

Traumatic Pseudoaneurysm of the Superficial Temporal Artery: A New Case Report

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DOI: 10.21859/focsci-030169

Submitted: 12.06.2016

Accepted: 02.04.2017

Keywords:

Carotid Artery Injuries
Temporal Arteries
Blunt Trauma
Margins of Excision

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Abstract

Introduction: A pseudoaneurysm of the superficial temporal artery (STA) is a rare clinical entity and potentially cause of pulsatile mass in forehead or scalp following blunt trauma, the diagnosis can primarily made by the history of head trauma, physical examination and confirmed by imaging studies. Surgical excision after ligation of both ends of STA seem to be highly effective and yields excellent results.

Case Presentation: We report a new case of a 25 years old male, presented with pseudoaneurysm arising from his right side of the forehead, which was removed surgically without recurrence at ten months of follow-up.

Conclusions: This infrequent condition requires our attention in order to reach an early diagnosis for prompt surgical intervention.

INTRODUCTION

Pseudoaneurysm (PA) or false aneurysms of the superficial temporal artery (STA) is an uncommon vascular complication following blunt maxillofacial trauma of the fronto-temporal area. It is seen in 1% of all traumatic aneurysms with some several hundred cases reported in the literature [1, 2].

A painless pulsatile mass a few weeks after trauma is highly suggestive of the diagnosis [3]. Surgical treatment seem to be highly effective and may be managed by a variety of specialties (plastic surgery, maxillofacial surgery, ear, nose and throat, neurosurgery and vascular surgery) [4]. Through a case report of PA of the STA, we emphasize the importance of early recognition, diagnostic modalities and prompt treatment.

CASE PRESENTATIONS

A 25-year-old male in good overall health presented with a three weeks history of a gradually increasing painless mass on his right side of the forehead. He did mention a history of trauma (a fall) at the site one month earlier. Examination revealed a pulsatile, subcutaneous, mobile, soft mass measuring approximately 4 × 2.5 cm in diameter, non-tender with well-defined borders. This spherical swelling was painless and located over the right fronto-temporal region (Fig 1). He denied any history of bleeding dyscrasias or neurological symptoms including paresthesia or motor dysfunction. A Doppler ultrasound showed an arterial flow that could be consistent with an arteriovenous malformation. Computerized tomography (CT) of the head was performed and revealed a 3.5 x 2.5 cm in diame-

ter of PA arising from frontal branch of right STA (Fig 2); the osseous structures were without fracture or lysis. Surgical excision was performed under general anesthesia with resection of the PA after ligation of the afferent and efferent segments of the vessel and electro cauterization of its supplying branches. Histopathological examination was conclusive of PA with no evidence of malignancy. The postoperative course was uneventful, the aesthetic result was very satisfactory (Fig 3) and the patient left the hospital on the 3th postoperative day. There was no recurrence at ten months of follow-up.



Figure 1: Clinical Photograph Showing the Aneurysm on the Right Fronto-Parietal Region



Figure 2: Computed Tomography Scan Shows a Round Mass in the Right Fronto Temporal Area



Figure 3: Post-operative Appearance (Three Weeks): Good Result with Inconspicuous Scar

DISCUSSION

Craniofacial traumatic aneurysms involve frequently the frontal branch of STA because of its anatomic location in direct contact with the outer table of the skull [5, 6]. STA pseudoaneurysms are rare and were first described in 1740 by Thomas Bartholin [7] with approximately 400 cases

reported in the literature [8]. Blunt injuries are the most common cause of traumatic STA pseudoaneurysm (more than 75% of cases) [9]. These include various sport related injuries, skull fractures, accidents and even iatrogenic injury during neurosurgical procedures [10]. Most aneurysms are revealed generally within few days to two months of injury [11, 12]; in our patient swelling was recognized 3 weeks after trauma. The diagnosis is usually made upon history (recent traumatic antecedents), physical examination and confirmed by radiological imaging [13, 14]. Differential diagnosis includes simple hematoma, lipoma, Arteriovenous fistula, abscess, soft tissue tumors, neuromas, foreign body granulomas and angiofibroma [15, 16]. Doppler ultrasonography (DUS) and computed tomography (CT) are primarily helpful for preoperative planning they may confirm the diagnosis and exclude other conditions [17, 18]. CT angiography is the diagnostic tool of choice, it confirms the diagnosis but it is mainly required in complicated cases [5], in our context, DUS was not conclusive for diagnosis while CT shows a round extra-cranial mass well enhancing after the use of contrast agent. However, CT angiography was not performed due to our limited available resources. Duplex ultrasonic scan, digital subtraction angiography, magnetic resonance imaging and 3D-CT angiography are useful for differential diagnosis but it is rarely indicated in the emergency department [19]. Therapeutic management is indicated for cosmetic reasons, to treat functional symptoms and avoid complications such as hemorrhage, enlargement, and compression of nerves and vessels. It includes manual compression, embolization, endovascular intervention and surgical removal of the PA [20]. Successful obliteration of STA aneurysms using thrombin has been reported, but it exposes to allergic reaction to thrombin and to systemic intravascular thrombosis [21]. Historically, surgical excision after ligation of both ends of STA remains the treatment of choice and yields excellent results [22].

In Conclusion, PA of the STA is an infrequent condition suspected in patients with pulsatile swelling and recent blunt trauma in forehead or scalp. It requires our attention in order to reach an early diagnosis for prompt surgical intervention.

ACKNOWLEDGMENTS

We would like to express our special appreciation and thanks to the Community Nurses in the Department of Plastic and Reconstructive Surgery in Rabat for their help during the management of patient.

CONFLICTS OF INTEREST

The authors declare no competing interests.

FUNDING

Declared none.

AUTHORS' CONTRIBUTIONS

All authors read and agreed to the final version of this manuscript and equally contributed to its content and to the management of the case.

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