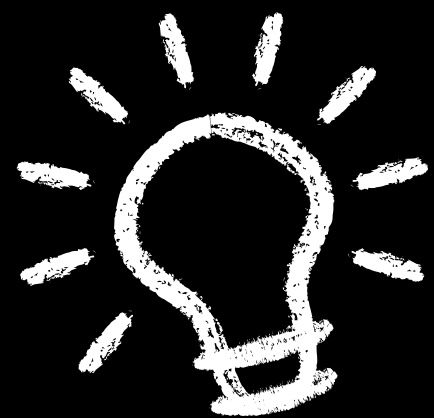


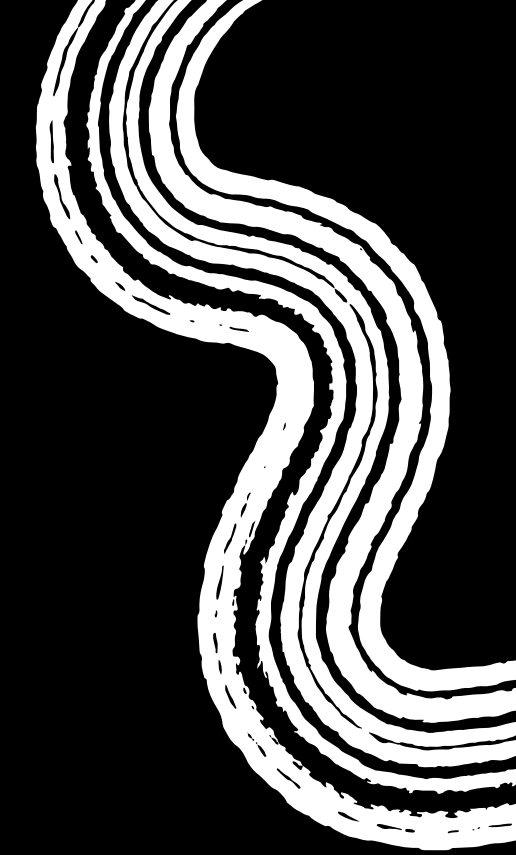
# Unmasking Orbital Lymphoma: Key Imaging Features for Differential Diagnosis

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# Learning Content



1

Clinical Presentation

4

Outcome

2

Imaging Discussion

5

Take Home Points

3

Management

# Clinical Presentation

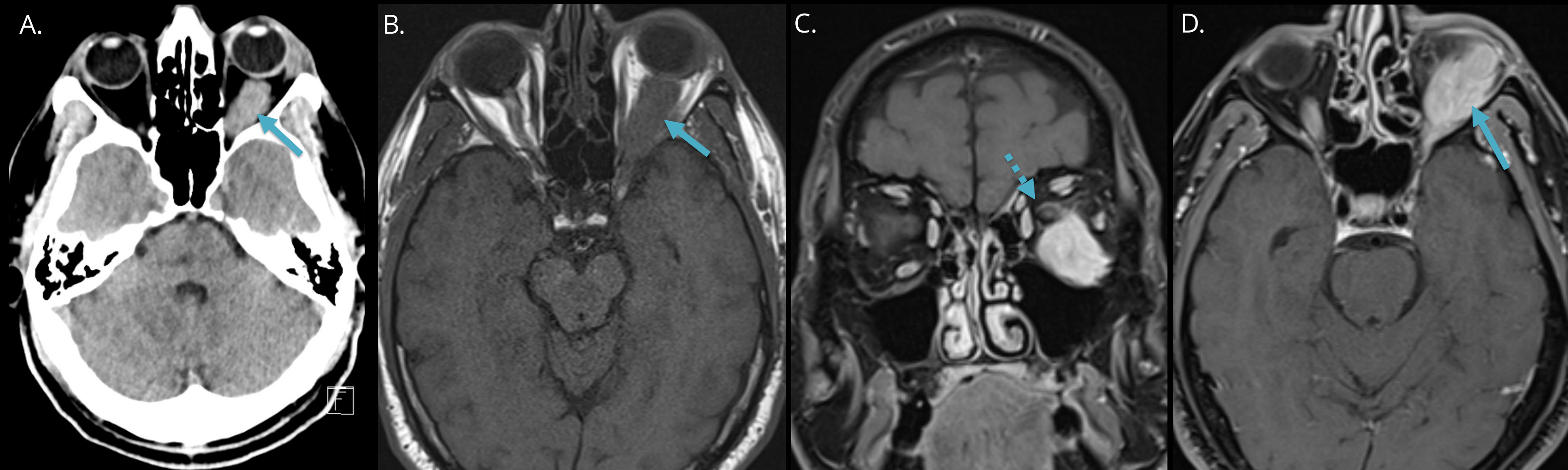
- 55-year-old male with known left orbital mass presented to our Institution with worsening left orbital swelling, chemosis conjunctival injection and vision changes.
- CT of the orbits was performed.
- Ophthalmology Service was consulted due to clinical concern for optic neuropathy. Urgent decompression was planned.



Patient image shows left orbital swelling, chemosis and conjunctival injection.



# Imaging Discussion



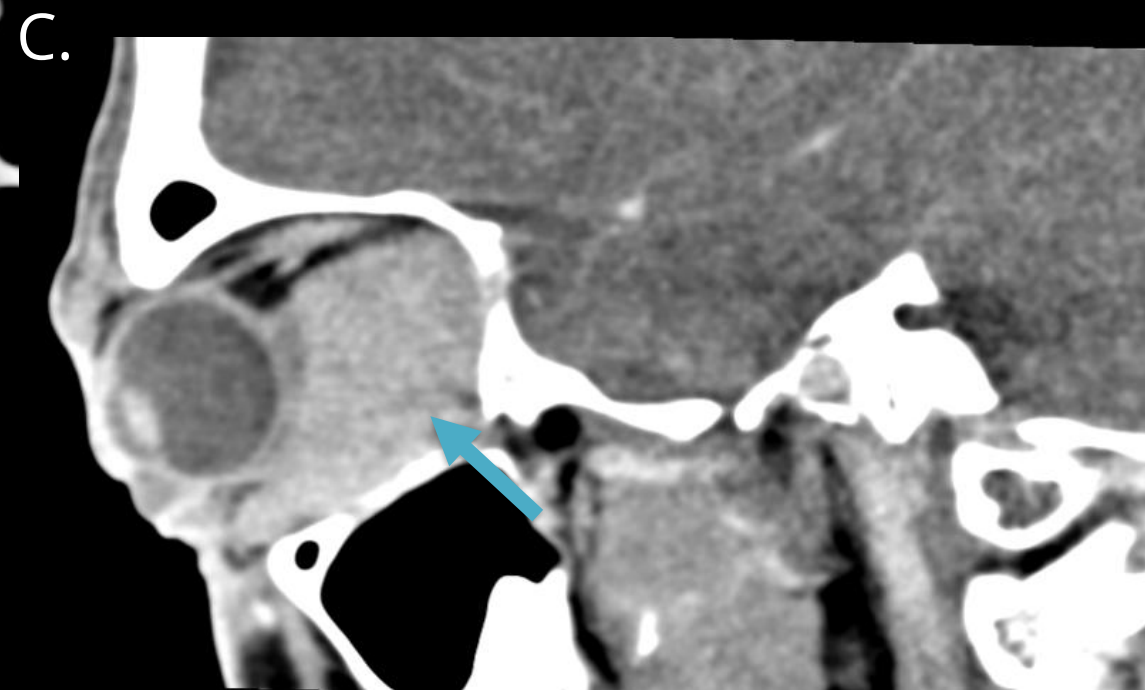
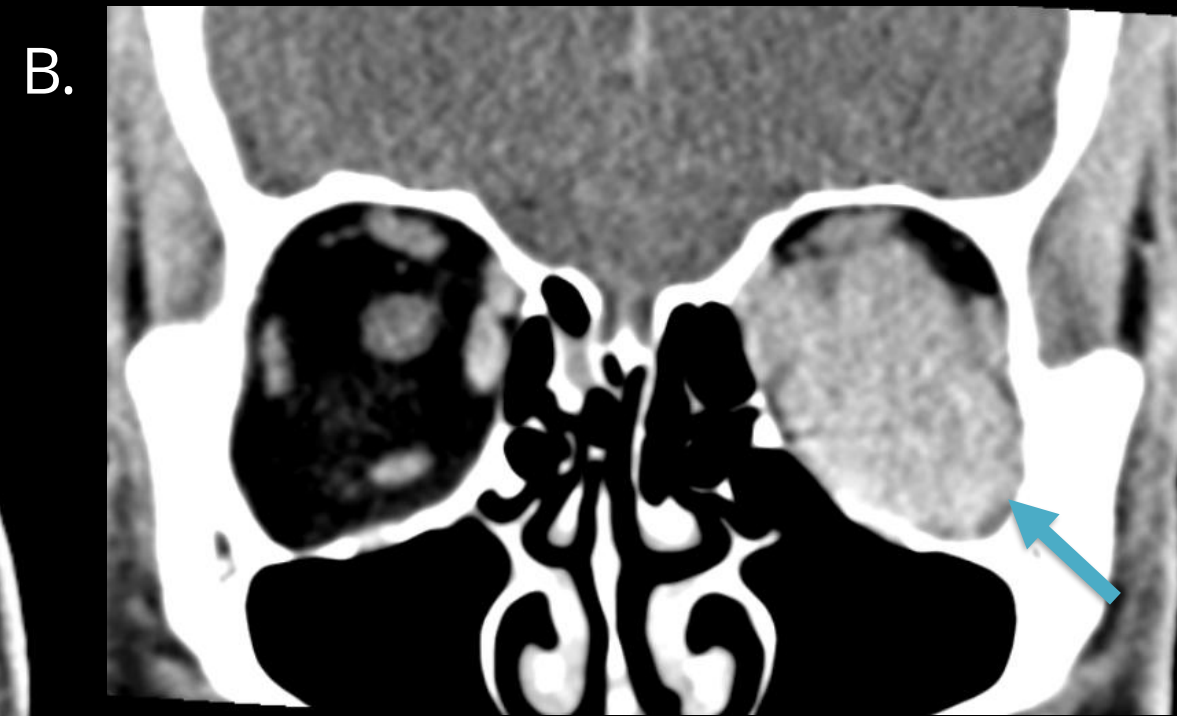
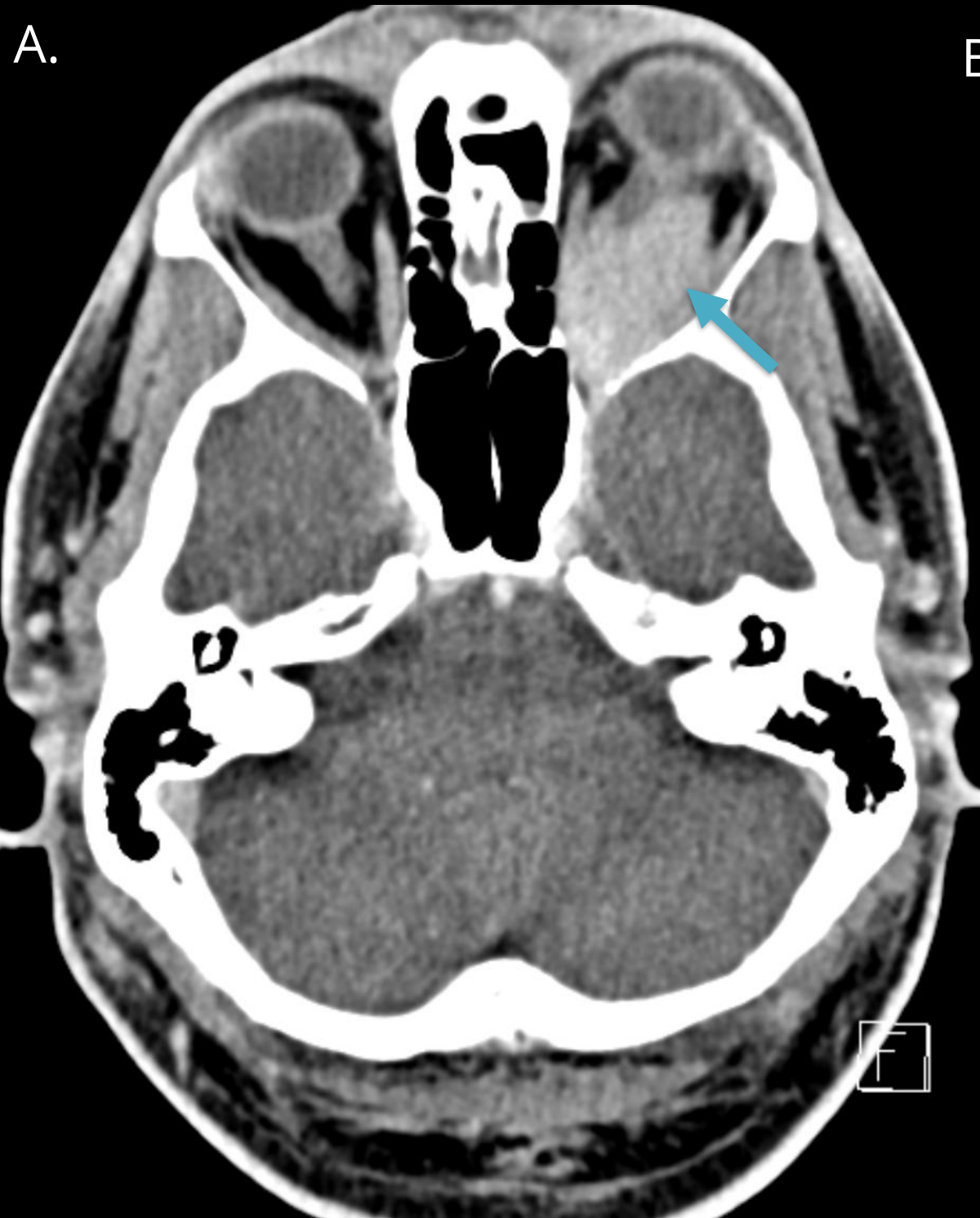
Imaging obtained at initial diagnosis, 3 months prior.

(A) Axial CT of the orbits demonstrates a left orbital mass (**arrow**). (B) Axial T1-weighted image demonstrates a left orbital mass. Coronal (C) and axial (D) T1 postcontrast images demonstrate an enhancing left orbital mass (**arrow**) which poses mass effect upon the left optic nerve (**dashed arrow**).

Orbitotomy with biopsy was performed with pathology yielding lymphoid and fibroadipose tissue with no definitive evidence of neoplasia.



# Imaging Discussion



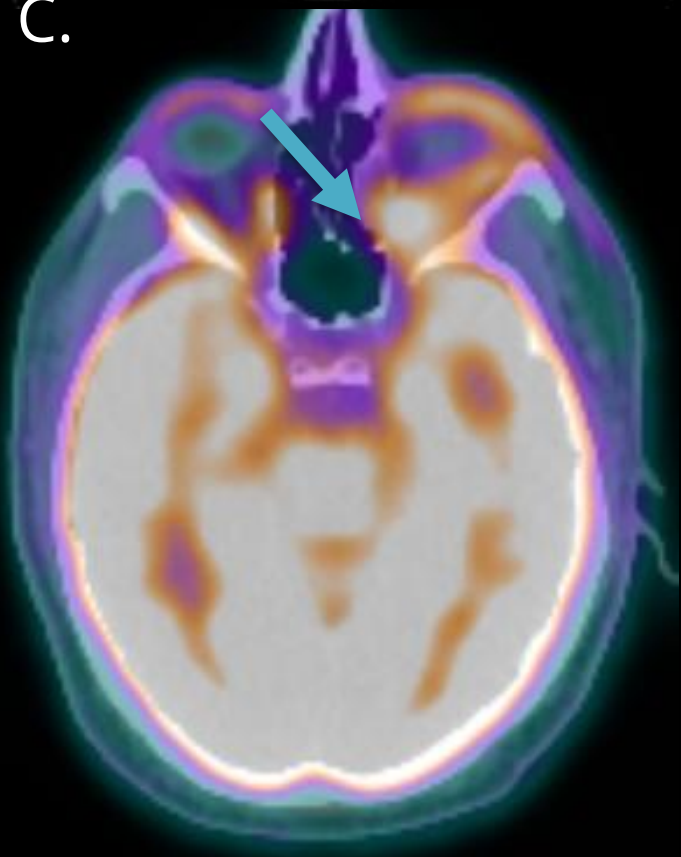
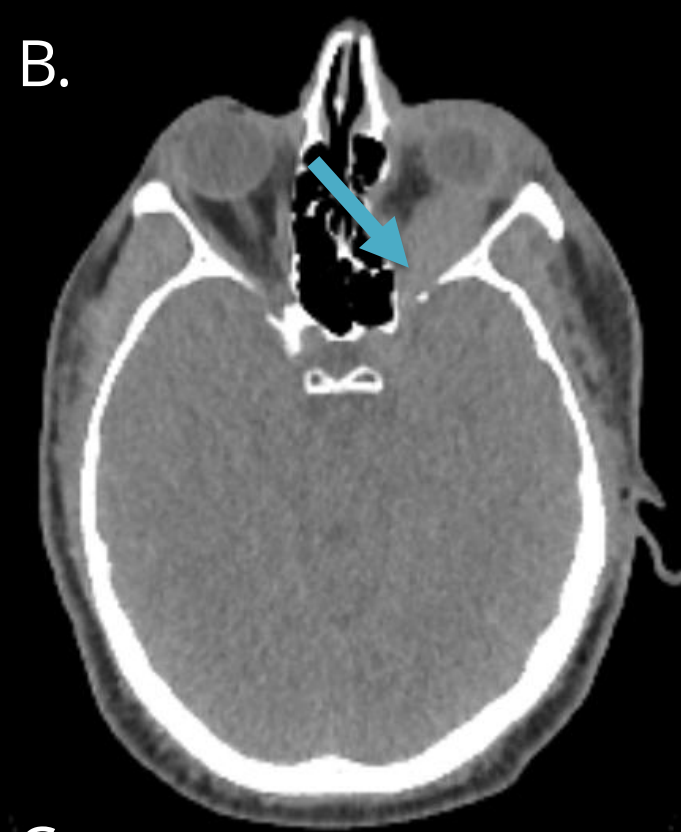
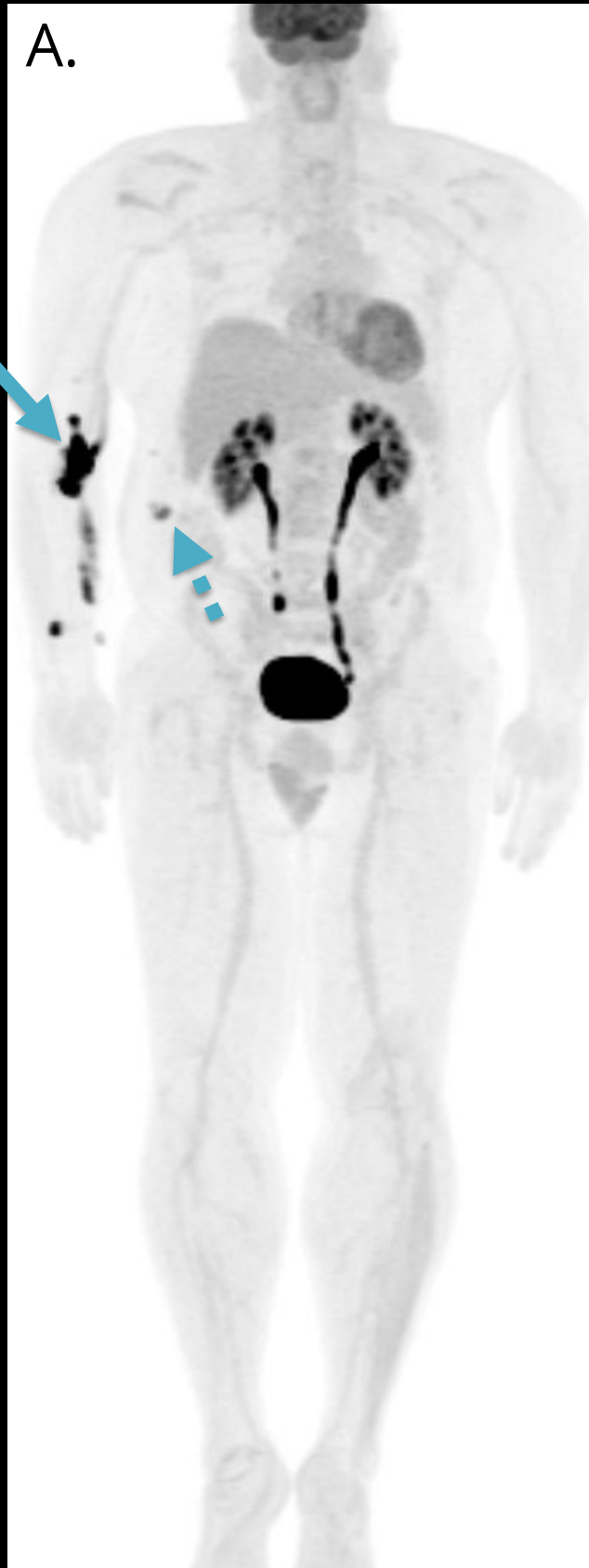
CT of the orbits with contrast demonstrated:

- ✓ Enhancing mass centered along the posterior aspect of the left orbit which appears to encircle the optic nerve (**arrow in A**)
- ✓ Notable proptosis on the left
- ✓ No bony destruction
- ✓ Interval increase in size compared to imaging from 3 months prior

Diagnostic considerations include:

- Orbital lymphoma
- Rhabdomyosarcoma
- Orbital inflammatory pseudotumor

# Imaging Discussion

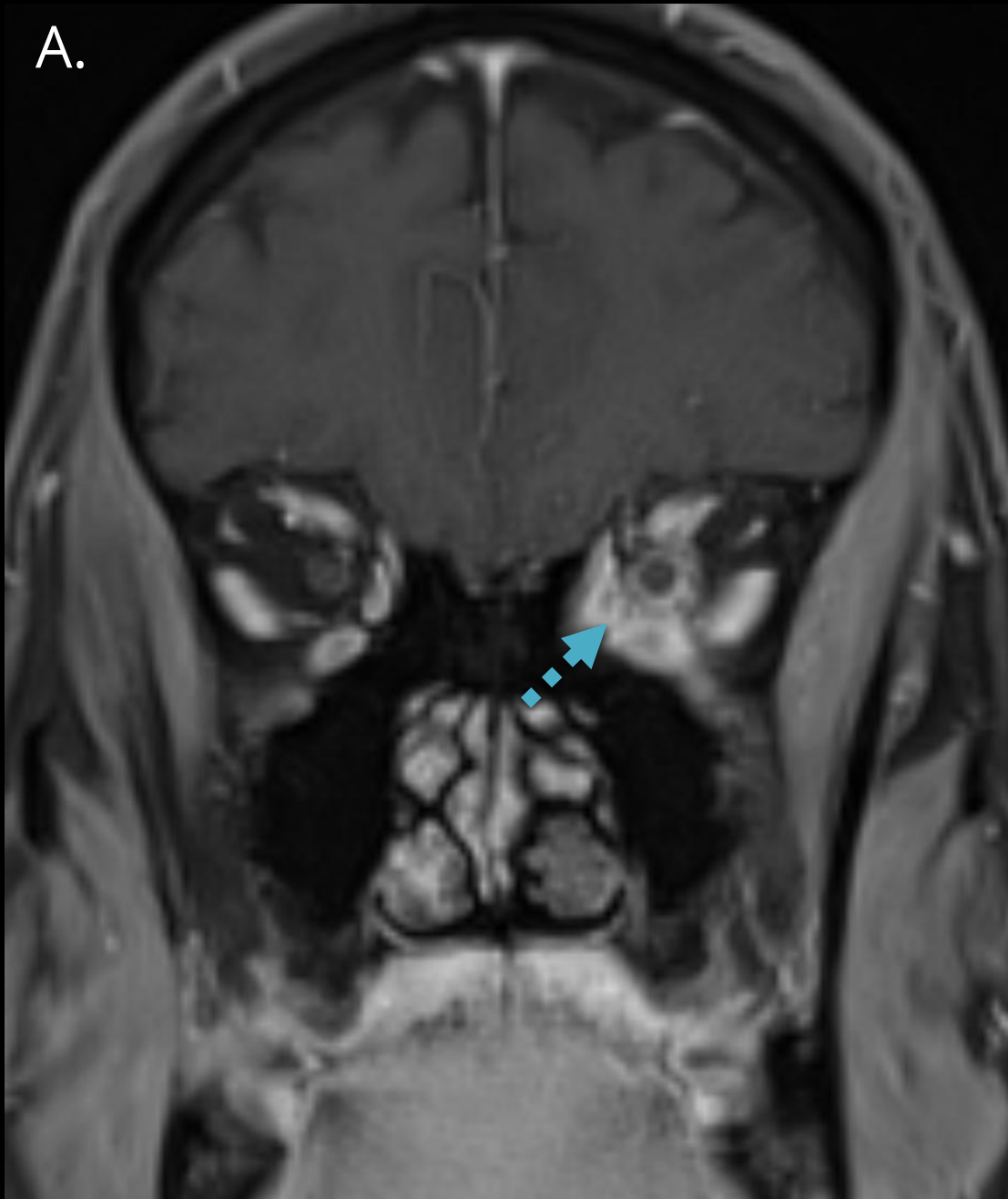


- ✓ FDG PET/CT MIP image demonstrates no evidence of distant metastatic disease
  - Uptake along the right upper extremity (**arrow**) and right anterior abdominal wall (dashed arrow) without CT correlate, favored to represent contamination.
- ✓ PET/CT axial image (B) demonstrates homogeneous, masslike soft tissue in the inferior aspect of the orbit (**arrow**)
- ✓ On fusion axial image (C), there is evidence of moderate FDG uptake related to this mass (**arrow**)

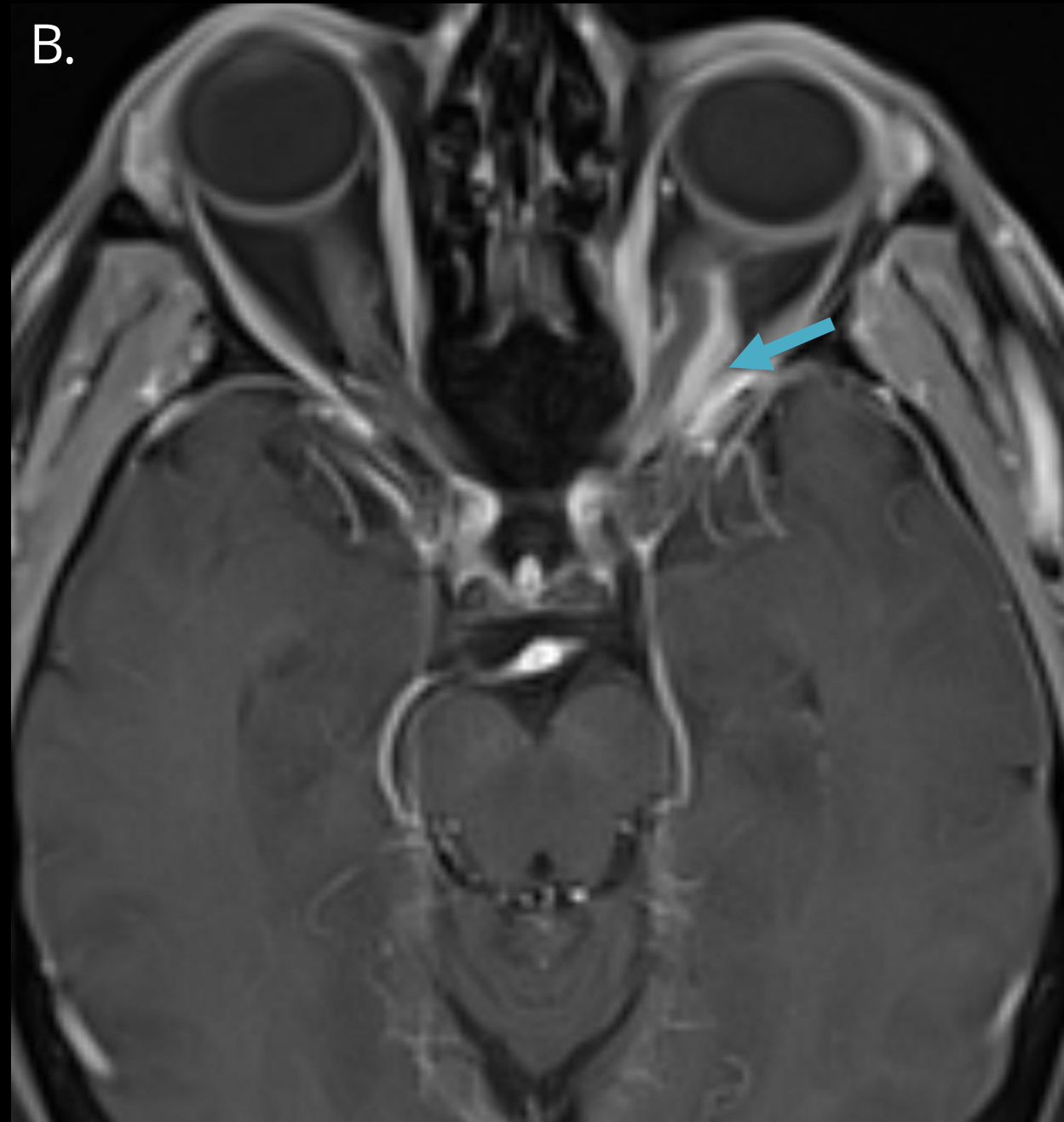


# Imaging Discussion

A.



B.



The patient underwent radiotherapy.

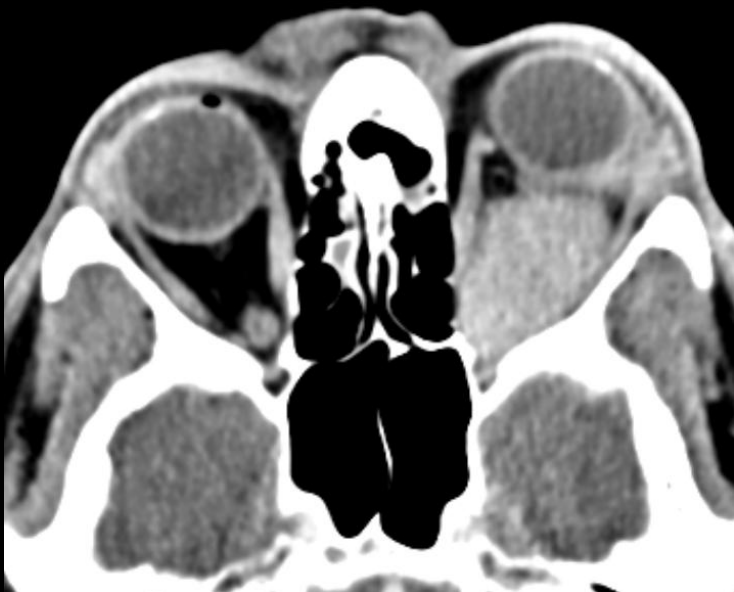
Post treatment MRI demonstrated:

- ✓ Interval decrease in the size of infiltrative soft tissue mass encasing the left inferior rectus muscle in the inferior segment of the left orbital compartment
- ✓ Posterior segment of the infiltrative soft tissue is again seen encroaching on and partially encasing the left upper nerve (**arrow**)
- ✓ There is underlying mild enhancement of the infiltrative soft tissue (**dashed arrow**)

# Imaging Discussion

## Orbital lymphoma

- Insidious, slow, painless
- CT: Well-defined, mold-like, conforms to orbital wall
- MRI: T1: Iso- to hypointense and T2: Iso- to hyperintense
- Homogeneous enhancement
- More common in adult population



## Rhabdomyosarcoma

- Rapid, acute, often painful
- CT: Ill-defined, aggressive, may cause destruction
- MRI: T1: Isointense and T2: Hyperintense
- Heterogeneous enhancement
- More common in pediatric population



## Pseudotumor

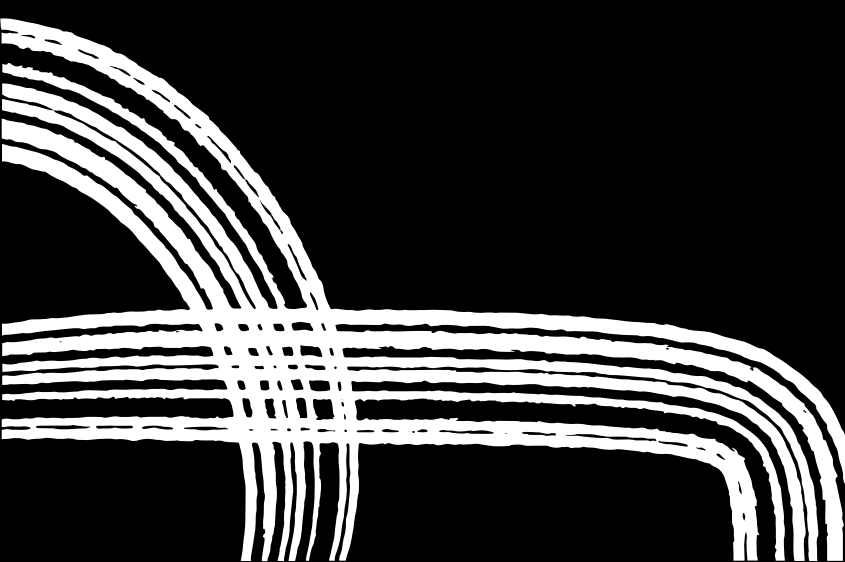
- Acute, painful
- CT: Ill-defined, infiltrative
- MRI: T1: Isointense and T2: Variable (can be hypointense from fibrosis)
- Variable enhancement, often patchy
- Can present at any age





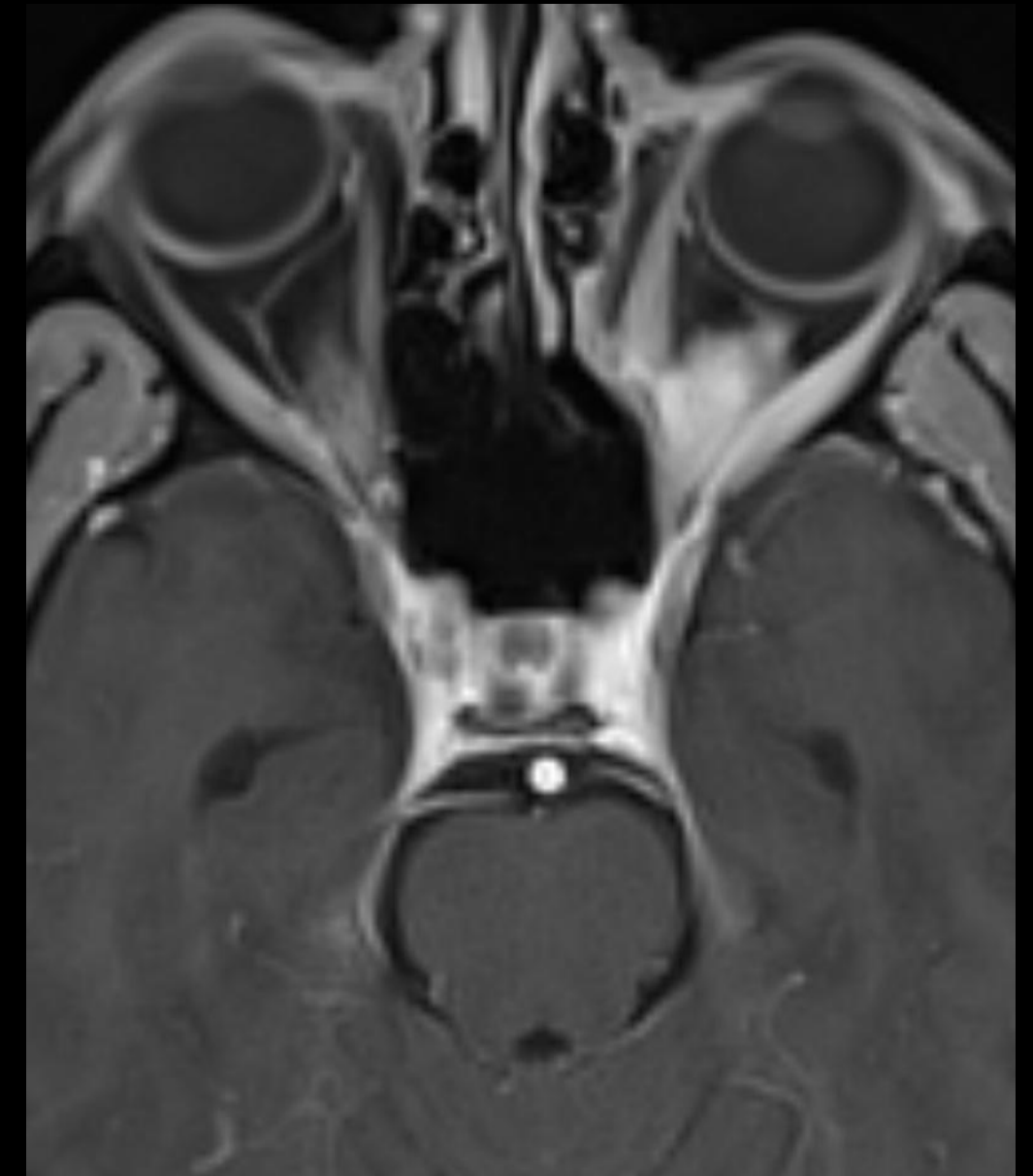
# Management



- On arrival to the hospital, the patient was started on steroids
  - Patient underwent urgent ethmoidectomy, with inferior and medial orbital wall decompression and canthoplasty
  - Patient was discharged 4 days after surgery
  - Patient completed a series of 10 sessions of orbital irradiation
- 

# Outcome

- Interval decrease in size of left orbital mass following radiotherapy
- Despite undergoing radiation therapy, the patient reports persistent diplopia with no noted improvement.
  - 5-FU and Kenalog injections were prescribed to alleviate muscle restriction
  - Patient also experienced alopecia during radiotherapy
- Patient to be followed with imaging surveillance



Post treatment MRI demonstrates decreased size of left orbital mass.

# Take Home Points



- Orbital lymphoma presents as a well-defined, homogeneous soft tissue mass without bone destruction, unlike rhabdomyosarcoma which can cause rapid expansion and bony remodeling. Lymphoma is often painless and slowly progressive, while orbital pseudotumor usually causes acute painful proptosis and responds to steroids.
- PET/CT is essential for staging, differentiating primary orbital disease from systemic involvement, and guiding therapy with Hematology/Oncology and Radiation Oncology.
- Tissue biopsy is required to confirm B-cell lymphoma and to distinguish it from mimics such as pseudotumor or rhabdomyosarcoma





**THANK YOU!**

Questions or comments?  
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