True atherosclerotic pedis artery aneurysm

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Abstract

We report an unusual case of a true atherosclerotic dorsalis pedis artery aneurysm in a relatively young (53-year-old), ex-semi-professional soccer player patient. This lesion is a rare entity and due to its location may require surgical intervention and removal. The presentation, the diagnostic evaluation, and the surgical treatment of the aneurysm are discussed. Pathological analysis did confirm atherosclerotic findings despite the rapid clinical onset of the lesion and the possible traumatic origin.

Keywords: Aneurysm; Peripheral arteries

1. Introduction

A dorsalis pedis artery (DPA) aneurysm is a rare entity and due to its location may require surgical intervention and removal. The vast majority of dorsalis pedis artery aneurysms reported in the literature are pseudoaneurysms and are often secondary to trauma. Only four cases with a clear atherosclerotic histopathological diagnosis are reported [1]. In these cases, the aneurysm had developed and worsened several months previously. Both of these are characterized by risk of rupture and microembolization. Surgical options range from ligation with or without excision to aneurysmectomy and reconstruction [2].

2. Case report

A 53-year-old man who was a semi-professional soccer player with a history that included diabetes mellitus, hypertension and tobacco abuse was referred to our department for a pulsatile and painful mass on the dorsal part of the left foot. The patient noticed it approximately one month earlier and noted that it had been rapidly increasing in size. The patient complained of continuous pain and tenderness in the mass. The patient denied any family history for arterial aneurysm or antecedent trauma, except for acknowledging micro traumas every time after kicking a ball. A focus history and a physical examination was performed. No other vascular abnormality was found at thorough physical examination. The patient underwent a duplex scan in the office, which showed a DPA aneurysm, Δ18 × 11 mm in diameter, with mural thrombi and flow reversal in pedidia, expression of vascular collaterality from posterior tibialis artery at compression manoeuvres. Duplex scans of abdominal aorta, iliac, femoral, and popliteal arteries were negative for aneurysm. CT angiography confirmed the diagnosis and patent lateral pedal arch from the posterior tibial artery (Fig. 1). The serum was negative for anti-nuclear and anti-smooth muscle antibodies. The patient underwent repair of the DPA aneurysm (Fig. 2) by aneurysmectomy and end-to-end anastomosis with 7-0 prolene continuous suture between the proximal and distal portion of the remaining DPA. Intraoperative continuous wave Doppler confirmed a good signal to the interdigital arteries. The patient recovered uneventfully. Pathological examination of the aneurysm wall excised revealed typical atherosclerosis with focal intima enlargement (hyaline deposits) and with the lumen partially occluded by a thrombus (conjunctive hyaline organization with chronic inflammatory cells). Neither digital paralysis nor ischaemia has been observed in 14 months follow-up.

3. Discussion

True-atherosclerotic aneurysms of the DPA are rare with few cases reported in the most recent literature. There is little knowledge of the natural history of DPA aneurysms. The main causes are reported in [2]. One of the interesting aspects in this case is that although we suspected that the aneurysm had been caused by trauma, the pathological reports ruled out this possibility and demonstrated that its origin was atherosclerotic. As a matter of fact, the clinical history of the patient and the rapid enlargement are typical of post-traumatic aneurysms. A speculation could arise as a result of the fact that previous recurrent trauma on the foot played a role not only in triggering an arterial wall trauma, but also in accelerating the pathological processes which are responsible for the atherosclerosis. Therefore,
the histopathological analysis should be given in any case to confirm the diagnosis [1]. Symptoms usually reported include pulsatile mass, pain, tenderness and itching. Secondary evolutive symptoms as a consequence of the aneurysm are represented by thrombosis, embolization (blue toe syndrome) and rupture and are recognized as limb-threatening events [3]. In general, aneurysms that cause pain, so called symptomatic aneurysms, are believed to be at risk for rupture. For this reason, we believe that in patients with symptomatic DPA aneurysm operative repair is appropriate, and surgical decision-making is straightforward. Despite the fact that, in the majority of the cases observed, the treatment was ligation, good collateral circulation must first be ascertained to prevent partial or total ischemia of the foot. We prefer to do a resection and reconstruction of the aneurysm, particularly in cases of atherosclerotics, diabetics and children who can eventually experience development of peripheral vascular disease or contracture of normal trophic growth of the foot, respectively [1, 4]. Limiting the blood flow to the foot may have implied future complications in the case reported considering that the patient, despite the fact that he had good collaterality, confirmed by the absence of ischaemia during the DPA clamping, was relatively young and had important risk factors for atherosclerosis. We recommend this kind of clinical, diagnostic and surgical approach in cases of symptomatic true atherosclerotic DPA aneurysm.

References