

Examination

The examination should include the following elements:

- Complete ophthalmic evaluation with emphasis on best-corrected acuity, a check for afferent defect, and color acuity to screen for orbital and cavernous sinus pathology
- Sensorimotor examination demonstrating incomitant esotropia, typically greater at distance, and possibly associated with abduction nystagmus
- Fundus examination to look for papilledema or optic atrophy as indicators of elevated intracranial pressure

Ancillary Testing

Neuroimaging should be considered in all young patients or in any patient manifesting other cranial neuropathies, other neurologic change or elevated IOP, or if there are no compelling vasculopathic risk factors. Study should seek possible evidence of neoplasm, demyelination, stroke, vascular abnormality, or signs of infectious or inflammatory etiology. Referral to a neuro-ophthalmologist or neurologist for further evaluation may be indicated in some cases.

In an elderly patient with hypertension, hyperlipidemia, or diabetes, and without temporal tenderness, jaw claudication, or scalp pain, evaluation may be limited to determining blood pressure, serum glucose level, and hemoglobin A1c. Follow-up is necessary to determine if the palsy spontaneously resolves. In the absence of resolution or improvement, MR imaging of the brain with and without contrast may be indicated. In the elderly with a history of scalp tenderness, jaw claudication, or pain, the erythrocyte sedimentation rate and C-reactive protein should be checked immediately and a temporal artery biopsy performed if the results indicate possible giant cell arteritis. Consultation with a neuro-ophthalmologist may facilitate a biopsy and initiation of treatment.

Evidence of increased intracranial pressure with papilledema, bilateral 6th nerve palsy, or meningeal signs (stiff neck with headache) suggests a need for lumbar puncture following neuroimaging to measure intracranial pressure and look for meningitis (infectious, inflammatory, or carcinomatous) or demyelination. Systemic serology in this instance should include Lyme and syphilis testing.³²⁷

MANAGEMENT

A detailed treatment of the 6th nerve palsy is initially directed to the primary cause. Neuroimaging should be considered in all young patients or in any patient manifesting other cranial neuropathies, other neurologic change or elevated IOP, or signs of elevated intracranial pressure, or if there is no compelling vasculopathic risk factor. In the aging population with vasculopathic risk factors, a lack of improvement in 4 to 6 weeks suggests a need for neuroimaging. At onset, a history of scalp tenderness, jaw claudication, or pain should prompt evaluation for possible giant cell arteritis. From the ocular motility standpoint, symptomatic intervention is to reduce diplopia and torticollis and to restore binocular vision.

Monitor/Observe

The patient should be monitored/observed if symptoms are mild or if the patient is opposed to treatment.

Nonsurgical

Nonsurgical treatment for abducens palsy can include occlusion (with a patch over one eye or with a Bangerter filter or satin tape applied to a lens of the glasses) unless a comfortable region of single binocular vision is achieved with minimal compensatory head posture. Prisms can also be used temporarily, and if the deviation remains stable and fusion can be achieved, a ground-in base-out prism can be incorporated into the lenses.³²⁸ Chemodenervation (botulinum toxin) of the medial rectus muscle may help reduce secondary contracture and the severity of compensatory head position and magnitude of the final deviation.³²⁹⁻³³¹

Surgical

Strabismus surgical management is generally offered when the deviation persists after 6 months from onset. A small residual deviation with some residual abducting force of the lateral rectus past the midline usually responds well to a medial rectus recession and lateral rectus resection. Other options include a contralateral medial rectus recession, with or without posterior fixation, with or without ipsilateral lateral rectus