

Subclavian Steal Syndrome (SSS)- A Rare Phenomenon

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Dear Sir,

Subclavian Steal Syndrome (SSS) occurs when the first part of the subclavian artery is stenosed, proximal to the origin of vertebral artery. The first part of subclavian artery usually supplies the arm. Whenever the pressure is put in arms, flow reversal from the vertebral artery to the arms occurs leading to vertebrobasilar insufficiency (steals flow from brain). Atherosclerosis is the usual culprit so these patients are also prone to coronary artery disease and stroke.

A 72-year-old male came to the emergency department of the hospital with chief complaints of intermittent chest pain on exertion for the past three months, occasional presyncopal attacks and palpitations for the past two months. There was no history of orthopnoea, Paroxysmal Nocturnal Dyspnoea (PND), or oedema of feet. He was known to have systemic hypertension for eight years, though well controlled, and on Tablet Amlodipine 10 mg once a day.

On examination, the pulse was 98 /min, regular, with diminished volume in left radial artery. Blood pressure in the right arm was 114/72 mm of Hg and left arm was 98/60 mmHg. There was no audible bruit in supraclavicular fossae. There were no digital ischaemic changes. Cardiovascular system examination revealed that the heart sound was soft, and there were no S3/S4 or murmurs.

Electrocardiogram (ECG) revealed ischaemic ST segment depression. A coronary angiogram was planned and it showed 90% stenosis in Left Anterior Descending artery (LAD, single vessel disease). During angiography when the right brachiocephalic vessel was injected with dye to check for patency of right and left internal mammary arteries, it was observed that there was a 100% ostial stenosis of left subclavian artery and it was filling retrogradely from head, neck, and face collaterals; suggestive of SSS [Video-1]. The patient was advised stenting, of LAD and left subclavian artery. However, the patient declined angioplasty and was discharged with a prescription for- Tablet Aspirin 150 mg, Tablet Clopidogrel 75 mg, Tablet Rosuvastatin 40 mg, Tablet Metoprolol 12.5 mg, Tablet Amlodipine 5 mg. He was asked to follow-up every two months.

Subclavian steal is a vascular phenomenon where there is an obstruction to the first part or prevertebral subclavian artery which is dedicated to blood supply of arms. The compensation of the blood flow is done by reversal of flow from the vertebral artery [1]. Atherosclerosis is the leading cause of subclavian stenosis. Moderate stenosis (50%) usually causes flow reversal in the vertebral artery [2]. Exercise induced arm pain and presyncope due to vertebral artery compensation is the classic clinical symptom though rarely encountered. This vertebral artery insufficiency can also present as drop attacks, syncope, dizziness [3,4].

The clinical examination may classically reveal decreased pulse volume (radio-radial delay) and blood pressure difference of more than 10 mmHg in upper extremities. Subclavian stenosis is associated with increased cardiovascular deaths and strokes. Medical management with antiplatelets, beta blockers and statins decrease long-term mortality [3].

When diagnosed incidentally revascularisation therapy is usually not required irrespective of flow reversal. Mildly symptomatic patients are treated with medical therapy. Surgical or percutaneous intervention is required for patients with significant symptoms. The success of percutaneous approach is >90% [3]. Surgical revascularisation done by carotid-subclavian bypass, axillo-axillary bypass surgeries or carotid transposition. The patency rate of such procedures is 80% at 5 years [5].

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