IMAGING SPECTRUM OF ACUTE BLINDNESS

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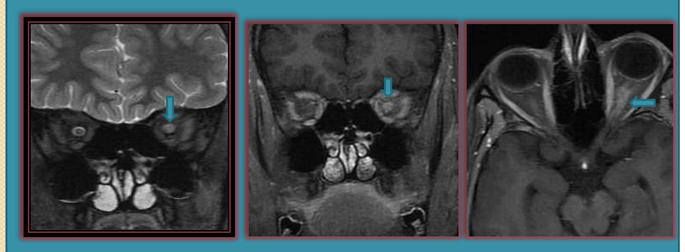
What do you look for, when you do not see, suddenly…

Acute Optic neuritis

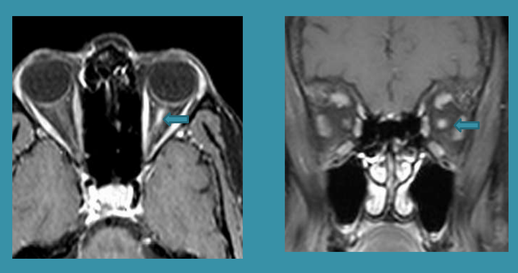


T2 shows increased signal intensity, T1 contrast coronal & axial images show an enlarged enhancing left optic nerve

- Acute inflammation of the optic nerve.
- *Clinical features* : commonly between 20 – 40 years
- Monocular sudden vision dimness, rapid progression, retroorbital pain

Imaging of optic neuritis

- *CT* : May show optic nerve enlargement. Contrast shows segmental enhancement of nerve
- *T1 WI* : Optic nerve may appear enlarged
- *T2 WI* of acute optic neuritis shows hyperintense signal.
- Contrast enhanced T1 weighted sequences show central enhancement at sites of increased T2 intensity
- Differentiated from chronic optic neuritis which shows T2 signal hyperintensity in an atrophic, nonenhancing optic nerve.
- STIR shows increased signal intensity in both acute & chronic optic neuritis.
- *Treatment:*
- Oral prednisolone to accelerate the speed of recovery



T1 axial and coronal contrast images show enhancement of left optic N.

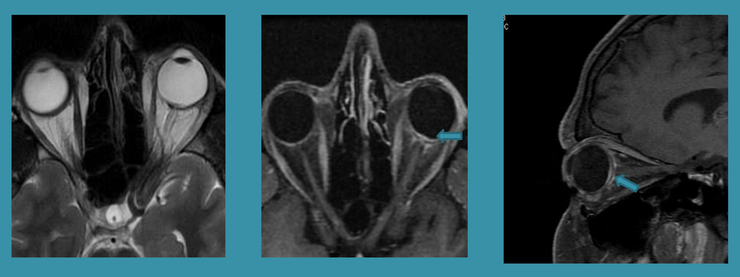
References:
Radiographics: Nontraumatic Orbital Conditions: Diagnosis with CT and MR Imaging in the Emergent Setting1 Wayne.S.Kubal

Radiographics: Imaging of orbital trauma.

AJNR: Acute Optic Nerve Infarction Demonstrated by Diffusion-Weighted Imaging i. S. Mathur[a], A. Karimi[a] and M.F. Mafee

Radiographics: Inflammatory Pseudotumor, Lakshmana Das Narla, MD Beverley Newman, MD Stephanie S.Spottswood, MD Shireesha Narla, MD Rajasekhar Kolli, MD

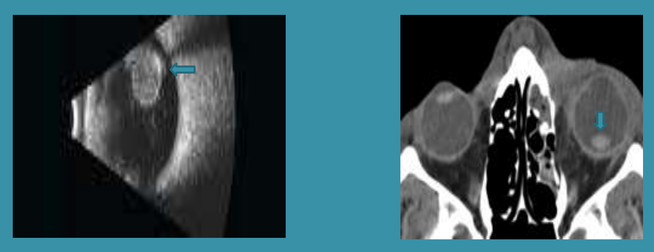
Papillitis



T2 image T1 contrast axial, sagittal images show enhancement of the optic disc

- Papillitis is inflammation of the optic nerve head
- Multiple causes including ischemia, infections, and autoimmune diseases.

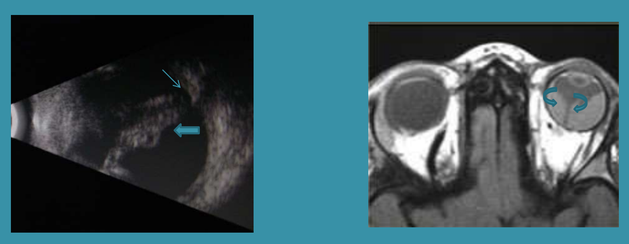
Lens dislocation



USG, CT axial images show the lens is not seen in the pupillary region, but in the Posterior chamber

- Definition : Crystalline lens is completely displaced from the pupillary area
- Symptoms: Acute, marked dimness of vision
- Signs : Lens not seen in pupillary area, deep anterior chamber, disclocated lens seen in anterior/ posterior chamber
- Imaging findings: The lens is not seen in the pupil, my be seen in the AC/PC. Associated injuries if any are noted

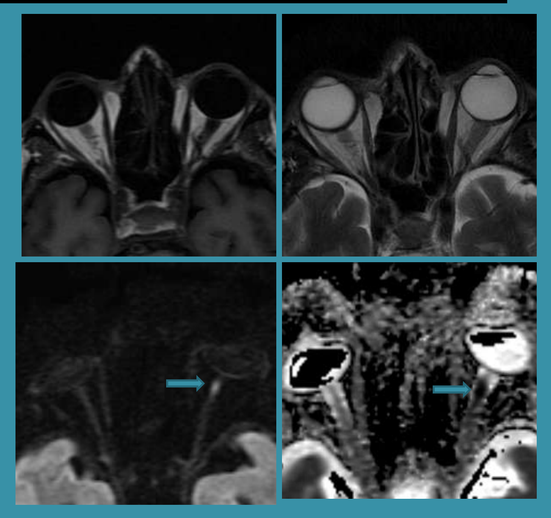
Retinal detachment



USG & MRI images show the retina detached, forming a v shape, attached posteriorly to the disc

- It is the separation of sensory retina from the retinal pigment epithelium by subretinal fluid
- Retinal detachments appear as a characteristic V shape, with the apex of the detachment at the optic disc on cross-sectional images
- MR imaging used to distinguish between serous, proteinaceous and hemorrhagic retinal detachments.

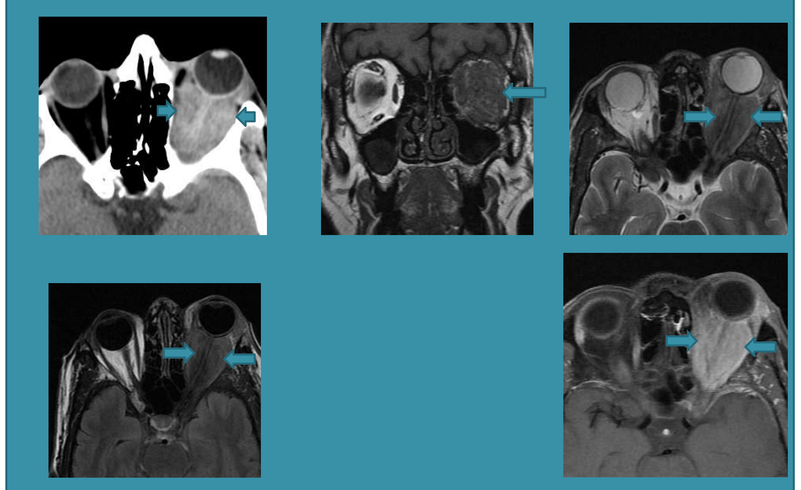
Optic nerve infarct



T1, T2 show no significant change. Diffusion shows hyperintensity in left optic nerve, ADC shows low signal

- Segmental or generalised infarction
- Causes: Giant cell arteritis/Arteritic, Atherosclerotic/Non arteric, collagen vascular disorders
- T1 & T2 sequences may not show significant change in the acute stages
- DWI shows high signal intensity, ADC map shows hypointense optic nerve.

Pseudotumor orbit



CT, T1, T2, FLAIR, T1 contrast images show a retroorbital, mass on left involving the extraocular muscles, encasing the optic nerve and enhancing on contrast. The tendinous insertions are also involved

- Idiopathic, non neoplastic non microbial space occupying periocular lesion simulating a neoplasm
- Pain, proptosis, diminished ocular mobility
- Affects lacrimal gland, muscle cone, optic nerve, sclera.
- CT : Heterogeneous poorly marginated increased density
- MRI: Decreased T1 & T2 signal intensity within the intraconal fat, variable enhancement