# Ophthaproblem

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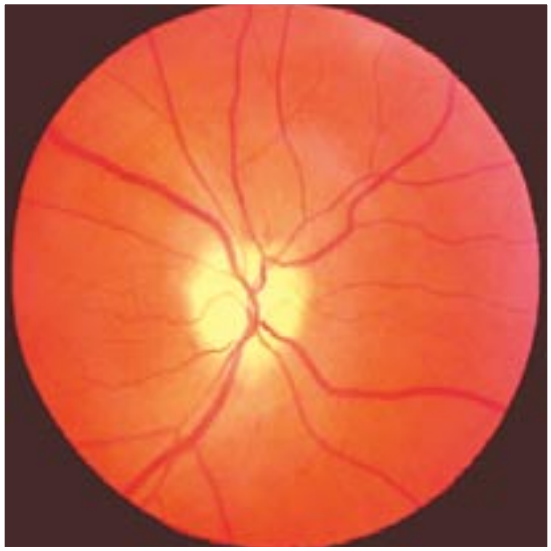

A 32-year-old woman presents with sudden onset of decreasing vision in her right eye, which has progressed over the past 4 days. She says her eye is mildly painful and the pain worsens when she moves her eye. She also reports seeing colours and flashing lights with eye movement. She is not experiencing paresthesias or weakness in her face or extremities.

On examination, visual acuity is 6/18 in the right eye and 6/6 in the left eye, with correction. Eyelids, conjunctiva, sclera, cornea, anterior chamber, iris, and lens are all normal. Pupils are equal, round, and reactive to light. A swinging flashlight test shows a relative afferent pupillary defect in her right eye. Extraocular movements are normal; there is no nystagmus. Other cranial nerves are normal. Funduscopy reveals the above image.

**Given the symptoms and signs, the most likely diagnosis is:**

1. Ischemic optic neuropathy
2. Retinal migraine
3. Acute angle-closure glaucoma
4. Optic neuritis

*Answer on page 1289*

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# Answer to Ophthaproblem

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### 4. Optic neuritis

Symptoms of progressive visual loss, pain, and photopsias in a young woman suggest optic neuritis. The patient has decreased visual acuity in her right eye. The relative afferent pupillary defect (RAPD) in her right eye indicates that the brain perceives less light from the right eye than from the left (assessed by the swinging flashlight test). The fundus photograph shows a swollen optic disk. These signs strongly indicate optic neuritis.

### Optic neuritis

Most instances of optic neuritis are due to idiopathic inflammatory demyelination or to demyelination secondary to multiple sclerosis. There can be other causes.

Optic neuritis is fairly common; its incidence is one to five cases per 100 000 people per year.[1] Incidence is highest among those aged 20 to 49 years, women, white people, and those living at high latitudes.[1]

Unilateral loss of vision that progresses over several days with accompanying eye pain is typical of optic neuritis.[2] The degree of visual loss varies greatly. Some patients report only mild changes, while others have great loss of vision in the affected eye.[2] Eye pain is very common: it accompanied visual loss in 92% of cases in the Optic Neuritis Treatment Trial (ONTT),[2] and it often worsens with eye movement. Other common symptoms include blurred vision, scotoma, and flashing lights.[2]

On examination, decreased colour vision, reduced contrast sensitivity, visual field loss, and RAPD might be seen in the affected eye.[2] The optic disk might be swollen. In the ONTT, the disk was swollen in 35.3% of cases (papillitis) and normal in the remainder (retrobulbar neuritis).[2] Other signs, such as uveitis, pars planitis (peripheral vitreitis with exudate overlying the peripheral retina), flame-shaped disk hemorrhages, and retinal periphlebitis (inflammation of the retinal veins), have been reported in the literature, although they were not mentioned in the findings of the ONTT.[1,2]

A diagnosis of optic neuritis is made on clinical grounds. In patients with typical clinical findings and course, laboratory studies and imaging are supportive measures only.

The pain associated with optic neuritis usually lasts only a few days.[1] Vision generally deteriorates over a few days to a maximum of 2 weeks. In most patients, spontaneous recovery takes place within 2 to 3 weeks of symptom onset, with near maximal recovery by 4 to 6 weeks.[3] Final visual outcome is related to the severity of the initial loss, but most patients recover well. In the ONTT, 79% of patients had 20/20 or better vision after 6 months and 95% had 20/40 or better.[4] Visual field function returned similarly.[5] Five years after onset of optic neuritis, 87% of patients in the ONTT had 20/25 or better vision, including those who had had recurrent attacks.[3] The recurrence rate of optic neuritis (in either eye) was 28%.[3]

Intravenous (IV) methylprednisolone has been shown to hasten initial visual recovery in optic neuritis, but affects long-term visual outcome at 6 months no more than placebo.[6] Use of methylprednisolone, therefore, is dependent mainly on patient factors, such as quality of life.

### Multiple sclerosis a concern

Multiple sclerosis (MS) is a concern for patients with optic neuritis and their physicians. In the ONTT, 30% of patients developed clinically definite multiple sclerosis (CDMS) within 5 years of their first episode of optic neuritis.[7] A much smaller but longer-range study determined that the 15-year risk of CDMS following an initial attack of optic neuritis was 74% for women and 34% for men.[8] Number of lesions on magnetic resonance imaging scan of the brain was the best predictor of CDMS, according to the ONTT.[7] For patients with three or more lesions, risk of CDMS at 5 years was 51%.[7] Therefore, MRI should be considered for early detection of MS in patients with optic neuritis.

Use of IV methylprednisolone significantly decreased risk of CDMS at 2 years in the ONTT.[7] After 2 years though, this beneficial effect wore off. Risk of CDMS at 3 years was equal to that of those in the placebo group.[7] In another study, interferon β 1a was shown to significantly reduce the probability of developing CDMS within 3 years ($P$ = .002).[9] Its long-term effects are currently under evaluation.

### Recommendation

Patients presenting with optic neuritis should be referred to an ophthalmologist or neurologist for assessment and management. Baseline visual acuity should be assessed at presentation. If a diagnosis of optic neuritis is confirmed, patients can be reassured that visual loss will likely resolve. Risk of recurrent attacks and the chance of developing MS should be clearly explained to patients and their families. An MRI scan should be considered to further evaluate risk of developing MS.

**References**

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