Case Pictorial

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Post-traumatic Bilateral Abducens Nerve Palsy: A Case Report

S Pallavi Reddy[1], M R Pujari[2], Vishwanath Reddy[3], Santosh Patil[4]

[1]Post-graduate Student, Department of Ophthalmology, M R Medical College, Gulbarga, Karnataka, India, [2]Professor and Head, Department of Ophthalmology, M R Medical College, Gulbarga, Karnataka, India, [3]Professor, Department of Ophthalmology, M R Medical College, Gulbarga, Karnataka, India, [4]Associate Professor, Department of Ophthalmology, M R Medical College, Gulbarga, Karnataka, India

The incidence of unilateral abducens nerve palsy has been reported to be as high as 1-2.7% of head trauma cases, bilateral abducens nerve palsy following trauma is extremely rare.[1,2] In literature, bilateral abducens nerve palsy is said to also occur by increased intracranial pressure, dural puncture, whiplash injury, hangman's fracture and halo traction. The mechanism for bilateral 6th cranial nerve palsy in this patient is controversial. Physical examination and appropriate imaging tests such as high resolution computed tomography (CT) or magnetic resonance imaging can usually identify the cause of a traumatic gaze palsy, but they did not do so in this case.[3,4]

A 50-year-old female involved in a case of road traffic accident who sustained a head injury - A 4 cm lacerated wound over the left side of the forehead which was sutured at a primary center. CT scan of the head showed fracture of the left frontal bone involving the lateral wall of the orbit and no other lesions in the brain. She complained of diplopia in primary gaze and was referred to the ophthalmology department. On examination, her visual acuity was normal. Apart from minimal sub-conjunctival hemorrhage in the left conjunctiva anterior segment of both her eyes was normal, as were the fundi. There was misalignment of the visual axis with bilateral esotropia and restriction of the ocular movement of both the eyes laterally. Bilateral trigeminal and facial nerves were found to be normal. The forced duction test was positive, and the diagnosis of bilateral abducens/sixth cranial nerve palsy was made [Figures 1-3]. She was managed conservatively and was asked to follow-up after 1 month. Her 1 and 2 months follow-ups revealed no change in the clinical picture. She was later lost to follow-up.

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Figure 1: Misalignment of visual axis on upgaze

Figure 2: Misalignment of visual axis on primary gaze

Corresponding Author: Dr. S Pallavi Reddy, Department of Ophthalmology, Basaveshwar Teaching and General Hospital, Gulbarga, Karnataka, India. Phone: +91-944036770. E-mail: pallavi_sanamreddy@hotmail.com

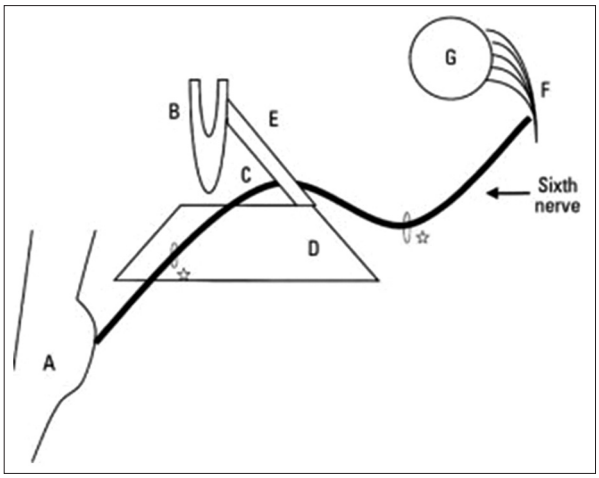

Figure 3: Schematic diagram of the course of the sixth cranial nerve from the pons (A) to the lateral rectus muscle (F). The nerve ascends over the petrous bone (D) and under Gruber's ligament (E) as it passes through Dorello's canal (C). The nerve is tethered by dura before and after the canal (stars). Injury to the peripheral nerve is thought to occur by contusion against the petrous ridge after midfrontal head impact. B: Posterior clinoidal process, G: globe

Points to Ponder

The differential diagnosis for traumatic lateral gaze palsy includes brain stem lesion such as diffuse axonal injury, peripheral nerve injury with or without basilar skull or cervical fracture, and lateral rectus muscle injury or entrapment.

- The abducens nerve is the most susceptible cranial nerve to trauma, because of its long intra cranial course. Anatomically, abducens nerve consists of intracisternal, intra cavernous and intra orbital parts.

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