

Multiple Sclerosis

Multiple sclerosis (MS) is an autoimmune disease that causes your body to produce antibodies that mistakenly attack the myelin sheath protecting your nerve tissue. This chronic central nervous system disorder damages the nerves and causes the gradual loss of muscle control, strength, and vision.

MS affects people differently. Some have only mild symptoms, while others are severely debilitated by the disease. Symptoms of MS vary widely and can include the following:

- numbness, tingling, or weakness in the arms and legs;
- loss of some or all vision, usually affecting one eye at a time;
- double vision;
- blurred vision;
- pain, including eye pain;
- tremors;
- coordination difficulties; and
- dizziness.

If you are experiencing any of these symptoms, it is important to see your doctor immediately. To determine if you have MS, your doctor will take a complete medical history, and you will be given a neurological examination. You might also need an MRI and other tests to diagnose the cause of your symptoms.

Should your doctor confirm that you have MS, there are a number of treatment options. If your symptoms are mild or infrequent, you may require no treatment other than careful monitoring. For more serious cases, there are several medications that can help, as can physical therapy, occupational therapy, and other treatments.

Though there is no cure for multiple sclerosis, the major causes of vision problems associated with the disease are all treatable, and they often resolve on their own. Three common visual problems associated with MS are:

- **optic neuritis**, or inflammation of the optic nerve, causing blurring, pain, and blind spots, among other things;
- **diplopia**, or double vision; and
- **nystagmus**, or involuntary movement of the eyes.

Steroid medications are commonly prescribed for all three conditions. Patching, prism eyeglasses, and perhaps surgery are also effective in treating double vision. Nystagmus may respond to some medications other than steroids, as well. Over time, your brain may adjust to the appearance of black spots and wiggly lines associated with nystagmus, restoring much of your normal vision.

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Traumatic Optic Neuropathy

Traumatic optic neuropathy is the sudden, severe loss of vision following blunt injury to the eye or areas surrounding the eye. The optic nerve can be damaged by the blow itself, or as a result of other damage sustained by the eye. Vision loss can be immediate or may take days, weeks, or even months to develop.

Your ophthalmologist (Eye M.D.) will give you a thorough eye examination, and you will receive a neurological examination as well, especially if you lost consciousness after the injury. An MRI or CT scan will confirm the diagnosis of traumatic optic neuropathy and verify that no other damage has occurred due to the injury.

If you have mild symptoms, you might only need close observation by your ophthalmologist. Some patients show some improvement with no medical intervention. However, many patients need treatment with **corticosteroid medication** to reduce the inflammation that is causing vision loss.

Major side effects of corticosteroids include:

- osteoporosis;
- high blood pressure;
- muscle weakness; and
- cataracts.

Discuss the complications of corticosteroid use with your ophthalmologist.

In some cases, corticosteroids do not fully resolve the condition. In these cases, your ophthalmologist may recommend **optic nerve decompression surgery**. If your ophthalmologist thinks this a valuable treatment option for you, discuss the benefits and risks together before deciding on surgery.

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Myasthenia Gravis

Myasthenia gravis (MG) is a disorder characterized by weakness of the muscles under your voluntary control. MG is caused by a communication breakdown between your nerves and muscles due to an autoimmune condition that has damaged receptors on your muscles. Your autoimmune system is producing antibodies that are adhering to these receptors, blocking chemicals that normally travel from your nerve endings to the receptors.

MG most often affects the muscles of the face, eyes, arms, and legs, as well as the muscles used for chewing, swallowing, and talking. The muscles that control breathing and swallowing can sometimes be involved as well. These are some of the signs of myasthenia gravis:

- drooping eyelids;
- double vision;
- weakness in the arms or legs; and
- difficulty breathing, talking, chewing, or swallowing.

MG can be made worse by fatigue, stress, illness, and by certain medications. Check with your doctor before taking any new prescription or over-the-counter medications. Extreme difficulty with breathing or swallowing requires emergency care.

Your ophthalmologist (Eye M.D.) can test for MG using a number of methods, including:

- blood testing, to look for abnormal antibodies;
- neurological examination of your physical condition and mental skills;
- nerve conduction testing and single-fiber electromyography, which test the electrical activity in your muscles; and
- edrophonium injection testing, to look for immediate, temporary improvement in your muscle strength.

There is no known cure for MG, but if you seek treatment early when you first experience symptoms, you can manage the condition successfully. Your ophthalmologist has a number of treatment options to manage your condition, including medication and surgery. You can also receive physical therapy and learn specific coping skills to help improve your daily life. Early detection and treatment of MG is crucial to managing the condition and preventing serious problems with breathing or swallowing, which require emergency care.

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Posterior Occipital Neuralgia

Posterior occipital neuralgia is pain originating from the base of your skull that often wraps around to the front of the head and behind the eyes. The pain is due to inflamed or damaged occipital nerves in your neck. Pain can be severe and chronic and can affect one or both sides of your head.

Possible causes of posterior occipital neuralgia include:

- inflammation;
- trauma, such as whiplash;
- infections;
- spinal column compression;
- diabetes;
- gout; and
- tumors.

Symptoms of posterior occipital neuralgia include:

- headaches starting in the upper neck or base of the skull;
- scalp tenderness or pain; and
- light-sensitive or painful eyes.

Once the underlying causes of your pain are determined, in most cases your ophthalmologist (Eye M.D.) will prescribe anti-inflammatory medication to reduce inflammation, muscle relaxants to stop spasms, physical therapy, massage, heat, and rest.

Patients usually recover fully from posterior occipital neuralgia once the pain has subsided and any damage to the nerves has been reduced or repaired.

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Pseudotumor Cerebri

Pseudotumor cerebri (PTC) is a condition in which the pressure from the cerebral spinal fluid inside your head is elevated. This can cause problems such as headaches, blurred vision, or loss of vision. The condition is known as pseudotumor cerebri because symptoms can mimic those of an intracranial tumor.

The **cerebral spinal fluid (CSF)** is a clear fluid that bathes the brain and spinal cord. In cases of PTC, this fluid is blocked from flowing back from the head as it should, leading to high CSF pressure inside the head. The pressure swells the optic disc at the back of the eye, which can damage (sometimes permanently) the optic nerve and cause vision loss. It can also damage the nerves that control eye movement, resulting in double vision.

The causes of PTC are not certain, but they may include the following:

- hormonal influences, in young women;
- antibiotics;
- steroids; and
- high doses of vitamin A.

The most common symptoms of PTC are headache and visual loss. The headache can be located anywhere, but is usually in the back of the head. It may wake you in the middle of the night, and it may worsen with bending or stooping. Other symptoms include:

- dimming, blurring, or graying of vision;
- difficulty seeing to the side;
- brief visual disturbances;
- double vision;
- rushing noise in the ears; and
- nausea and vomiting.

Your ophthalmologist (Eye M.D.) will give you a complete eye examination. It may be necessary for you to have an MRI scan and spinal tap to assure accurate diagnosis and to rule out other CSF abnormalities.

If your symptoms are mild, no treatment other than careful monitoring may be necessary. If you require treatment, certain glaucoma medications and diuretics can help lower CSF pressure. Weight loss is an effective treatment in overweight patients. Pressure can also be lowered by draining CSF through repeated spinal taps.

If your vision continues to deteriorate after you have begun treatment, surgical techniques may be required to protect the optic nerve from any further damage.

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Stroke

A stroke is a life-threatening emergency in which the blood supply to the brain is interrupted or severely reduced, depriving it of oxygen and killing brain cells. Quick treatment could save your life and minimize damage to your brain.

Major causes of stroke include:

- high blood pressure;
- high cholesterol;
- diabetes;
- cardiovascular disease;
- obesity; and
- smoking.

Symptoms of stroke include:

- numbness, weakness, or paralysis of your face, arms, or legs—usually on one side of the body;
- pain between the eyes;
- blurred vision, double vision, or decreased vision;
- dizziness, loss of balance, or loss of coordination;
- severe headache, stiff neck, or facial pain;
- difficulty speaking or understanding speech;
- confusion or problems with memory, spatial orientation, or perception; and
- nausea and vomiting.

If you are experiencing these symptoms, seek immediate medical attention. Receiving treatment within three hours of suffering a stroke is shown to dramatically improve your chances of a successful recovery.

There is no treatment for patients who have lost vision due to a stroke. However, you may regain some of the peripheral vision lost from a stroke. Your ophthalmologist (Eye M.D.) will give you a thorough eye examination to determine how the stroke has affected your vision. He or she will talk to you about what to expect over time and can help you find resources and training to make the most of your remaining vision.

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Orbital Inflammatory Pseudotumor

Orbital inflammatory pseudotumor is characterized by inflammation within the orbit, or eye socket, that mimics symptoms similar to a tumor in the same site. The cause is still unknown.

Orbital inflammatory pseudotumor usually occurs in only one eye. Symptoms may include:

- red eye;
- bulging eye;
- pain;
- double vision; and
- blurry or decreased vision.

Your ophthalmologist (Eye M.D.) will probably order a CT scan to see if there is a thickening of your sclera (the white part of your eye), which is a hallmark of the condition. In order to rule out other conditions, your ophthalmologist may run other tests and biopsy orbital tissues if necessary.

Orbital inflammatory pseudotumor is usually treated with steroid medications. If further treatment is necessary, radiation therapy is another option. In some cases, treatment may fail to eliminate symptoms. In others, treatment will be effective but the symptoms may return, requiring additional treatments as needed.

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Optic Neuritis

Optic neuritis is a condition characterized by inflammation of the optic nerve. This nerve is the pathway that carries impulses from the retina in the back of the eye to the brain and enables the brain to interpret the impulses as images. If the nerves are damaged, vision is greatly affected.

This condition may affect one or both eyes, and symptoms may appear slowly or over a few days. Some of these symptoms include blurred or dim vision, abnormal color vision, or pain in the back of the eye socket or when moving the eyes. These symptoms may get worse with heat or exhaustion. If you are experiencing any of these symptoms, see your ophthalmologist (Eye M.D.) for an eye examination. If optic neuritis goes untreated, symptoms will get worse.

The causes of optic neuritis are known to be associated with various diseases such as mumps, influenza, measles, multiple sclerosis, Leber's optic neuropathy (a rare eye condition), or vascular occlusions. However, in many cases, optic neuritis occurs with no known cause.

Steroid drugs are used to treat optic neuritis. In most patients, vision will significantly improve or return to normal with treatment. However, those with a pre-existing condition like multiple sclerosis may not recover their normal vision.

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Visual Field Testing

Visual field testing is a critical part of the neuro-ophthalmic exam and is essential for the evaluation of unexplained visual loss. A visual field test measures all areas of your eyesight, including your side, or peripheral, vision. This crucial test helps your ophthalmologist (Eye M.D.) determine whether there are gaps in your vision. It also helps diagnose your condition, as the test can help find certain patterns of vision loss that may rule out certain conditions or help specify the source of your vision loss.

To take this painless test, you sit at a bowl-shaped instrument called a **perimeter**. While you stare at the center of the bowl, lights flash. Each time you see a flash, you press a button. A computer records the location of each flash and whether you pressed the button when the light flashed in that location. At the end of the test, a printout shows if there are areas of your field of vision where you did not see the flashes of light. This test shows if you have any areas of vision loss.

Regular perimetry tests are a key way to see how, if at all, your vision is changing over time. It can also be used to see if your treatments are successful at improving your vision or preventing further vision loss.

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