Case Report

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Isolated Medial Rectus Palsy: Two Case Reports

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Abstract

Isolated medial rectus palsy in an otherwise healthy person is a very rare entity. It can be due to viral infections, orbital myositis, orbital cysticercosis or due to small fine infarcts in midbrain involving lateral subnuclei of the midbrain.These are the two case reports,one otherwise young adult female presented with sudden onset of blurring vision with diplopia,abnormal head posture and pain with deviation of left eye and other a congenital case of 3 year female child patient with deviation of left eye and abnormal head posture.Typical or atypical inter nuclear ophthalmoplegia should be ruled out after thorough clinical evaluation before making a diagnosis of isolated medial rectus palsy.Isolated medial rectus palsy in an young patient may be masking a systemic disorder and needs to be evaluated thoughrily.

Keywords: Isolated medial rectus palsy; Mid-brain infarct; Medial longitudinal fasciculus; Internuclear ophthalmoplegia; Ocular tilt reaction.

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Introduction

Any kind of extra-ocular muscle palsy can be a sign of serious neurological illness which can be commonly associated with systemic illness like Hypertension, Diabetes mellitus, hypercholesterolemia and cardiac illness etc.[1,2]

Isolated medial rectus muscle palsy is all the more rare entity in an otherwise healthy young adult and needs detailed evaluation and systemic investigation to elicit the cause.Very few cases of isolated medial rectus muscle palsy have been reported to the best of our knowledge[1,3-6]. Most of the cases reported either had other signs of third nerve palsy or neurological signs suggestive of central nervous system pathology. We report two cases,one a case of healthy adult female who presented with acute and sudden onset of blurred vision, diplopia,pain,deviation of left eye and abnormal head posture and the other as a congenital case of a 3 year old female child with deviation of left eye and abnormal head posture from birth. Thourough clinical evaluation and systemic investigation undertaken in both the cases. Our cases are unique in terms of presenting symptoms, absence of systemic neurological signs and documented neuroimaging like MRI.

Case report 1

A 24 year old otherwise healthy female presented in OPD with complaints of sudden blurring vision in left eye, diplopia, deviation of left eye, pain, headache and abnormal head posture since 5 days. She experienced the same after waking up in the morning 5 days ago. It was associated with double vision in right lateral gaze and abnormal head posture with face turn to the right side and mild head tilt to the left side. She also complained of episodic headache and pain in and around

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the left eye mild to moderate grade, since 5 days that was intermittent. No history of fever,trauma, convulsions and no other systemic complaints. Both eyes visual acuity 6/6 and near vision N5 and colour vision normal. Ocular movements show restriction of adduction in left eye on dextroversion (Fig. 1, Fig. 2 & Fig. 3).

Krimsky's and Hirschberg's corneal reflex test shows 15 degrees Exotropia in left eye. Ocular motility shows restriction of adduction on dextroversion. Ocular motility in rest of cardinal positions appears to be full and painless. There were no saccades of left eye on adduction. There appears to be no abducting nystagmus in right eye. Forced duction test was negative in left eye. Diplopia charting and Hess screening show left medial rectus palsy.Anterior segment and pupils of BE, are normal. Fundus of both eyes was normal with optic disc normal and no evidence of papilloedema. Rest of cranial nerves normal and no other systemic neurological deficits. Patient was referred to the Neurophysician and he opines as partial 3rd nerve palsy left eye. Routine Haemotological examinations like Hb%, TLC, DLC, PLT, HS CRP, ESR, RBS, VDRL, HIV, HCV, HBS Ag, Mantoux test and chest X- ray with in normal limits. MRI showed small foci of diffusion restriction and FLAIR weighted hyperintensities in the mid brain in the median and paramedian region anterior to aqueduct[7].

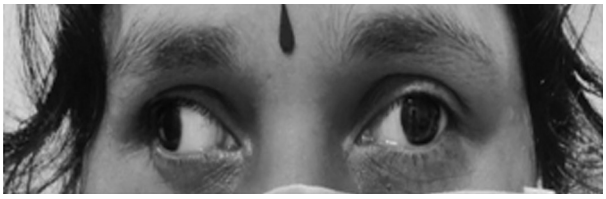

Fig 1: Dextroversion.

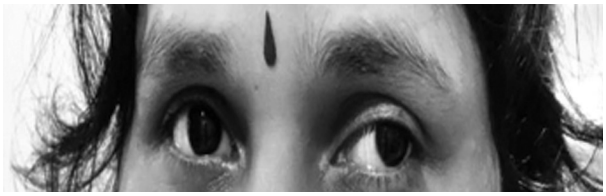

Fig 2: Primary Position.

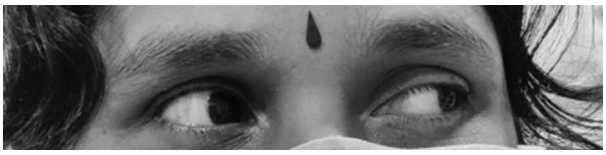

Fig 3: Laevoversion.

Basing on the above findings a diagnosis of acute isolated medial rectus palsy was made in left eye. It may be due to fine localized infarcts at the level of medial rectus nucleus of 3rd nerve nucleus complex or it can be due to a typical internuclear ophthalmoplegia due to fine infarcts involving medial longitudinal fasciculus region (MLF). MLF infarcts are more common as its blood supply show watershed zones unlike in medial rectus nucleus region.

Patient was put on antiplatelet therapy of acetyl salicylic acid 75 mg per day, Calcium and vitamin–D supplements and other supportive therapy. 3 weeks later there was partial recovery of adduction in left eye.

Case report 2

A female child of 3 years was brought to our OPD with a history of deviation of left eye and abnormal head posture with head tilt since birth. History of consanguineous marriage in parents present. First two children died due to congenital cardiac problems. The child is otherwise normal with normal milestones of development. Full term normal delivery. No history of fever, birth trauma or any systemic problem. Paediatric examination shows no other systemic problem. On examination constant head posture with face turn to right side and head tilt to left side. Ocular movements show limitation of left eye on dextroversion and abducting nystagmus in right eye. Absence of convergence in left eye. Hirschberg's test and Krimsky's prism test shows 20 degrees Exotropia in left eye. Visual acuity both eyes not cooperative. Anterior segment examination with in normal limits.pupils normal in size reacting to light. Fundus examination is normal with normal optic disc. Routine blood examination and chest X-ray with in normal limits. MRI shows no abnormality.

Patient was put on supportive therapy. The condition remains the same after 2 months when patient came for review. There may be subtle developmental anomaly of medial longitudinal fasciculus or medial rectus sub nucleus which refuses to improve.

Discussion

Extra ocular muscle palsy can be a sign of serious neurological desease which may be associated with systemic illness like hypertension, diabetes mellitus, hypercholesterolemia and cardiac illness etc.

Isolated medial rectus palsy in an otherwise healthy young adult needs detailed evaluation and systemic investigation to find out the cause. Very few cases of isolated medial rectus palsy have been reported

so far. Morya et all[8], reported the presumed cause to be due to small fine infarctions involving medial rectus sub nucleus of 3rd nerve in the mid-brain. The 3rd nerve nucleus is supplied by paramedian branches from basilar artery and proximal branches from posterior cerebral arteries with no watershed zones between neighbouring subnuclei where as medial longitudinal fasciculus responsible for internuclear ophthalmoplegia (INO) is supplied by end arteries from basilar artery, the latter being more prone for ischaemia,being end arteries. MLF is lying just ventro-lateral to medial rectus sub nucleus of 3rd cranial nerve and can be affected anywhere till rostral interstitial nucleus of Cajal[9]. The two frequently encountered aspects of INO, absent or weak convergence and accompanying ocular tilt reaction (OTR). or skew deviation due to involvement of otolithic pathways can be missed or over looked[9,10]. The patient with OTR may neither report vertical diplopia nor conjugate tortion and head tilt adopted maybe subtle and easily missed. An isolated/non isolated unilateral INO is prone to be misdiagnosed as isolated nuclear medial rectus palsy and such a diagnosis can be made after far more common INO has been ruled out by appropriate evaluation for convergence and OTR. Ischemic INO may not be MRI positive and may resolve spontaneously in one or two months.

Conclusion

INO should be thoroughly evaluated for and ruled out before making a diagnosis of isolated medial rectus palsy by appropriate testing for convergence, OTR and abduction nystagmus in the other eye.

MLF is more prone for ischemic damage than medial rectus subnucleus.

Ischemic INO may not be MRI positive and may resolve spontaneously and hence can be put on antiplatlet therapy and other supportive therapy only, instead of more problematic steroid therapy.

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