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**Literature search results**

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**Search details**

Monocular Nystagmus – site of lesion

**Resources searched**

Bandolier, Cochrane Library, NHS Guidance, NHS Specialist Collections – eyes and stroke, Cinahl, EMBASE, Medline, NHS Images and appropriate Royal Colleges.

*Database search terms*: monocular nystagmus, nystagmus pathologic, stroke, lesion, site,

*Google search string*: monocular nystagmus (lesion or site)

**Summary**

Very rare condition – few articles found

**Guidelines**

None found.

**Evidence-based reviews**

None found

**Published research**

1. 1. **Monocular nystagmus with sectoral optic nerve hypoplasia in a patient with septo-optic dysplasia.**
2. Progressive supranuclear palsy with wall-eyed bilateral internuclear ophthalmoplegia syndrome.

Author(s): Matsumoto H, Ohminami S, Goto J, Tsuji S

Citation: Archives of Neurology, June 2008, vol./is. 65/6(827-9), 0003-9942;1538-3687 (2008 Jun)

Publication Date: June 2008

Abstract: BACKGROUND: Walleyed bilateral internuclear ophthalmoplegia (WEBINO) syndrome has mainly been reported in patients with cerebrovascular diseases and multiple sclerosis, but has never been described in patients with neurodegenerative diseases. OBJECTIVE: To describe a patient with progressive supranuclear palsy (PSP) who presented with WEBINO syndrome. DESIGN: Case report and review of literature. SETTING: A university hospital. PATIENT: A 72-year-old man began to display akinesia, freezing of gait, postural instability, mild rigidity of the neck, and vertical supranuclear palsy, including downward gaze limitation, at 66 years of age. At 68 years, he started to develop diplopia. At 70 years, he had bilateral medial longitudinal fasciculus syndrome. Later, his eye positions gradually showed alternating exotropia. RESULTS: A diagnosis of probable PSP was made based on the National Institute of Neurological Disorders and Stroke and the Society for Progressive Supranuclear Palsy criteria. He showed alternating exotropia in the forward gaze, and adduction paresis and monocular nystagmus of the abducted eye in the horizontal gaze, 2 clinical symptoms of WEBINO syndrome. CONCLUSION: This is the first reported case of a patient with PSP presenting with WEBINO syndrome. Because bilateral medial longitudinal fasciculus lesions are commonly observed in PSP as clinical and pathological findings, particular attention should be given to WEBINO syndrome in patients with PSP.
3. **Wall-eyed bilateral internuclear ophtalmoplegia presenting as monocular alternating nystagmus: a non-epileptic phenomenon in a case of diffuse axonal injury.**

   **Author(s):** Ozer F, Mutlu A, Meral H, Kansu T, Carsancakli B

   **Citation:** Epileptic Disorders, March 2005, vol./is. 7/1(53-6), 1294-9361;1294-9361 (2005 Mar)

   **Publication Date:** March 2005

   **Abstract:** A 15-year-old male in a persistent vegetative state due to diffuse axonal injury presented with seizures and spontaneous alternating monocular nystagmus. The cranial MRI revealed diffuse axonal injury involving supratentorial and infratentorial structures, and the splenium of the corpus callosum. The monocular alternating nystagmus was thought to be independent of seizures and occurred as a result of diffuse axonal injury affecting the medial longitudinal fasciculus bilaterally.

   **Source:** MEDLINE

4. **Epileptic monocular nystagmus**

   **Author(s):** Grant A.C., Jain V., Bose S.

   **Citation:** Neurology, November 2002, vol./is. 59/9(1438-1441), 0028-3878 (12 Nov 2002)

   **Publication Date:** November 2002

   **Abstract:** The authors describe a case of epileptic monocular nystagmus in a cognitively intact adult with normal vision. Focal seizures originated in the occipital lobe contralateral to the involved eye, and an associated structural lesion was thought to represent a forme fruste of Sturge-Weber syndrome. It is hypothesized that the seizure discharge either activated a cortical saccade region and caused simultaneous supranuclear inhibition of ipsilateral eye movement or triggered monocular eye movement commands.

   **Source:** EMBASE

   **Full Text:**

   Available in fulltext at Ovid

   Available in fulltext at Ovid
5. **Monocular downbeat nystagmus.**

**Author(s):** Jacome DE

**Citation:** Annals of Ophthalmology, October 1986, vol./is. 18/10(293-6), 0003-4886;0003-4886 (1986 Oct)

**Publication Date:** October 1986

**Abstract:** Two patients with acute unilateral infarction of the medial thalamus and upper mesencephalon exhibited ipsilateral nuclear involvement of the third nerve, contralateral skew deviation with weakness of eye elevation, and monocular downbeat nystagmus. Monocular downbeat nystagmus is a rare manifestation of combined nuclear-supranuclear ophthalmoparesis that is seemingly secondary to dysfunction of cerebellar-modulated crossed oculo-vestibular fibers of the brachium conjunctivum, integrator neurons, or posterior commissure crossing fibers originating at the interstitial nucleus of Cajal and mediating vertical ocular reflexes.

**Source:** MEDLINE

6. **Monocular downbeat nystagmus.**

**Author(s):** Bogousslavsky J, Regli F

**Citation:** Journal of Neurology, 1985, vol./is. 232/2(99-101), 0340-5354;0340-5354 (1985)

**Publication Date:** 1985

**Abstract:** A patient with sporadic pontocerebellar degeneration and downbeat nystagmus limited to the left eye is described. The nystagmus was not modified by head movements, but was associated with a purely tonic upgaze paresis in the same eye. Absence of internuclear ophthalmoplegia indicated sparing of the medial longitudinal fasciculus. It is suggested that the vertical oculomotor abnormalities are due to dysfunction of the ipsilateral brachium conjunctivum.

**Source:** MEDLINE

7. **Monocular rotary nystagmus.**

**Author(s):** Kattah JC, Cohan SL, Cahill W, Buas M

**Citation:** Journal of Clinical Neuro-Ophthalmology, March 1983, vol./is. 3/1(49-51), 0272-846X;0272-846X (1983 Mar)

**Publication Date:** March 1983

**Abstract:** A patient with transient monocular rotary-vertical nystagmus demonstrated decreased gain of vertical pursuit and normal vestibulo-ocular reflex on electrooculogram. A supranuclear brain stem lesion, resulting in lack of monocular inhibition of oculomotor neurons, is postulated on the basis of these findings.
Source: MEDLINE


Author(s): Bender MB

Citation: Brain, March 1980, vol./is. 103/1(23-69), 0006-8950:0006-8950 (1980 Mar)

Publication Date: March 1980

Abstract: (1) It appears that all oculomotor pathways originating within the cerebrum and mediating stimulations and lesions, project from the two sides of the brain through the diencephalon to the brain-stem. (2) The pathways subserving horizontal movements decussate at the level of the oculomotor and trochlear nuclei, across the midsagittal plane. The direction of vector action within the brain above the 'electroanatomical' oculomotor decussation is predominately contraversive; below this level it is ipsiversive. (3) The pontine reticular formation, the abducens and oculomotor nuclei and the median longitudinal fasciculus play an important role in the physiology of ipsilateral conjugate gaze. A 1 mm lesion within the paramedian pontine reticular formation causes paralysis of ipsilateral conjugate gaze, while a 1 mm lesion within the median longitudinal fasciculus causes impairment of contralateral (disconjugate) gaze with paralysis of adduction of the ipsilateral eye and nystagmus in the contralateral or abducting eye. (4) True binocular vertical movements occur only when both sides of the brain are activated either directly or through bilateral sensory (visual or vestibular) inputs. Vertical and oblique monocular movements can be elicited on unilateral stimulation at the level of the oculomotor nucleus. (5) Paralysis of vertical gaze is caused by bilateral lesions. Bilateral (1 to 2 mm) lesions within the region of the rostral interstitial nucleus of the median longitudinal fasciculus result in isolated paralysis of downward gaze. More caudally, bilateral (1 mm) lesions within the pretectum or midsection of the posterior commissure result in paralysis of upward gaze. (6) In different regions of the brain a theoretical transverse plane can be drawn between pathways which transmit impulses for vertical eye movements. Those which transmit impulses for binocular downward movement are situated dorsal to this plane, while those that transmit impulses for upward movement are located ventrally to this plane. This topographical relationship can be demonstrated in the occipital lobe and to some extent in the frontal lobes. A hypothetical transverse plane separating the down and up eye movement can also be drawn at the mesodiencephalic junction. At the level of the oculomotor nucleus stimulations at the most rostral pole result in monocular downward movements, while the most caudal pole stimulations produce monocular upward movements. There is no evidence that the pathways which mediate binocular upward and binocular downward movement project across a hypothetical transverse plane. (7) Our knowledge of the synaptic connections between the cerebrum, diencephalon and the brain-stem nuclei, especially the paramedian pontine reticular formation, involved in binocular movements remains incomplete. Moreover, the anatomical location of the decussation of the right and left cerebral pathways which transmit conjugate eye movements are still unknown...
This entity consists of weakness of the ipsilateral medial rectus and monocular nystagmus in the abducting eye on horizontal conjugate gaze. It is generally agreed that the site of the lesion is the medial longitudinal fasciculus, usually at the pontine level, and the etiology...

Acquired pendular nystagmus with oscillopsia in multiple sclerosis: a sign of cerebellar nuclei disease

Aschoff, B Conrad... - Journal of Neurology, ..., 1974 - jnpn.bmj.com

... with asymmetrical or predominantly monocular pendular nystagmus, there was a greater loss of visual acuity in the oscillating eye. Reduction in visual acuity was at least in part due to the pendular nystagmus because there were cases without any sign of optic nerve lesion. ...

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