Persistent Primitive Trigeminal Artery (Saltzman type IIIa) with associated aneurysm

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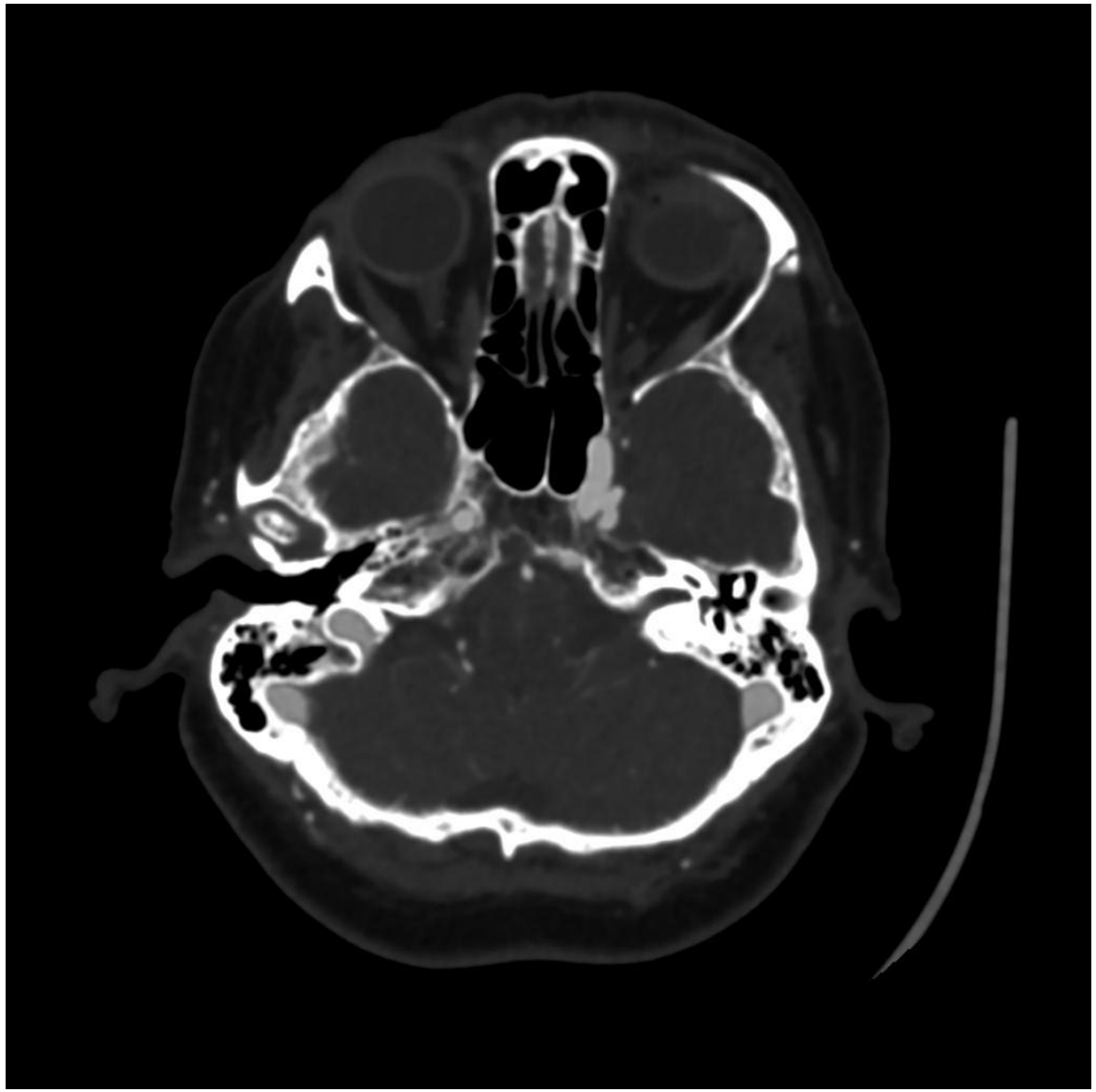
Clinical Presentation

- 58-year-old female presented to emergency department with chief complaint of dizziness

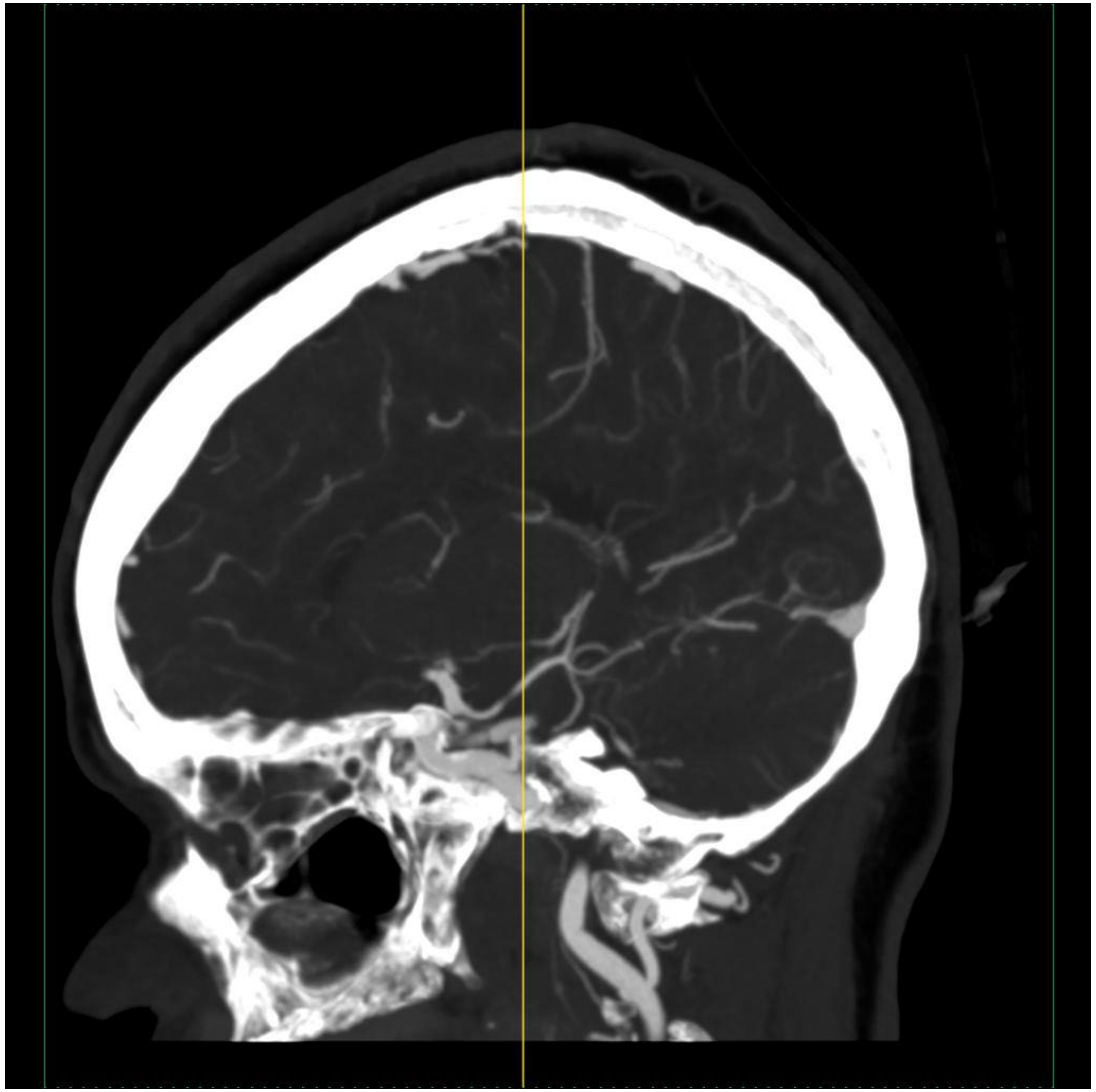
Imaging

- CTA of the head ordered
- Image 1 is an axial CTA



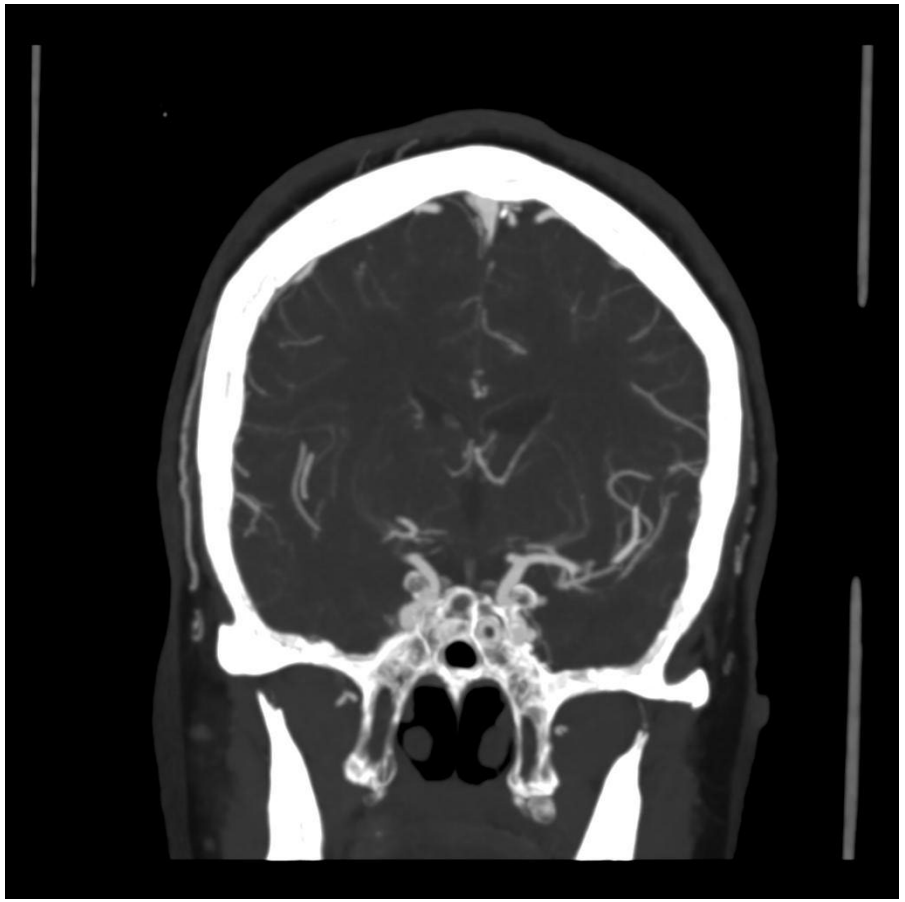
Imaging

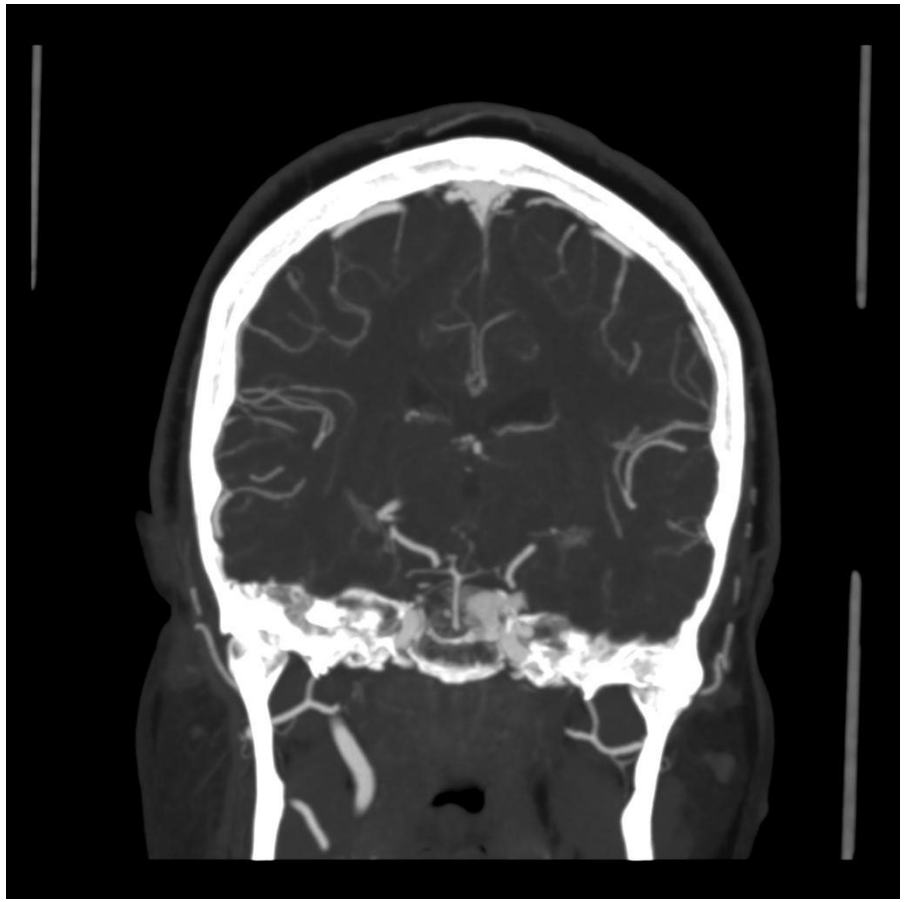
- Image 2 is a sagittal MIP CTA reconstruction



Imaging

- Images 3 and 4 are coronal MIP CTA reconstructions





Discussion

- Imaging shows a persistent primitive trigeminal artery that arises from the internal carotid artery and terminates at the superior cerebellar artery, making it a Saltzman type IIIa
- An aneurysm of the PPTA can be appreciated

Management and Outcome

- Management included follow up with neurosurgery for intervention versus surveillance
- No specific outcome for this patient to date

Take Home Points

- A PPTA may be an incidental finding and may never cause symptoms in patients. However, aneurysms of the PPTA may contribute to conditions such as trigeminal neuralgia, ocular muscle paresis (abducens nerve), and subarachnoid hemorrhage. Diagnosis of a PPTA may provide an alternative pathway for endovascular repair of aneurysms of the posterior circulation. Knowledge of PPTA in a patient prior to neurosurgical procedures, especially in transsphenoidal resection of pituitary adenomas, may prevent excessive bleeding during surgery.

References

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- Wang, Yiheng, and Jinlu Yu. “Clinical importance of the persistent primitive trigeminal artery in vascular lesions and its role in endovascular treatment.” *Frontiers in Neurology*, vol. 13, 11 July 2022, https://doi.org/10.3389/fneur.2022.928608.