



ORIGINAL RESEARCH PAPER

Ophthalmology

ABERRANT REGENERATION OF OCULOMOTOR NERVE- LID GAZE DYSKINESIS: A CASE REPORT

KEY WORDS: Aberrant regeneration, Oculomotor nerve, Levator palpebrae superioris, Medial rectus, Superior rectus.

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ABSTRACT

Aberrant regeneration of Oculomotor nerve results in the abnormal contraction of the muscles. It occurs because of failure to recover completely after injury to the oculomotor nerve. [1] Here we present a case who presented to us with the signs and symptoms of Aberrant Regeneration of Oculomotor Nerve.

CASE REPORT:

A 23 years old female patient presented to us with history of drooping of right eyelid for last 15 years following head injury (Fig 1). It was not associated with diminution of vision. Previously she noticed double vision which subsided on its own within a period of about one year. There was no history of loss of consciousness or abnormal body movements during this period. After informed consent complete ocular examination of the patient was done. On examination her visual acuity was 6/6 both eyes. Pupil was reacting normal to light. There was ptosis in right eye. Vertical fissure height was 5 mm in right eye and 8 mm in left eye.



FIG 1: Patient in cardinal positions of gaze

Marginal reflex distance in right eye could not be measured since pupil was covered by the eyelid and in left eye it was 4 mm. In primary position there was exotropia of 14 degrees and hypotropia in right eye. There was restricted adduction and elevation in right eye and retraction of the right upper eyelid when patient looked downwards. Slit lamp examination and fundus examination was normal. Her systemic examination was essentially normal. Magnetic Resonance Imaging scan was normal.

DISCUSSION:

Two forms of aberrant regeneration of oculomotor nerve have been seen. Primary form is insidious in onset and is associated with intracavernous lesions such as aneurysms, neurinomas and meningiomas.

Secondary form is seen after injury to the oculomotor nerve or due to compression caused by tumours. It is observed after weeks to months duration of third nerve palsy onset. It is never seen after ischemic 3rd nerve paresis. Here it is to be noted that if a patient of ischemic 3rd nerve paresis develops aberrant regeneration MRI scanning is mandatory to rule out other causes. [4]

Another way of classification of Aberrant regeneration of oculomotor nerve is based on extent of nerve injury (Seddon's Peripheral Nerve Injury Classification). In first

degree conduction block continuity of axon is maintained. In second degree conduction block disruption of axon is there whereas endoneurium is preserved. In third degree both nerve and endoneurium are disrupted and here regeneration of third nerve may take place. In our case there may be disruption of nerve as well as endoneurium of third nerve due to trauma resulting in the regeneration of the third nerve. [2]

Normally fibres of oculomotor nerve are destined to innervate medial rectus. In aberrant regeneration they innervate Levator Palpebrae Superioris (LPS) and other extraocular muscles. So due to synkinesis between medial rectus and LPS lid elevates on adduction or due to misdirection of Superior Rectus fibres into Medial Rectus there is adduction on elevation. Sometimes due to innervations of inferior rectus fibres into LPS lid retracts on downgaze. [4,5]

Schwannoma, Meningioma, intracavernous aneurysms, trauma, surgery, tumour, posterior communicating artery aneurysm, haematoma formation, ophthalmoplegic migraine and atypical Tolosa Hunt syndrome have been reported as cause of aberrant regeneration of 3rd Cranial nerve. [3,5,7,8,9,10]

CONCLUSION:

While treating a case of head injury aberrant regeneration of oculomotor nerve should be kept in mind as a late complication of 3rd nerve injury. Meticulous clinical examination and past history may help in the diagnosis of such patients.

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