Optic Neuritis
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A Patient’s Guide

Symptoms | Diagnosis | Prognosis | Treatment
What are the symptoms of Optic Neuritis?

An episode of Optic Neuritis typically begins with eye pain, especially with eye movements. Within a few days, patients will notice blurred vision in the affected eye. Often this appears like a “thumb-print” or smudge that blurs the vision. Within a week, this may progress to darkening of part of the visual field. Reading can become difficult, especially if the central portion of the visual field is affected.

In addition to blurred vision, most patients notice that colors appear less bright, or “washed-out” with the affected eye.

What causes Optic Neuritis?

The optic nerve is the cable that connects the eye to the brain. In Optic Neuritis, there is inflammation of the covering of the optic nerve. This covering is composed of a fatty substance known as myelin. When inflammation damages the myelin sheath, the optic nerve cannot properly transmit information from the eye to the brain and vision becomes decreased in that eye.

Optic neuritis most often occurs between the ages of 20 to 50 and is three times more frequent in women. In adults it affects only one eye in most cases, but in children it can affect both simultaneously.
How is Optic Neuritis diagnosed?

The doctor will diagnose optic neuritis based on characteristic findings at the time of a careful neurologic examination.

Some patients with optic neuritis will have mild swelling of the optic nerve and surrounding retina that is visible to the physician during examination with the ophthalmoscope. However, most patients with optic neuritis will not have observable abnormalities of the retina or optic nerve because the inflammation in the optic nerve has occurred behind the eye itself.

There is often a “blind-spot” either in the center of vision or diffusely throughout the entire field of vision. A computerized test can quantify the extent that the field of vision is reduced.

Reduced color vision is a common finding and is detected by tests for color-blindness.

A careful examination usually supports the diagnosis of Optic Neuritis.

There is often loss of a portion of the visual field in the affected eye.

When the physician examines the optic nerve with the ophthalmoscope, it may appear either mildly swollen or normal.
There are other causes of abrupt visual loss in one eye that the physician is careful to distinguish from Optic Neuritis.

The time course of visual loss, the absence of eye pain, or an unusual appearance of the optic nerve are often clues to an alternative diagnosis.

What conditions may mimic optic neuritis?

Uncommon symptoms and findings on examination should alert the doctor to search for alternative causes of visual loss. These other conditions include a stroke of the small arteries supplying blood to the eye, other types of inflammation, infections, tumors, genetic diseases, and disorders of the retina.

The important signs that may suggest one of these conditions include an unusual time course for vision loss (for example, loss of vision progressing for more than two weeks or failing to recover within 1 month), the absence of pain, or an eye exam that shows abnormalities that are not typical for optic neuritis (such as severe swelling of the optic nerve or changes in its blood supply).
What tests may support the diagnosis of Optic Neuritis?

All patients with Optic Neuritis should have a brain MRI because the occurrence of Optic Neuritis is a risk factor for the development of multiple sclerosis (MS). Even if there are no symptoms other than the loss of vision, the brain MRI may reveal additional areas of prior inflammation in the brain, separate from the optic nerve, that reflect demyelination at other sites. Experts believe that patients in whom these additional areas of demyelination are found should be treated with medications that reduce the chance of developing symptoms of definite MS.

For most patients with optic neuritis, blood tests are of limited value. However, if there are unusual or atypical features, like those mentioned above, then blood tests may be considered to evaluate for infectious and other inflammatory disorders that can affect the optic nerve.

Sometimes a lumbar puncture (spinal tap) is performed to analyze the cerebrospinal fluid for abnormal proteins (called oligoclonal bands). If these proteins are present, the risk of developing multiple sclerosis is higher than if they are absent. The spinal fluid test can be helpful if it is not clear whether the MRI is completely normal or shows small abnormalities of uncertain significance.

A Brain MRI is an important test for patients with Optic Neuritis.

The MRI may reveal inflammation of the affected optic nerve.

Also, the MRI may reveal other areas of prior brain inflammation that indicate a higher risk of developing Multiple Sclerosis.
What is the prognosis for Optic Neuritis?

The visual loss caused by optic neuritis usually worsens for 7-10 days and then gradually begins to improve between 1-3 months. Most patients with optic neuritis generally recover 20/20 (normal) vision. However, patients in whom optic neuritis initially causes vision worse than 20/60 are at higher risk for having some permanent visual loss. In addition, even after patients with optic neuritis have recovered, there may still be subtle changes in their vision (such as reduced brightness for colors or reduced depth perception) despite regaining the ability to read the whole eye chart.

What is the relationship between Optic Neuritis and Multiple Sclerosis?

Optic neuritis is strongly associated with multiple sclerosis (MS). In MS, demyelination occurs in many areas of the central nervous system. In addition to visual loss, MS can cause symptoms including double vision, weakness of the limbs, difficulty walking, and loss of bladder control.

For 15 to 20% of people with MS, optic neuritis is their first symptom. Another 30% of patients with MS will have experience optic neuritis at some time after the other symptoms of MS have occurred.

Fortunately, the majority of patients with acute optic neuritis who have a normal brain MRI (without additional findings of demyelination) do not develop MS.
What treatments should patients with Optic Neuritis receive?

Treatment with intravenous corticosteroids (i.e., Solu-Medrol®) helps reduce the risk that a patient with Optic Neuritis will develop MS within two years. However, beyond two years, treatment with steroids does not affect the likelihood of developing MS.

Treatment with intravenous steroids may also speed up the recovery of vision, although it does not ultimately change the extent to which vision recovers.

Oral corticosteroids, for reasons that are not understood, may be associated with an increased risk of developing recurrent optic neuritis and should be avoided.

What other treatments may be considered?

For patients with optic neuritis who have an increased risk of developing MS (on the basis of an abnormal brain MRI), many recent studies support the early use of medications aimed to reduce the risk of MS. These medicines include interferon beta-1a (Avonex® or Rebif®), interferon beta-1b (Betaseron®), or glatiramer acetate (Copaxone®).

These medicines all require an injection, varying from once a week to several times a week. An oral medication called fingolimod (Gilenya®) has recently been approved for the treatment of established MS, although its use following isolated optic neuritis remains under investigation.

Anyone with symptoms of visual loss or other neurologic symptoms should consult their doctor immediately for a complete ophthalmic and neurologic evaluation.

Treatment with intravenous corticosteroids may benefit patients with Optic Neuritis.

Treatment does not improve the overall amount of visual recovery, but it does shorten the duration of symptoms before recovery occurs.

Patients with a brain MRI that suggests an increased risk of developing Multiple Sclerosis should consider treatment with MS medications.