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Case Report

A Giant Brachial Artery Pseudoaneurysm in an Infant Boy - a

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ABSTRACT

A pseudoaneurysm (false aneurysm), a collection of blood and thrombus, forms between the two outer layers of the artery, the tunica media and the tunica adventitia. A pseudoaneurysm occurs as a result of a contained rupture. The risk of rupture is higher than that of a true aneurysm of comparable size, due to poor support of the aneurysm wall, and thus false aneurysms generally require treatment [1].

We present a giant brachial artery pseudoaneurysm in an infant boy, caused by iatrogenic injury, after vascular access attempts.

Keywords: Brachial Artery Pseudoaneurysm; Infant; Vascular Access

INTRODUCTION

Pseudoaneurysms are rare vascular lesions in the pediatric population. Pathophysiologically, a sharp or blunt trauma injures the vessel wall causing hemorrhage, which is tamponaded by the surrounding soft tissue, forming a hematoma adjacent to the arterial defect. As hematoma resolves, the interior is enzymatically resorbed, while the exterior surface scars and forms a fibrous capsule. The most common presentation is a compressible soft tissue swelling at a site of previous trauma, either on the acute or subacute basis [2].

Treatment options for infants with upper extremity pseudoaneurysms include arterial reconstruction or ligation according to conduit availability, the status of normal proximal and distal vessels, and the risk of distal ischemia after arterial ligation. In determining the conduit for arterial reconstruction, the small caliber of infant arteries, and immature texture of the autogenous vein, limit the use of both autogenous vein and prosthetic grafts in this age group [3].

CASE REPORT

A 7-month old male infant was admitted for pneumonia and was treated medically in the pediatric ward. During his stay, blood sampling was performed via left cubital phlebotomy. Three weeks later, during a physical examination, a soft pulsatile mass, 3 cm in diameter, was palpated on the anteromedial aspect of the left distal arm, just proximal to the cubital fossa (Figure 1). No flow disorder was detected in the radial and ulnar runoff arteries.

The typical location, the medical history, and the clinical findings suggested that the vascular lesion was compatible with an artery pseudoaneurysm.

Color duplex ultrasound and contrast-enhanced Computed Tomography Angiography (CTA) demonstrated a 3.0 × 2.8 × 3.0 cm mass arising from the left brachial artery (Figure 2).

The left brachial artery pseudoaneurysm was surgically resected, and arterial continuity was restored by primary arterial repair using 8-0 prolene.We performed a „z" stitch.General anesthesia was used for the procedure, inhalation induction, and maintenance with sevoflurane, with the addition of atracurium and fentanyl. The patient was ventilated using a laryngeal mask. The patient was discharged on the fourth post operative day, subsequent to a normal neurovascular exam in the left upper extremity. The pathology report was consistent with pseudoaneurysm.

The two-month postoperative period was uneventful with palpable pulses from the left radial artery (Figure 3).

DISCUSSION

Pseudoaneurysm is an exceedingly rare diagnosis in children and

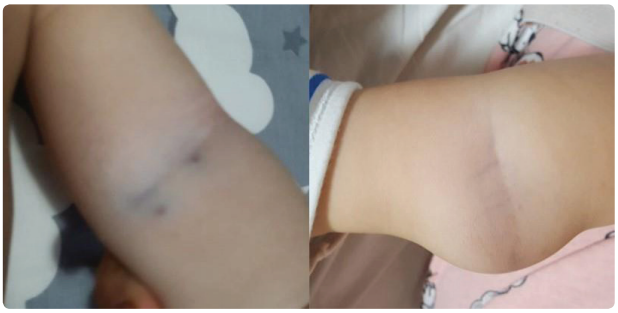

Figure 1: Blood sampling was performed via left cubital phlebotomy. Photograph of left arm showing the swelling and forming pseudoaneurysm.

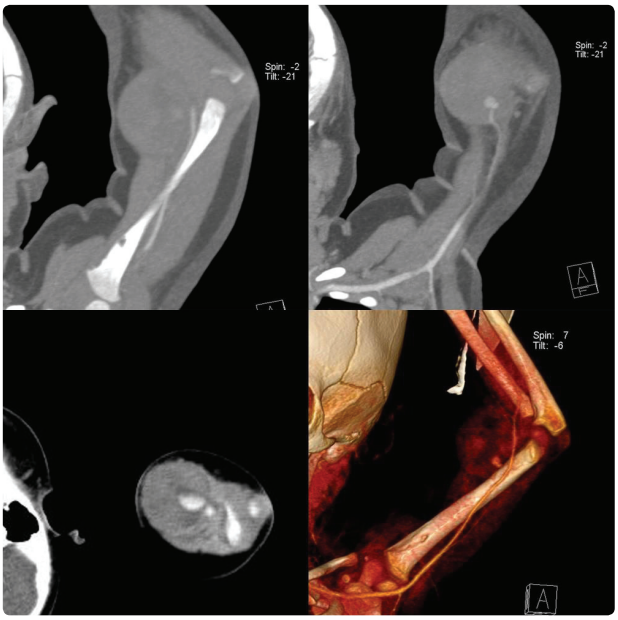

Figure 2: Computed tomography angiogram of the involved upper extremity showing the false aneurysm and run off vessels.

is typically a result of traumatic vascular access. They occur at a rate of approximately 0.05% after diagnostic catheterization and up to 1.2% after more complex procedures [4].

To prevent such cases we advise supervision by experienced staff, structured training is essential for all healthcare professionals, including doctors and nurses who take a blood sample, especially in infants with very small vein diameters and possible swelling of the extremities.

The finding of pulsatile mass in the left cubital fossa and pain

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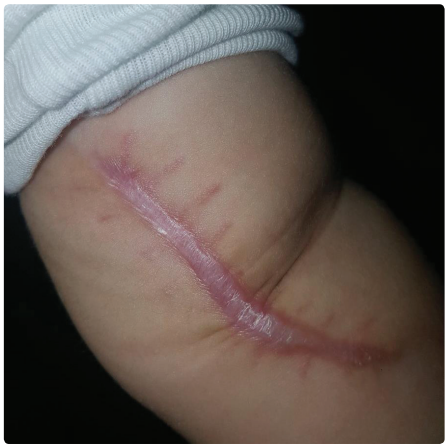

Figure 3: Postoperative results, two months after undertaken surgery, with satisfactory scarring.

was the presenting clinical signs in our case. Differential diagnosis includes simple hematoma, tissue edema, and lymphadenopathy.

To diagnose arterial lesions, a Color Doppler Ultrasonography (CDU), Computed Tomography Angiography (CTA), Magnetic Resonance Imaging (MRI), and traditional angiography, should be performed.

When a pseudoaneurysm has been diagnosed, surgical repair is indicated immediately, because of possible complications: limb ischemia, cutaneous erosions, and false aneurysm rupture, nerve compression, deep vein thrombosis [5].

Non-surgical therapeutic modalities, such as ultrasound-guided compression obliteration and intra-cavity thrombin injection, have been used less frequently in the pediatric population because of unfavorable anatomy and reported complications [6].

In summary, we recommend prompt diagnosis and a more urgent therapeutic approach, including open surgery, to prevent serious complications.

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