# AMSER Case of the Month
# June 2022

## 28-year-old male with unilateral nasal obstruction

Christopher Zhao, MS1, Cooper Medical School of Rowan University
Anthony Santisi, MD, PGY-3, Cooper University Hospital
Rahul Garg, MD, Neuroradiologist, Cooper University Hospital

Cooper Medical School of Rowan University

Cooper University Health Care

AMSER

# Patient Presentation

- HPI: 28-year-old male presented to the otolaryngology clinic with a 1-year history of unilateral nasal obstruction & daily headaches. He had been taking loratadine and fluticasone nasal spray without relief of symptoms.
- Past medical history: none
- Past surgical history: none
- Family history: noncontributory
- Social history: no smoking, alcohol, or illicit substance use

# Pertinent Physical Exam and Labs

- Physical exam: nasal septum deviation to the right

- Labs: normal complete blood count and basic metabolic panel

# What Imaging Should We Order?

# Select the applicable ACR Appropriateness Criteria

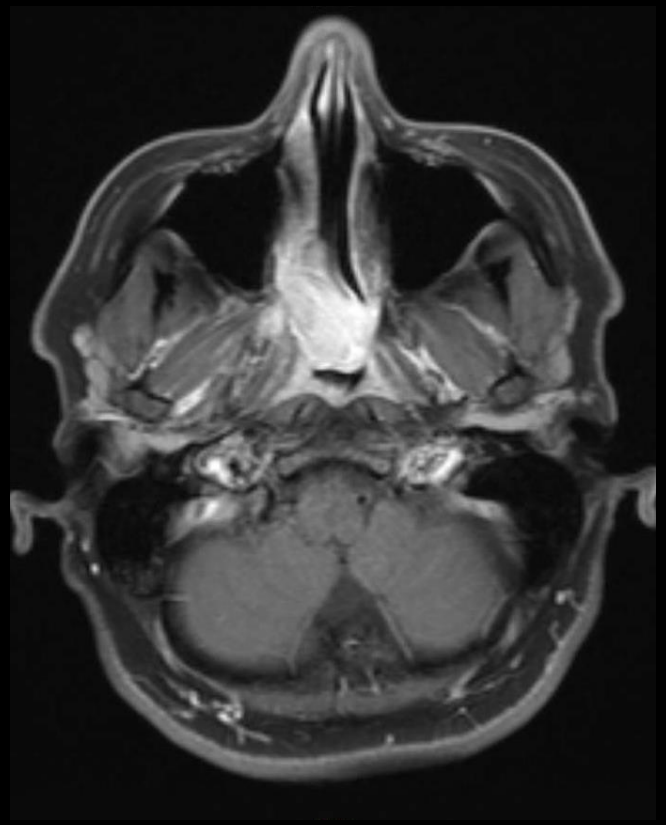
**Variant 5:** **Suspected sinonasal mass. Initial imaging.**

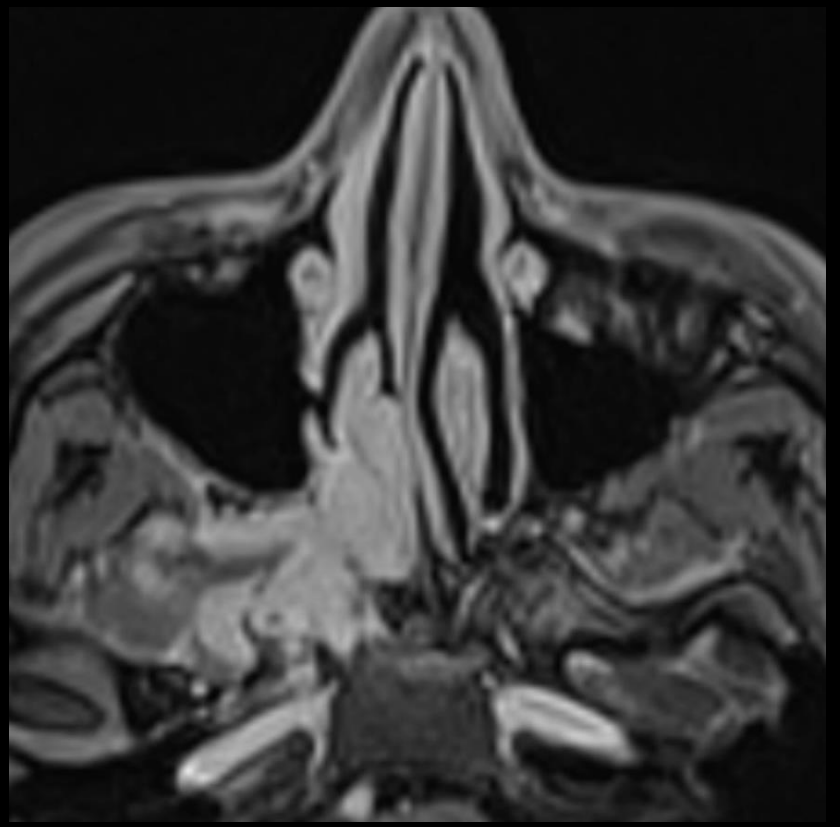
| Procedure | Appropriateness Category | Relative Radiation Level |
|---|---|---|
| MRI orbits face neck without and with IV contrast | Usually Appropriate | O |
| CT maxillofacial with IV contrast | Usually Appropriate | ☢☢ |
| CT maxillofacial without IV contrast | Usually Appropriate | ☢☢ |
| MRI head without and with IV contrast | May Be Appropriate | O |
| MRI head without IV contrast | May Be Appropriate | O |
| MRI orbits face neck without IV contrast | May Be Appropriate | O |
| CT head with IV contrast | May Be Appropriate | ☢☢☢ |
| Radiography paranasal sinuses | Usually Not Appropriate | ☢ |
| Arteriography craniofacial | Usually Not Appropriate | ☢☢☢ |
| MRA head with IV contrast | Usually Not Appropriate | O |
| MRA head without and with IV contrast | Usually Not Appropriate | O |
| MRA head without IV contrast | Usually Not Appropriate | O |
| MRI head with IV contrast | Usually Not Appropriate | O |
| MRI orbits face neck with IV contrast | Usually Not Appropriate | O |
| CT cone beam paranasal sinuses without IV contrast | Usually Not Appropriate | ☢☢ |
| CT head without and with IV contrast | Usually Not Appropriate | ☢☢☢ |
| CT head without IV contrast | Usually Not Appropriate | ☢☢☢ |
| CT maxillofacial without and with IV contrast | Usually Not Appropriate | ☢☢☢ |
| CTA head with IV contrast | Usually Not Appropriate | ☢☢☢ |
| SPECT or SPECT/CT paranasal sinuses | Usually Not Appropriate | ☢☢☢ |
| FDG-PET/CT skull base to mid-thigh | Usually Not Appropriate | ☢☢☢☢ |

This imaging modality was ordered by the referring physician

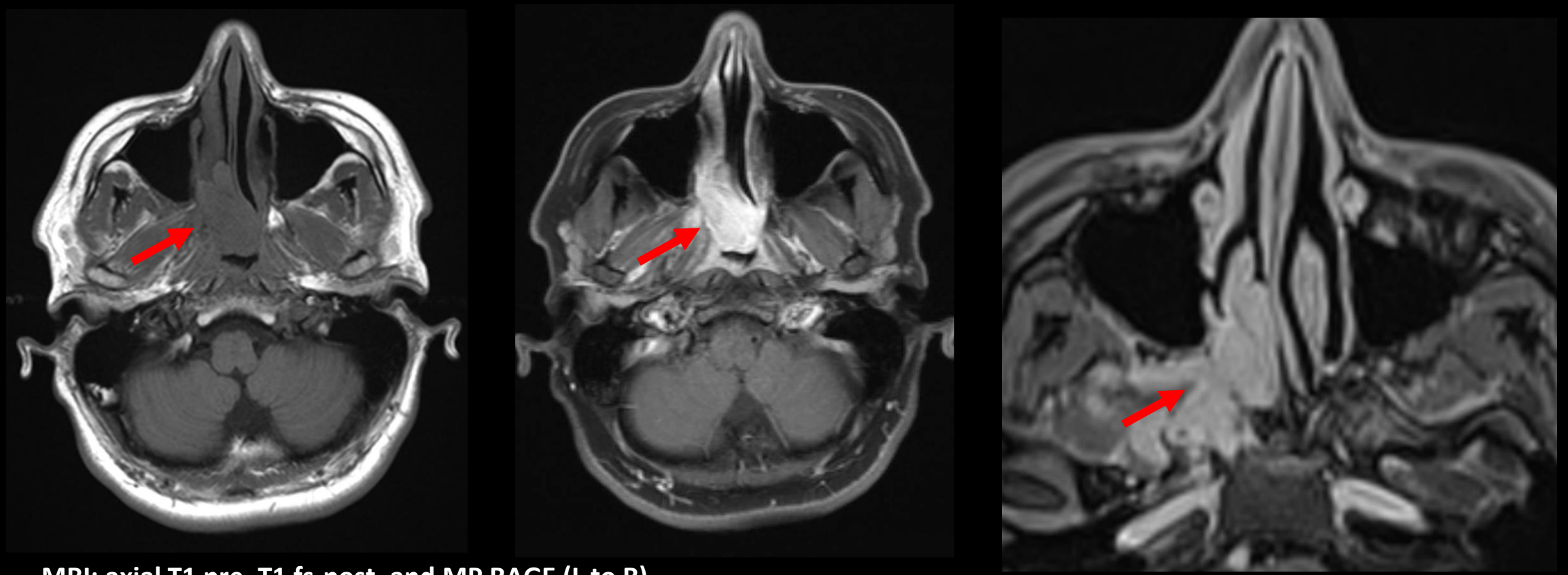
AMSER

# Findings (unlabeled)





# Findings (labeled)



**MRI: axial T1 pre, T1 fs-post, and MP RAGE (L to R)**

- Expansile intensely enhancing mass within the right posterior nasal cavity extending through the nasal choana into the nasopharynx
- Involvement of the right sphenopalatine foramen, pterygopalatine fossa, pterygoid process and the medial aspect of the masticator space

# Final Dx:

Juvenile Nasopharyngeal Angiofibroma

# Juvenile Nasopharyngeal Angiofibroma (JNA)

- Rare, benign, locally aggressive, highly vascular tumor of the nasopharynx
- Epidemiology: most common tumor of the nasopharynx; accounts for <0.5% of all head and neck tumors; occurs most commonly in adolescent males
- Etiology: not fully understood; prevalence in males may be explained by genetic studies that demonstrate elevated androgen receptor expression in JNA cells, suggesting that JNA may be androgen-dependent
- Typical clinical presentation: unilateral nasal obstruction, epistaxis
- Treatment: surgical resection is the treatment of choice; for advanced tumors, adjuvant radiotherapy, chemotherapy, or hormone therapy may be considered

# Imaging findings

- CT: Heterogeneous, avidly enhancing soft tissue mass of the nasal cavity centered on the sphenopalatine foramen; anterior bowing of the posterior wall of the maxillary sinus (“antral sign”); bony remodeling
- MRI: Heterogeneous soft tissue mass with intermediate signal on T1/T2 and avid enhancement; intratumoral signal voids (“salt and pepper” appearance)

# References:


- Garça MF, Yuca SA, Yuca K. Juvenile Nasopharyngeal Angiofibroma. EUR J GEN MED. 2010;7(4), 419-425. https://doi.org/10.29333/ejgm/82897

- Janakiram TN, Sharma SB, Samavedam UC, Deshmukh O, Rajalingam B. Imaging in Juvenile Nasopharyngeal Angiofibroma: Clinical Significance of Ramharan and Chopstick Sign. *Indian J Otolaryngol Head Neck Surg*. 2017;69(1):81-87. doi:10.1007/s12070-016-1039-4

- Mishra S, Praveena NM, Panigrahi RG, Gupta YM. Imaging in the diagnosis of juvenile nasopharyngeal angiofibroma. *J Clin Imaging Sci*. 2013;3(Suppl 1):1. Published 2013 Mar 22. doi:10.4103/2156-7514.109469

- Momeni AK, Roberts CC, Chew FS. Imaging of chronic and exotic sinonasal disease: review. *AJR Am J Roentgenol*. 2007;189(6 Suppl):S35-S45. doi:10.2214/AJR.07.7031