

Image section

Dolichoectasia of basilar artery causing obstructive hydrocephalous and cranial nerves compression

Amit Mittal, Ajay Mittal, B. K. Agrawal, Vinod Mehta
Institute of Medical Sciences and Research, Mullana, Ambala, Haryana.

Abstract

Dilatation and elongation of the vertebrobasilar arterial system has long been a recognized clinical entity. Patients may present with cranial nerve dysfunction, transient ischaemic attack, hydrocephalus and subarachnoid hemorrhage. We are presenting a case of dolichoectasia of basilar artery causing hydrocephalus and cranial nerves dysfunction.

Case Report:

A 30-yr old male hypertensive patient presented with history of generalised tonic-clonic convulsions, dementia, headache and vomiting off and on with impaired hearing for past 3 years. On examination there was left facial hemispasm and left sided trigeminal neuralgia. ECG and echocardiography showed left ventricular hypertrophy.

Magnetic resonance imaging (MRI) of the brain was done on 0.2T Signa (GE systems, USA) MRI with T2W, T1W, FLAIR, DW sequences and angiography was done with 3D Time of Flight (TOF) sequence with maximum intensity projection (MIP) done in all 3 planes. There was evidence of T2W hyper intensities in bilateral periventricular white matter and centrum semiovale suggestive of hypertensive changes along with evidence of hydrocephalus (Figure-1).

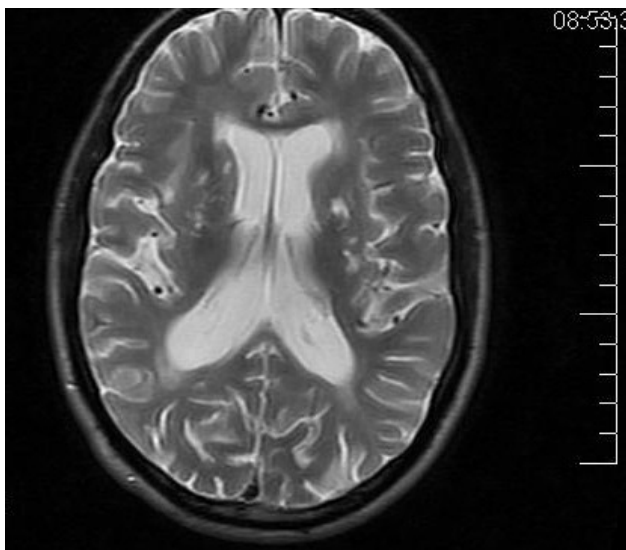


Figure-1. T2W axial image showing hydrocephalus with periventricular hyperintensities.

There was dilated elongated tortuous flow void of the basilar artery severely compressing the pons anterolaterally deforming the pons and compressing the peri pontine cistern and the cranial nerves (Figure-2).

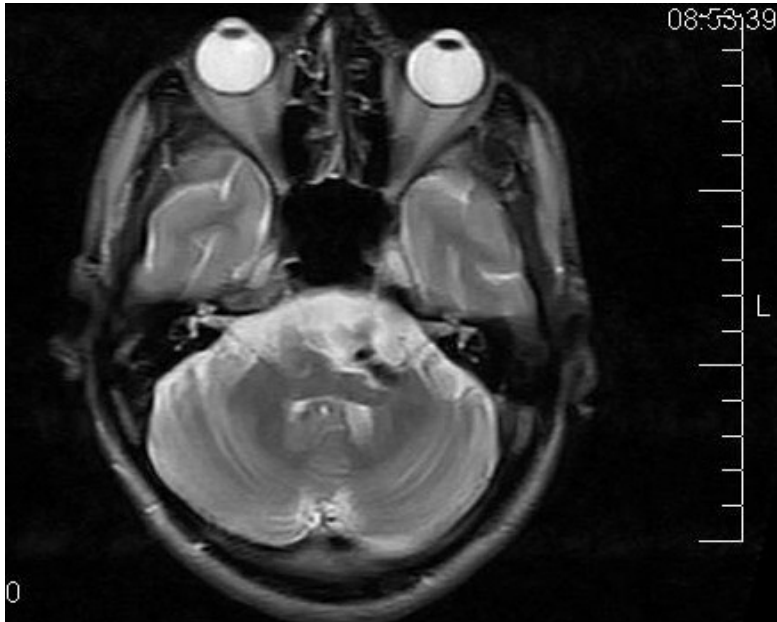


Figure-2. T2W axial image shows dilated flow void of the basilar artery compressing and deforming the pons.

The bifurcation of the basilar artery was above the level of suprasellar cistern and bifurcates at the level of floor of third ventricle causing indentation leading to hydrocephalus more clearly seen on MIP images of TOF (Figure-3 a,b and c).

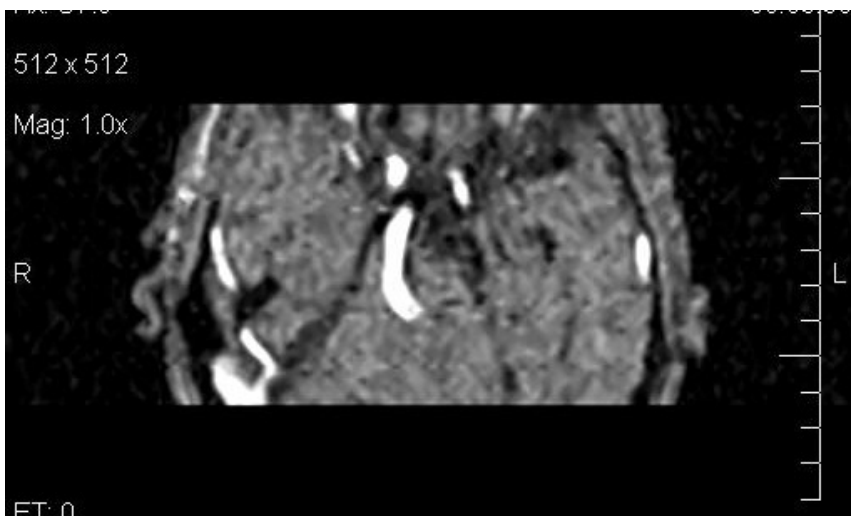


Figure-3a

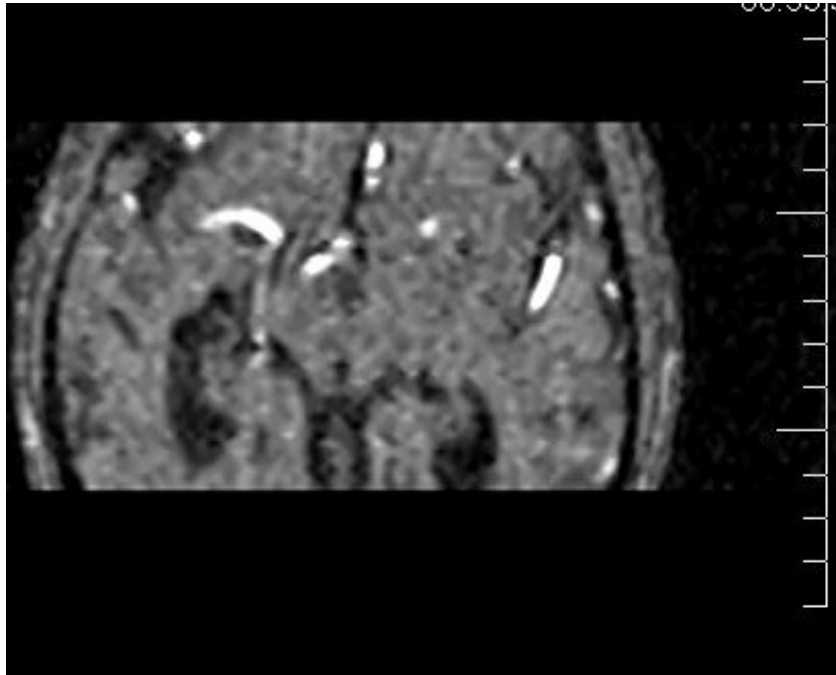


Figure-3b

Figure- 3a, 3b, 3c.

MIP images of TOF are showing dilated elongated basilar artery going superior to suprasellar cistern and bifurcating at the level of floor of third ventricle

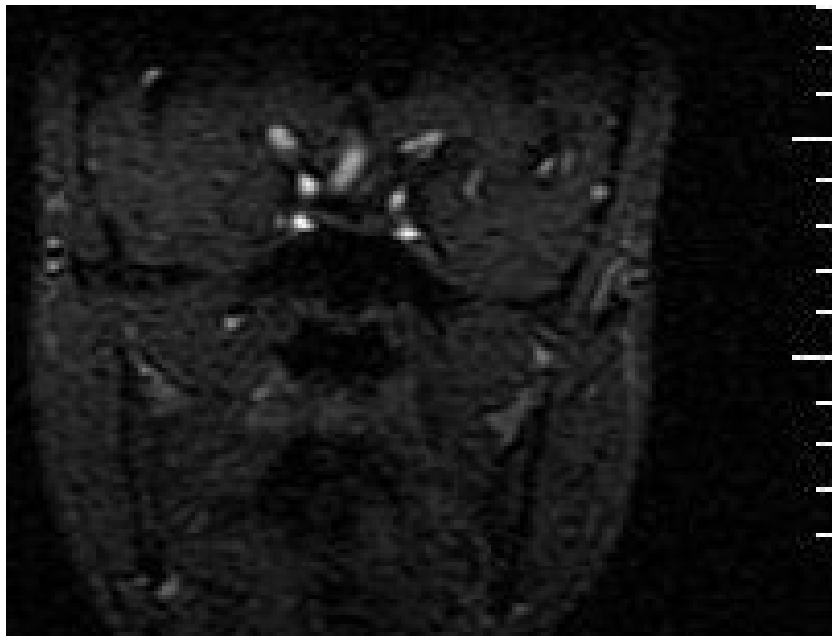


Figure-3c

The vertebrobasilar system can be considered elongated if the basilar artery lies lateral to the clivus or dorsum sellae, or if bifurcates above the plane of suprasellar cistern. Ectasia can be considered to be present if the basilar artery has a diameter greater than

4.5mm [4]. The degeneration of the vascular wall due to atherosclerosis alone or in association with arterial hypertension or congenital cause is suggested as the pathogenetic factor[2]. Dolichoectatic basilar artery can cause symptomatic hydrocephalus[1], cranial nerves dysfunction[3] as was seen in our case.

References:

1. Edis RH, Chakera TM. Symptomatic hydrocephalus due to an elongated and ectatic basilar artery. Clin Exp Neurol 1984; 20: 101-6.
2. Hegedus K. Ectasia of the basilar artery with special reference to possible pathogenesis. Surg Neurol 1985; 24: 463-9.
3. Panda S, Goyal V, Gupta V, Singh S, Srivastava T, Padma MV, Behari M. Vertebrobasilar dolichoectasia presenting as lower cranial nerve palsy. Neurol India 2004; 52: 279.
4. Smoker WR, Corbett JJ, Gentry LR, Keyes WD, Price MJ, Mckusker S. High-resolution computed tomography of the basilar artery, 2: vertebrobasilar dolichoectasia: clinical-pathological correlation and review. Am J Neuroradiol 1986; 7: 61-72.

Corresponding author:

amitmittalrad@yahoo.co.in

Amit Mittal

Associate Professor

Department of Radiodiagnosis and Imaging,

M.M. Institute of Medical Sciences and Research,

Mullana, Ambala,

Haryana.

India