

Unusually Located Pseudoaneurysms: Superficial Palmar Arc and Superficial Temporal Artery

Olağandışı Yerleşimli Yalancı Anevrizmalar: Yüzeyel Palmar Ark ve Yüzeyel Temporal Arter

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ABSTRACT

Peripheral pseudoaneurysms mostly occur due to diagnostic catheterization, but rarely due to blunt or penetrating trauma, infection or recurrent microtrauma. They appear as soft pulsatile mass. Complications may occur due to rupture or distal embolization. Doppler ultrasound and computed tomography are the imaging techniques used in diagnosis. Endovascular interventions as well as surgery are among the treatment options. In this report, we present two unusually located pseudoaneurysms, one in superficial palmar arch following penetrating trauma and superficial temporal artery following blunt trauma.

Keywords: Aneurysm, false; Temporal arteries; Superficial palmar arch

ÖZET

Periferik psödoanevrizmalar sıklıkla diyagnostik kateterizasyona bağlı oluşsalar da, nadiren künt yada penetran travma, enfeksiyon yada tekrarlayan mikrotravmaya bağlı da oluşabilirler. Yumuşak, pulsatil kitle olarak gözükürler. Rüptür yada distal embolizasyona bağlı komplikasyonlar oluşabilir. Doppler ultrasonografi ve bilgisayarlı tomografi tanıda kullanılan görüntüleme yöntemleridir. Endovasküler girişimler ve cerrahi tedavi seçeneklerdir. Biz burada, olağandışı lokalizasyonlu, biri penetran travma sonrası yüzeyel palmar arkta, diğeri künt travma sonrası yüzeyel temporal arterde oluşmuş iki psödoanevrizmayı sunuyoruz.

Anahtar Kelimeler: Anevrizma, yalancı; Temporal arterler; Yüzeyel palmar ark

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Introduction

Pseudoaneurysms are pulsatile hematomas caused by localized arterial deterioration. They usually occur due to arterial interventions, but may also occur due to macro or microtrauma or infections. Therefore, they are mostly localized in peripheral intervention sites, namely femoral or radial arteries. Pathologically, the artery wall is damaged and the outer wall of the aneurysm sac is composed of the outer layers of the artery, perivascular tissue, blood clot and reactive fibrous tissue. Pulsatile mass, thrill and murmur on the mass are characteristic findings.[1]

Traumatic arterial pseudoaneurysms are rare lesions usually caused by blunt or penetrating injuries. The thrombus, which may develop in the pseudoaneurysm, may be a source of embolism, leaving the distal tissue under the risk of ischemia or necrosis.[2] Although pseudoaneurysms in the extremities can easily be diagnosed by doppler ultrasound, computed tomography or magnetic resonance imaging is required for intraabdominal or intrathoracic ones. Aneurysms smaller than 2-3 cm in diameter may spontaneously undergo thrombosis. However, large aneurysms should be treated for complications such as rupture, infection, erosion of surrounding tissues, vascular thrombosis or distal embolization. In the treatment, compression, thrombin or collagen injection, coil embolization, stent-graft implantation and surgical repair are the preferred therapeutic options.[3]

Here we report two unusually located posttraumatic pseudoaneurysms one in superficial palmar arch following penetrating trauma and one in superficial temporal artery following blunt trauma.

Case Presentation

Case 1

A 57-year-old male patient presented with severe pain following glass incision in the radial side of the palmar area happened 15 days ago. Pulsatile swelling was observed in thenar region. There was no thrill or murmur on the swelling. Doppler ultrasound revealed a pseudoaneurysm with a diameter of 12X15 mm.

Intraoperatively, a pseudoaneurysm sac was seen and extracted by thenar incision under local anesthesia (Figure 1). Primary repair was performed with a 7/0 prolene.

Case 2

A 14-year-old male patient presented with a 5-month history of swelling on the left temporal region following blunt trauma. Physical examination revealed a minimally painful pulsatile mass in the left temporal region (Figure 2a). Doppler USG revealed a mass mimicking arteriovenous malformation

with a diameter of 15x15 mm. A vascular lesion consistent with a pseudoaneurysm originating from the frontal branch of the superficial temporal artery was seen after the incision made on the left temporal region under local anesthesia (Figure 2b). Unlike classical pseudoaneurysms, it was observed that a thicker fibrotic tissue surrounded the sac, probably due to long history. The sac was removed and the defected arterial segment was repaired with 7/0 prolene suture.

Discussion

The pseudoaneurysms of the hand are rare lesions usually associated with blunt or penetrating trauma and iatrogenic injury. Clinically, localized tenderness, neurological symptoms due to neural compression, arterial insufficiency and ischemia findings due to arterial thrombosis or aneurysmal dilatation are present. Early treatment is recommended to prevent possible embolization, rupture or loss of function. [4]

Superficial temporal artery pseudoaneurysm was first described by Bartholin in 1740. It usually occurs a few weeks or months after blunt trauma. The superficial temporal artery is the terminal branch of the external carotid artery, and is divided into two as frontal and parietal branches. Although the facial, internal maxillary and internal carotid artery pseudoaneurysms have been reported, superficial temporal artery is most affected because it has a superficial course directly under the skin and is vulnerable to trauma. Differential diagnosis includes lipoma, hematoma, enlarged lymph node, neuroma, abscess, soft tissue tumor, epidermal inclusion cyst, arteriovenous fistula, intracranial lesions, subdural hematoma, middle meningeal artery aneurysm with temporal bone erosion and angiofibroma.[5]

Superficial palmar arc and superficial temporal artery pseudoneurysms due to blunt or penetrating trauma are very rare. Only a few cases have been reported in the literature, therefore the incidence is not known due to the lack of sufficient data. However, in principal the diagnostic methods and therapeutic indications and choice of interventions are not different from above mentioned pseudoaneurysms.

The main indications of surgical repair are symptomatic cases, cases with tendency to expand accompanied by a large hematoma and persistence for at least 6 weeks. Pseudoaneurysms not clinically relevant and contain the ulnar, radial, tibial and perineal arteries in which the bloodstreamed areas have sufficient collateral circulation, can be treated simply by ligation of the artery. However, maintenance of arterial continuity should be preferred.[6] Both cases reported here were symptomatic,

therefore aneurysmectomy and primary repair was performed in order to maintain arterial continuity. The postoperative course and 3 months follow-up was uneventful for both.

Conclusion

Both the superficial palmar arch and the superficial temporal artery pseudoaneurysms are unusually located and there are often limited data in the literature as case reports. Treatment strategies do not differ from other pseudoaneurysms. However, due to unusual location and occasional exposure of these locations, thorough review of the anatomy should be reviewed prior to intervention.

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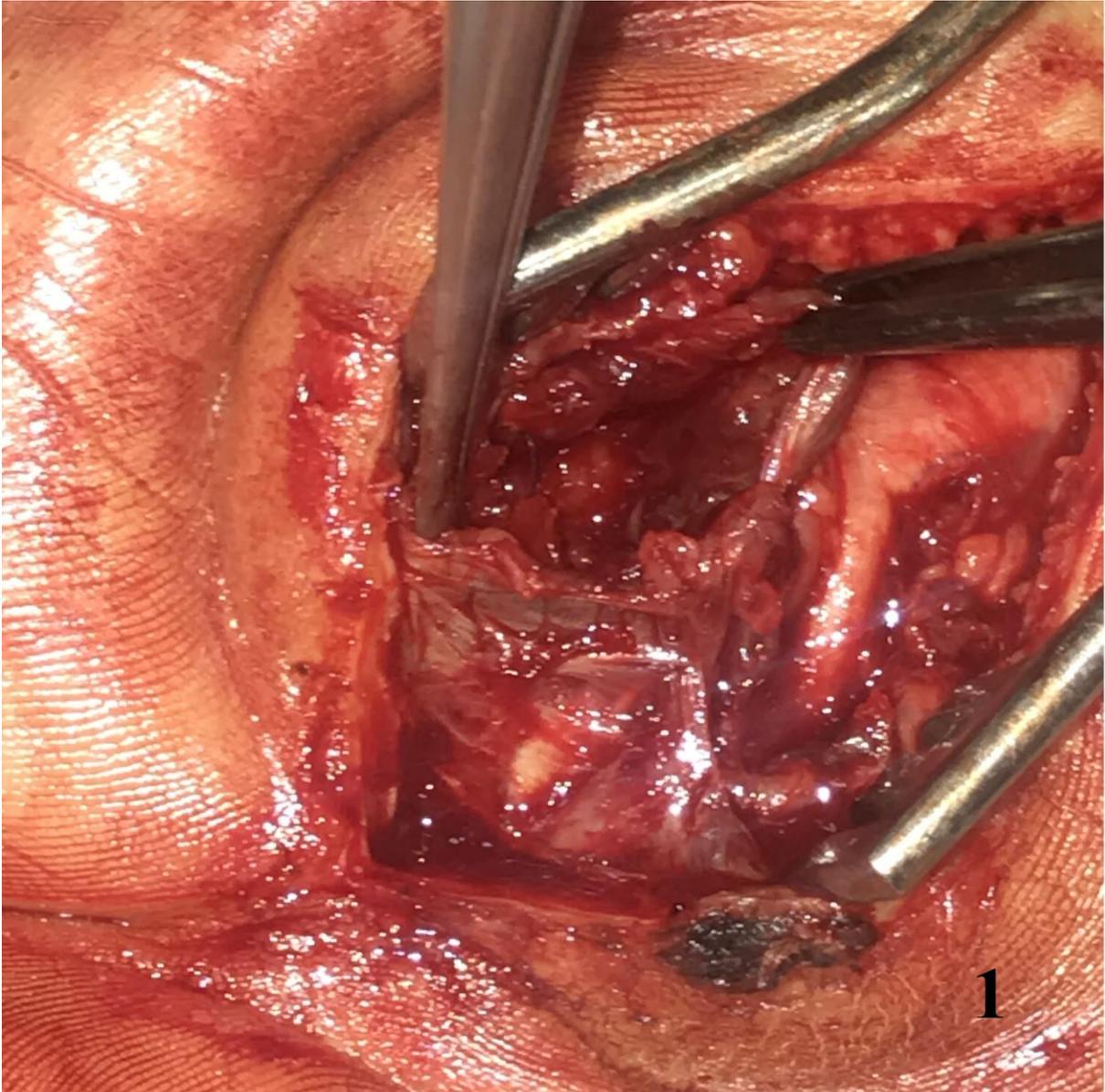


Figure 1 Intraoperative view of superficial palmar arc pseudoaneurysm in the thenar region

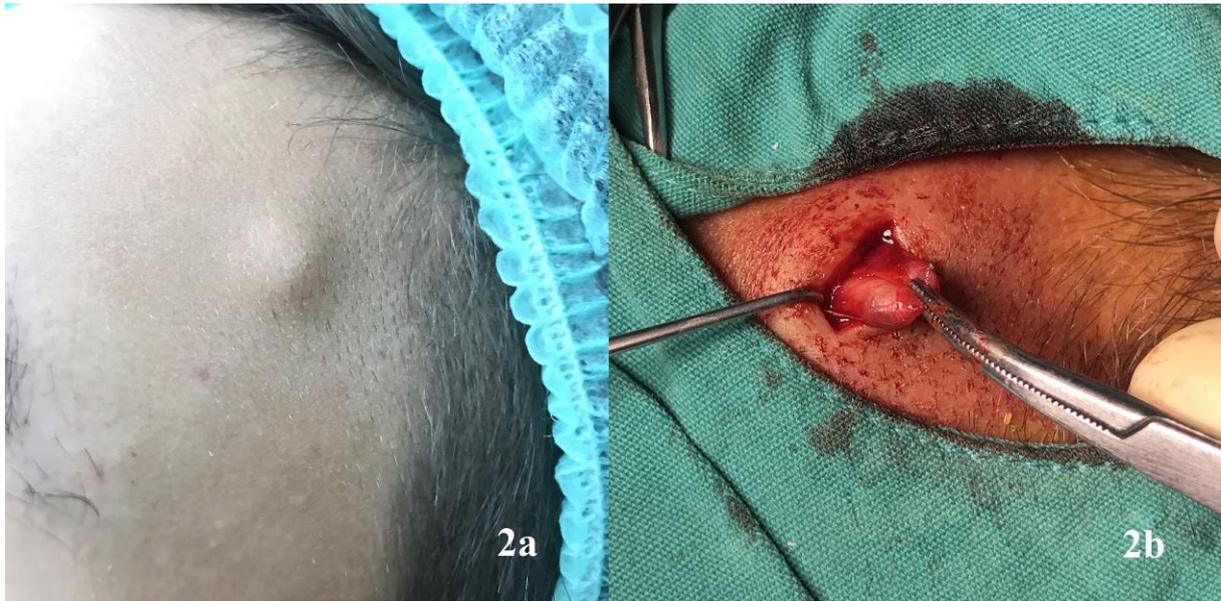


Figure 2a) Preoperative view of the pulsatile mass in the left temporal region

b) Intraoperative view of superficial temporal artery pseudoaneurysm prior to resection