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Title

An Unusual Case of Mastoiditis Presenting as Pulsatile Tinnitus

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Mastoiditis is most commonly associated with children and is relatively rare in adults. When it does occur in adults, it can often be associated with atypical features. We present a case of mastoiditis in an adult presenting with pulsatile tinnitus.

A 58-year-old female with a history of well-controlled type 2 diabetes presented to primary care clinic for two weeks of left anterolateral neck pain and left-sided hearing loss accompanied by an intermittent pulsating whooshing sound that was keeping her up at night.

Notably, she had been under the care of a neurologist for a history of chronic migraine without aura. These migraines were often associated with left-sided headaches, left facial sensory changes, and unilateral tinnitus. However, the tinnitus had become pulsatile and more severe over the past two weeks. Ten days prior, the patient had presented to urgent care for two days of left-sided otalgia, diagnosed with otitis externa, and given Ciprodex drops for seven days, which she had recently finished without symptom relief.

Physical examination revealed unremarkable vital signs; white, scaly debris in the left external auditory canal; tenderness of the left temporomandibular joint; and tenderness of the left sternocleidomastoid muscle. Subsequent MRI/MRA of the brain and neck showed no flow-limiting stenosis or occlusion, and no evidence of vascular anomaly or malformations. However, imaging did reveal a large left mastoid and middle ear effusion, along with mucosal thickening and enhancement of the left external auditory canal, suspicious for otomastoiditis. The patient was subsequently sent to the emergency department, where a CT of the temporal bones confirmed the diagnosis and notably showed no evidence of venous sinus thrombosis. The patient was admitted for intravenous antibiotics with ENT consultation, and her symptoms eventually resolved following a four-week course of antimicrobials.

Pulsatile tinnitus is classically associated with a variety of vascular conditions, and no direct connection has been widely described between mastoiditis and pulsatile tinnitus. Proposed mechanisms include altered venous flow dynamics, as a few case reports have demonstrated pulsatile tinnitus arising from abnormal mastoid emissary veins. This case highlights the challenging diagnostic nature of pulsatile tinnitus and underscores the importance of a nuanced evaluation and a broad differential diagnosis in the primary care setting.