Upbeat Nystagmus

917-5

Upbeat Nystagmus
Eye Movements

Upbeat nystagmus in primary gaze
Horizontal gaze evoked nystagmus left > right
No nystagmus on downgaze
Saccadic pursuit in all directions.
Square wave jerks
Dysmetria

Marked saccadic hypermetria

Right gaze to center overshoot (hypermetria) taking the eyes almost fully to the left

Left gaze to center (hypermetria) taking the eyes almost fully to the right

Upgaze to center hypermetria

Downgaze to center hypermetria
Clinical Features of Upbeat Nystagmus

Present in primary gaze usually increases on upgaze

Slow phases may have linear-, increasing-, or decreasing-velocity waveforms

Poorly suppressed by visual fixation of a distant target
Clinical Features of Upbeat Nystagmus

Convergence may increase, suppress or convert to downbeat nystagmus
Associated with abnormal vertical vestibular and smooth-pursuit responses, and saccadic intrusions (square-wave jerks) that produce a bow-tie nystagmus
Upbeat Nystagmus

Localizes to the **Caudal Medulla** with the lesion affecting the perihypoglossal group of nuclei including:

- nucleus intercalatus
- nucleus of Roller
- nucleus of pararaphales
Upbeat Nystagmus

More rostral brainstem lesions may interrupt the ventral tegmental tract containing projections from the vestibular nuclei that receive inputs from the anterior semicircular canal

or

Involve the brachuim conjunctivum in the rostral pons and medulla.
Etiology of Upbeat Nystagmus

- Infarction of medulla or cerebellum and superior cerebellar peduncle
- Wernicke’s encephalopathy
- Multiple sclerosis
- Tumors of the medulla, cerebellum or midbrain
- Cerebellar degeneration or anomalies
Etiology of Upbeat Nystagmus

Brainstem encephalitis
Creutzfeldt-Jacob disease
Bechet’s syndrome
Meningitis
Thalamic arteriovenous malformation
Transient finding in infants
Clinical Features of Torsional Nystagmus

Torsional jerk nystagmus (minimal vertical or horizontal components) present with eye close to central position.
Slow phases may have linear-, increasing-, or decreasing-velocity waveforms
Poorly suppressed by visual fixation of a distant target
Exacerbated by changes in head position or vigorous head shaking

Clinical Features of Torsional Nystagmus

May be suppressed by convergence
Often occurs in association with ocular tilt reaction or unilateral internuclear ophthalmoplegia
May be precipitated or modulated by vertical smooth pursuit movements.

Etiology of Torsional Nystagmus

Syringobulbia, with or without syringomyelia
Arnold-Chiari malformation
Brainstem stroke (e.g., Wallenberg’s syndrome)
Arteriovenous malformation in the brainstem or middle cerebellar peduncle

*Often occurs in association with the ocular tilt reaction and unilateral internuclear ophthalmoplegia.

Etiology of Torsional Nystagmus

- Brainstem tumor
- Multiple sclerosis
- Oculopalatal tremor ("myoclonus")
- Head trauma
- Congenital
References


http://library.med.utah.edu/NOVEL