

Idiopathic Abducens Nerve Palsy

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Abstract

Sixth cranial nerve palsy causes paralysis of lateral rectus muscle leading to horizontal diplopia on lateral gaze and inability to abduct the eye. Such palsy may be secondary to trauma, infection, stroke in pons, Wernicke encephalopathy, raised intracranial tension from meningitis, encephalitis, or it may be idiopathic or benign when no discernible cause can be found after detailed investigation, and in such cases, spontaneous recovery of symptoms usually occurs with resolution of palsy in a few weeks. We depict a patient with acute onset abducens palsy with diplopia without any identifiable cause which recovered spontaneously within 4 weeks.

Keywords: Abducens palsy • Diplopia • Idiopathic

Case History

A 16 years old girl presented with history of acute onset double vision and visual blurring for 2 days. Her diplopia was worse on left lateral gaze. There was no history of diurnal variation or fatigability in her extraocular movements. She had intermittent low grade fever about a week ago which resolved within 48 hours. There was no history of vomiting, convulsion, loss of consciousness or ataxic gait. There was no past history of similar illness or any other symptom related to neurological disorder.

On Evaluation

Vital signs

Patient was afebrile, pulse 86/m, regular, BP 100/60.

Respiration

Rate 20/min, regular, no respiratory distress.

General examination

There was no pallor, icterus, cyanosis, edema or any palpable lymph node enlargement.

Neurological Examination

Mental status

- Consciousness and orientation: not impaired
- Speech normal
- Neck rigidity and Kernig sign were absent

Examination of cranial nerves

Diplopia on left lateral gaze more marked on looking distant, and inability to abduct eye. Her neck was slightly deviated to left. All other extra ocular

movements were normal. Pupillary light reflexes, direct and consensual, as well as accommodation reflex were normal bilaterally.

Optic fundi examination did not show papilledema. There were no clinical findings of any other cranial nerve paresis. Examination of ear, nose and throat did not reveal any abnormality.

Motor system, sensory system examinations revealed no abnormality. Cerebellar function examination was normal.

Her gait was normal. Examination of respiratory, cardiovascular and gastrointestinal systems did not reveal any abnormality. Her complete blood count and chest X-ray reports were within normal limit.

CT scan of brain did not show any abnormality. MRI brain could not be afforded by her parents. CSF pressure, sugar, protein and cell counts were within normal range.

Malarial Parasite antigens and Dengue IgM antibody were negative.

CSF viral antibody test were negative for Herpes Simplex Virus1, HSV 2 and Japanese Encephalitis.

Provisional Diagnosis

Post infectious (idiopathic) mononeuropathy of left abducens nerve

She was treated conservatively with oral acyclovir for 10 days. Left eye was patched during this period. She was sent to ophthalmologist for prism glass which her parents could not afford to. She was advised review at regular intervals of 2-3 weeks. Her diplopia recovered in next 15 days and her left lateral gaze also showed improvement.

After 1 month her left lateral rectus showed normal movement along with other extraocular movements. She and her parents were advised to come for a monthly review for recurrences, if any, but did not return for follow up.

Discussions

Abducens nerve innervates the ipsilateral lateral rectus muscle which abducts the ipsilateral eye. Originating from the pons, in the floor of the fourth ventricle just lateral to the medial longitudinal fascicle, the nerve exits the brain stem through the pontomedullary junction and runs a long subarachnoid course and inside the cavernous sinus along the internal carotid artery to reach the orbit through the superior orbital fissure to innervate the lateral rectus.

Isolated 6th nerve palsy is a common cause of acute onset horizontal diplopia [1]. There are various other causes of 6th nerve palsy like vascular (lacunar infarct in pons), diabetic microinfarction of nerve fibers, infectious or

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post-infectious, demyelinating as in multiple sclerosis, tumors, neuromuscular junction disorders, or due to raised intracranial tension causing unilateral or bilateral abducens nerve palsy [1,2]. 6th nerve palsy of vascular infarct or infectious cause can resolve in 8 weeks. In a study of 49 young patients with abducens nerve palsies 11 (22%) were idiopathic [3]. In a series of 12 children with idiopathic abducens nerve palsy, there was a preponderance of left sided involvement (9 out of 12), and all had uneventful recovery in 6 months, and 3 children had ipsilateral recurrence [4]. The diagnosis should be considered in any child who experiences abducens nerve palsy in the absence of any underlying pathology [5,6]. Expectant treatment for full recovery after a period of patching or using prism to minimize diplopia are usually necessary [7,8].

In our case the young girl presented with esotropia of left eye (Figure 1).



Figure 1. Esotropia of left eye.

This was obvious on left lateral gaze (Figure 2).



Figure 2. Left lateral gaze.

After all the available procedures and investigations, no cause could be linked to the palsy, and so it was labeled as idiopathic abducens nerve palsy.

The palsy also resolved in 4 weeks in this patient (Figure 3).



Figure 3. Recovered patient.

In most of the earlier reports of idiopathic abducens nerve palsy, the recovery time was 2-3 months. In this patient it took 1 month for complete recovery.

Conclusion

The diagnosis of benign or idiopathic abducens nerve palsy should be considered in any child who experiences abducens nerve palsy in the absence of any underlying pathology. Idiopathic abducens nerve palsy is a benign condition and can be managed conservatively in children after excluding the potential more serious causes like raised intracranial tension, meningoencephalitis, multiple cranial nerve palsy as seen in cavernous sinus infection and thrombosis, stroke, tumour or demyelinating events in brain stem. Patients with such problem should also undergo follow up examinations to exclude any recurrence for a minimum period of six months after recovery.

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