

AMSER Case of the Month

February 2025

39 y/o presenting with increase in frequency of headaches.

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Patient Presentation

- A 36 yo with a history of headaches for about a year. Admits to progressive increase in frequency for headaches which are intermittent in nature. Denies any acute vision changes, numbness, tingling, weakness, and history of trauma.
- Vital signs WNL.
- Neurological exam was unremarkable.

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 7:

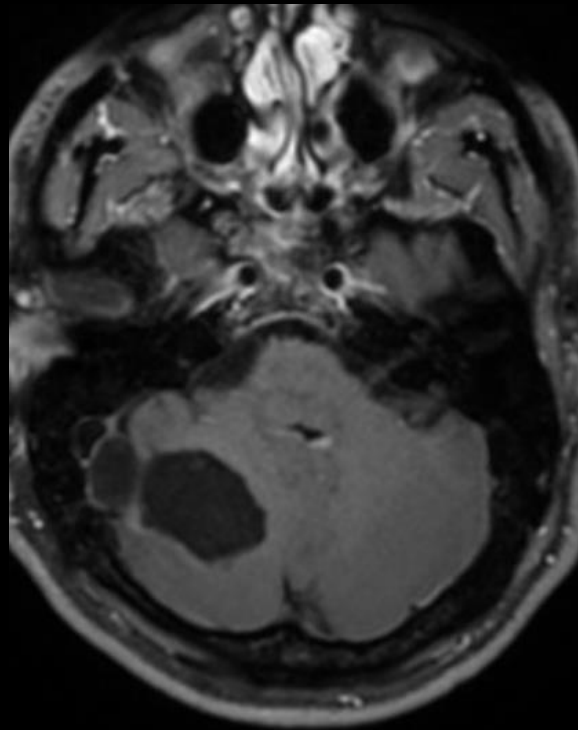
Headache with one or more of the following “red flags”: increasing frequency or severity, fever or neurologic deficit, history of cancer or immunocompromise, older age (>50 years) of onset, or posttraumatic onset. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
MRI head without and with IV contrast	Usually Appropriate	0
MRI head without IV contrast	Usually Appropriate	0
CT head without IV contrast	Usually Appropriate	☼☼☼
Arteriography cervicocerebral	Usually Not Appropriate	☼☼☼
MRA head with IV contrast	Usually Not Appropriate	0
MRA head without and with IV contrast	Usually Not Appropriate	0
MRA head without IV contrast	Usually Not Appropriate	0
MRI head with IV contrast	Usually Not Appropriate	0

This imaging modality was ordered by the Family Medicine physician

Findings (unlabeled)

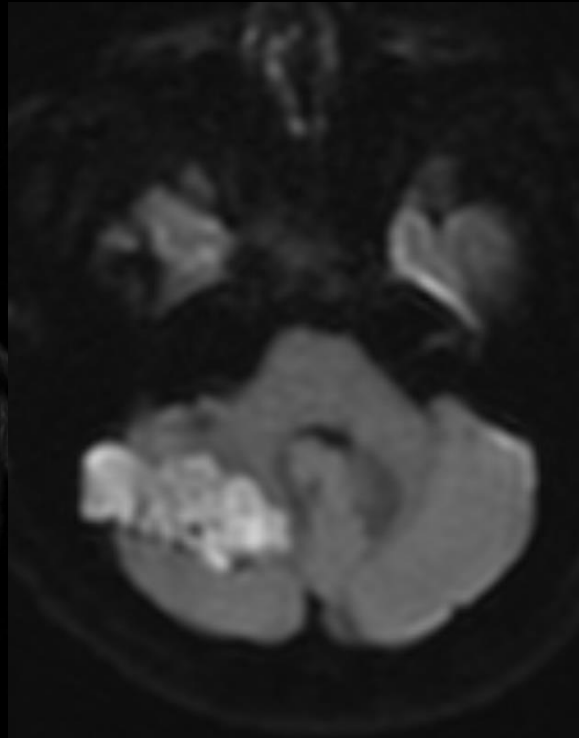
Axial T1 FS+C



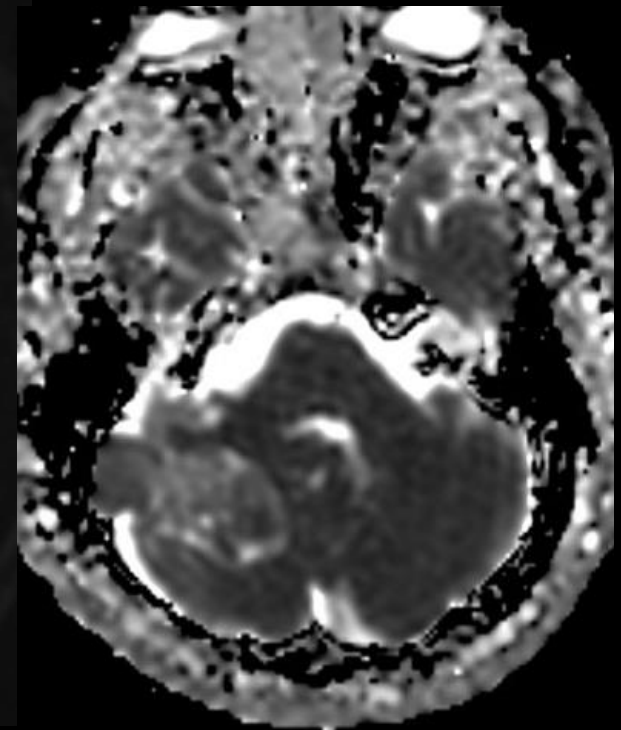
Axial T2



Axial DWI

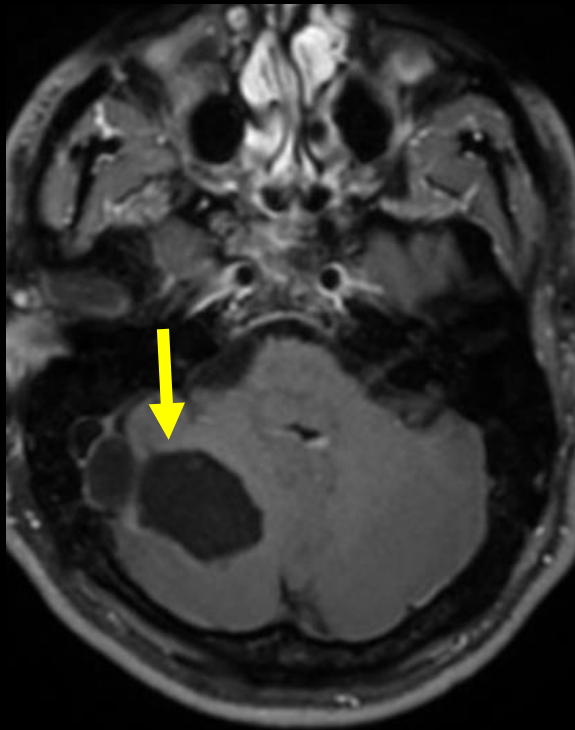


Axial ADC

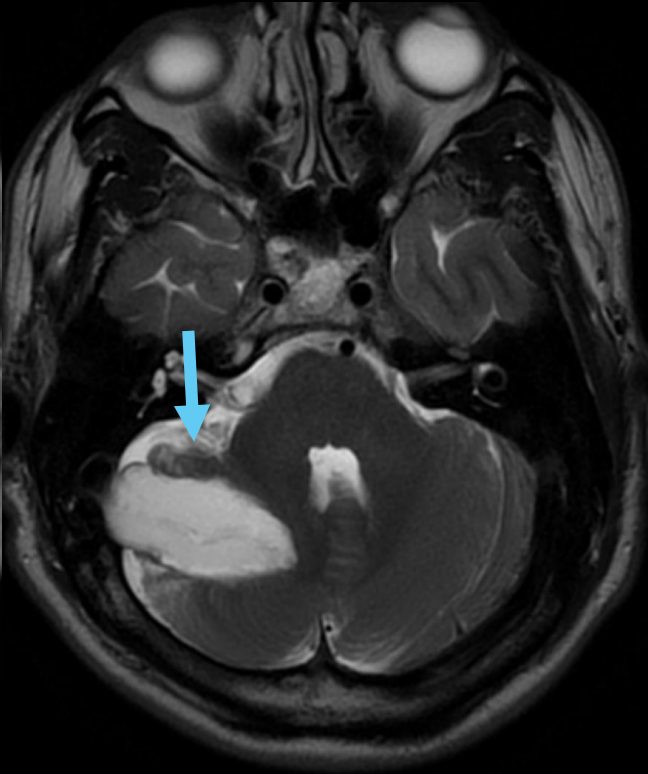


Findings (labeled)

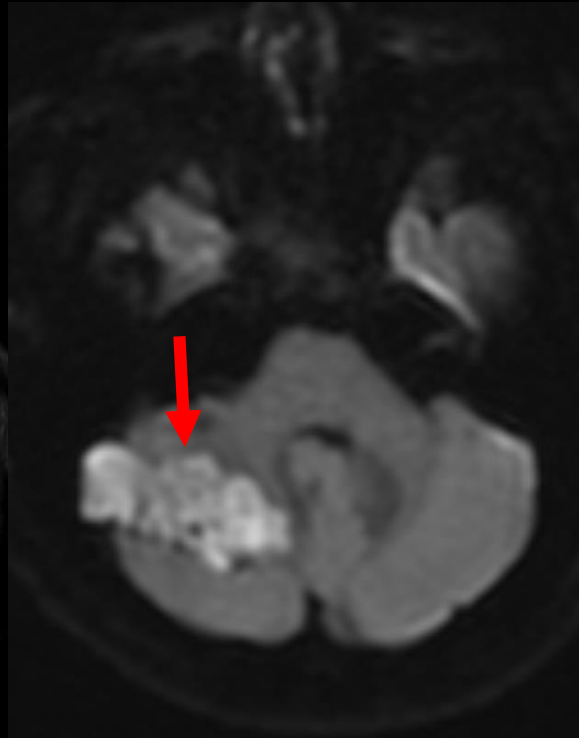
Axial T1 FS+C



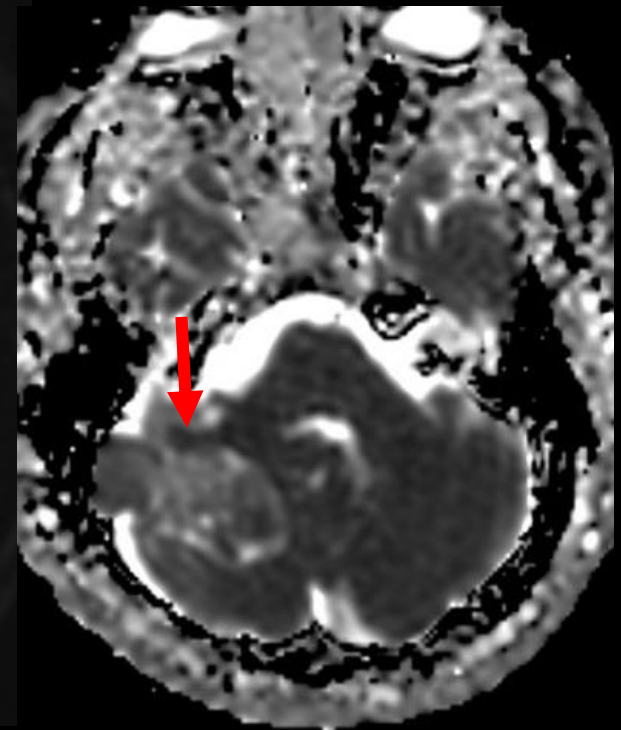
Axial T2



Axial DWI



Axial ADC



There is a **non-enhancing** T2 hyperintense lesion in the right lateral cerebellum near the cerebellopontine angle which shows **diffusion restriction**.

Final Dx:

Epidermoid Cyst

Case Discussion

- Presentation

- Symptomatic cases are due to mass effect and present as headaches (most common), cranial nerve deficits (primarily CNVII and CNVIII), cerebellar symptoms, seizures, and increased intracranial pressure.
- Typically occur in the third and fourth decades of life.
- Appear as lobulated lesions that infiltrate CSF spaces and expand around adjacent structures.

- Pathology

- Epidermoid cysts arise from ectodermal squamous epithelium and are composed of keratin debris.
- Commonly found in the cerebellopontine angle, fourth ventricle, suprasellar cistern, and posterior fossa.

Case Discussion

- Diagnosis
 - On CT
 - Epidermoid cyst presents as a mass with contents resembling CSF due to high cholesterol content
 - Peripheral calcification and hyperdense cysts can be seen in small percentage of cases
 - On MRI
 - T1 - isointense to CSF with higher signal compared to CSF in periphery
 - T2 - isointense to CSF but can be hyperintense to grey matter in a minority of cases
 - FLAIR - heterogenous signal which is higher than CSF
 - DWI/ADC - low ADC values which helps distinguish from arachnoid cysts

Case Discussion

- Treatment
 - Surgical excision is treatment of choice.
 - Complete resection can be restricted if lesion has invaded nearby neural vasculature and structures.
- Prognosis
 - Removal of cyst by excision can lead to excellent prognosis and long-term remission.
 - Recurrence is not uncommon but subsequent growth is generally slow.

References:

- Ahuja, S., Shankar, M., Mankotia, D. S., Shankar, K. B., & Zaheer, S. (2024). Epidermoid cyst of central nervous system: A case series and review of literature. *International journal of surgery case reports*, 115, 109293. <https://doi.org/10.1016/j.ijscr.2024.109293>
- Chen, C. Y., Wong, J. S., Hsieh, S. C., Chu, J. S., & Chan, W. P. (2006). Intracranial epidermoid cyst with hemorrhage: MR imaging findings. *AJNR. American journal of neuroradiology*, 27(2), 427–429.
- Gaillard F, Weerakkody Y, Garnham J, et al. Intracranial epidermoid cyst. Reference article, Radiopaedia.org (Accessed on 14 Dec 2024) <https://doi.org/10.53347/rID-1293>
- Zito PM, Scharf R. Epidermoid Cyst. [Updated 2023 Aug 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK499974/>