

Multiple Sclerosis and Visual Problems

Common Visual Problems in MS

There are several:

- *Blurred vision (in one or both eyes), often with eye pain (optic neuritis).*
- *Double vision (diplopia).*
- *Movement/instability of vision.*
- *Transient blurred vision during exercise or in a hot environment (Uhthoff's symptom).*

Optic Neuritis

Optic neuritis is inflammation of the optic nerve. It is a relatively common first symptom of MS, but not all people who have optic neuritis get MS.

Effect on vision

Symptoms vary widely in severity, but typically it develops as pain and blurred vision over several days. The pain is usually a dull ache in and behind the eye and at times is severe. Typically, the pain is worse on eye movement. There may be tenderness when the eye is touched.

The blurred vision is often described as a black spot in the middle of the vision (e.g. the centre of someone's face might look blurred and the outline clearer). Some people find this can be made worse by heat, exercise, being in bright surroundings or following prolonged fixation of gaze.

People also describe colours breaking up, seeming dull or 'washed out' in the affected eye (i.e. a reduction in colour vividness, particularly for reds).

Some subtle changes related to colour contrasts and clarity of vision may be difficult to detect on standard tests of vision.

Visual flashing sensations brought about by eye movement or sound often occur with optic neuritis. They are most obvious in a dimly lit room. Worse vision in bright light is another common symptom. It is likely that these symptoms are caused by fluctuating interference of the nerve transmissions along the visual pathways.

It is rare for both eyes to be affected together. However, when one of the eyes is affected, there can be interference between the picture seen by the 'normal eye' and the other imperfect eye.

How is optic neuritis diagnosed?

Doctors will diagnose optic neuritis by asking about a person's history and observing typical signs. Through an ophthalmoscope, swelling of the optic disc (the

area where the optic nerve attaches to the eyeball) may be observed. Later, even if there is good recovery of vision, the optic disc may become pale (optic atrophy).

Tests of the speed at which nerve impulses travel in the optic nerves (visual evoked potentials) are a sensitive measure of current or past optic nerve damage. Magnetic resonance imaging (MRI) scans may show active inflammation of the optic nerves.

Management

As with other types of MS relapse, corticosteroids are used for the treatment of optic neuritis, particularly if visual impairment is moderate or severe or is interfering with daily function (e.g. mild impairment may be limiting for people in some occupations). Steroids also reduce eye pain.

While steroids have been shown to shorten recovery time after a relapse, they do not appear to influence the final extent of recovery of vision. They are given in high doses orally or by intravenous infusion.

Recovery from optic neuritis

Most recover well from optic neuritis, but full recovery often takes weeks or months. Signs of improvement are usual within three weeks and in 90% of cases essentially normal vision will return within eight weeks of an attack. Further improvement in vision can still occur up to a year or more after symptoms begin.

Double Vision

Double vision or diplopia is a fairly common symptom of MS. It occurs when inflammation in the brainstem causes interference with the nerve control of the eye muscles. The lack of coordination of movements means the eyes do not focus together meaning that the image focuses in different areas of the retina in each of your eyes, too far apart for your brain to merge them. This results in seeing double. The double images may be side by side, one above the other or slanted.

Double vision is often associated with other symptoms such as impaired balance with giddiness or vertigo. Recovery is usually good over weeks or months.

Management

Steroids are often used to treat diplopia as the symptoms are very disturbing. Again, the evidence is that they speed the rate of recovery, but may not affect the extent of long term recovery.

Double vision goes away when you cover one eye. This is not recommended for long periods, but useful for driving and performing short tasks, so the wearing of an eye-patch over one eye can alleviate the problem. It makes little difference which eye you cover, if vision in each eye is normal, but the range of movement may be more limited in one eye. Covering each eye alternately may be tried.

If diplopia is stable and persistent an eye specialist can prescribe glasses with prisms which may relieve the symptom.

Movement/Instability of Vision

This is a less common visual disturbance, also due to brainstem inflammation, which may be accompanied by diplopia. There is a sense of movement, often jerky, of the environment (oscillopsia) and difficulty focusing, usually with instability while walking. Underlying it is a failure of the mechanism that holds the eyes stable.

An observer usually sees persistent jerky eye movements (nystagmus) which are most often up and down or slanted. However, visible nystagmus is not always associated with symptoms that the patient notices, especially when it is from side to side and present only when looking to one side.

Management

Unfortunately, although there may be some improvement with time, instability of vision may be a persistent problem that is difficult to treat. It may be worse in some head positions, so tipping the head forward or back may help to some extent.

Drugs such as clonazepam and gabapentin can occasionally help, but side-effects are often limiting. Diaminopyridine has recently been suggested, but is not readily available. There is possibly a place for muscle relaxant injections (botulinum) into the eye muscles.

Work is being done on optical devices to stabilise the 'wiggling' visual environment of people with oscillopsia. Special lenses with prisms can offer some relief, as can mounted magnifiers, largeprint books and a variety of other largeprint or high-contrast low-vision aids.

Uhthoff's Syndrome

This is temporary blurring of vision during exercise or in a hot environment such as a spa bath. It was first noted by Wilhelm Uhthoff, an ophthalmologist, in 1890 while studying people with MS. The blurring settles in a few minutes on stopping exercise or cooling down, but may occur repeatedly in the same circumstances.

This is a common symptom in MS and usually follows an attack of optic neuritis, but occasionally may occur without preceding visual symptoms. The recurring symptoms do not indicate fresh inflammation or nerve damage, but are due to temporary impairment of electrical conduction in previously damaged and repaired nerve fibres.

Management

The symptom tends to gradually settle but may persist for months. Mild symptoms may not be limiting but they are frequently irritating. The only effective management is to reduce activities that bring on the symptoms.

