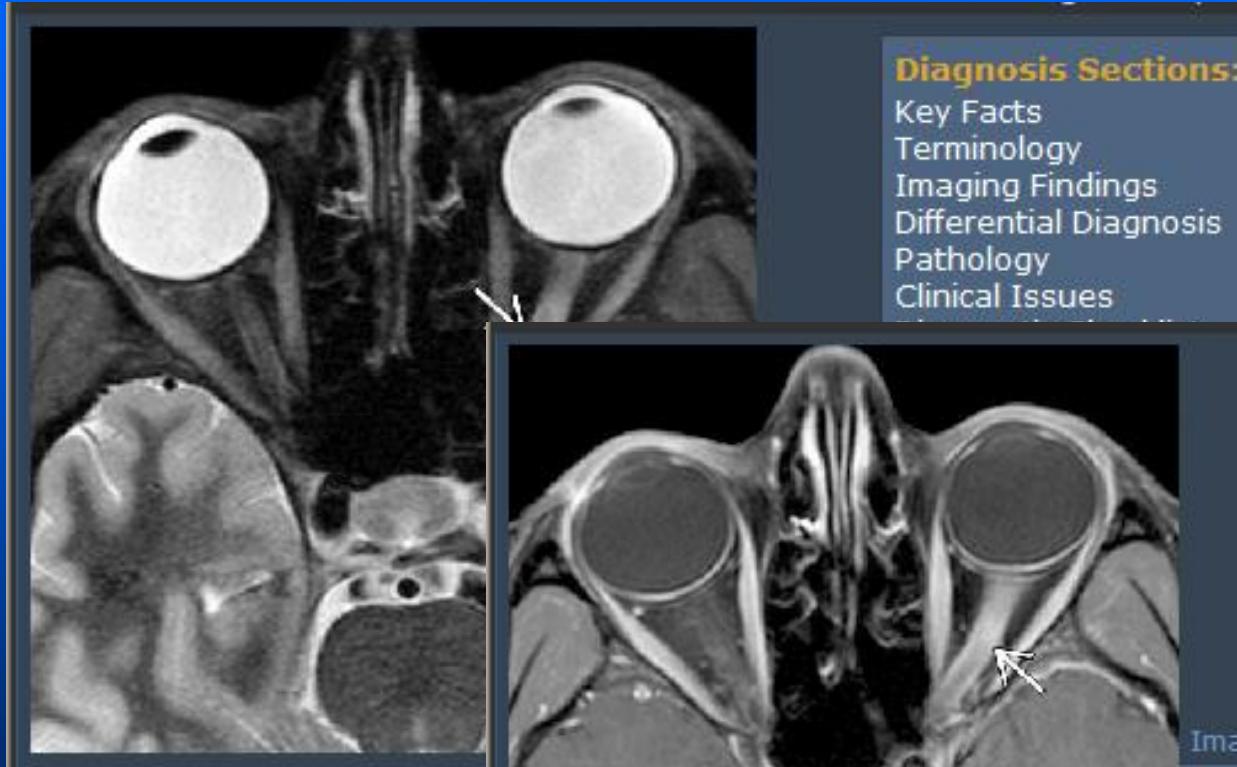


Optic Neuritis



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Image Caption:

Axial T1 C+ MR shows unilateral mild enlargement and striking enhancement of the left optic nerve (arrow). The patient was subsequently diagnosed with multiple sclerosis.

Optic Neuritis

- Two types of acute ON
 - Multiple sclerosis (MS) associated ON
 - Idiopathic isolated monosymptomatic ON
- Unilateral in 70%
- > 90% show nerve enhancement
- Enhanced MR is imaging tool of choice
- Fat-suppressed T2 FSE or STIR, and T1 C+
- **Best diagnostic clue:** Enhancement and minimal enlargement of optic nerve on MR

DDx:

- **Anterior ischemic optic neuropathy**
 - MR normal > 75%; more likely in male, advanced age
 - Visual acuity does not improve, unlike acute ON
- **Infectious optic neuropathy**
 - Enlargement of optic nerve more pronounced, but may be indistinguishable from ON on imaging
 - Systemic infection or immunocompromised status
- **Idiopathic perineuritis (pseudotumor)**
 - Enlarged, enhancing optic nerve-sheath complex; inflammation may involve any orbital structure
 - Painful proptosis; motility restriction and diplopia
- **Granulomatous optic neuropathy (sarcoid)**
 - Enlarged, enhancing optic nerve similar to ON
 - EOM and lacrimal gland involvement; meningeal enhancement
- **Optic nerve sheath meningioma**
 - Thickened, enhancing optic nerve sheath; "tram-track" calcifications are diagnostic
 - Mass effect, acute vision change, and lack of pain
- **Optic nerve glioma**
 - Tubular enlarged enhancing optic nerve
 - NF1 often present
- **Radiation induced optic neuropathy**
 - Bilateral optic nerve enhancement following radiation

Right optic neuritis/pseudotumor

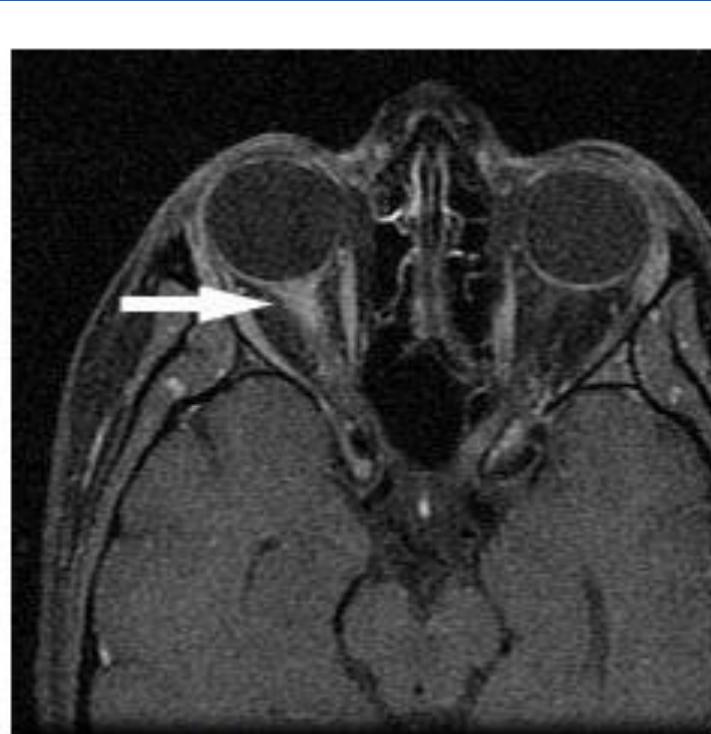


Figure 1: Post-gadolinium axial T1WI shows thickening as well as enhancement of distal half of the right optic nerve.



Figure 2: Coronal T1-weighted MR image shows thickened and hyperintense right optic nerve.