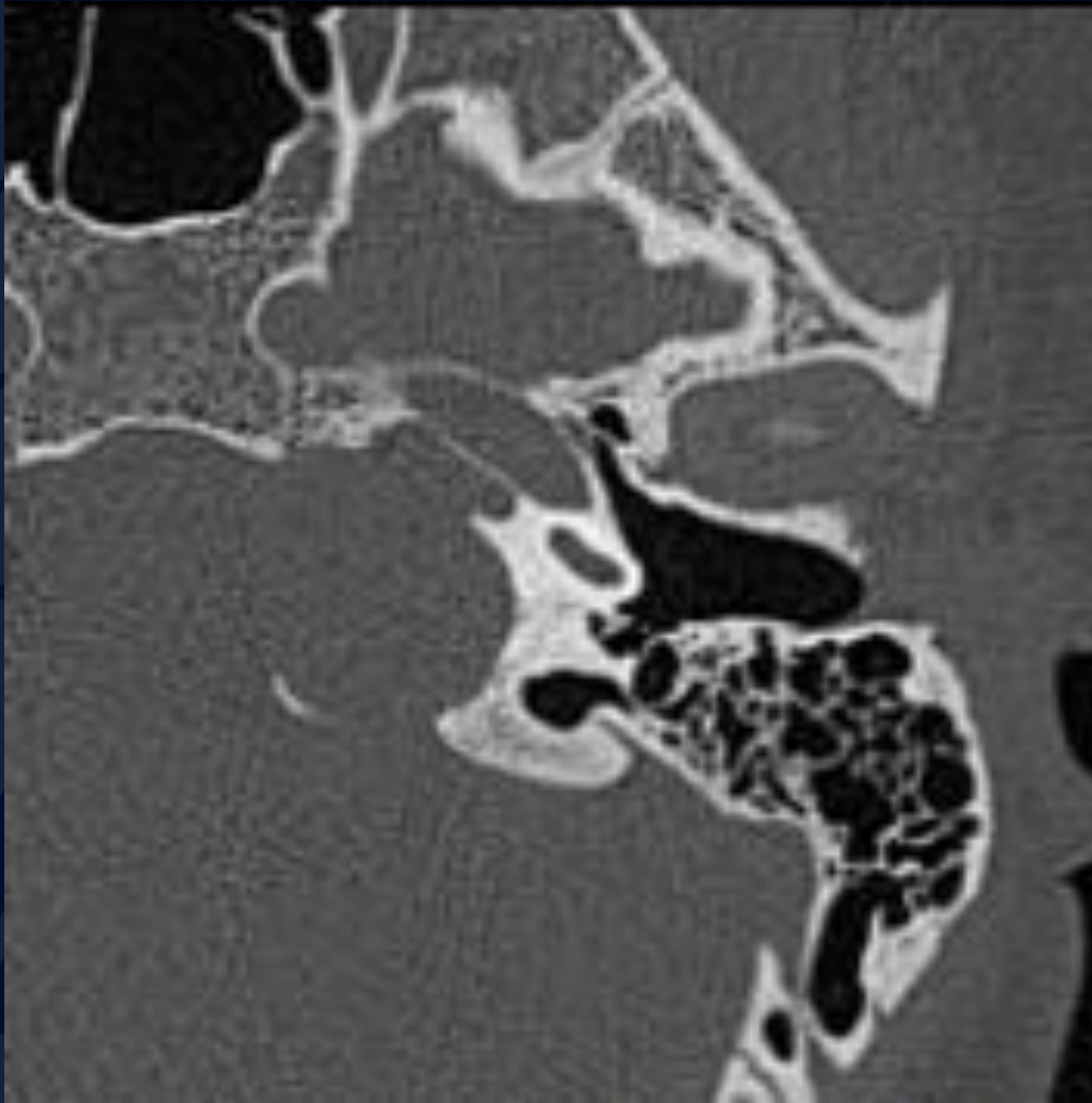
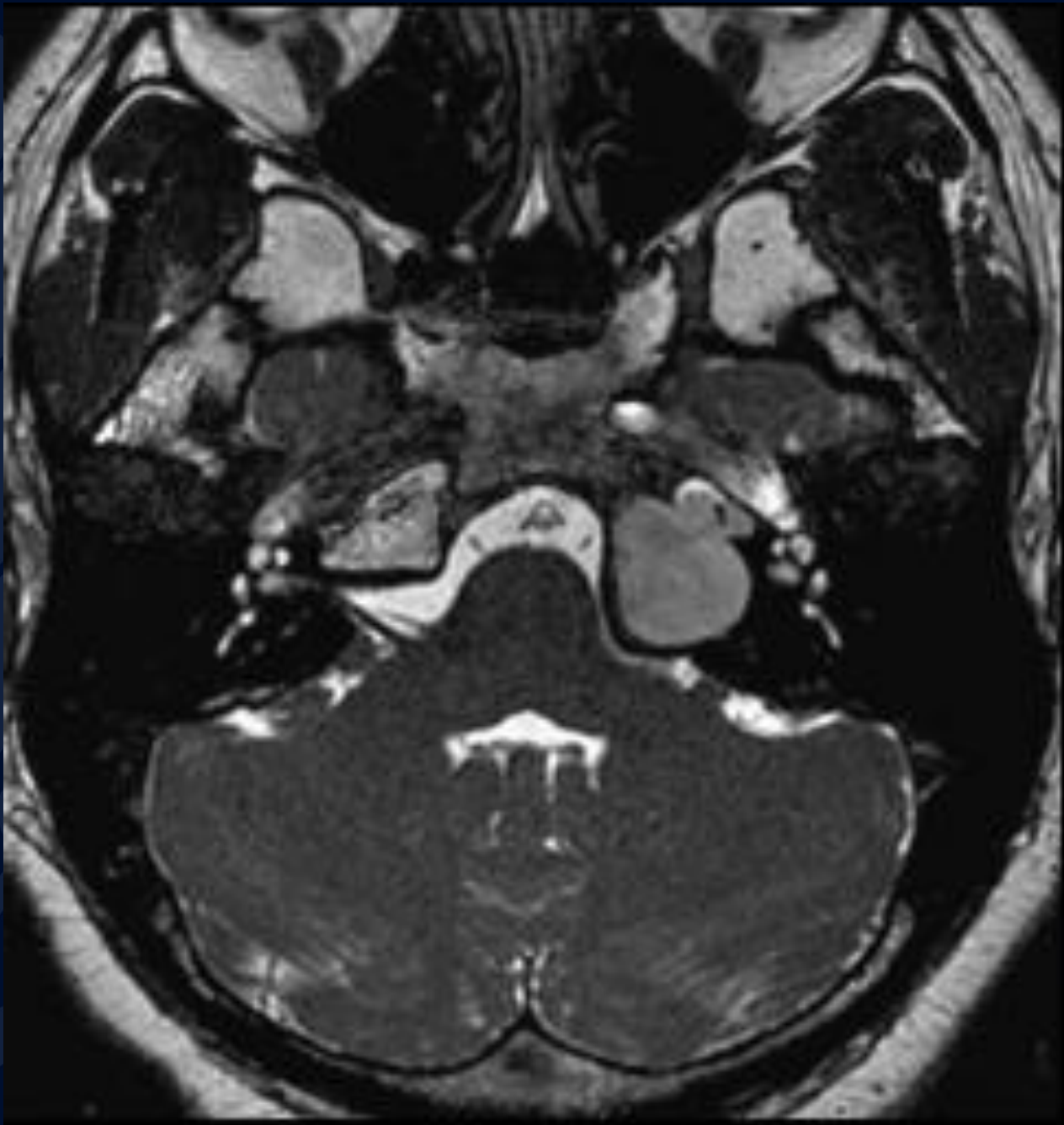


35 y/o woman presents with headache and dizziness

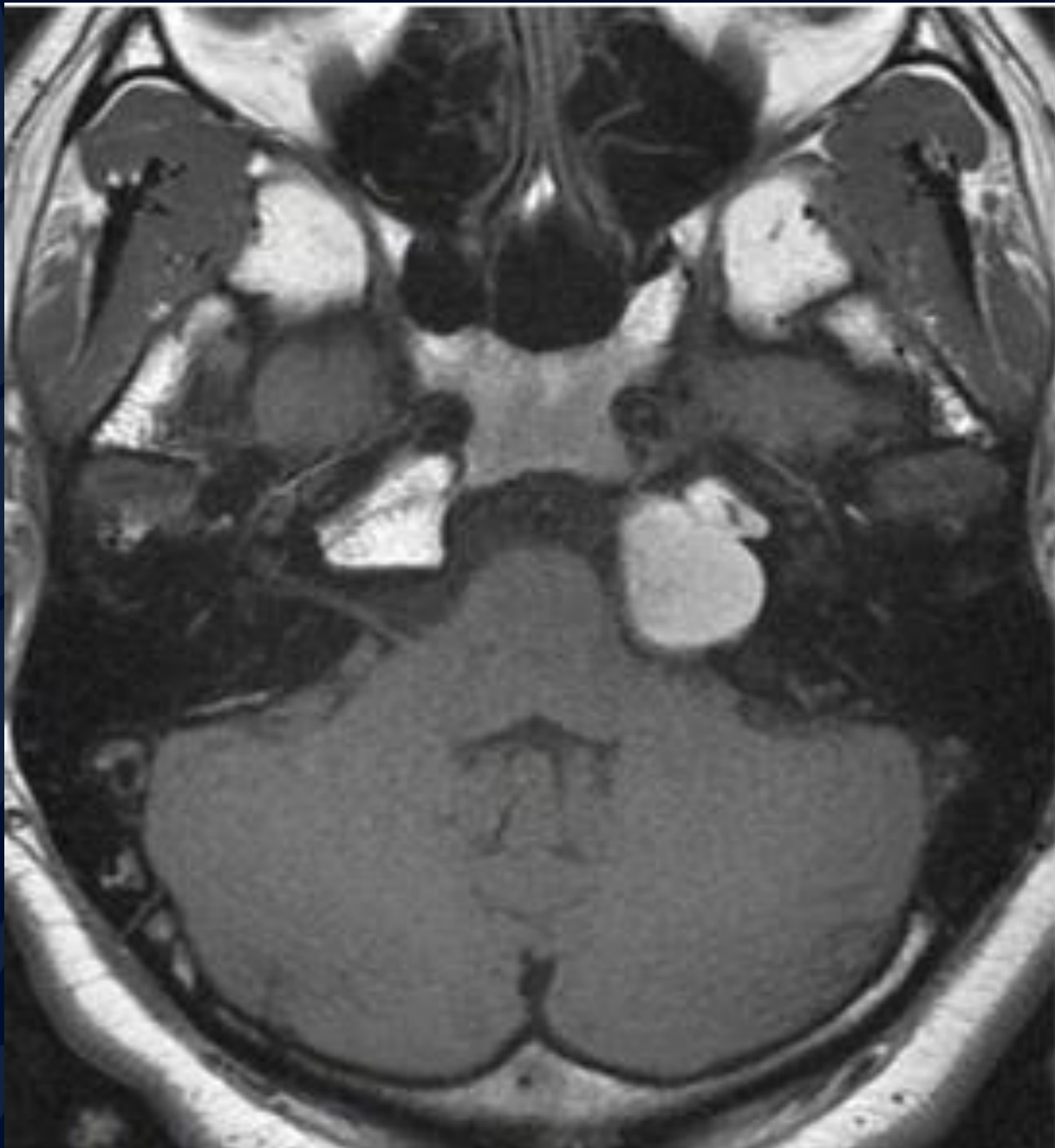
Jignesh Modi, MD



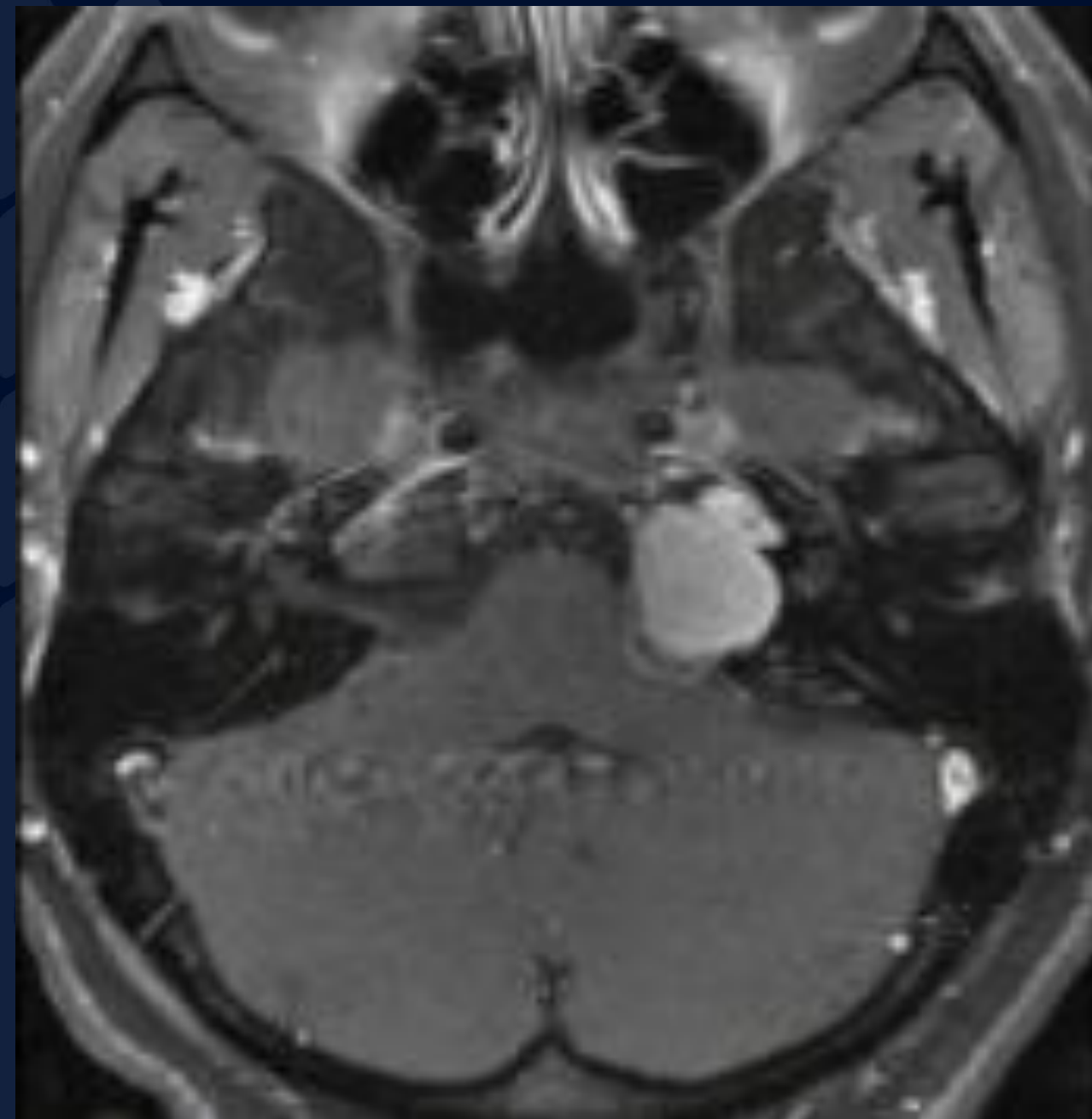
Axial CT without contrast



Axial T2 MRI



Axial T1 Pre-Contrast MRI

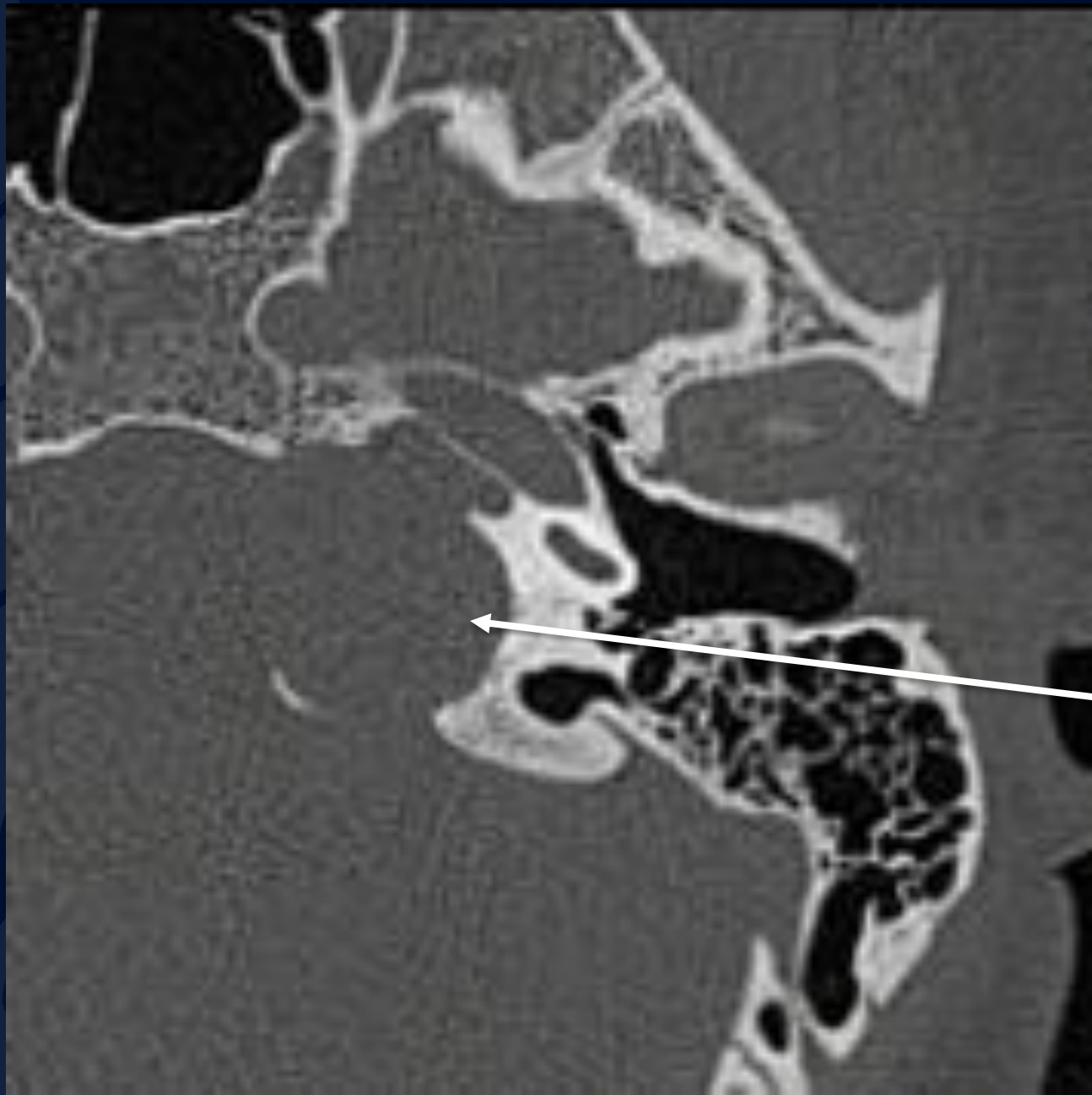


Axial T1 Post-Contrast MRI



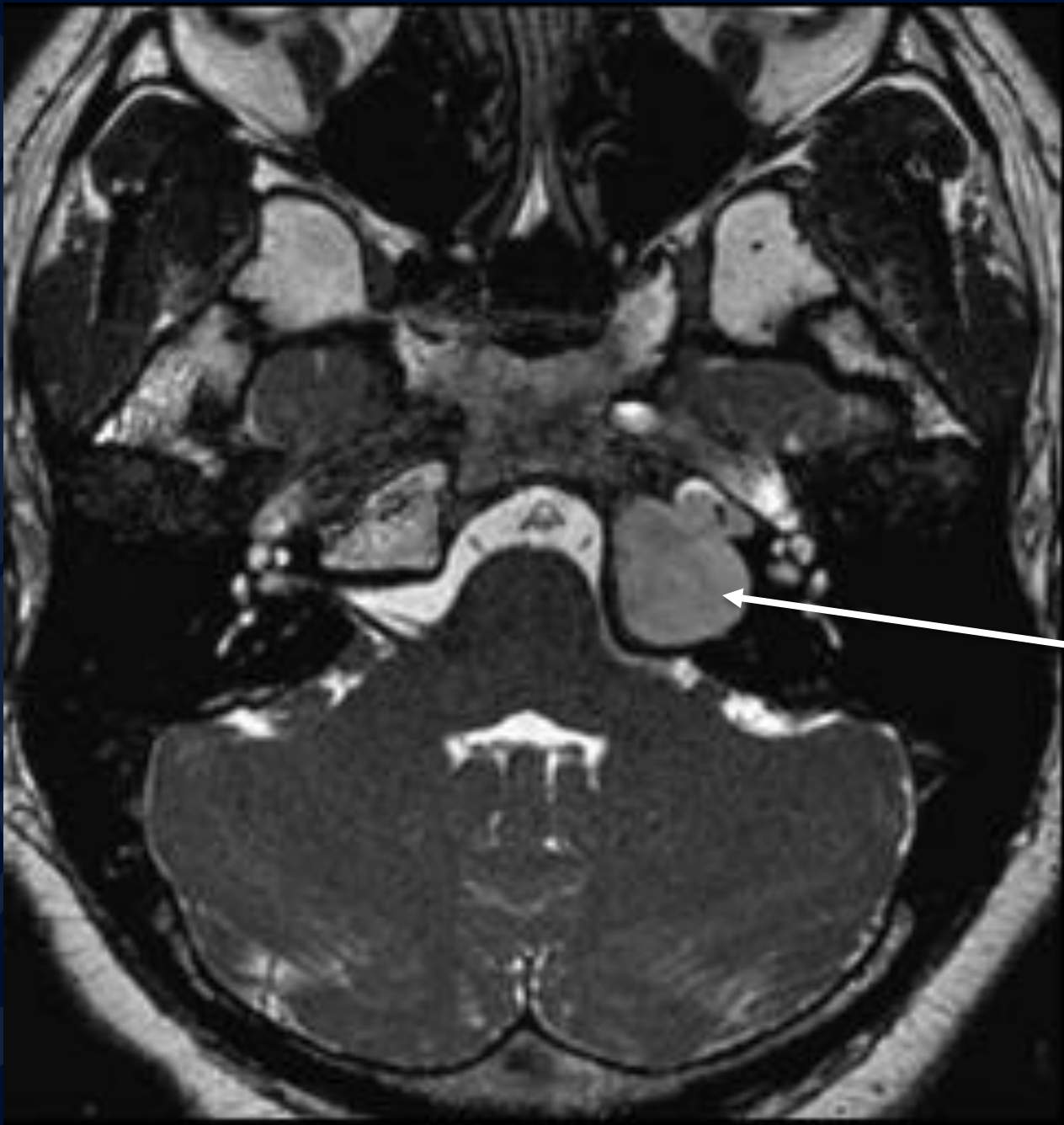
?

Cholesterol Granuloma



Axial CT without contrast

Expansile isodense lesion



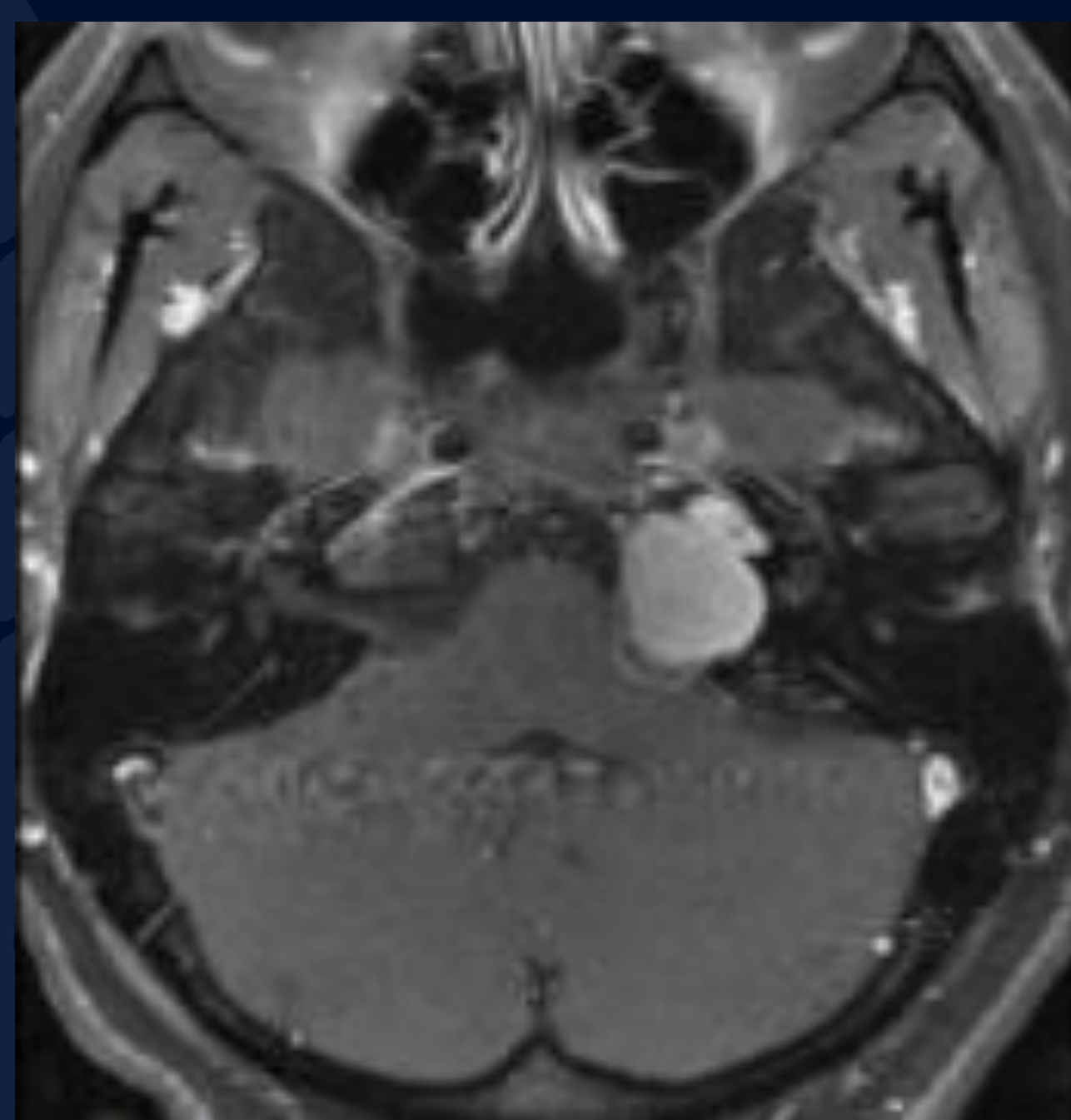
Axial T2 MRI

Expansile cystic
petrous apex lesion



Axial T1 Pre-Contrast MRI

Expansile cystic
petrous apex lesion



Axial T1 Post-Contrast MRI

No enhancement
compared to pre-
contrast images

Cholesterol Granuloma

- Slow growing extradural lesion that represents an inflammatory granulation tissue response to the presence of cholesterol crystals
- Expansile lesion arises as a result of recurrent hemorrhage into pneumatized and obstructed air cells in the petrous apex
- Presentation
 - Typically young to middle- aged patients, often with history of chronic otitis media
 - Usually present with cerebellopontine angle syndrome
 - May be asymptomatic
 - Conductive hearing loss due to middle ear effusion
 - 6th cranial nerve dysfunction and tinnitus

Imaging Features

CT

- Expansile lesion in the left petrous apex with cortical thinning and focal bone dehiscence

MRI

- Hyperintense on T1
- Hypointense rim on T2
- No restricted diffusion
- Does not enhance

Differential

- Cholesteatoma- restricted diffusion
- Glomus tumors- intense enhancement

Treatment & Prognosis

- Recommended treatment for symptomatic petrous apex cholesterol granuloma is surgical drainage with stenting of the drainage pathway
 - Placement of a stent to maintain drainage pathway may decrease likelihood of symptomatic recurrence
- Appropriate treatment decisions depend on accurate radiological diagnosis of petrous lesions. It is therefore essential to understand the relevant radiological features of the differential diagnoses of petrous apex cholesterol granuloma.

References

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Hoa M, House JW, Linthicum FH, Go JL. Petrous apex cholesterol granuloma: pictorial review of radiological considerations in diagnosis and surgical histopathology. J Laryngol Otol. 2013 Apr;127(4):339-48. doi: 10.1017/S0022215113000091. Epub 2013 Feb 26. PMID: 23442366; PMCID: PMC3763740.