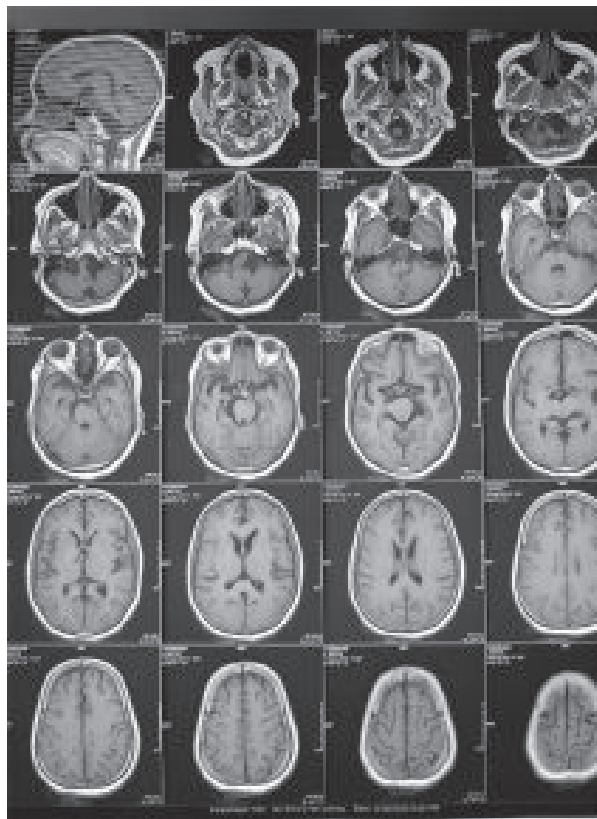


Fig: 2

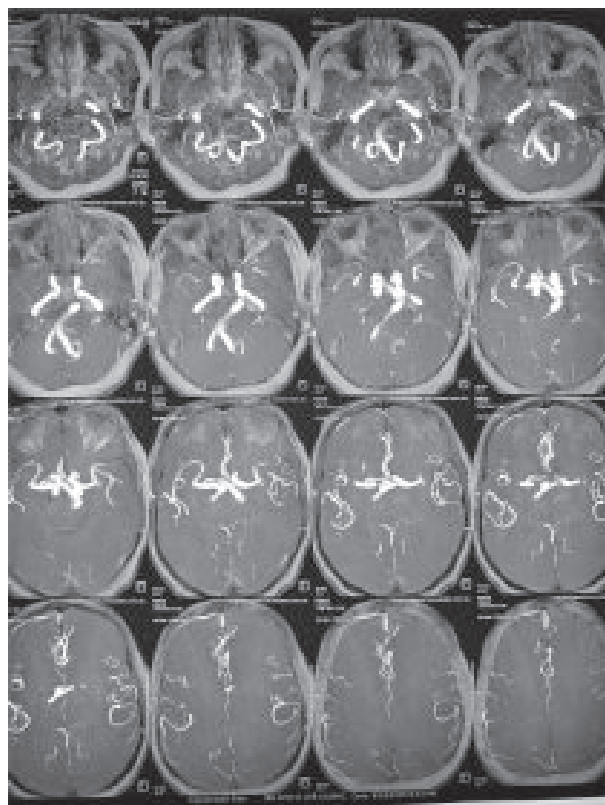


Fig: 3

Discussion

Vertebrobasilar dolichoectasia, although a very rare vascular abnormality, is clinically significant because it can present with a wide variety of neurological symptoms. Our patient's presentation with vertigo highlights the potential for VBD to mimic more common benign or cerebrovascular disorders. The pathophysiology of VBD is poorly understood, but the most commonly agreed factors that are associated with VBD are male sex, increasing age, history of smoking, hypertension and history of previous stroke⁹, of which only the history of hypertension was present in our case.

In our patient, the pathogenesis of the predominant presenting symptom, vertigo, is speculated to be compression to the vestibular nuclei of the brainstem by the VBD. This is supported by the MRI findings of compression and thinning of the brainstem. Compression of the eighth CN and impaired perfusion to the posterior circulation arising from the dolichoectatic vertebrobasilar artery¹⁰ can also

give rise to these symptoms. However, absence of sensorineural hearing loss and normal distal circulation on MRA do not support these pathophysiologic mechanisms and leans more toward supporting the compressive theory.

There is insufficient information on the appropriate management of VBD¹¹ and treatment is generally directed towards symptoms or complications of VBD¹². Although no randomized clinical trials are available, anti-thrombotic agents are often used as a treatment option, owing to the hypothesis that stagnation of blood flow leads to thrombosis and occlusion of perforating arteries, and hence precipitating an episode of ischemic stroke¹³. Endovascular treatment was not considered to be beneficial in patients with VBD who presented with compressive symptoms¹⁴, which was the case for our patient. Hence, conservative management was preferred.

Patient Consent

Informed written consent about the presentation of the case is obtained from the patient herself.

Conflict of Interest

The authors declare that the research was conducted without any commercial or financial relationship that can be constructed as a potential conflict of interest.

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