

# **University Journal of Surgery and Surgical Specialities**

ISSN 2455-2860

2019, Vol. 5(10)

# A CASE OF UNILATERAL INTERNUCLEAR OPHTHALMOPLEGIA **MOHAN RAJ B**

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Abstract : Lesion in the medial longitudinal fasciculus (MLF) anywhere in the brainstem between midbrain and pons which connects third and sixth nerve nuclei in the brainstem, produce internuclear ophthalmoplegia with characteristic horizontal gaze palsy

Keyword :MLF, internuclear ophtalmoplegia, horizontal gaze palsy

# **INTRODUCTION :-**

Internuclear ophtalmoplegia is a gaze disorder in which the affected eye shows impairment of adduction. When an attempt is made to gaze contralaterally, the affected eye does not adduct or adducts minimally. The contralateral eye abducts with nystagmus. The divergence of the eyes leads to horizontal diplopia when looking to the unaffected side. As second, third and sixth nerve nuclei are not affected ,ptosis will not occur, the other extraocular movements will not be affected and convergence will be intact.

# **CASE PRESENTATION:-**

7 year old developementally normal female child ,1st born of nonconsanguineous marriage was admitted with complaints of diplopia on looking towards left, associated with giddiness, vomiting ,deviation of angle of mouth to left side, weakness of all four limbs since waking up, h/o transient blurring of vision of the right eye was present. No h/o fever, loss of consciousness, altered sensorium, headache, seizures, no h/o dog bite, vaccination or head injury in the recent past. On physical examination-child was conscious but drowsy, arousable, communicating well. Afebrile, no pallor, no icterus, no cyanosis, no generalized lymphadenopathy. On CNS examination-nystagmus both eyes present, right eye adduction was restricted, both eyes pupil equal reacting to light, direct and indirect pupillary reflexes intact, deviation of angle of mouth to left side present (UMN type of facial palsy), other cranial nerves normal. Motor system examination revealed hypotonia with weakness of all four limbs with grade 4/5, plantar both sides flexor. No sensory loss, no cerebellar signs or involuntary movements. Vital signs were normal. Ophthalmologist opinion -both eyes acquity, colour, field of vision normal. Both eyes fundus normal. Right eye adduction is restricted.

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#### MANAGEMENT:-

Investigations done-complete blood count, renal, liver function tests, bleeding and clotting time, lipid profile, serum antithrombin, protein c and protein s ,serum homocysteine levels were within normal limits. CT BRAIN was done - normal study. Provisional diagnosis of acute disseminated encephalomyelitis (ADEM) was made, hence started on i.v.methylprednisolone. Facial weakness, limb weakness improved within a day, but internal ophthalmoplegia persisted. MRI brain DWI showed midbrain infarct in the tectum and tegmentum. MR angiogram and venogram were normal. Hence inj.methylprednisolone was stopped and aspirin was started. Adduction abnormality gradually reduced and regained normal eye movements over a period of one month. Repeat MRI brain after a month was normal.



Images show when the child looking towards the unaffected side (left), the affected side (right eye) show restrictricted adduction. diplopia on looking towards left is present. all other eye movements are normal. no diplopia on looking at other sides.



Image-MRI brain DWI show infarcts at tectum and tegmental regions of midbrain



Picture shows adduction of the right eye is normal after treatment. no diplopia.

# **DISCUSSION:-**

A lesion in the dorsomedial pons or midbrain tegmentum manifest as inter nuclear ophthalmoplegia. The causes are demyelinating diseases (eg., multiplesclerosis), infarction, haematoma, trauma, infection, neoplasm, radiation, drugs (eg.,phenothiazine, tricyclic antidepressants), degenerative disorders. Internuclear ophthalmoplegia may manifest isolately or with other neurological signs. Most common cause in young is multiple sclerosis, in elderly atherosclerosis is common. Bilateral internuclear ophthalmoplegia is most suggestive of multiple sclerosis. Many cases were reported in adult population. In paediatric population hypoxic ischemic encephalopathy, neonatal intracerebral haemorrage, high grade astrocytoma, neurocysticercosis and tuberculoma were reported as causes of internuclear ophthalmoplegia. In this case other neurological manifestations were transient and adduction abnormality persisted for one month. The cause for the infarct could not be concluded as investigations were normal.child was on aspirin and on regular follow up. This case was reported for its rarity.

# ACKNOWLEDGEMENT:-

The author thanks the patient and parents for their consent for publishing the information and pictures.

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