

principal symptoms are diplopia, blurred vision, and oscillopsia, although many patients are without symptoms. Bilateral disease is most commonly associated with demyelination.

OCULAR INFLAMMATION
Uveitis (inflammation of the iris, ciliary body, or choroid) is reported in about 10% of MS patients. Symptoms may be mild to severe, and complications—including glaucoma, cataracts, macular edema, retinal detachment, and vitreous hemorrhage—are directly proportional to the extent and severity of the inflammation.

SOURCES

Frohman EM: Vision. In van den Noort S, Holland N (eds): Multiple Sclerosis in Clinical Practice. New York: Demos Medical Publishing, 1999.

This publication is supported by an unrestricted educational grant from Biogen. Special thanks to Caroline Helwick for her contribution to this publication.

Diagnosis and Management of Vision Problems in MS

A Clinical Bulletin from the

Professional Resource Center
of the National Multiple Sclerosis
Society
©2004 National Multiple Sclerosis
Society
by Elliot M. Frohman, MD, PhD
National Multiple Sclerosis Society
www.nationalmssociety.org/PRC.asp

FUTURE IS HERE:

With the advent of laser polarimetry diagnostic equipment we can diagnosis and treat multiple sclerosis earlier and more accurately.

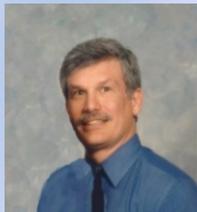
Goldsboro Eye Clinic is pleased to offer OCT and GDx technology services along with modern argon laser therapy.



The OCT & GDx Nerve Fiber Analyzers are non contact instruments that uses scanning lasers to determine the structure of the retina, nerve fiber layer and optic nerve thickness of the nerve fiber layer. With this technology we are able to diagnose and treat earlier the problems associated with multiple sclerosis.



CHARLES S. ZWERLING, MD FACS



Former Associate
Clinical Professor
Of Ophthalmology
University of North
Carolina

Goldsboro Eye Clinic
2709 Medical Office Place
Goldsboro, NC 27534
phone: 919-736-3937
fax: 919-735-3701
e mail: zwerling@micropigmentation.org
Web: www.goldsboroeyeclinic.com

Multiple Sclerosis



Table of Contents

MS Related Vision Problems

Optic Neuritis

Diplopia

Nystagmus

Treatment Options



Published by

GOLDSBORO EYE CLINIC
CHARLES S. ZWERLING, MD, FACS





Clinical Bulletin Information for Health Professionals Diagnosis and Management of Vision Problems in MS

Frohman EM: Vision. In van den Noort S, Holland N (eds): Multiple Sclerosis in Clinical Practice. New York: Demos Medical Publishing, 1999.

Disturbances of the visual system are among the most common manifestations of MS, affecting up to 80% of patients at some time in the disease course and serving as the initial symptom in many patients. The presence of monosymptomatic optic neuritis, in fact, heralds clinically definite MS within 5 years in over 50% of patients who also have three or more lesions on MRI, but in only 16% of patients with normal MRI findings. MS can affect any portion of the visual sensory system in ways that can result in significant disability, culminating in the inability to work and compromising the patient's activities of daily Living.

OPTIC NEURITIS

Optic neuritis, or inflammation of the optic nerve, is the initial presenting symptom in nearly half of persons diagnosed with MS. It can be acute or chronic, and is characterized by any of the following:

- Unilateral vision loss progressing over hours or days
- Sequential involvement of the opposite eye
- Visual field defects, especially central visual field loss
- Diminished color perception and difficulty seeing in dim light
- Pain in or around the eye
- Visual phenomena

Asymptomatic optic neuropathy is also common in MS, as are abnormalities in color vision and contrast sensitivity, consistent with subclinical demyelination. Optic neuropathy also occurs in the form of chronic visual disturbances (often progressive) without an identifiable episode of acute optic neuritis.

Clinical Assessment and Disease Course

Numerous infectious or inflammatory disorders other than demyelinating disease may cause optic neuritis, but these conditions can usually be distinguished on clinical grounds without the need for ancillary tests. Central acuity is usually reduced, and most patients have a relative afferent pupillary defect or Marcus Gunn pupil (a relative lack of constriction during illumination

when compared to responses in the opposite eye). The optic disc may appear normal or swollen. Retrobulbar involvement occurs in two-thirds of patients with acute optic neuritis.

The diagnosis can be confirmed with visual evoked potentials (VEP) and T-1 weighted MRI with gadolinium infusion. The VEP is particularly useful in establishing optic neuropathy in patients with clinically silent lesions. The natural course of acute optic neuritis is variable, but vision typically worsens over several days to 2 weeks after onset. Patients then recover rapidly and achieve most of their improvement by 5 weeks (up to 1 year). Despite recovery of vision normal or near-normal, most patients are aware of differences in the quality of their vision. Persistent deficits in contrast sensitivity, color vision, and depth perception are common.

TREATMENT

Corticosteroids are the cornerstone of therapy for optic neuritis, based on their immunosuppressive and immunomodulatory effects. Treatment with a 3-day course of high-dose IV methylprednisolone, followed by a short course of prednisone, has been shown to reduce the rate of development of MS over a 2-year period. The recommended treatment is 1 gm/day of methylprednisolone as a single

daily IV infusion over 3–7 days, followed by a tapering dose of oral prednisone over 2–4 weeks.

EYE MOVEMENT ABNORMALITIES

Up to three-quarters of persons with MS demonstrate some form of eye movement abnormality, including the following:

NYSTAGMUS

Nystagmus is a repetitive, to-and-fro movement of the eyes that can reflect abnormalities in the mechanisms that hold images on the retina. In patients with MS, pendular nystagmus can produce oscillopsia (rotating, circular eye movement with the illusion of environmental movement), poor visual acuity, nausea, and disorientation. Treatment of nystagmus is challenging, as most pharmacologic agents are only moderately effective. Baclofen, clonazepam, gabapentin, and scopolamine provide some benefit in selected patients.

Diagnosis and Management of Vision Problems in MS

page 2
A Clinical Bulletin from the Professional Resource Center of the National Multiple Sclerosis Society

INTERNUCLEAR OPHTHALMOPLÉGIA

Internuclear ophthalmoplegia is one of the neuro-ophthalmologic hallmarks of MS and is present in one-third of patients. The