AMERICAN ACADEMY of OPTOMETRY

Demyelinating Disorders and Ocular Manifestations: MS or not MS?

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Disclosure Statement:

- *Nothing to disclose*

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Learning Objectives:

- Review demyelinating disorders of PNS and CNS
- Review optic neuritis and possible causes
- Differentiate MS, Transverse Myelitis, and Devic's Disease
- Update Devic's Disease and Susac's Syndrome
- Is it or is it not MS?

Ocular Manifestations of Neurological Disorders

The eye is often involved in neurological disorders. It can be the primary manifestation of disease and less often it is the link to previously undiagnosed disease.

Multitude of Neurological Disorders with Ocular Manifestations

- ***Demyelinating disorders of central nervous system***
- ***Disorders of the peripheral nervous system***
- Myopathies and disorders of neuromuscular transmission
- Infections, inflammation, infiltration of the CNS
- Encephalopathies/neuropathies
- Cerebral Vascular Accidents
- Trauma

Demyelinaiton of the Peripheral Nerves

- Guillain-Barré Syndrome (GBS)
- Miller Fisher Syndrome – variant of GBS
- Chronic Inflammatory demyelinating polyradiculoneuropathy (CIDP)

Guillian-Barre Syndrome

- The body's immune system attacks the PNS
- Guillain-Barré Syndrome (GBS) has 4 subtypes
  - Acute Inflammatory Demyelinating Polyneuropathy (AIDP)
    - Rapid progression of *ascending* motor paralysis
    - 1 to 2 cases in every 100,000 people per year in the US
    - No specific predilection for age, race, or gender
      →Some reports of men > women, Caucasian > African Americans

Walsh & Hoyt's Clinical Neuro-ophthalmolgy 6th ed

Facial Nerve Disorders

- Facial myokymia
  - Acquired "twitch" of the entire CN VII distribution
  - Unilateral twitching, undulating contractions, benign if self-limiting
  - DDx: Eye Lid Myokymia → benign "twitch of obicularis oculi
- Hemifacial spasm
  - Unilateral spasm and ***contractions*** of CV VII distribution
  - Eyes, corners of mouth
  - Etiology: Abberrant vascular loop compressing VII or following Bell's palsy (postparalytic hemifacial spasm)

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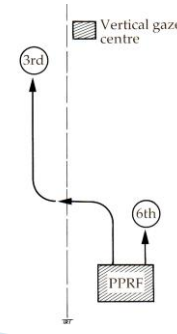
MS Neuro-Ophthalmic Findings
Ocular Motor System

- Nystagmus
- Internuclear Ophthalmoplegia (INO or BINO)
- One-and-a-half Syndrome
- Lateropulsion of saccades
- Dorsal Midbrain Syndrome

Internuclear Ophthalmoplegia

Horizontal gaze palsies

- Internuclear ophthalmoplegia
- Combined internuclear and PPRI ('one-and-a-half syndrome')



Internuclear ophthalmoplegia

Defective OS adduction and nystagmus of OD on R gaze

Normal left gaze

Lesion involving left MLF

Convergence intact

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Lateropulsion of saccades

Lateropulsion (deviation) of the eyes towards the side of the lesion, under closed lids as seen with blinking