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## Visual Case Discussion

## 87 yo female with vertigo, slurred speech and ataxia

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## ARTICLE INFO

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An 87-year-old female presented to triage with sudden vertigo, slurred speech, and ataxia three hours prior to arrival. Initial blood pressure was 178/72. A stroke alert/code was activated, and CT brain did not reveal significant abnormalities. Initial NIHSS was 4. Upon re-examination, all symptoms had resolved except for mild vertigo. Neurology had low suspicion for stroke or TIA due to such rapid improvement in symptoms. Further history revealed left arm pain and worsening of the neurologic symptoms with exercise and left arm movement. CT angiogram revealed complete occlusion of the origin of the left subclavian artery. Laboratory evaluation was unremarkable (Figs. 1 and 2).

Subclavian steal syndrome (SSS) is caused by a narrowing of the

subclavian artery proximal to the vertebral artery wherein, during exercise, blood is shunted from the vertebrobasilar system to the subclavian artery. [1] SSS is usually asymptomatic but may present with symptoms of arm claudication and posterior cerebral circulation deficits. [2] Mild symptoms may be treated with risk factor mitigation and more severe symptoms may require balloon angioplasty and stenting. [3]

Our patient demonstrates the importance of considering other causes of posterior circulation stroke symptoms, such as SSS, which may be suggested by arm claudication and is confirmed with angiography. Fortunately, our patient did well with conservative treatment and did not require vascular surgical intervention.

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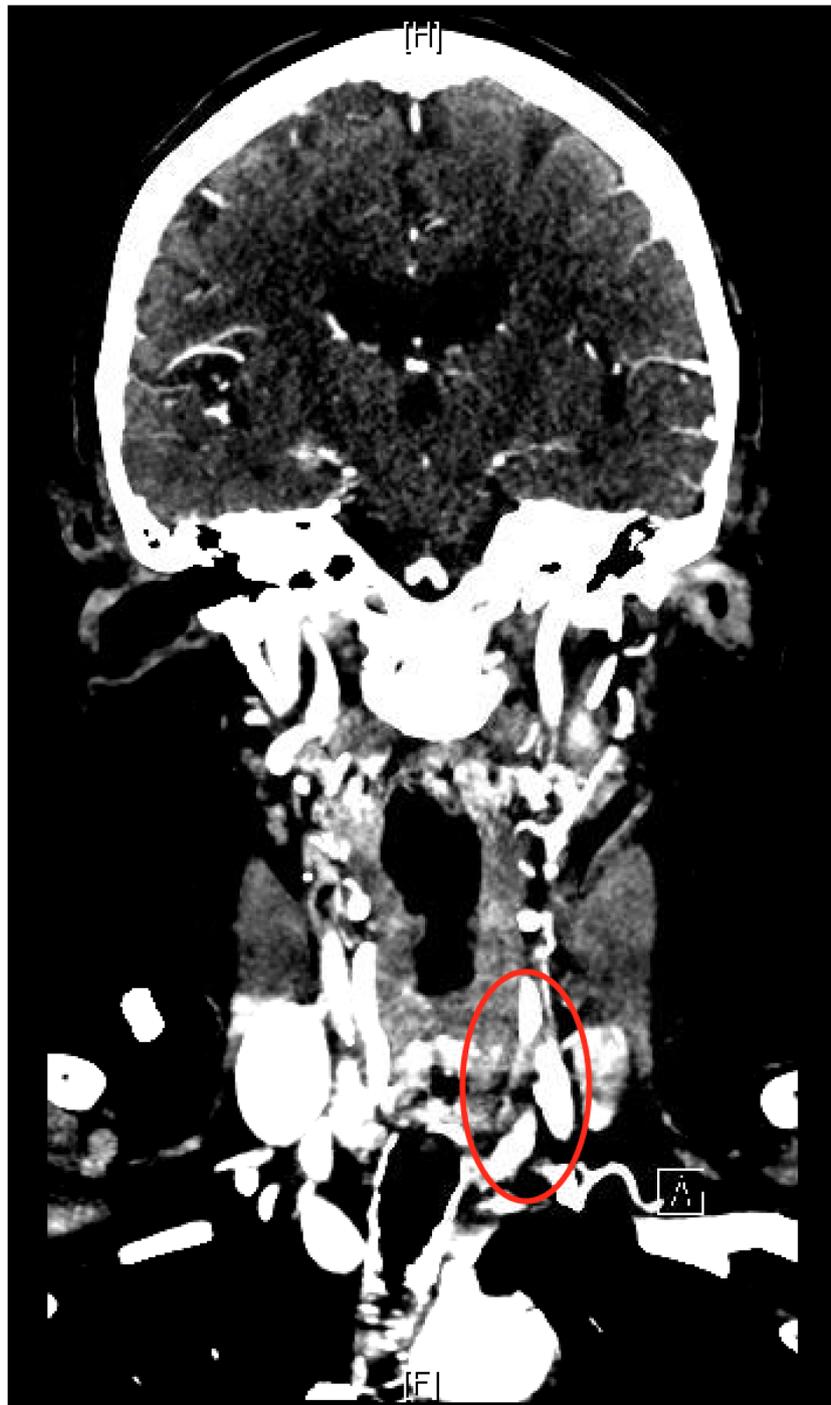
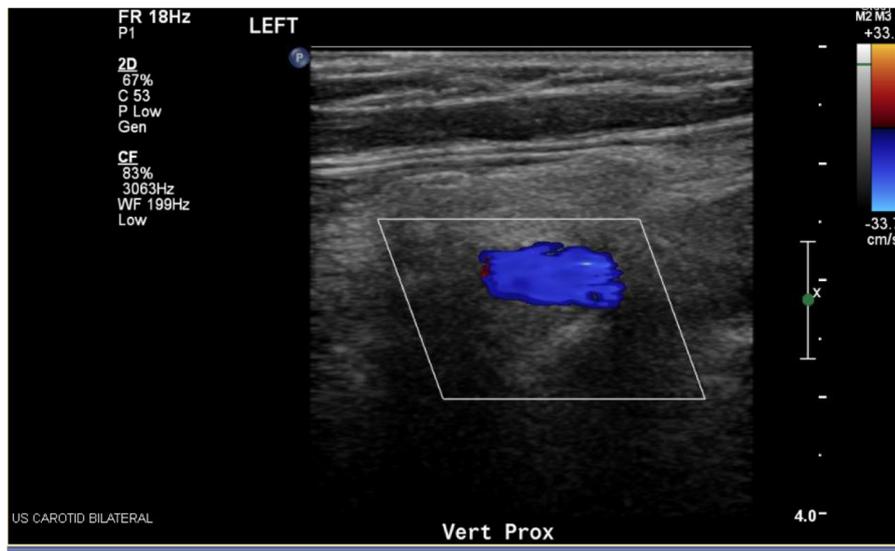


Fig. 1. There is an occlusion at the origin of the left subclavian artery, demonstrated by a lack of contrast filling, consistent with subclavian steal syndrome.



**Fig. 2.** There is retrograde flow within the left vertebral artery, demonstrated by blue color doppler, suggestive of subclavian steal syndrome. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

### Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.visj.2018.11.011](https://doi.org/10.1016/j.visj.2018.11.011).

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### Questions

1. Subclavian Steal Syndrome is usually asymptomatic but may present with?
  - a. Exercise induced ipsilateral arm pain and fatigue
  - b. Vertigo
  - c. Nystagmus
  - d. Ataxia
  - e. All of the above

2. Duplex ultrasound alone is adequate to diagnose subclavian steal syndrome.
  - a. True
  - b. False

### Answers

1. All of the above. Explanation: Subclavian steal syndrome, although typically asymptomatic, may present with symptoms of upper extremity ischemia including exercise induced ipsilateral arm pain, fatigue, coolness, paresthesias, or numbness as well as neurologic symptoms caused by vertebrobasilar ischemia of the brain including, but not limited to, dizziness, vertigo and ataxia.
2. True. Explanation: Duplex ultrasound can readily diagnose subclavian artery stenoses and demonstrate reversal of flow, if present, in the ipsilateral vertebral artery which confirms the diagnosis of subclavian steal syndrome.