

50-year-old male presenting  
with left-sided facial pain and  
swelling secondary to recent  
trauma

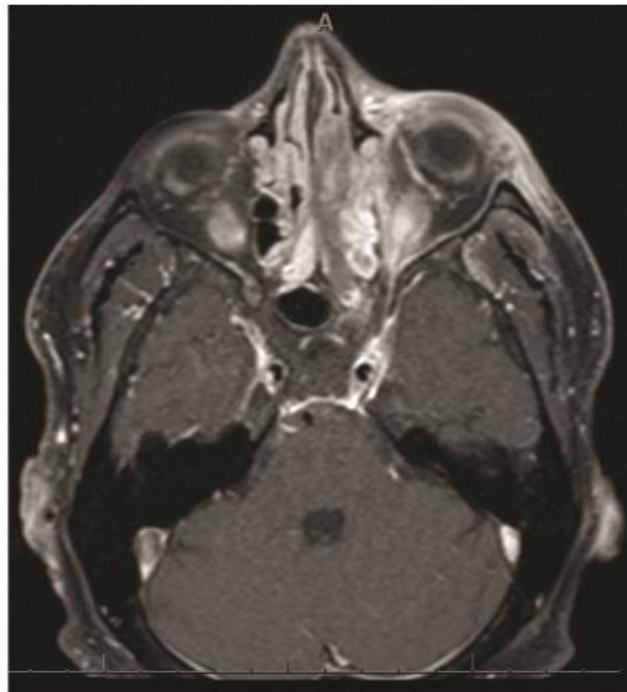
Nathan Leclair, MS3

# T1 MRI

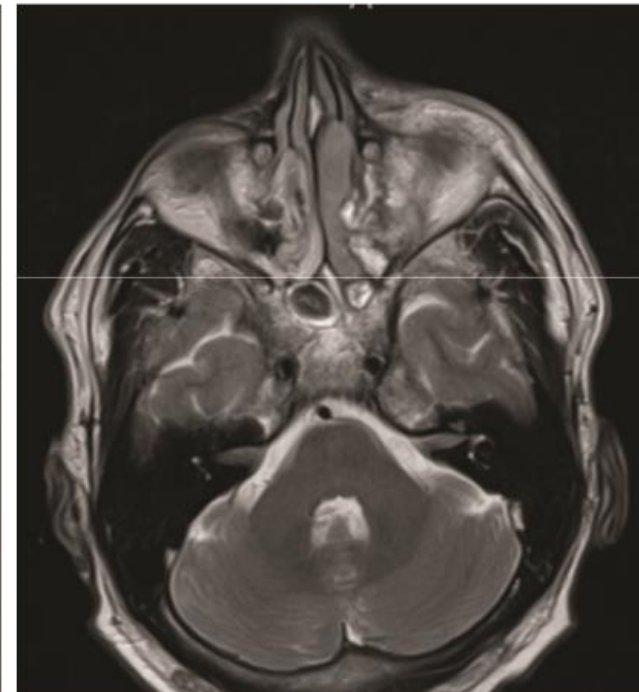
Pre-contrast



Post-contrast



T2 FLAIR



A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. The leaf has a prominent central vein and several smaller veins branching off it. The leaf's edge is serrated.

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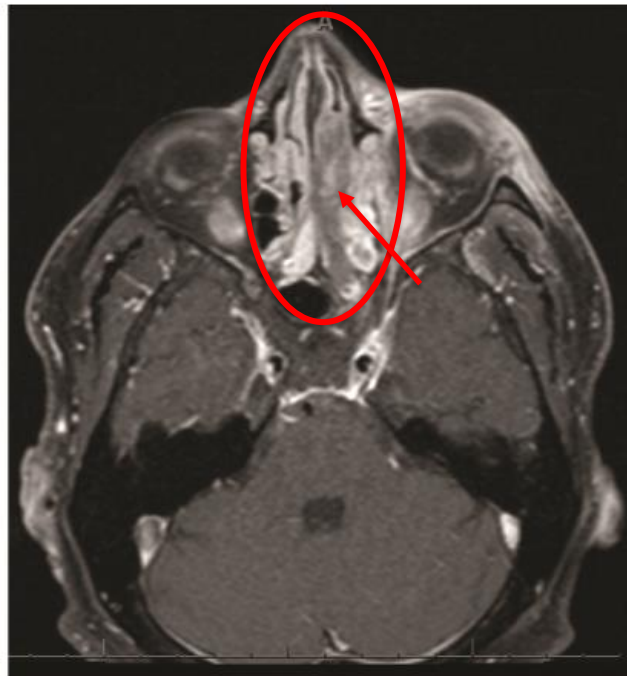
# Esthesioneuroblastoma (Olfactory Neuroblastoma)

# T1 MRI

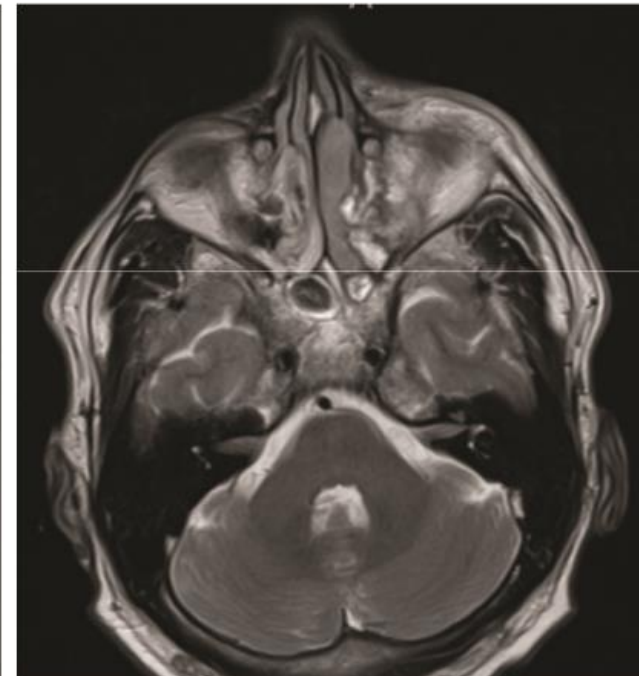
Pre-contrast



Post-contrast



T2 FLAIR



Poor heterogeneously enhancing soft tissue mass on T1 weighted images centered in the left nasal cavity.

Associated outflow obstruction of the left maxillary, ethmoid, and frontal sinuses

# Esthesioneuroblastoma

Rare malignant tumor of neural crest origin arising from olfactory neuroepithelium in the superior nasal cavity.

## Presentation / Epidemiology

- Adolescent or middle-aged patient with unilateral nasal obstruction and epistaxis
- Slight male predominance
- Metastatic spread in up to 35%, most often to cervical lymph nodes. Distant spread occurs in ~10% of cases
- Clinically appear as firm, nonpulsatile mass covered by intact respiratory mucosa
  - May bleed profusely on biopsy
  - Broad-based, pedunculated, lobulated, mucosal-covered mass at cribriform plate
  - +/- engorged red appearance due to rich vascular stroma
  - Intranasal lesions may be indistinguishable from polyposis, chronic sinusitis and other nasal neoplasms

## Differential diagnosis for sinonasal masses

- Esthesioneuroblastoma, nasal polyps (associated with chronic rhinosinusitis), sinonasal / schneiderian papillomas (fungiform, inverted, oncocytic), paranasal carcinoma (squamous cell or adeno), lymphoma, melanoma, soft tissue sarcomas, sinonasal infections / abscesses (presenting with constitutional symptoms), nasal hematomas (history of coagulopathy of trauma)

# Imaging Findings

## CT

- Homogeneously enhancing mass
  - When large +/- nonenhancing areas of necrosis with intracranial peritumoral cyst.
- Bone remodeling causing enlargement of olfactory recess with bone erosion at cribriform plate
- Rarely have a speckled pattern of calcification within tumor matrix
- Useful for determining extent of bone destruction; may alter extent of craniofacial resection

## MR

- T1: Hypointense to isointense mass compared to brain; areas of hemorrhage can be hyperintense
- T1+C: Enhancement heterogeneous in areas of necrosis
- T2: intermediate to hyperintense mass compared to brain with areas of cystic degeneration; areas of hemorrhage can be hypo or hyperintense depending on age of blood
- DWI: Mildly restricted diffusion

## PET/CT

- Increased FDG uptake
- Useful for detecting nodal and distant metastases



# References

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