Case Report

Conservative Management in a Young Woman Affected by Isolated Left Subclavian Artery Dissection

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Subclavian Artery Dissection (SAD) is a rare condition, generally due to arterial catheterization, blunt trauma or connective tissue disease. Spontaneous or minimally traumatic cases have also been reported. Clinical manifestations are usually chest and/or back pain, pulse loss and paresthesia, whereas nausea, dizziness and vomiting are present in case of involvement of the vertebral artery. We report an unusual case of a young woman presenting isolated left SAD after traffic accident, minimally symptomatic, and treated with medical therapy alone. A conservative management and a closed follow-up appear to be a safe approach in patients affected by uncomplicated SAD without other comorbidities.

Keywords: subclavian artery, conservative management, artery dissection

Introduction

Subclavian Artery Dissection (SAD) is a rare condition in the absence of trauma, aortic anomalies or procedural intervention and generally due to arterial catheterization, blunt trauma or connective tissue disease. Spontaneous or minimally traumatic cases have also been reported in literature.

Case Report

A 21-year-old woman was admitted to emergency department for a severe interscapular pain two days after a car crash without seat belt. The patient referred a steady back-ache, increased by local digital pressure, without any other neurological or organ-specific symptoms. The physical examination revealed a weak left radial pulse associated, with a reduction of systolic blood pressure measured in the ipsilateral upper arm of about 20 mmHg, than the right side.

The patient did not suffer of other diseases, excluding chronic thyroiditis, and had no familiar history of cardiovascular disease. Cardiac examination was normal and ECG displayed no sign of ischemia.

Suspecting an aortic dissection, the patient was submitted to a computed tomography angiography (CTA) of the chest, with the evidence of a focal SAD starting 2.5 cm from the aortic arch, just beyond the origin of the left vertebral artery (VA), and extended for 3.5 cm, with no evidence of dissection involving the aorta or the other supra-aortic vessels (Fig. 1).

Considering the shortness of the dissection and the absence of any sign of neurological impairment or limb threatening, the patient was admitted to our department and subjected to twice daily regimen of therapeutic dose low-molecular-weight heparin (LMWH) and close monitoring of blood pressure. Surgical therapy was excluded.

During hospitalization we assisted to a progressive improving of interscapular pain whereas blood pressure was maintained in normal range without any antihypertensive drugs. Six days after the admission, the patient was submitted to a control CTA of the...
chest that demonstrated a modest regression of dissection. The physical exam revealed the reduction of the differential blood pressure between the upper arms to 10 mmHg. The patient was discharged at home in seventh day with indication to continue the twice day regimen of LMWH therapy.

Follow-up CTA of the chest one month later showed a regular profile of left subclavian artery with complete resolution of left SAD. The patient had a total regression of back pain and the clinical examination demonstrated symmetric radial pulse and no differential systolic pressure between the upper arms. The patient was shifted to aspirin therapy for one year. Over the course of 5-years follow-up the patient remained completely asymptomatic and was submitted to annual controls, initially with magnetic resonance angiography (MRA) and subsequently with Color Doppler Ultrasonography (CDUS), that confirmed normal profile of left subclavian artery (Fig. 2).

**Discussion**

Isolated SAD is a rare condition often secondary to arterial catheterization, connective tissue disease or blunt trauma, frequently of the aortic isthmus and distal descending thoracic aorta; supra-aortic vessels are rarely involved and the most frequently injured of these is the innominate artery. Are also described minimally traumatic or spontaneous cases of SAD. The incidence is higher in females of fourth to fifth decade suffered by hypertension.

Back pain radiating to the precordium, chest or neck pain and dullness are typical initial manifestations of isolated SAD. Claudicatio of upper limb, up to ischemic phenomena are reported, even if the collateral circulation of the shoulder may provide a sufficient compensation of the arm. The involvement of VA determines “posterior symptoms” such as nausea, dizziness and vomiting, up to stroke, while a dissection towards the vessels of the arm or the aorta can result in back pain radiating to the precordium, chest pain, neck pain, dullness or claudicatio of upper limb, up to ischemic phenomena. Physical examination detects typically different blood pressure between arms and/or signs of unilateral upper limb ischemia. CDUS, non-invasive and easy to repeat, can be used as a preliminary investigation, although Angiography and CTA remains the gold standard. MRA is a reasonable alternative that can also identify lesions of the central nervous system. The treatment of SAD depends on the associated
symptoms and the evolution of the false lumen. Endovascular treatment of SAD and others injuries of subclavian artery, with stent placement,\(^1,13\) has proved better than open surgery since burdened by a lower rate of complications.\(^14\) However, a conservative approach with medical therapy alone, has shown excellent outcomes, with cases of spontaneous remission.\(^4\)

We report a rare case of minimally symptomatic post-traumatic left SAD in a 21-year-old woman without any cardiovascular risk factor. CTA showed a proximal isolated left SAD, without involvement of the left VA. The choice of conservative treatment was determined by the absence of neurological involvement, the spontaneous regression of symptoms during hospitalization and an acceptable blood flow below the dissection. The use of anticoagulant drugs at therapeutic dose was mandatory to decrease the risk of thrombosis. We have maintained the therapy with LMWH in the post-discharge period. Whereas the remission of the dissection, detected by CTA about a month later, and the young age, we decided to stop the therapy with LMWH and begin with aspirin therapy to minimize the long-term risk of thrombosis.

A closed follow-up with a conservative treatment seems to be suggested in patients affected by isolated SAD, asymptomatic and without other comorbidities.

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**Disclosure Statement**

None of the authors have any conflict of interest regarding the contents of this paper.

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