



ABDUCENT NERVE PALSY- A RARE CASE REPORT SUNDAR T

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Abstract : A 34-year old male who developed binocular horizontal double vision in right gaze was found to have an isolated sixth nerve palsy in right eye secondary to sub-acute bleed involving Pons due to solitary small Cavernous malformation. The natural history of Cavernous malformation and the mechanism by which hemorrhage of these vascular lesions may produce minimal neurological signs, including isolated ocular motor cranial nerve palsies, is discussed. Magnetic resonance imaging (MRI) that includes susceptibility-weighted sequences leads to their accurate diagnosis.

Keyword : Cavernous malformations, Cavernous angioma, Abducent nerve palsy

INTRODUCTION

Cavernous angioma is a blood vessel abnormality characterized by large, adjacent capillaries with little or no intervening of brain. They are well-circumscribed lesions that may reach several centimetres in diameter and consist of thin-walled, sinusoidal-like blood vessels. They occur in approximately 0.4%–0.8% of the general population and typically cause initial symptoms in the third or fourth decade. The risk of hemorrhage estimated at 0.1%–3.1% per lesion per year. Their prevalence occurs at various sites in the brain and Pons is the site of predilection in the brainstem accounting for approximately 62%–75% of brainstem cavernous malformations.

CASE REPORT

A 34 year old male presented with binocular double vision on right gaze associated with headache for one week. His past ocular and medical history was unremarkable. On examination right sided face turn was noted. His best corrected visual acuity in both eyes was 6/6. Hirschberg test shows right eye 15 degrees esotropia. On diffuse illumination his anterior segment examination was normal in both eyes. Extraocular movement examination (fig-1) showed abduction restriction in right eye suggestive of right eye Abducent nerve palsy. On Slit lamp biomicroscopy examination showed both eyes anterior segment was normal. Fundus examination of both eyes was normal. Hess charting (fig-2) showed abduction restriction in right eye and diplopia charting (fig-3)

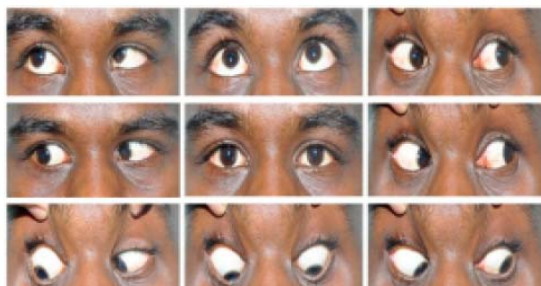
shows maximum separation of uncrossed images on dextroversion suggestive of right eye Abducent nerve palsy. As there was no significant history we went ahead with neuro imaging to rule out central nervous system pathology. CT-brain both plain and contrast (fig-4) showed enhancing hemorrhagic lesion in the right posterolateral Pons suggestive of Cavernous Angioma with bleed is the cause for sixth nerve palsy. Patient was referred to tertiary neurosurgery institute for further management where he had undergone, MRI brain (fig-5A and 5B) which revealed isolated sixth nerve palsy secondary to sub-acute bleed involving Pons due to solitary small cavernous malformation. The lesion was deemed inoperable and his clinical deficit improved spontaneously over 4 months.

DISCUSSION

Cavernous hemangiomas are vascular malformations that occur in approximately 0.4%–0.8% of the general population and typically cause initial symptoms in the third or fourth decade 1,4. They are well-circumscribed lesions that may reach several centimetres in diameter and consist of thin-walled, sinusoidal-like blood vessels. The risk of hemorrhages estimated at 0.1%–3.1% per lesion per year and the risk increases if there has been a previous haemorrhage¹. Their prevalence at various sites in the brain is proportional to brain volume and the Pons is thus a site of predilection in the brainstem accounting for approximately 62%–75% of brainstem Cavernous malformations 2,4. The risk of hemorrhage from an infratentorial location has been reported to be 1.2–5.5 times greater than the risk from a cortical lesion⁵. The fact that Cavernous malformations do not contain internal neural tissue may explain why hemorrhage of these lesions can be asymptomatic or result in only minor neurologic impairment. Although Cavernous malformations distort surrounding neural tracts, there is no interruption of connectivity or function. When hemorrhage occurs primarily within the lesion itself and spares the surrounding brain parenchyma, there may be minimal effect on adjacent neural structures. Detection of Cavernous malformations has been facilitated by the use of MRI and protocols that include susceptibility-weighted sequences. In our patient, a Cavernous malformation with subacute hemorrhage appeared hyperintense on T1W1 sequence. Cavernous malformations are distinguished from other vascular

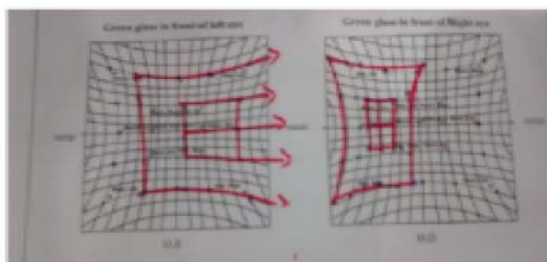
malformations by lack of enhancement with administration of contrast. Subacute hemorrhage is often accompanied by surrounding edema. Our case illustrates a good prognosis for neurologic recovery from a first-time haemorrhage. Patient was given tablet dexamethasone 4mg in tapering doses for a period of one month. Patient came for follow up after 4 months, his clinical deficit improved spontaneously on medical treatment suggesting remyelination of the sixth nerve fasciculus as hemorrhage resolved. However, Cavernous malformations carry a high risk for recurrent hemorrhage and must be considered as a potential cause of "idiopathic" ocular motor cranial nerve palsy.

Fig-1 EXTRAOCULAR MOVEMENTS IN ALL GAZES



Limitation of abduction in right eye

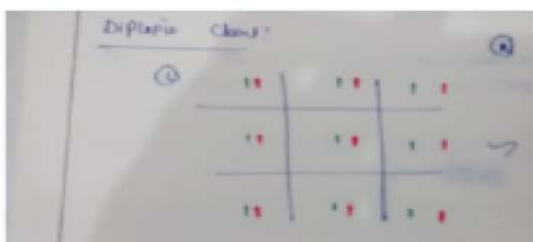
Fig-2 HESS CHART



Hess charting shows abduction restriction of Lateral Rectus in Right eye and overaction of Medial Rectus in Left eye.

Fig-3

DIPLOPIA CHART



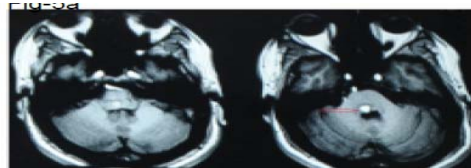
Diplopia charting shows maximum separation of uncrossed images on dextroversion.

Fig-4

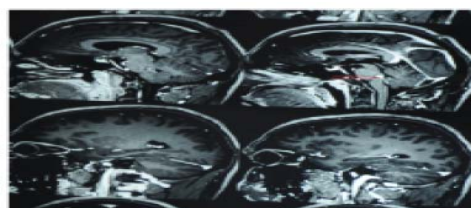


CT-brain axial view revealed enhancing hemorrhagic lesion (1.11x1.20cms) noticed in the right posterolateral pons represent cavernous angioma with bleed.

Fig-5a



Tesla MRI-Brain axial(5a) and sagittal(5b) section showed a well defined rounded lesion of size 1cm diameter showing a central reticulated hyperintense in T1W1 (subacute bleed) in the right of mid line suggestive of solitary small cavernous malformation involving pons.



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