Neurological Case Reports

Case Report
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Dolicoectasia of Vertebrobasilar Artery Presenting with Recurrent Refractory Seizures and Intractable Trigeminal Neuralgia

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Abstract

The Dolicoectatic vertebrobasilar artery is relatively rare and generally asymptomatic with unclear etiology. Clinical manifestations are complex with the ischemic stroke, followed by compression of cranial nerves and the brain stem, cerebral hemorrhage, and hydrocephalus. We describe a hypertensive middle age male presenting with recurrent seizures and intractable trigeminal neuralgia. Combination of recurrent refractory seizures with intractable trigeminal neuralgia is rare clinical manifestations of Dolicoectasia of vertebrobasilar artery.

Keywords: Dolicoectasia of vertebrobasilar artery; Recurrent seizures; Intractable trigeminal neuralgia; Hypertension

Introduction

The Dolicoectasia of vertebrobasilar artery is consider to be dilated if its diameter exceeds 4.5 mm and elongated if lies lateral to the lateral margin of the clivus or dorsum sellae [1]. The MRA standards proposed that a basilar artery length >29.5 mm reflects extension and vertebral artery length >23.5 mm or a deviation >10 mm from the expected course of either artery [2]. VBD is approximately 0.08% to 6.5% prevalent in the general population in different studies. Prevalence of VBD ranges from 3% to 17% in patients with stroke [3]. Etiology of VBD is thought to be due to the multiple factors including congenital factors, infections and immune status, and degenerative diseases [3]. Most cases are sporadic and associated with conventional vascular risk factors including advanced age, male gender, and hypertension. Arterial hypertension occurred most frequently when VBD compresses the left ventrolateral medulla [4]. Trigeminal neuralgia and hemifacial spasm, vestibulocochlear manifestations are due to compression of VBD on multiple cranial nerves. Our case is rare as patient is presenting with recurrent refractory seizures and trigeminal neuralgia due to compressive effect of VBD.

Case Presentation

A 40 year nonalcoholic, non-smoker hypertensive male presented with severe recurrent radiating pain towards left jaw and face associated with difficulty in opening mouth and chewing. Intensity of pain was severe which was not reduced by conventional medication. He had history of recurrent seizures GTCS type with frequency of three to four episodes per year for last ten years. He was on regular medications with optimum dose according to weight such as antiepileptics eq. phenytoin and clobazam and taking carbamazapine for trigeminal neuralgia for last twelve years. Frequency and intensity of pain of trigeminal neuralgia were increased since last few years as much that he had to admit in hospital. After admission MRI brain and MR angiogram showed Dolicoectatic vertebrobasilar artery with dominant right vertebral artery (Figure 1) causing prominent compression/distortion of brainstem and the cisternal segment of VII-VIII nerve complex (Figure 2) and left V cranial nerve (Figure 3). Left vertebral artery was hypoplastic. Epilepsy workup including EEG, serum ANA (antinuclear antibody), blood urea, calcium, magnesium, TSH, ECG, Echo, were normal. Family history was negative for similar illness. Propranolol was added along with other medications and improved.

Discussion

Vertebrobasilar Dolicoectatic Artery (VBD) is usually asymptomatic and less than 10% of patients

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Figure 1: Dolicoectatic vertebrobasilar artery (long white arrow) with dominant tortuous right vertebral artery (small white arrow).

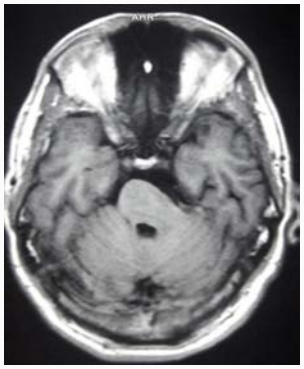

Figure 2: Prominent compression/distortion of brain stem and the cisternal segment of VII-VIII nerve complex by Dolicoectatic basilar artery (white arrow).

have neurologic symptoms mostly ischemic events and symptoms resulting from compression of structures. Based on analyses, in cases of VBD, the ischemic symptoms are due to recurrent thrombosis caused by hemodynamic and hemostatic changes within ecstatic artery. Multiple symptomatic cranial nerve compressions are facial nerve paralysis, trigeminal neuralgia, eighth cranial nerve leading to vestibulocochlear symptoms or other lower cranial nerve. Neurogenic hypertension caused by VBD mass effects is commonly seen because of compression of left ventrolateral medulla, which is the center of sympathetic activities and cardiovascular events. Rarely reported that increased blood pressure may aggravate the natural course of VBD. Hypertension can increase the wall shearing stress of a Dolicoectatic artery, leading to the formation of atherosclerosis and, ultimately, to ischemic stroke. Rarely direct or indirect compression of the bottom of the third ventricle or midbrain aqueduct can lead to obstructive hydrocephalus. Carbamazepine and pregabalin combination therapy is commonly used in trigeminal neuralgia and hemifacial spasm.

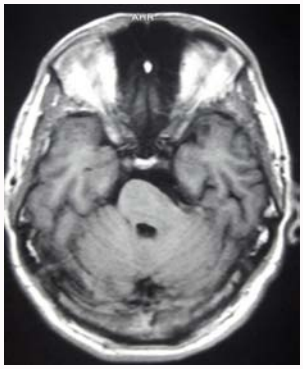

Figure 3: Dolicoectatic artery compressing left V cranial nerve (white arrow).

Pulsatile compressive effect of artery may be the reason of episodic recurrent intractable trigeminal neuralgia in our case responsive to beta blocker along with other medications. In selected cases endovascular reconstruction is useful by using coil-assisted stent placement techniques or stent placement alone in the vascular lumen for the treatment of fusiform VBD. Recurrent refractory seizure has been rarely reported in literature till date. Reason of seizures may be due to compressive effect of VBD in our case.

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