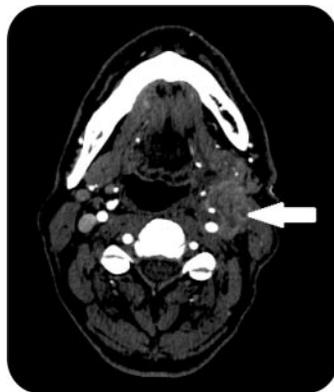


Teaching NeuroImages: An unusual case of syncope

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Figure 1 CT angiogram of the neck



A mass with cystic and solid components surrounding the left carotid bifurcation.

A 64-year-old man presented with recurrent episodes of syncope with bradycardia and hypotension, not resolved by pacemaker placement. Examination revealed a hoarse voice and bradycardia with hypotension on palpation of the left carotid artery. A CT angiogram of the neck revealed a mass surrounding and compressing the left carotid bifurcation (figure 1), confirmed on a conventional angiogram (figure 2). A biopsy of the mass was consistent with squamous cell carcinoma. Dysfunction of the carotid sinus/bulb by metastatic compression or invasion is a rare cause of syncope where pacemakers may be ineffective due to the presence of a vasodepressor mechanism.^{1,2}

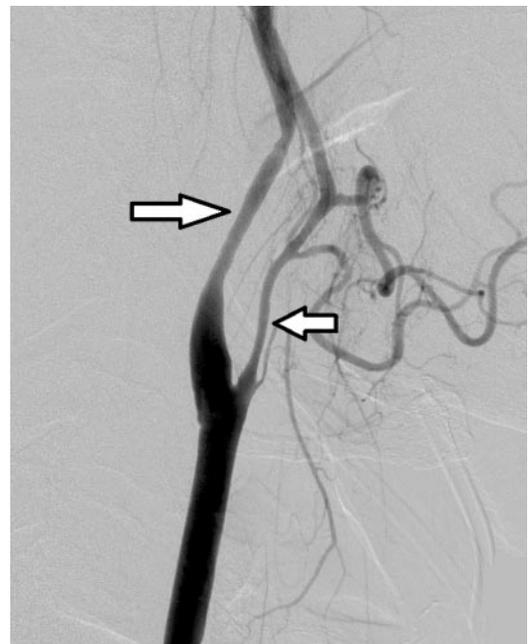
AUTHOR CONTRIBUTIONS

Dr. Carbunar: conceptualization of the study and drafting the manuscript. Dr. Aiyagari: revising the manuscript for intellectual content.

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1. Worth PF, Stevens JC, Lasri F, et al. Syncope associated with pain as the presenting feature of neck malignancy: failure of cardiac pacemaker to prevent attacks in two

Figure 2 Left carotid angiogram



Narrowing of the proximal internal and external carotid arteries compared to the caliber of the vessels distally.

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MYSTERY CASE RESPONSES

The Mystery Case series was initiated by the *Neurology*[®] Resident & Fellow Section to develop the clinical reasoning skills of the trainees. Residency programs, medical student preceptors, and individuals were invited to use this Mystery Case as an education tool. Responses were solicited through a group e-mail sent to the AAN Consortium of Neurology Residents and Fellows and through social media.

There were 14 responses to this Mystery Case. All the answers that we received came from individual

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residents rather than groups and they were all well-reasoned and thoughtful. The majority of respondents (13) considered a malignancy involving or compressing the carotid sinus as the most likely diagnosis. The most common etiology that was proposed was a neck malignancy (7) or a glomus tumor, also known as glomangioma or carotid paraganglioma (6). Other differential diagnoses included carotid aneurysms, Villaret syndrome (ipsilateral paralysis of the IX, X, XI, XII, and sometimes the VII cranial nerves and the cervical sympathetic fibers caused by a lesion in the posterior

retroparotid space), Collet-Sicard syndrome (Villaret syndrome unaccompanied by Horner syndrome), glossopharyngeal and vagal neuralgia. All respondents indicated the need for further neck vascular imaging, either CT/CTA or MRI/MRA.

This Mystery Case illustrates a rare cause of syncope in which a pacemaker may be ineffective due to the presence of a direct irritant of the cardiodepressor mechanism.

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