Case Report

Vertebro-basilar dolichoectasia: A rare cause of stroke

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ABSTRACT

We report a case of vertebro-basilar dolichoectasia in a 34 year old male patient who presented with sudden onset of headache, dizziness, diplopia and weakness of the left side of the body.

KEY WORDS: Vertebro-basilar (VB), Dolichoectasia (DE), Basilar artery (BA), Stroke.

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INTRODUCTION

DE, which is the elongation and fusiform dilatation of the intracranial vessels, has an incidence of 0.06% – 5.8%.[1] VBD may be a congenital non-atherosclerotic vaculopathy[2] but in most cases atherosclerotic plaques are often present in the wall of dolichoectatic arteries.

Atherosclerotic DE is the more common type and is seen predominantly in the proximal VBA than the intra-cerebral arteries and the age of the onset is usually greater than 40 years old with a male predominance.[3]

The congenital type is rarer and is generally found in people younger than 40 years old with a female predominance and more frequently involve the distal branches of the cerebral arteries and possibly more common in the posterior cerebral arteries.[4] A third type resulting from dissection can be presented with a dolichoectatic appearance.[5]

The clinical features include cranial nerve dysfunction, transient ischemic attack, posterior circulation stroke, hydrocephalus and subarachnoid hemorrhage.[6] VBD has been diagnosed non-invasively with the advancement of CT angiography, MRI and MRA.[7,8]

CASE REPORT

A 34 - year old male Egyptian patient previously healthy with no significant past medical history presented with sudden onset headache, dizziness, double vision on left lateral gaze, numbness and weakness of the left side of the body.

There was no history of fever, loss of consciousness, fit or sphincter disturbance. He has neither past history nor family history of a similar condition. On examination, the patient was hemodynamically stable with normal vital signs. Chest, heart and abdomen examination was unremarkable.

Neurological examination revealed a fully conscious patient, alert to space, time and person. He had mild slurred speech and nystagmus on left lateral gaze. There was mild left 6th cranial nerve palsy. There was weakness of the left side of the body of upper motor neuron features with hypertonia, hyperreflexia, up going planter response with normal superficial and deep sensation. His lab investigations including CBC, ESR, C-reactive protein, CSF study, thyroid function test, lipid

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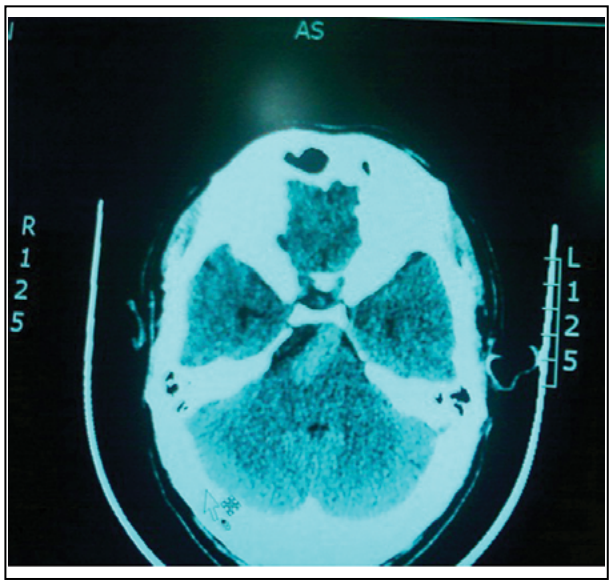

Fig.1: CT brain.
CT Brain revealed a well-defined linear structure with hyperdense content and calcification in its walls seen just anterior to the brainstem at the anatomical site of the basilar artery likely representing dilated tortuous basilar artery.

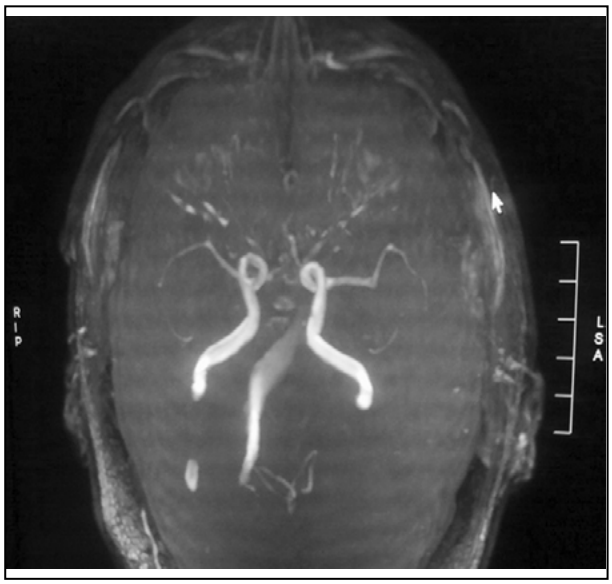

Fig.2: MRI, MRA and MRV.
MRI revealed normal course caliber and outlines of the CA, ACA, MCA, PCA and their peripheral branches bilaterally. It also revealed dilated and tortuous right vertebral artery as well as the main basilar artery reaching a maximum caliber of 13 mm anterior to the pons with normal caliber and course of the left vertebral artery. Findings are impressive of basilar artery dolichoectasia.

profile, renal function tests, liver function tests and coagulation profile were normal.

Collagen screen and thrombophilia screen were negative. CT brain (Fig.1). MRI, MRA and MRV (Fig.2). Nerve conduction study, EMG and visual evoked potential were normal. The patient was reviewed by neurologist who advised IVIG followed by methylprednisolone pulse therapy with aspirin, statin and physiotherapy. After obtaining the MRI and MRA result, all medication stopped and the patient was kept on physiotherapy.

DISCUSSION

Basilar artery begins at the medullo-pontine junction and ends at the junction of the pons and mid brain. VBD is an anatomical term that refers to a vertebral or a basilar artery that is elongated, tortuous and partially displaced. If BA lies lateral to the margin of the cavus or dorsum sellae or it bifurcates above the plane of the superasellar cisternae, it may be considered elongated (from the Greek dolichas) and an ectasy means distention and is considered when the diameter of the artery is greater 4.5 mm.[9]

Frequently the diameter is less than 11 mm; in our case the diameter of the basilar artery was 13 mm. VBD may be an independent risk factor for stroke.[2] It may be found in 3% of the patients with first time cerebral infarction.[7] A basilar artery of diameter above 4.3 mm is independently associated with 5 - year stroke mortality.[10]

The most important clinical presentation of VB dolichoectasia.[11]

* Acute brain ischemia with a progressive course related to the compression of the cranial nerves, brainstem or the third ventricle
* A catastrophic outcome caused by vessel rupture.

Treatment of symptomatic cases is still controversial with options ranging from observation and follow up, proximal and distal occlusion, resection with re-anastomosis, transposition and wrapping.[12] Surgery may be harmful because any attempt to interfere may run a high risk of ripping off one of the tiny vessels of the BA.

Our patient was treated initially with IVIG, methyl prednisolone pulse as a suspected case of demyelination together with aspirin and statin. Later on after obtaining the results of MRI and MRA treatment was held and the patient treated conservatively together with physiotherapy, his headache, diplopia and dysarthria improved within a few days, however his weakness remained the same.

CONCLUSION

Clinicians and neurophysicians should be aware of this rare cause of stroke to avoid unnecessary work up and lab investigations.

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