

Stolen Flow Revealed by the Cuff: Incidentally Diagnosed Subclavian Steal Syndrome

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Introduction

Subclavian steal syndrome (SSS) results from stenosis of the subclavian artery occurring proximal to the origin of the ipsilateral vertebral artery, resulting in hemodynamic reversal of vertebral artery blood flow. Discrepant blood pressure readings between arms is a common sign of SSS and initial screening can be done with duplex ultrasound. This case highlights an incidental diagnosis of SSS in an asymptomatic patient, prompted solely by a marked discrepancy in bilateral blood pressure readings.

Case

- A 76 yo male with a history of hypertension, alcohol use disorder, chronic dizziness, and abdominal aortic aneurysm repair was admitted for management of right upper quadrant pain.
- A systolic blood pressure discrepancy of >50 mmHg was noted between his arms, with a left arm of 82/49 mmHg and right arm 134/56 mmHg. Patient was asymptomatic with no arm pain or neurological symptoms.
- A CT angiography scan was ordered for further evaluation of discrepancy, showing complete occlusion of the proximal left subclavian artery with reconstitution via the left vertebral artery along with high-grade stenosis and kinking of the right subclavian artery (Figure 1).
- Upon review of a previous doppler ultrasound, retrograde flow was found in the both vertebral arteries (Figure 2 and 3).
- He was discharged to follow-up with vascular surgery outpatient.

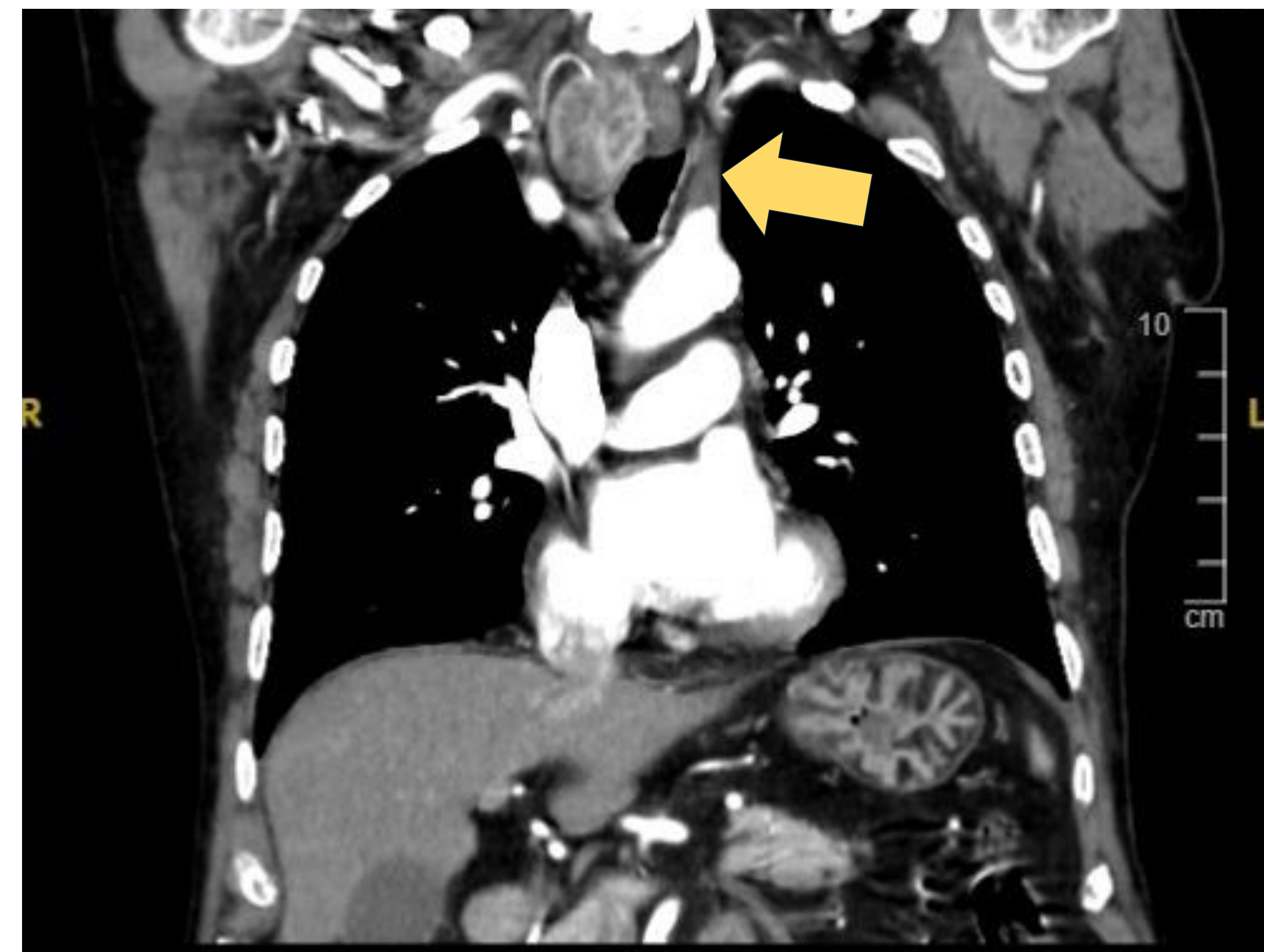


Figure 1. CT angiography showing evidence of complete proximal left subclavian occlusion

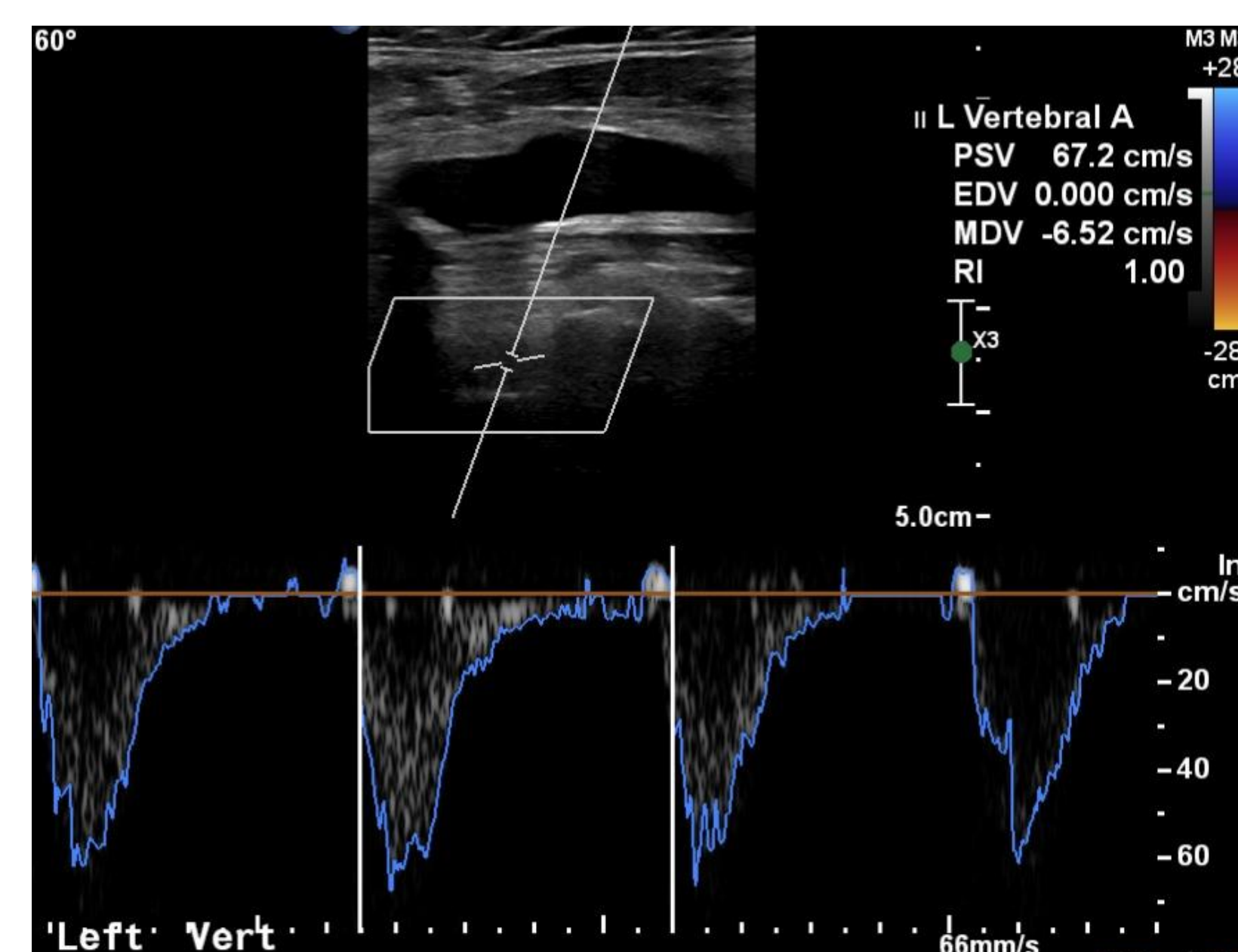


Figure 2. Reversed flow in Left Vertebral Artery on doppler US

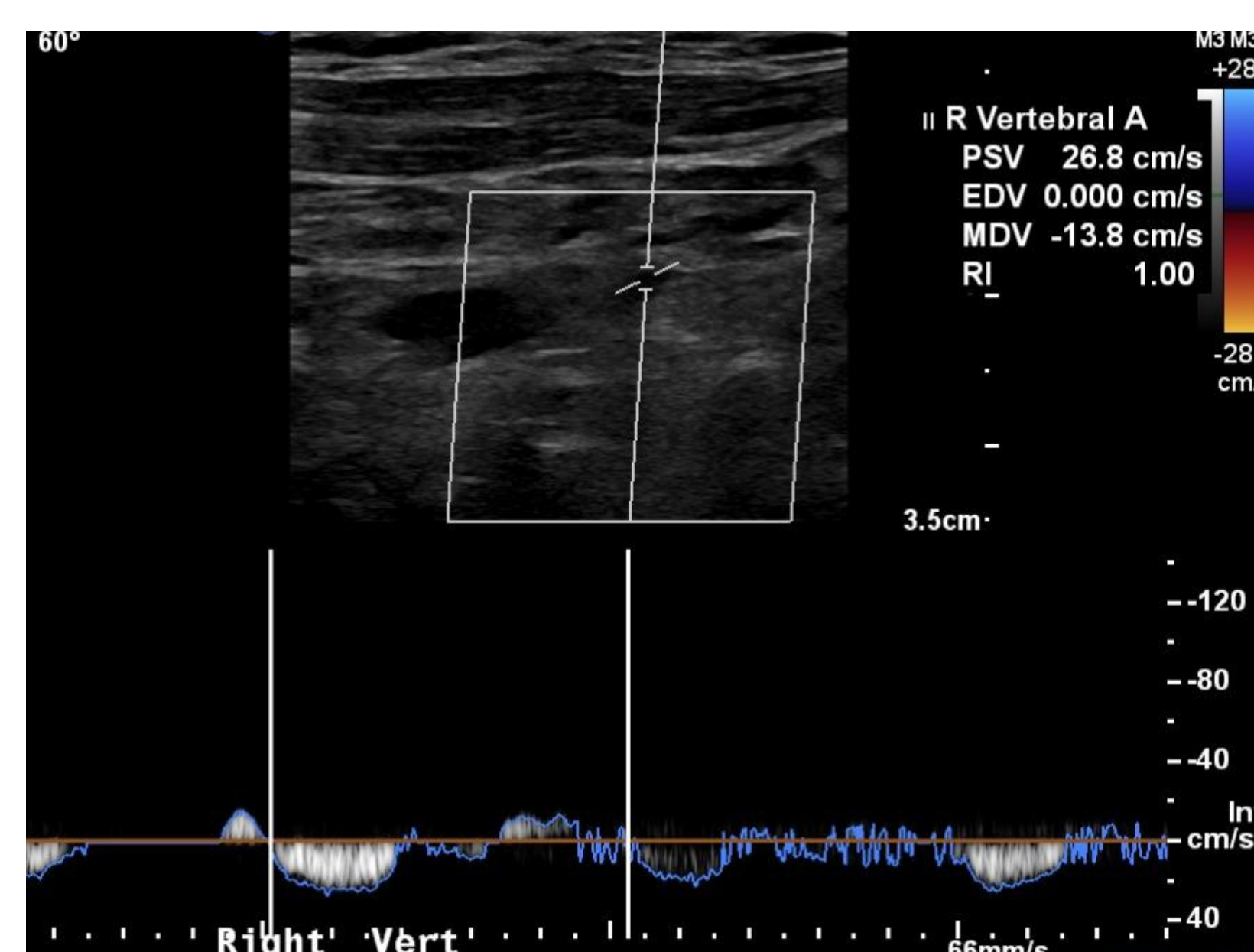


Figure 3. Reversed flow in Right Vertebral Artery on doppler US

Discussion

- Early recognition of blood pressure discrepancies may allow for timely diagnosis and management of underlying vascular disease.
- The degree of blood pressure discrepancy can indicate degree of SSS severity [1].
- Although often asymptomatic, SSS can cause significant cerebrovascular symptoms due to insufficient blood flow to the brain if severe and may require surgical or endovascular intervention.
- SSS is associated with increased atherosclerotic risk and peripheral arterial disease. Patients with risk factors should undergo routine blood pressure measurements bilaterally to avoid missing a potential diagnosis [2].
- Management of SSS involves treatment of underlying risk factors. If severe, treatments such as surgical bypass or endovascular interventions can be considered [3].

References

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3. Osiro S, Zurada A, Gielecki J, Shoja MM, Tubbs RS, Loukas M. A review of subclavian steal syndrome with clinical correlation. *Med Sci Monit.* 2012 May;18(5):RA57-63. doi: 10.12659/msm.882721.