

Table 1

					Cause	History
	Nonvascular			Palate and Middle Ear Myoclonus	Stapedius	
					Tensor tympani	
					Tensor veli palatini	
					Superior constrictor	
				Middle Ear Pathology	Superior Semicircular Canal Dehiscence	
					Otosclerosis	
					Temporal Bone Trauma	
				Neurologic	Multiple Sclerosis	
					Cerebrovascular Accident	
					Brainstem infarction	
				Malformations	Syphilis	
					Paget's Disease	
					TMJ/Dental malocclusion	
					Somatic Muscle Tension	
					Idiopathic	
Pulsatile Tinnitus	Vascular	Arterial	Medical	Cardiovascular Disease	Aortic stenosis	
					Carotid stenosis	
					Hypertension	
					Carotid artery dissection	
					Aneurism	
				Increased Cardiac Output	Anemia	
					Caffeine	
					Medications	Ototoxic medications (eg chemotherapy, NSAIDS, aminoglycosides, herbal supplements)
					Pregnancy	
					Hyperthyroidism	
				Systemic Disease	Fibromuscular dysplasia	Uncontrolled hypertension
					Takayasu disease	
			Anatomic	Neoplastic	Paraganglioma (Glomus)	
					Others	
				Arterovenous malformation		Very loud, unbearable tinnitus
				Arterovenous fistula		

					Cause	History
					Tortuous Internal Carotid Artery	
					Remnant stapedial artery	
					Vascular Compression of the 8th nerve	Compression from variant anatomy of the anterior inferior cerebellar artery (AICA) or the posterior inferior cerebellar artery (PICA)
		Venous	Increased Intracranial Pressure		Idiopathic Intracranial Hypertension	
					Arnold Chiari Syndrome	
			Malformations/ Abnormalities		Jugular Bulb Abnormalities	
					Abnormal Emissary Veins	
			Stenosis		Sigmoid Sinus Stenosis	
			Physiologic		Venous Hum	

Notes:

Audiogram, history, physical exam

Patients with focal nerve deficits are candidates for brain imaging, either CT or MRI, to evaluate for more serious causes of pulsatile tinnitus.

IIH, which can be diagnosed by normal brain CT/MRI and increased opening pressure on lumbar puncture. Performing an optic exam on these patients may reveal papillo-

Some treatments for tinnitus, such as decreasing caffeine intake, cognitive behavior therapy, tinnitus retraining therapy, and sound therapy, may be offered to patients, but

	Physical Exam	Testing
	Rhythmic movement of tympanic membrane during pulsatile tinnitus	
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		Characteristic audiogram findings
		Fine cut temporal bone CT
Pulsatile Tinnitus		
		Dopplers should be ordered for suspected carotid stenosis before ordering more advanced radiological studies, but may not be helpful in non-carotid arterial causes.
		CTA, MRA

	Physical Exam	Testing
	*	If the audiogram shows a low-frequency loss of at least 20 dB, it is appropriate to repeat an audiogram with light pressure over the ipsilateral internal jugular vein. The resolution of deficit may be suggestive of IIH.
	*=Compression of ipsilateral venous structures may decrease symptoms in venous etiologies such as a high-riding jugular bulb, while compression of the contralateral side may increase symptoms. Rotation of the head to the ipsilateral side of the tinnitus may also decrease symptoms in patients with pulsatile tinnitus due to venous pathology. Similarly, the Valsalva maneuver may reduce symptoms with a venous cause.	& = MRV better evaluates venous etiology.
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