



Myelinated nerve fibres

Medullated nerve fibres

DESCRIPTION

Within the intracranial portion of the optic nerve, myelin sheaths are produced by oligodendrocytes and surround the nerve fibres until they reach the lamina cribrosa within the optic nerve head. The appearance of myelinated nerve fibres within the fundus results from the anomalous myelination of nerve fibres anterior to the lamina cribrosa. Structural change is confined to the nerve fibre layer of the retina. The myelin sheaths may be produced by ectopic oligodendrocytes, or by intraretinal Schwann cells. (The latter occurs in the normal retina of the cat and rat.)

SYMPTOMS

The vast majority of patients are asymptomatic. Patients with extensive myelination may have an increased incidence of myopia, amblyopia and strabismus.

SIGNS

Myelinated nerve fibres are unilateral in 80 per cent of cases. They appear as white-yellow patches with feathery borders in the superficial retina; the fibres follow the orientation of the nerve fibre layer and respect the horizontal raphe. Underlying retinal structures are often obscured from view, including the retinal vessels and the area may be totally opaque. The location and extent of myelinated nerve fibres is highly variable. The patches often extend from the optic nerve for a short distance into the retina, and occasionally continue in an arcuate path to the peripheral fundus. Patches that partially obscure the disc margin occasionally resemble papilloedema on cursory examination. Rarely, there are peripheral patches of myelination only. Variable, but usually minimal, corresponding visual field defects are common.

PREVALENCE

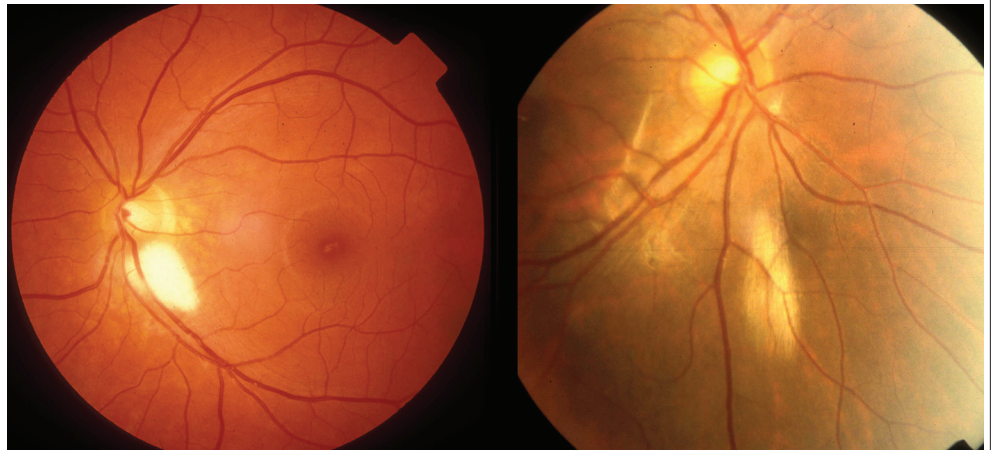
Common – present in approximately 1 per cent of the population.

SIGNIFICANCE

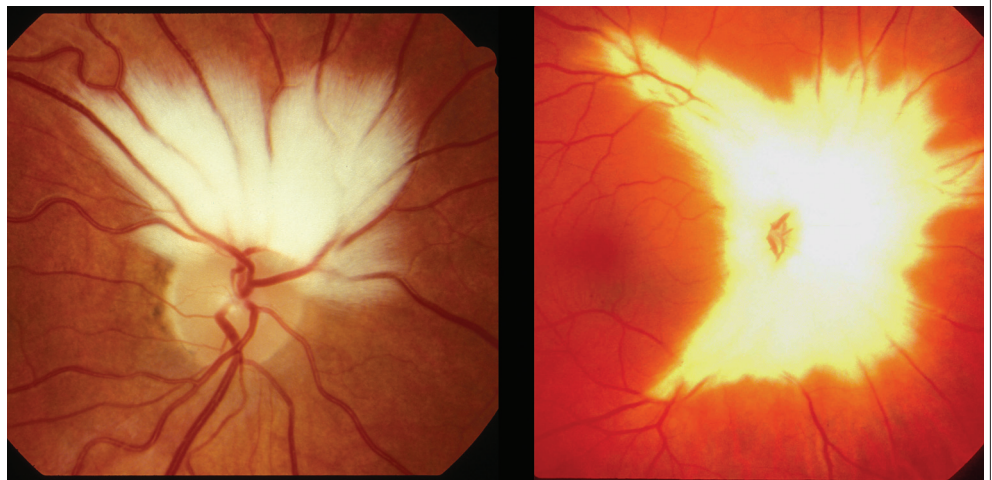
Typically benign and stable.

DIFFERENTIAL DIAGNOSIS

Cotton wool spots, Astrocytic hamartomas, Commotio retinae, Papilloedema.



The left image shows a small patch of medullated nerve fibres continuous with the inferior optic disc. The right image shows a small area of medullation below the right optic disc in an adult Chinese male patient



More extensive myelinated nerve fibres, showing pale opaque retina with feathery edges. The optic nerve head is almost entirely obscured in the right image

SEE ALSO

Optic neuritis.

MANAGEMENT

Additional investigations

Routine visual field testing may be indicated if the myelination is extensive.

Advice

No treatment is required. Lesions have rarely been reported to disappear in patients following optic neuritis or in demyelination disease.

The full series of these articles will be available in the book *Posterior Eye Disease and Glaucoma A-Z* by Bruce AS, O'Day J, McKay D and Swann P. £39.99. For further information click on the Bookstore at opticianonline.net

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