

Pulsatile Tinnitus: A rare warning sign of an impending stroke?

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Introduction

- Tinnitus is the perception of sound, often described as a ringing or whistling, without an external stimulus.
- While tinnitus is present in up to 10% of the population. Pulsatile tinnitus, described as a “whooshing and rhythmic” sound is an uncommon variation in up to 4% of patients with tinnitus.
- Pulsatile tinnitus can be vascular or non-vascular.
- Vascular tinnitus occurs due to turbulent blood flow and has been associated with benign intracranial hypertension, vascular stenosis/malformations, and glomus tumors

Case Description

- A 65-year-old Pakistani man with a past medical history of hypertension, hyperlipidemia, type 2 diabetes mellitus, and tobacco use presented to the emergency room with progressively worsening left-hand numbness. He also reported an unusual “whooshing” sound in his right ear, increasing with flexion of his neck towards the right side which started about 6 weeks prior to presentation.
- He denied any other associated focal neurological symptoms. He was evaluated at a local hospital for tinnitus and was reassured. He came to the United States 3 weeks before this hospitalization.

Diagnosis and management

- Neurological examination was notable for horizontal nystagmus, pronator drift on the left arm, 4/5 muscle strength of the left upper and lower extremity, and 5/5 strength of the right upper and lower extremity.
- CT brain revealed acute and subacute infarcts of the right carotid artery territory involving the right frontal and parietal lobes. MR Angiography (MRA) demonstrated 80% occlusion of the cavernous segment of the right internal carotid artery. (Figure 1 with pointer)
- The patient was treated for acute stroke, secondary to arterial embolization from the critical stenosis of the right internal carotid artery. Neurology and Neurovascular surgery were consulted, and he was managed with antiplatelet medications and anticoagulation due to the substantial risk of subsequent stroke. The patient was discharged home with a strong recommendation to quit smoking.

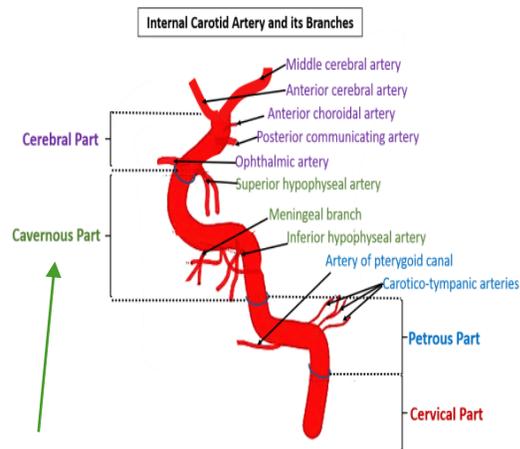


Figure 1

Discussion

- Vascular tinnitus is a rare yet crippling symptom that can greatly affect the quality of life. It can be a benign symptom in some cases; however, it may also indicate an underlying serious abnormality. Arterial aneurysms, arterio-venous malformations, carotid-cavernous fistula, atherosclerotic stenosis, highly vascular tumors like paragangliomas, uncontrolled hypertension, pseudo-tumor-cerebri, or a neuromuscular degenerative condition causing abnormal muscular spasms, can all cause pulsatile tinnitus.
- Sometimes, it may be the only warning symptom of an impending cerebrovascular accident. The pulsatile tinnitus in our patient was likely a manifestation of worsening arterial stenosis from a plaque rupture which subsequently led to embolization and stroke in the next few weeks.
- Prompt imaging with MRA/MRI or CT angiogram helps to pinpoint the problem and treat it appropriately before permanent neurological damage occurs, preventing significant morbidity and mortality.
- We present this case to make physicians aware of this rare, but potentially dangerous symptom and to emphasize the need for prompt evaluation.

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