



Out Of Left Field:

The utility of perimetry in nonspecific vision loss

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Case Introduction

- A 47 year-old female *with no reportable medical history* presented to the ED for *acute onset blurred vision of both eyes*
- Ophthalmic exam at this time was *unremarkable*. Imaging, including *CTA head and neck, was also nonrevealing*
- She was seen in Clinic the following day where her examination was notable for VA of 20/500 in the right eye and 20/100 in the left eye
- Pupillary exam, IOP, Confrontational fields, Extraocular movements, anterior and posterior examination was all normal
- OCT macula and RNFL were grossly unremarkable

Our workup thus far was negative, so we decided to get some visual fields...

- Visual field testing demonstrated a suspicious Right Hemianopia (Figure 1 top middle panel)
- At this point she was sent back to ED for urgent neuroimaging

A few clicks and magnets later...

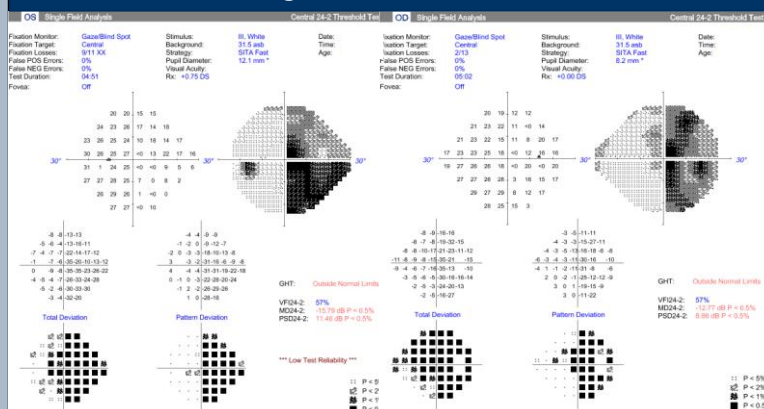
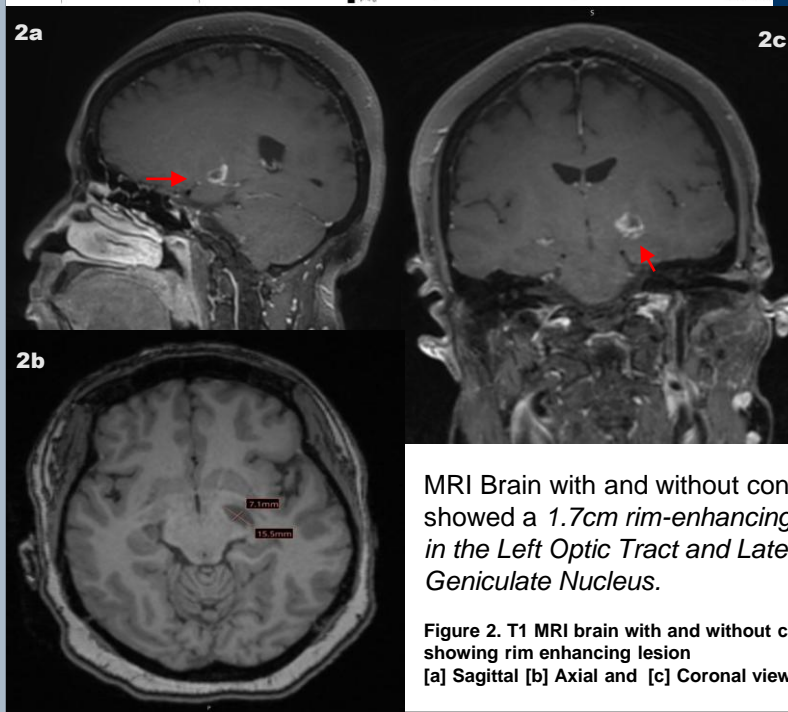


Figure 1.
Humphrey 24-2
visual field of Left
and Right eye
demonstrating
Right hemianopia



MRI Brain with and without contrast showed a 1.7cm rim-enhancing lesion in the Left Optic Tract and Lateral Geniculate Nucleus.

Figure 2. T1 MRI brain with and without contrast showing rim enhancing lesion

[a] Sagittal [b] Axial and [c] Coronal views

Discussion

Differential Diagnosis of rim enhancing lesion:

MAGIC DR_[1]

Metastases

Abscess, including pyogenic abscess and abscess caused by atypical organisms, such as bacterial pathogens, fungal pathogens and parasitic pathogens

Glioma and other primary CNS neoplasms

Infarction

Contusion

Demyelination (multiple sclerosis, acute disseminated encephalomyelitis)

Resolving hematoma/radio necrosis

- Our patient was admitted, where workup for the above etiologies was negative
- Once infectious causes were ruled out, she was treated with IV steroids and subsequently discharged
- The cause of her rim enhancing lesion remains unknown, *but repeat MRI showed complete resolution of the lesion, making demyelinating disease more likely*
- In a case report from UCLA, HVF defects preceded MRI findings in GBM in 2 patients_[2]

Takeaways

- Visual Field testing may be useful in the workup of unexplained vision loss
- Visual Field defects may precede neuroimaging findings in certain cases
- The differential for rim-enhancing lesion is broad and requires immediate workup
- It is important to recommend the correct neuroimaging studies when referring patients to the Emergency Department

References/Acknowledgements

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[2] Xie K, Liu C, Hasso A, Crow R. Visual field changes as an early indicator of glioblastoma multiforme progression: two cases of functional vision changes before MRI detection. *Clin Ophthalmol*. 2015;9:1041-1047. <https://doi.org/10.2147/OPHT.S79723>



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