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Case Report

VERTEBROBASILAR DOLICHOECTASIA: AN INCIDENTAL FINDING IN A CASE OF VIRAL MENINGITIS

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ABSTRACT
Dolichoectasia of vertebrobasilar artery is a condition in which the vertebral/basilar artery is elongated, distended and tortuous. It is usually asymptomatic but may present with compressive or ischemic symptoms. We present a case report of a patient who presented with altered sensorium. He was diagnosed to have viral meningitis and incidentally found to have vertebrobasilar dolichoectasia during imaging.

Keywords: *Vertebrobasilar Dolichoectasia, Viral Mengitis*

INTRODUCTION
Vertebrobasilar dolichoectasia (VBD) is a rare disease characterized by significant expansion, elongation, and tortuosity of the vertebrobasilar arteries (Pico *et al.,* 2015). A study in Japan revealed that among people undergoing routine MRI and MRA examinations, the asymptomatic VBD incidence rate is 1.3% (Samim *et al.,* 2016). VBD has a varied etiology including hypertension-induced atherosclerosis, congenital diseases and infections. Clinical manifestations vary widely from no symptoms to rare headaches to stroke, nerve compression, hydrocephalus and cerebral hemorrhage (Wolters *et al.*, 2013).
We present a case of Viral Meningits who was incidentally found to have VBD without any clinical symptoms.

CASES
A 78 year old male with no known co-morbidities presented to the hospital with altered sensorium preceded by headache, sudden in onset. On examination, patient was disoriented and delirious. Full neurological examination could not be done due to his mental state, but patient was moving all four limbs, bilateral plantar reflexes were extensor, both pupils were reactive to light and nuchal rigidity was present.
Patient gave no history of fever, trauma, seizures, weakness or chest pain. Initial investigations were normal including a CT scan brain. Patient was initiated on IV antibiotics and IV antivirals on suspicion of Meningitis. A lumbar puncture was done, cerebrospinal fluid (CSF) analysis revealed leukocytosis with lymphocytosis (TC: 88/ L: 90%), elevated protein (115 mg/dL) and normal CSF to serum glucose ratio. The CSF analysis was indicative of Viral Mengitis and patient was continued on intravenous Acyclovir. An MRI Brain was done as patient continued to be disoriented and drowsy, he was found to have vertebrobasilar dolichoectasia . A CT Carotid Angiogram was done and it confirmed the diagnosis of vertebrobasilar dolichoectasia as well as bilateral internal carotid dolichoectasia [Figure: 1, 2].
2D Echocardiography and fundus evaluation were done and were found to be normal. Patient's sensorium gradually improved and he became asymptomatic after seven days of treatment with Acyclovir. Patient was discharged with no neurological deficit.

DISCUSSION
Dolichoectasia is derived from the Greek words *dolichos,* meaning "abnormally long," and *ectasis,* meaning "to extend or dilate(Pico *et al.,* 2015, Gutierrez *et al.,* 2011)." Vertebrobasilar dolichoectasia (VBD) was first described Giovanni Morgagni in 1761. VBD is an rare disease characterized by

significant ectasia, elongation, and tortuosity of the vertebrobasilar arteries (Giambattista 1820). The arteries of the posterior circulation are more susceptible to dolichoectasia than the ones in the anterior circulation(1,4,6).The overall incidence varies, one study found it to be 0.05% while another found it to be 1.3% (Samim *et al.*, 2016, Yuan *et al.*, 2014).

The diagnostic criteria for VBD is a basilar artery or vertebral artery diameter >4.5 mm or deviation of any portion of them higher than 10 mm from the shortest expected course, or basilar length >29.5 mm or intracranial vertebral artery length >23.5 mm(1).

The etiology of VBD is not clear. Hypertension, commonly associated with VBD, may cause continued stress on the walls of the artery and degrade the vessel wall by damaging and loosening the collagen and elastin meshwork that comprises the intima. There is also association of VBD with various congenital diseases like ARPKD, Sickle Cell Anemia, Fabry Disease, Popmpey Disease, Ehlers-Danlos Syndrome, PHACES Syndrome, Marfan Syndrome and a few others (Yuan *et al.*, 2014).

VBD is characterized by a high degree of variability in clinical outcome. It is usually asymptomatic and less than 10% of the patients have neurologic symptoms. It may present with varied clinical syndromes like cerebellar dysfunction, ischemic stroke, transient or permanent motor deficits, central sleep apnea, trigeminal neuralgia, hydrocephalus as well as brain stem compression syndrome. Symptoms may range from mild to severe. Clinical expression of this condition may be due to compression of the cranial nerves or brainstem, ischemia in the vertebrobasilar arterial territory and intracranial bleeding(Pico *et al.*, 2015; Samim *et al.*, 2016; and Passero and Rossi, 2008).

In our case, the VBD was asymptomatic as the altered sensorium of the patient gradually resolved after initiation of antiviral medication.

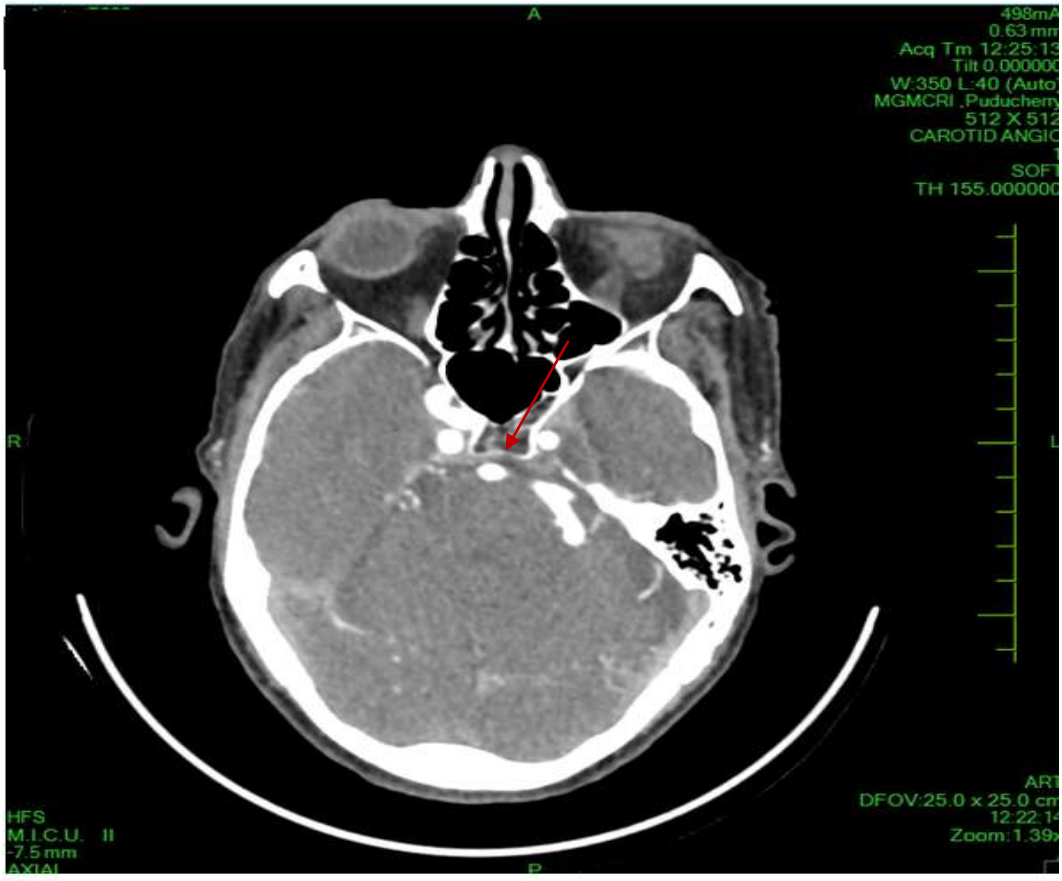

Figure 1: CT Carotid Angiogram. Arrow shows left vertebrobasilar dolichoectasia

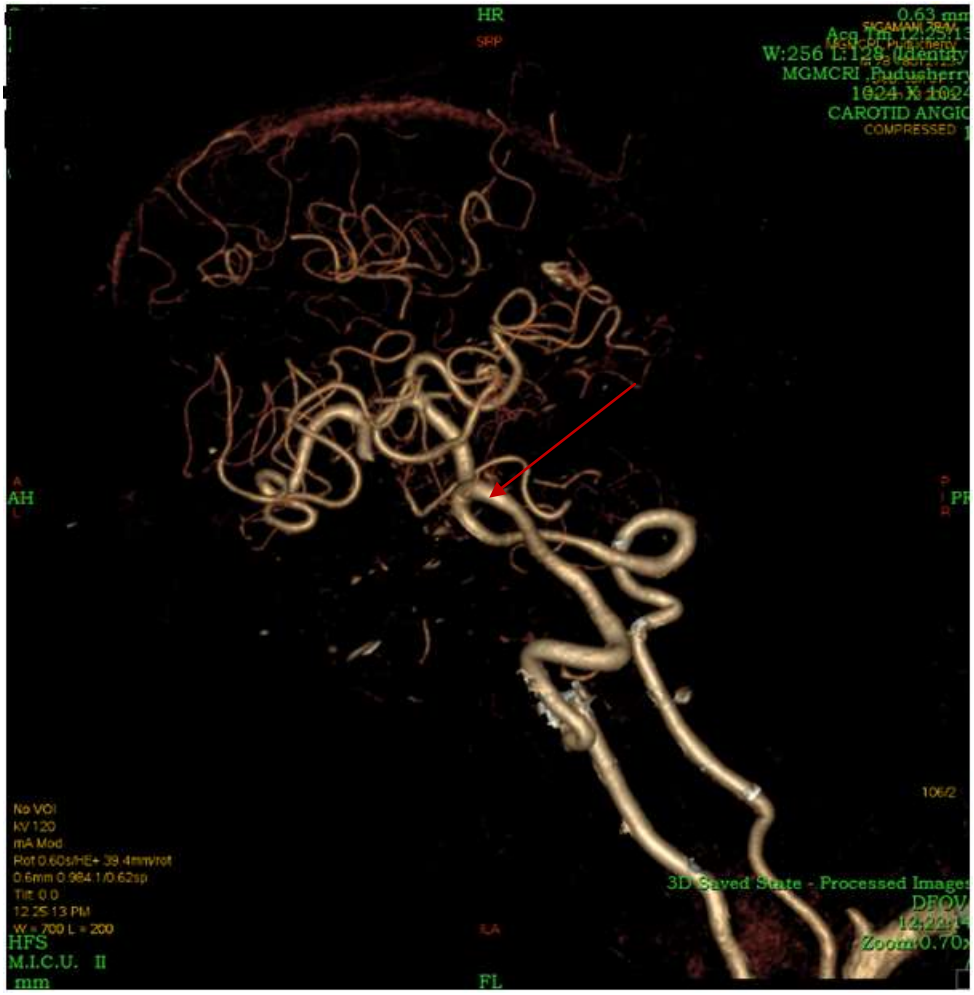

Figure: 2. CT Carotid Angiogram. Arrow shows dolichoectasia

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