SCIENTIFIC LETTER

AXILLARY ARTERY PSEUDOANEURYSM AFTER HUMERAL ARTHROPLASTY

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Pseudoaneurysms recognize the same etiological agents as vascular trauma, being evident more frequently at remote stages. The frequency of each etiologic agent such as a knife, a projectile or secondary to osteoarticular lesions varies.[3] A partial disruption of the artery with extravasation of blood into the surrounding tissues is the mechanism responsible for the development of a pseudoaneurysm. It often follows blunt or penetrating trauma, with the consequent formation of a fibrous capsule lacking intima. This localized hematoma has persistent communication with the native artery that provides it with pulsatility.[2] The incidence of pseudoaneurysms of the subclavian-axillary union is very rare. They are usually associated with trauma due to clavicular fractures and dislocation of the glenohumeral joint; other less common causes are iatrogenic, puncture, infectious and resulting from radiotherapy.[4] Clinical confirmation is obtained with imaging studies. Arteriography is the current gold standard; however, its use is limited in cases where lesions can be managed using an endovascular approach. With the advance of technology, new non-invasive techniques such as Doppler ultrasonography, computed angiotomography and magnetic resonance angiography have taken on a fundamental role in the diagnosis and planning of the surgical tactic of this entity.[5,6] This paper is intended to present the case of an axillary artery pseudoaneurysm after an arthroplasty of the humeral head.

The case refers to a 64-year-old man admitted to hospital with a history of alcoholism and arthroplasty with resection of right humeral head six months before, which evolved with an intensely painful pulsating tumor with 10 cm x 10 cm skin ulceration and active bleeding (Figure 1). Initially, it was managed with observation, compression bandaging and pain treatment. A laboratory test showed hematocrit (HCT) decrease to 18%. During his hospital stay, he underwent selective angiography of the right subclavian and axillary arteries, revealing a contrast leak

Figure 1. Ulcerated pulsating tumor in right shoulder.

and the formation of a right axillary pseudoaneurysm (Figure 2). In the absence of supplies for endovascular treatment, covered stent and coils, treatment was deferred until such elements were available. On the sixth day, he was referred to the emergency room of this hospital in a very bad general condition, with 12% HTC, 4.5-gr hemoglobin, intense pain, extreme pallor, an ulcerated pulsating tumor, active bleeding and a sense of impending doom. Being not possible to stabilize the patient, an emergency surgery was decided. He entered the operating room for vascular scanning. A proximal control of the axillary artery was performed with a longitudinal incision two centimeters below the clavicle, where it was possible to clamp the axillary artery in its proximal segment. Then, a medial longitudinal incision was performed in the right arm for the vascular control of the distal segment of the said artery. The proximal incision was extended in oblique deltopectoral form, joining both approaches. Thus, the pseudoaneurysm was exposed, the large hematoma was evacuated and the major and minor pectoral muscles were desinserted to expose the axillary artery. The hemodynamics of the patient was normalized after bleeding control. Finally, a 6-cm interposition procedure of the left reversed saphenous vein was performed (Figure 3). The patient left the operating room with 9-gr hemoglobin, hemodynamically stable, extubated and with preserved radial and ulnar pulses. He was referred to the coronary care unit. During the immediate postoperative period, he evolved with lucidity and without the sharp pain described before surgery. His hospital discharge was 6 days later.

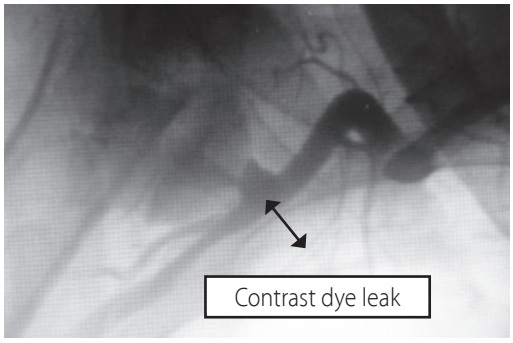

Figure 2. Angiography showing right axillary pseudoaneurysm with contrast leak.

Accompanying semiology, diagnostic confirmation with imaging methods is essential for the elective treatment of these cases. To date, Doppler ultrasonography has been promoted to confirm the diagnosis; however, its usefulness for surgical planning is limited. Angiotomography and resonance angiography are

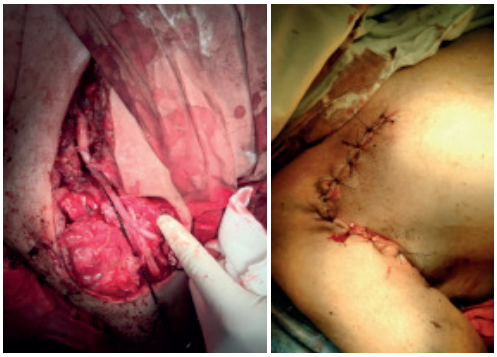

Figure 3. Axillary-humeral bypass with internal saphenous vein.

considered fundamental for a proper surgical tactic, since they provide information about the organs and tissues surrounding the lesion.[7] The angiographic study remains important in the diagnosis and non-invasive treatment of these lesions, so long as it can be performed. This was not possible in the case presented since endovascular treatment could not be provided due to the lack of materials.

Lesions of subclavian and axillary vessels are very rare, and most surgeons have limited related experience. In addition, the surgical exposure of these vessels, particularly with active bleeding, usually is very difficult and challenges capacities, even of experienced surgeons. Endovascular management has proven to be an adequate therapeutic option. It eliminates the need for a surgical dissection, especially in high-risk patients, and should be performed in stable patients with well-defined and focal lesions. Mortality varies between 5% and 10%.[8] The conventional surgical management of complex lesions in the subclavian-axillary union includes the distal and proximal vascular control of the vessel, as well as the resection of the affected part with consequent vascular reconstruction, either with native vessels or synthetic graft. These decisions will be taken in relation to the general condition of the patient. This type of approach has been associated with a mortality rate of up to 20%.[9] In this patient, venous autograft was used, considering the area contaminated with the ulcerated tumor. Subclavian-axillary vascular lesions are usually catastrophic; for this reason, if referred to the operating room, the patient is often hemodynamically unstable. The speed with which the surgical treatment of a ruptured pseudoaneurysm is decided is vital for limb salvage and improved quality of life.[10] In conclusion, an early diagnosis of these vascular lesions, which are not frequent, is important since timely surgical treatment prevents serious complications and, if surgery is deferred, the functionality of the affected limb and the life of the patient may be compromised. ■

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