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Cardiology

"Subclavian Steal Syndrome" Presenting As Angina Pectoris

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Abstract		Case Report

"Subclavian steal" refers to a phenomenon of flow reversal in a branch of the subclavian artery that is the result of an ipsilateral hemodynamically significant lesion of the proximal subclavian artery [1]. Left subclavian stenosis are an uncommon cause of left arm pain, they are most often asymptomatic. So they don t require invasive management.
Keywords: Subclavian steals, Presenting.

INTRODUCTION

Left subclavian stenosis is an uncommon cause of left arm pain. We report the case of a patient who presented with exertional chest and left arm pain in an increasing pattern, and whose clinical evaluation disclosed a discrepancy between right and left arm blood pressure.

Recurrent exertional chest and left arm pain occurring in patients with a high prevalence of atherosclerotic disease is commonly seen in coronary artery disease. However, the "subclavian steal syndrome" has been implicated as a potential etiology of chest wall pain.

CASE REPORT

We report a 60 years old female with diabetes mellitus, hypertension, dyslipidemia and a history of ischemic heart disease where she underwent PCI of the LAD with DES for NSTEMI 4 years ago. She was treated since 2016 for Lupus disease under corticosteroid and immunosuppressive treatment with early renal failure.

She was brought to our Emergency Department after developing chest and left arm pain in an increasing pattern resistant to medical treatment. Physical examination showed discrepancy between right (170/90) mmHg and left arm (120/70mmHg) blood pressure.

Electrocardiogram, transthoracic echocardiography, troponin level and exercise testing were normal. Doppler ultrasound of the supra-aortic trunk and angio-MRI revealed a high-grade proximal subclavian stenosis releated to thrombosis. An oral anticoagulation with vitamin K antagonist was introduced with complete resolution of symptoms.
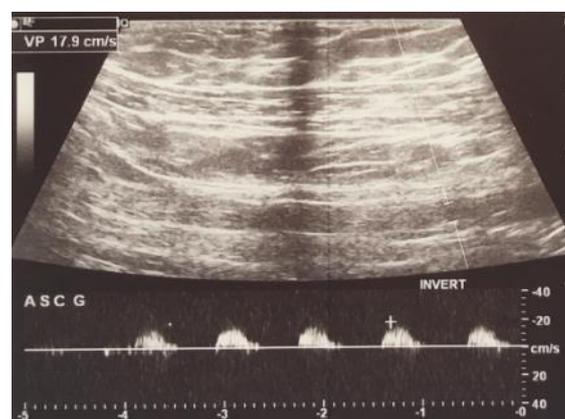

Fig-1: Reduced appearance of the caliber without parietal thickening of subclavian artery with spectrum buffering
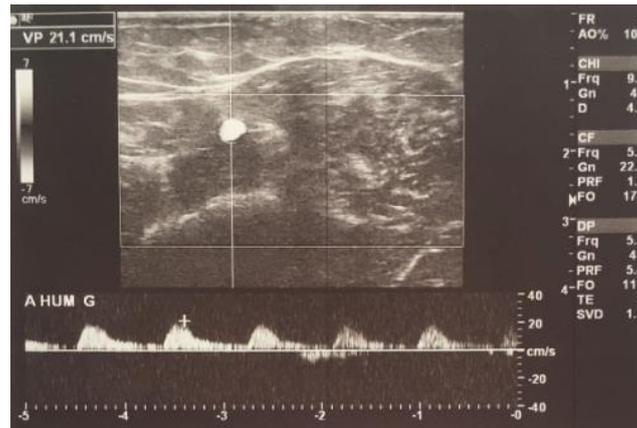
Fig-2: Spectrum buffering on humeral artery

DISCUSSION

"Subclavian steal" refers to a syndrome insufficiency in a branch of the subclavian artery stemming from flow reversal, attributable to occlusive disease in the subclavian artery proximal caused mostly by atherosclerosis[1].

As stenosis progresses, the pressure distal to the stenosis will eventually fall below the pressure transmitted by the contralateral (not compromised) vertebral artery via the basilar artery or by the carotid artery through the Circle of Willis and basilar artery[1,2].

The result is a pressure gradient favoring reversed blood flow (retrograde flow) in the vertebral artery distal and ipsilateral to the subclavian stenosis [2].

Most patients are asymptomatic, but it may manifest as vertebra-basilar insufficiency ("drop attacks," dizziness, diplopia, nystagmus, tinnitus hearing loss) or, most commonly, arm claudication [1]. Coexisting of peripheral and coronary artery disease is not uncommon in atherosclerotic patients [3].

Subclavian stenosis should be suspected in any patient with vertebrobasilar territory neurological symptoms, arm claudication, or coronary ischemia where the IMA (internal mammary artery) has been used for coronary artery bypass graft surgery. Physical examination should look for discrepancy of >15 mm Hg in blood pressure taken in both upper extremities. A variety of noninvasive imaging modalities can be selectively used to diagnose subclavian stenosis when a steal phenomenon is suspected. Continuous wave Doppler and duplex ultrasonography are readily accessible and accurate. Magnetic resonance angiography and computed tomography angiography are also alternatives [1].

This case illustrates how ischemic left arm pain, due to left subclavian artery stenosis can be misinterpreted as angina pectoris of cardiac origin and emphasizes the importance of such simple diagnostic measures as determining the blood pressure in both arms.

In our patient, the finding of normal exercice testing was unexpected in this patient with known coronary disease. Traditional anti-ischemic medication alone could not stop pain, until we add oral anticoagulation therapy; wich supports the speculation that it was the result of direct or indirect left arm ischemia rather than a manifestation of anginal pectoris.

CONCLUSION

This case demonstrates that ischemic left arm pain due to subclavian stenosis can present as accelerated angina, and highlights the importance of determining blood pressure in both arms in routine evaluation of patients at risk for atherosclerosis.

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