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Excerpta Abstract
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Aberrant Internal Carotid Artery

Kinsey Lano M.D. (1), Charlie Lano B.S. (2), Elliott Friedman M.D. (1)

Houston Methodist Hospital (1), University of Texas at Houston McGovern Medical School (2)

Clinical History

A 64 year-old female with a past medical history of hypertension presented to the emergency department with sudden onset dizziness, described as the room spinning, and several episodes of nonbloody vomiting. The patient had a similar episode 3 years prior for which she was evaluated by neurology and started on meclizine. On a physical exam, the patient had no nystagmus, no focal deficits, and ambulated normally. No otoscopic exam was performed. CT head and CTA neck were unremarkable.

Imaging Findings

CTA head demonstrated no large vessel or proximal branch occlusion or hemodynamically significant stenosis. However, aberrant right internal carotid artery (ICA) with deficiency of the carotid plate and ICA traversing an enlarged inferior tympanic canaliculus was incidentally demonstrated.

Discussion

It is thought that approximately 1% of the population has an aberrant ICA, which forms as a response to involution of the cervical segment of the ICA during embryonic development. Consequently, the inferior tympanic artery (branch of external carotid artery) and caroticotympanic artery (branch of the petrous portion of the ICA) enlarge to rejoin the horizontal segment of the petrous portion of the ICA. Clinically, most patients are asymptomatic, however few patients may experience hearing loss, vertigo, or pulsatile tinnitus. On diagnostic imaging, there is an enlarged tympanic canaliculus with visualization of the artery passing through the middle ear across the cochlear promontory. There may also be an association with the presence of a persistent stapedial artery, which normally regresses in the third fetal month. On an otoscopic exam, an aberrant ICA may appear as a retrotympanic vascular mass with or without pulsation. It is crucial that this is not mistaken for a paraganglioma and biopsied. Aberrant ICA may also be mistaken for a petrous ICA aneurysm. Treatment is rarely indicated, but for those with severe symptoms, synthetic material may be placed between the artery and ossicles.

Teaching Point

Recognizing and documenting the aberrant ICA is crucial, especially in patients who may receive otologic assessment or intervention.

References

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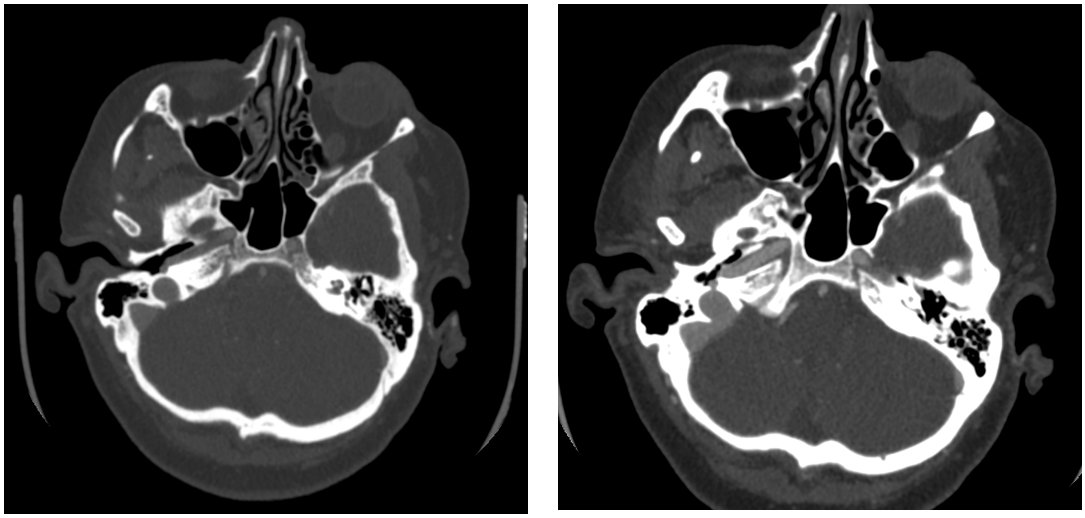
Figures



Images 1 and 2: Axial CTA head demonstrating right aberrant ICA traversing an enlarged inferior tympanic canaliculus with deficiency of the carotid plate.

Summary of Work

Case report of an incidental aberrant internal carotid artery found in a 64 year-old female who presented with dizziness, nausea, and vomiting during work up for acute stroke. The discussion highlights the anatomy and development of the aberrant ICA, clinical symptoms, imaging findings, physical exam findings, and the rare indication for treatment. It is crucial that an aberrant ICA is recognized prior to otologic intervention and/or not mistaken for a paraganglioma and biopsied. The included CTA head highlights the aberrant ICA traversing an enlarged inferior tympanic canaliculus.