Endovascular Treatment of Traumatic Pseudoaneurysm of the Superficial Temporal Artery

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Case report
An otherwise healthy, 28-year-old male patient with no history of co-morbidities was referred to the clinic complaining of a painless pulsating mass that was growing progressively, in a right preauricular position, and was causing a pulsing buzz in the ear. The patient had suffered a car accident 8 years previously that caused laceration injury to the right preauricular region. (fig. 1)

Color duplex scan has showed a false aneurysm of the superficial temporal artery that had 22 mm in diameter, without thrombi, but also with findings characteristic for direct arteriovenous fistula. (fig. 2)

Procedure details
Taking into account patients age and the fact that patient refused open surgical procedure because of a scar, but also proximal position of STA pseudoaneurysm, vascular plug embolization of the lesion was performed in a single stage. Through a 6 F introducer sheath, a 5 F diagnostic catheter and hydrophilic angled guidewire were used to access the right external carotid artery. The sheath was then advanced distal to the aneurysm of the STA. A single 6 mm diameter AMPLATZER Vascular Plug II (St. Jude Medical) was advanced to the site of the aneurysm. (fig. 3)

A final angiogram demonstrated complete occlusion of the pseudoaneurysm (fig. 4 A). Control ultrasound examination one month after has showed correct position of the plug as well as complete thrombosis of pseudoaneurysm and no signs of previous arteriovenous fistula (fig. 4 B).

Discussion
Pseudoaneurysms of the superficial temporal artery (STA) account less than 1% of total number of newly diagnosed pseudoaneurysms. Mostly they are the result of incidental penetrating or blunt head trauma. Surgical ligation and excision of the pseudoaneurysm is considered the standard therapy, tough coil embolization and ultrasound-guided thrombin injection have recently emerged as alternate minimally invasive treatment options. When the STA pseudoaneurysm has a relatively inaccessible localization such as the proximal STA, proper dissection requires exposure of the parotid and the facial nerve before ligation and resection of the aneurysm are performed. In these cases, endovascular embolization can be the first choice method.

Conclusion
Endovascular embolization with the vascular plug can be an option of in the treatment of STA pseudoaneurysms. This modality avoids the necessity for surgical exposure and improves recovery time.