# Petrous Internal Carotid Artery Aneurysm. A Rare Vascular Abnormality.

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## Background

- Aneurysms of the internal carotid artery near the circle of Willis are not uncommon.
- They are often asymptomatic unless ruptured.
- Aneurysms proximal to the circle of Willis are extremely rare and can have atypical presentations.
- A recent systematic review indicates only 107 cases reported to date[1], although the exact incidence remains unknown.

## Objective

- To describe the associated findings with proximal internal carotid artery aneurysms, which are rare but essential to recognize for their often atypical presentation and potentially severe adverse sequelae.

## Case Report Details

- 77 y/o patient with a history of left cerebellar stroke with bilateral occipital encephalomalacia presented to the outpatient clinic with complaints of dizziness and underwent evaluation for positional vertigo.
- Initial CT imaging demonstrated atrophy of the right frontal and left occipital lobes and a 6.5mm aneurysm of the left petrous internal carotid artery with 50% stenosis of the left carotid artery.
- Amenability to endovascular therapy was indeterminate on noninvasive CT imaging.
- A diagnostic cerebral angiogram was performed, confirming the findings.
- The patient was taken for endovascular embolization and recovered uneventfully with complete resolution of vertigo symptoms.

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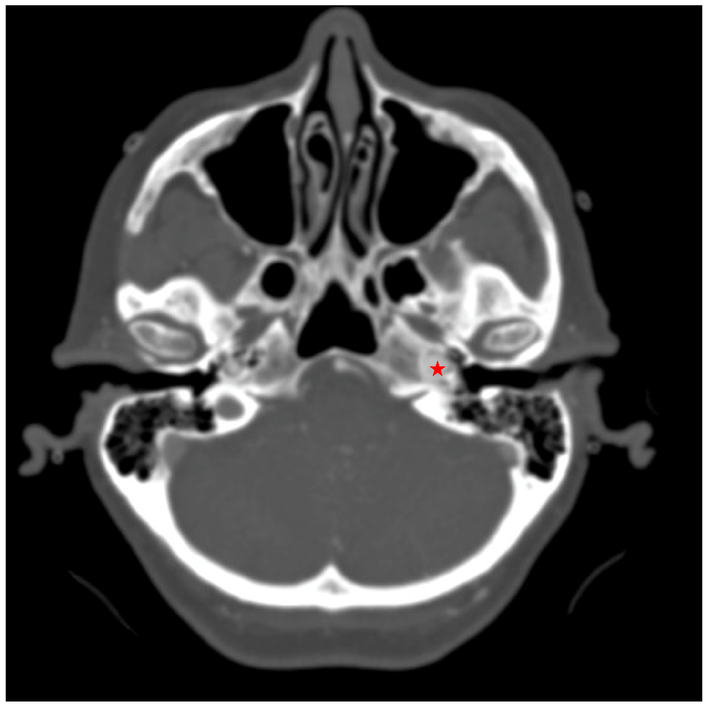
## Imaging



- Axial section from CT Head without contrast. Star indicates location of left petrous ICA aneurysm.

- 3 dimensional angiography reconstruction of vasculature. Red arrow indicates aneurysm.

## Discussion

- The internal carotid artery constitutes the anterior circulation of the brain.
- Classically divided into seven separate regions[2]:
  - Cervical (C1)
  - Petrous (C2)
  - Lacerum (C3)
  - Cavernous (C4)
  - Clinoid (C5)
  - Ophthalmic or Supraclinoid (C6)
  - Communicating or Terminal (C7)
- The communicating portion is a part of the circle of Willis and is a typical region for cerebral aneurysms to develop.
- Aneurysms of the petrous portion can present atypically with recurrent epistaxis, pulsatile tinnitus, otalgia, and as in our case, symptoms of vertigo.

## Conclusion

- Although extremely rare, Identifying these lesions is essential as a rupture is unamenable to endovascular procedures and results in significant morbidity and mortality[3]

## References

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