Optic neuritis

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Optic neuritis

Optic neuritis is an inflammatory, demyelinating condition that causes acute, usually monocular, visual loss.

It is highly associated with multiple sclerosis Optic neuritis is the presenting feature of MS in 15 to 20 percent of patients and occurs in 50 percent at some time during the course of their illness.

EPIDEMIOLOGY

Most cases of acute demyelinating optic neuritis occur in women (two-thirds) and typically develop in patients between the ages of 20 and 40 .

The incidence of optic neuritis is highest in populations located at higher latitudes, in the northern United States and western Europe, and is lowest in regions closer to the equator.

PATHOPHYSIOLOGY

The most common pathologic basis is inflammatory demyelination of the optic nerve. The pathology is similar to that of acute multiple sclerosis (MS) plaques in the brain, with perivascular cuffing, edema in the myelinated nerve sheaths, and myelin breakdown.

Inflammation of the retinal vascular endothelium can precede demyelination and is sometimes visibly manifest as retinal vein sheathing

CLINICAL FEATURES

Acute features

Vision loss typically develops over a period of hours to days, peaking within one to two weeks. An afferent pupillary defect always occurs in optic neuritis .

Papillitis with hyperemia and swelling of the disk, blurring of disk margins, and distended veins(1/3)

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Photopsias (flickering or flashes of light) are often precipitated with eye movement.

Loss of color of vision out of proportion to the loss of visual acuity is specific to optic nerve pathology.

Perivenous sheathing or periphlebitis retinae can be seen in about 12 percent of patients with optic neuritis and implies a high risk for multiple sclerosis (MS).

Chronic Featsures

Even after clinical recovery, signs of optic neuritis can persist

Persistent visual loss. Most patients with optic neuritis recover functional vision within one year. However, on testing, deficits in color vision, contrast sensitivity, stereo acuity, and light brightness are detectable in most patients at up to two years

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Optic atrophy to at least some degree almost always follows an attack of optic neuritis, despite the return of visual acuity

The disc appears shrunken and pale, particularly in its temporal half (temporal pallor). The disk pallor extends beyond the margins of the disk into the peripapillary retinal nerve fiber layer.

Cont.

A relative afferent pupillary defect remains in approximately one-fourth of patients two years after presentation

Color desaturation refers to a qualitative inter-eye difference in color perception that can be tested by comparing vision of a red object with each eye. A patient with monocular "red desaturation" may report that the red color appears "washed out“.

Diagnosis

A gadolinium-enhanced MRI of the brain and orbits provides confirmation of optic neuritis and aids in the assessment of prognosis and treatment decisions.

Other tests, including lumbar puncture, fluorescein angiography, and visual evoked potentials are used in atypical cases(those with bilateral presentation, <15 years in age, or symptoms suggesting infection)

Therapy and prognosis

In the vast majority of MS associated optic neuritis, visual function spontaneously improves over the first 2-3 months, and there is evidence that corticosteroid treatment does not affect the long term outcome.

Intravenous corticosteroids have also been found to reduce the risk of developing MS in the following two years in those patients who have MRI lesions; but this effect disappears by the third year of follow up.

DIFFERENTIAL DIAGNOSIS

In a young child, infectious and postinfectious causes of optic nerve impairment should be considered as alternatives to optic neuritis, while in an older patient (>50 years), ischemic optic neuropathy (due, for example, to diabetes mellitus or giant cell arteritis) is a more likely diagnosis than optic neuritis.

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Some other causes of optic neuritis include :

- infection (e.g. syphilis, Lyme disease, herpes zoster)
- autoimmune disorders (e.g. lupus, neurosarcoidosis)
- inflammatory bowel disease
- drug induced (e.g. chloramphenicol, ethambutol)
- vasculitis

neuromyelitis optica

Found to have a greater severity of optic nerve injury (D.D optic neuritis)

Aquaporin-4-specific serum autoantibody — Patients with recurrent optic neuritis may be particularly at risk for the variant of MS known as neuromyelitis optica or Devic's disease.