

Post-Traumatic False Aneurysm of the Superficial Temporal Artery A Case Report and Review of the Literature

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Abstract

Case Report

Post-traumatic false aneurysms of the superficial temporal artery are a rare entity. We report a case of temporal swelling with little pain in a 26-year-old man who had suffered a head injury one month earlier. It was an aneurysm of the frontal branch of the right superficial temporal artery confirmed by echo-Doppler and CT scan after injection of contrast medium. The treatment consisted of surgical exclusion and removal. Post-operative follow-up was simple.

Keywords: Post-traumatic; aneurysm, artery.

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INTRODUCTION

Post-traumatic false aneurysms of the superficial temporal artery are a rare entity. In the majority of cases, they occur in males between the second and fourth decade. Most often, it is a closed head injury. We report the case of a 26 years old male who presented with a persistent scalp swelling one month after a head injury.

OBSERVATION

A 26 years old man with no previous history of head injury, without loss of consciousness, following a fall from a height. He presented with a right fronto-temporal ecchymosis (Figure 1). A brain scan showed a small subcutaneous soft tissue thickening over the right frontotemporal region, with no underlying post-traumatic bone lesion. There was no abnormality of the brain parenchyma. A persistence and progressive aggravation of the right frontotemporal swelling one month later motivated him to consult again. The examination revealed a right frontotemporal swelling, pulsatile with externalized bleeding. Palpation revealed a painful, pulsatile frontal mass, bleeding on contact, raising suspicion of a false aneurysm of the superficial temporal artery. A Doppler ultrasound showed a right fronto-temporal subcutaneous false aneurysm developed at the expense of the thrombosed right

superficial temporal artery (Figure 2). A second brain scan confirmed the diagnosis by demonstrating a false aneurysm of the frontal branch of the right superficial temporal artery (Figure 3). As bleeding persisted after compression manoeuvres, the patient was operated on under local anaesthesia with a ligation of the right superficial temporal artery and a simple flattening of the false aneurysm. The postoperative course was simple.



Figure 1: Swelling of the right temporal region bleeding on contact, persisting one month after a head injury in a 25 year old patient

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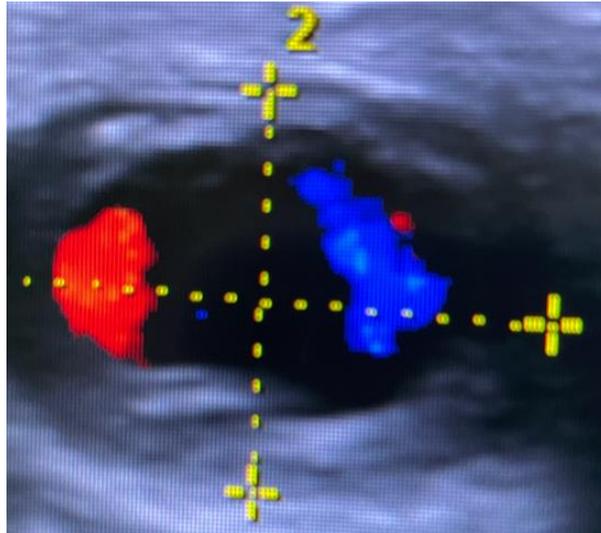


Figure 2: Doppler scan showing a false aneurysm of the frontal branch of the superficial temporal artery. With parietal thrombosis

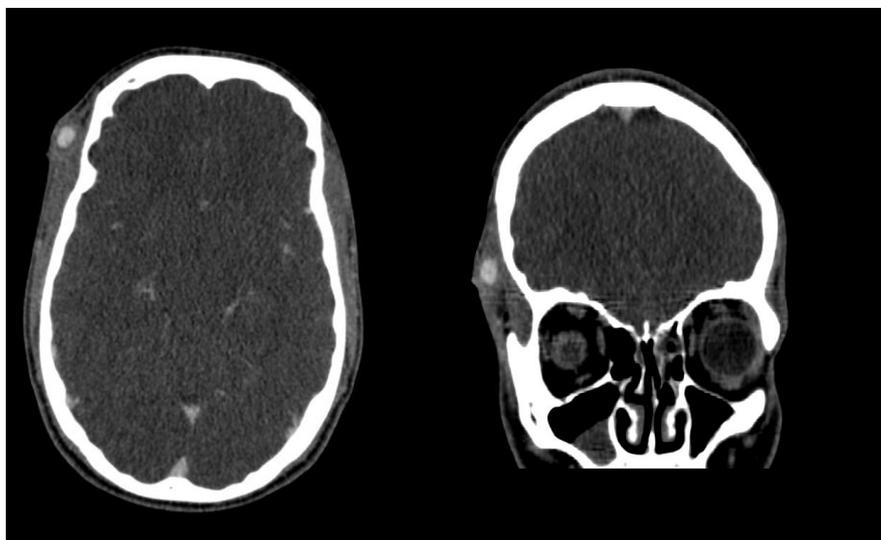


Figure 3: Cerebral angioscan in axial and coronal sections. Pseudo aneurysm of the frontal branch of the right superficial temporal artery

DISCUSSION

The superficial temporal artery is one of the terminal branches of the external carotid artery. As its name indicates, its superficial nature exposes it to the various consequences of cranioencephalic trauma, notably post-traumatic aneurysms or false aneurysms. Thus, post-traumatic false aneurysms of the superficial temporal artery are a rare entity. Few cases are reported in the literature (327 cases in 1998) [1]. Most often, contusion of an arterial segment leads to localized necrosis of the vascular wall, with the formation of a hematoma evolving into a fibrous pseudo capsule. This subsequently expands very gradually to form a small pulsatile mass on palpation [3].

As in most traumatic pathologies, the male sex is the most affected, with an average age between 20 and 40 years. In our case, the subject was male and within this age range.

The average delay between diagnosis and causal trauma is a few weeks [2]. In our case, the time to diagnosis was one month.

The diagnosis is primarily clinical, characterised by the demonstration of a unilateral pulsatile temporal swelling. Symptoms may include pulsatile headache, visual disturbances, dizziness, pulsatile hearing impairment, or even paresthesias of the temporal region [3]. When the clinical picture is incomplete, the diagnosis is clarified by complementary examinations which eliminate other pathologies. The echo-Doppler shows that the false aneurysm is in direct continuity with the superficial temporal artery (ATS) and specifies its size. It shows the possible presence of an intra-aneurysmal parietal thrombosis and measures the circulating channel. The study of the flows is better appreciated with color Doppler and highlights intra-aneurysmal turbulence with "back and forth" flows. The brain scan with injection of contrast shows the

extravasation of the contrast medium within the hematoma, fed by the ATS. It shows the size of the haematoma and the existence of a possible intraneurysmal thrombus. MRI was proposed for diagnostic purposes. Arteriography is of no interest for the diagnosis of these lesions. It is only used for therapeutic purposes (endovascular treatment) [1, 4]. In our case, ultrasound Doppler and angioscanner coupled with clinical findings allowed us to make the diagnosis and the branch affected was indeed the frontal branch of the superficial temporal artery.

Surgery is the treatment of choice. It involves ligation of the TSA and flattening of the aneurysm, usually under local anaesthesia but may require general anaesthesia [1].

CONCLUSION

False aneurysms of the superficial temporal artery are a rare and predominantly male entity. The frontal branch is the one most often affected. The diagnosis is clinical in the presence of a post-traumatic pulsatile temporal swelling persisting on average four weeks after the causative trauma. Imaging, in particular

Doppler ultrasound, angioscanner and even MRI, play a role in confirming the diagnosis in case of doubt. Surgical treatment is the gold standard for the management of these lesions; however, other alternatives such as compression and endovascular treatment remain possible.

REFERENCES

1. Lemonnier, C., Melki, J., Benadiba, L., & Janvresse, A. (2010). Post-traumatic false aneurysm of the superficial temporal artery: a case report. *Journal of Vascular Diseases*, 35, 263-265.
2. Wiart, T., Lebas, D., & Modiano, P. (2013). Post-traumatic false aneurysm of the superficial temporal artery. *Annals of Dermatology and Venereology*, 140(6-7), 194
3. Combes, C., Barthes, N. (2016). Traumatic aneurysm of temporal artery in a young soldier. *Journal de Traumatologie du Sport*, 33, 104-106.
4. Mann, G. S., & Heran, M. K. S. (2007). Percutaneous thrombin embolization of a post-traumatic superficial temporal artery pseudoaneurysm. *Pediatric radiology*, 37(6), 578-580.