

Giant brachial pseudoaneurysm secondary to a fish bite injury, a case report

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Abstract

Vascular trauma is a frequent reason for consultation in the emergency department and should be addressed systematically; it can compromise the hemodynamic status of the patient. Here we report an uncommon case of a pseudoaneurysm caused by the bite of a river fish named Payara (*Hydrolycus scomberoides*), which necessitated multidisciplinary clinical and surgical management. Pseudoaneurysm can be caused either by blunt or penetrating trauma; if not properly managed, it can be a life-threatening condition and lead to thrombosis or gangrene, amputation and even death.

Keywords

aneurysm, emergency, vascular trauma

Introduction

Pseudoaneurysms, also known as false aneurysms, are hematomas contained within the two outer layers of any vessel. They can have two different shapes: saccular and fusiform. The most commonly affected sites are cardiac, femoral, visceral, and aortic.^[1] In contrast, the presence of aneurysms in the upper extremities is unusual in civilians.^[2,3] Regarding their etiology, the most common cause is trauma, which could be after a blunt contusion or penetrating trauma, a fracture, drug abuse or iatrogeny.^[2]

The diagnosis is mainly clinical and is achieved with a complete medical examination that may reveal the presence of pulsatile protuberance, which expands with heartbeat, and the presence of murmurs on auscultation. Differential diagnoses such as collagenopathies, Marfan syndrome, or Ehlers-Danlos syndrome, are also possible.^[3,4] Imaging studies such as ultrasound, angiography, tomography, and magnetic resonance imaging (MRI) are useful tools to determine the location, morphology, and structures involved.^[1,5,6] The treatment has to be individualized due to

multiple factors like localization, size and symptoms.^[5] We present the case of a brachial pseudoaneurysm secondary to the bite of a river fish known as Payara.

Case report

A 30-year-old male patient without a medical history was referred to the emergency department due to a trauma on the medial and upper sides of the left forearm and arm, secondary to a bite by a fish known as *Hydrolycus scomberoides* or with the common name of Payara (Fig. 1).

When the patient arrived, his vital signs were normal. Upon physical examination, he had a pulsatile-indurated lesion at the level of the left brachial fold, where a continuous murmur could be heard, and a puncture wound in the superior extremities that was sutured. The initial laboratory reports were within normal parameters, and on suspicion of vascular trauma, an angiotomography was performed, where they documented findings of pseudoaneurysm of the left brachial artery (Fig. 2).

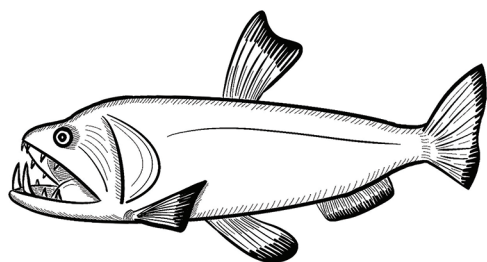


Figure 1. Illustration of *Hydrolycus scomberoides*. Source: own elaboration.

During his stay in the hospital, the patient completed 10 days of antibiotic therapy with oxacillin and clindamycin due to a high risk of skin infection and intraarticular infection considering the proximity of the injury with the elbow. Subsequently, he was referred to a major complex medical center with the availability of a vascular surgeon. After his first appointment by the specialist, a peripheral arteriography of the upper right limb was performed with findings of a broad-based giant pseudoaneurysm with turbulent flow and some filling by collateral veins corresponding to arteriovenous fistulae. The patient was seen again by the vascular surgeon and an emergency surgery was indicated. During the surgical procedure, the surgeon performed an exploration of

the brachial artery, with transition in the middle third of the left arm dissecting by planes, finding a brachial hematoma, which was also dissected. After this, the surgeon proceeded to explore the aneurysmal mass, finding a hematoma of 50 cc which was profusely drained. The pseudoaneurysmal cavity was exposed and it presented chronic inflammatory signs with a large area of peripheral fibrous tissue. The patient had the posterior face of the artery permeable and healthy, so the surgeon proceeded to place a patch of saphenous vein-type tissue interposition with reconstruction of the saphenous vein. The surgeon took a saphenous vein graft of the left thigh; a saphenous panel was prepared, and he proceeded to place the anterior face of the brachial artery with a prolene 7-0 continuous suture without complications (Fig. 3). The patient had a favorable outcome, and he was discharged to continue the outpatient follow-up.

Discussion

Vascular trauma on the limbs is a frequent reason for consultation in the emergency department and does not usually compromise the hemodynamic status of the patient; however, this varies according to the arteries or venous circulation that are injured. For this reason, a systematic and organized assessment is important to evaluate injuries, as

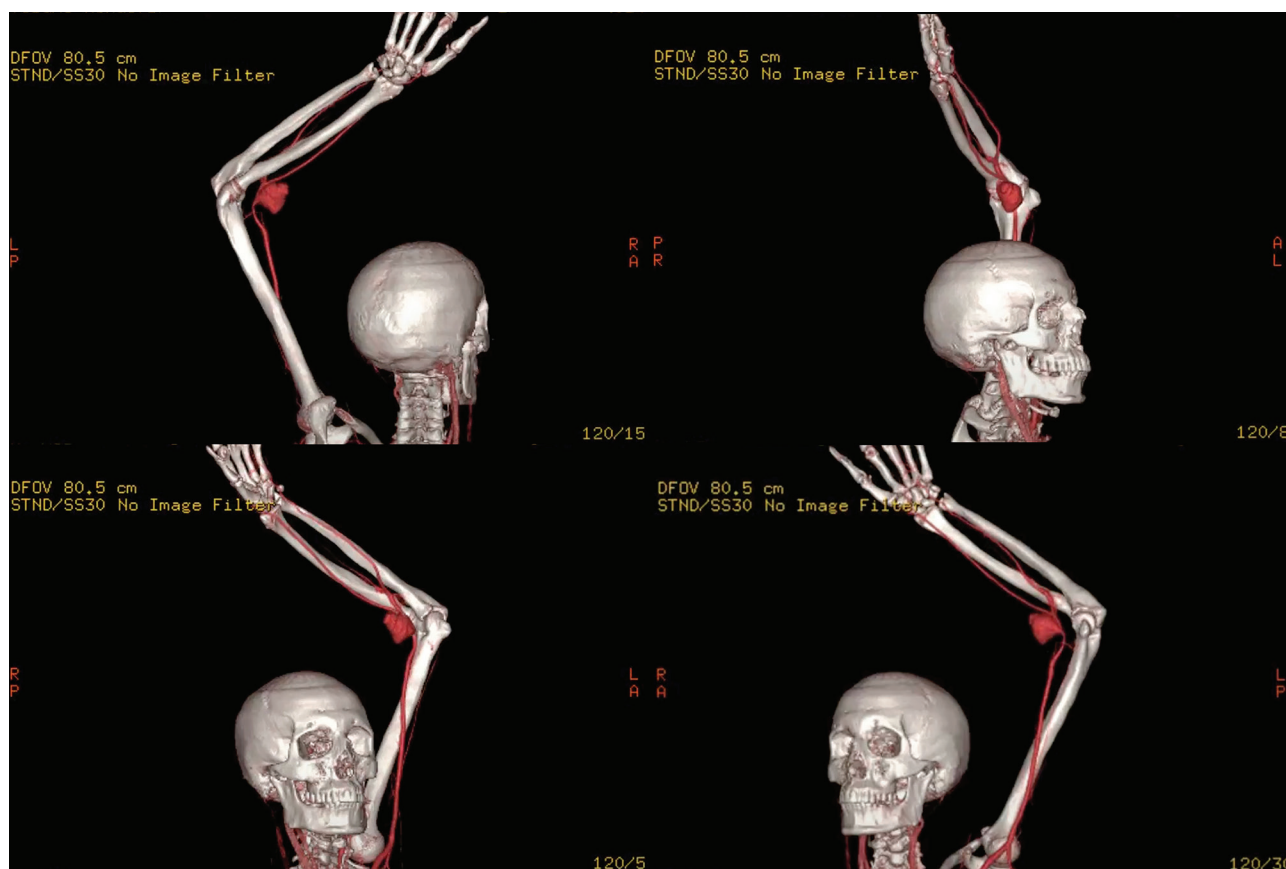


Figure 2. Angiotomography images of the upper left limb, in which an aneurysmal sack is reported on the left brachial artery of 38×31 mm in diameter, compatible with a pseudoaneurysm.

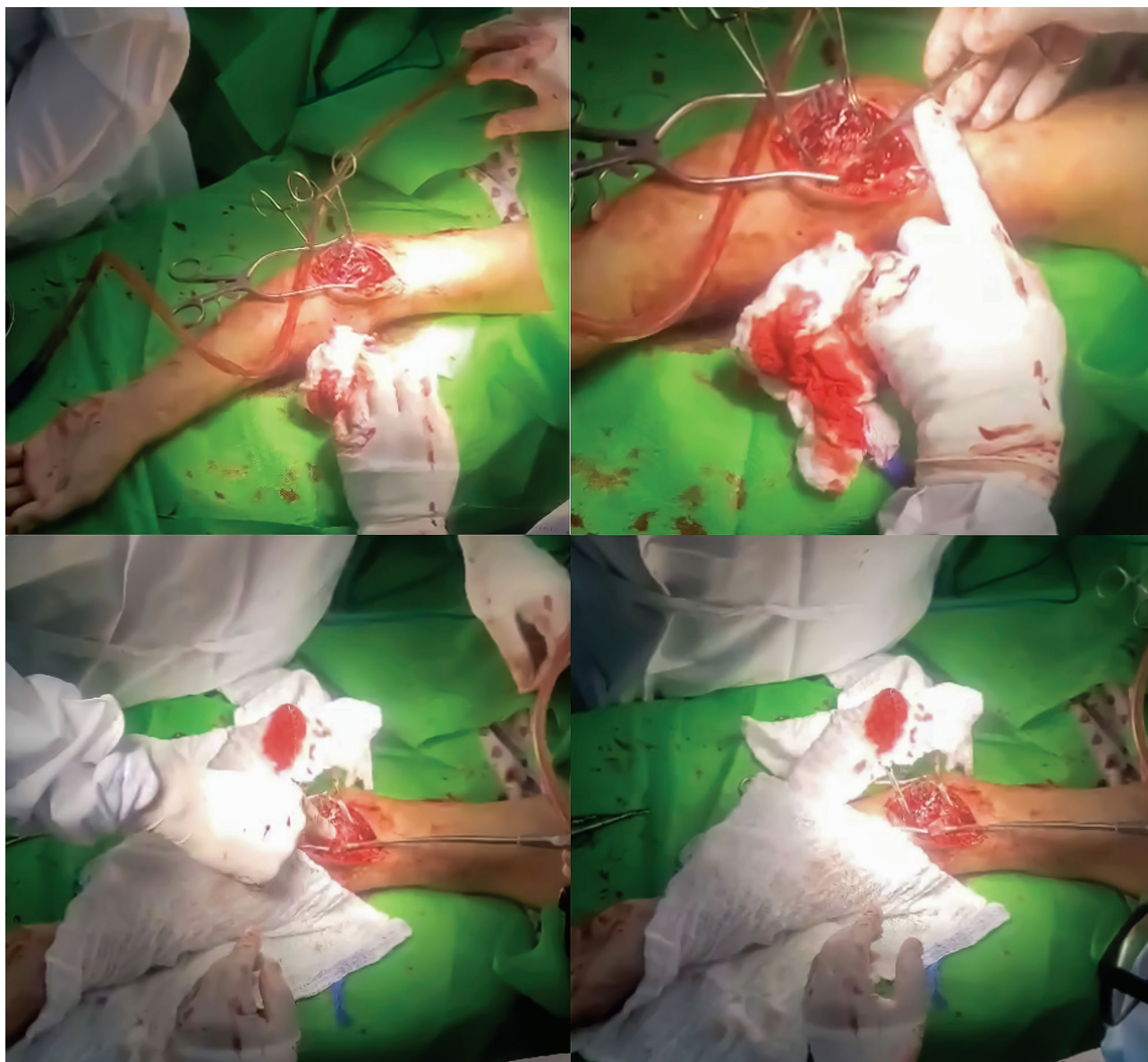


Figure 3. Intraoperative photographs of resection of the pseudoaneurysm and thromboembolectomy requiring an arterial patch with a saphenous vein graft.

well as the existence of collateral circulation, the presence or absence of thrombi, the complete interruption of distal flow, intramural hematomas and the mechanism of the injury, as well as to provide data to evaluate the need for other interventions.^[1,2,7]

On first approaching the patient, the emergency physician should initiate a comprehensive assessment with the ABCDE approach, obtain venous access, evaluate whether or not there is active bleeding and determine if there is a blunt trauma-causing compartment syndrome. It is necessary to evaluate active bleeding, type of trauma, absence of distal pulses, signs of ischemia, trembling in the path of trauma, changes in skin color, and pain.^[1] If any of the hard signs are present, an urgent assessment by the surgical service should be requested, and hemorrhage control is necessary.^[7] There is controversy regarding the use of

tourniquets, but recent research indicates that there are few long-term complications when used for a maximum of two hours. The most common complication after tourniquet use is the development of focal sensory or motor neurological deficits, but most reported cases show improvement. Additional complications that may show up include local pain, deep vein thrombosis, rhabdomyolysis, compartment syndrome, and hematoma. However, the use of tourniquets has been shown to markedly increase patient survival, especially when applied before hemorrhagic shock occurs.^[8]

After the clinical examination, there is a non-invasive test used in patients with signs of vascular trauma known as the ankle brachial index (ABI) with acceptable results^[9], reaching a sensitivity of 72.3% and specificity of 69.3% using duplex ultrasound (DUS).^[10] In order to confirm the clinical diagnosis, imaging studies should be performed.

The first option is angiotomography, which has a sensitivity of 95%–100% and a specificity of 87%–100%. Also, arteriography can be a second option for images; it has a sensitivity of 97%–100% and a specificity of 90%–98%, but it is an invasive and expensive test.^[1,11]

The initial therapy should be oriented toward prioritizing analgesics, which are essential for severe injuries. Other therapies, including hypotensive resuscitation, which helps reduce bleeding, as well as the use of factor VIIa in combination, have been evaluated for consideration in patients with vascular trauma.^[6] As a definitive treatment, percutaneous thrombin injections can be a useful treatment, especially after endovascular procedures, but there is a risk of thromboembolic events after the procedure. The endovascular treatment also includes transcatheter embolization with coils.^[12,14] Other techniques include manual compression guided by ultrasound.^[13] Regarding an open surgical procedure, it can be performed using a simple ligation technique, aneurysm resection, end-to-end anastomosis, or bypass surgery using a venous graft. In addition, in the case of a saccular aneurysm, aneurysmectomy can be performed.^[14] Our patient required surgical resection, a saphenous vein graft, plus thromboembolectomy as a definitive treatment.

Conclusion

Pseudoaneurysm can be caused either by blunt or penetrating trauma; if not properly managed and if medical attention is not provided in a timely manner, it can be a life-threatening condition and lead to thrombosis or gangrene, amputation, and even death.

Ethics

Written informed consent was obtained from the patient to publish the case report.

Author contribution

J.C. and L.N.M.: conceptualization, methodology, writing original draft; D.A.M. and A.R.U.: investigation; writing – review and editing; J.C.V.C.: conceptualization, validation; L.G.A.: supervision, writing – review and editing.

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Competing interests

The authors have declared that no competing interests exist.

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