

Case Report

True Aneurysm of Superficial Temporal Artery - A Rare Pathology

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Abstract

True Superficial Temporal Artery aneurysms (STA) are known as rare types of peripheral aneurysm, while pseudo-aneurysms of the same artery are more common. We report the unique case of a 67-year old woman who transferred from other hospital to our vascular outpatient's clinic with a spontaneous pulsatile aneurysmal swelling in the right pre-auricular region at the direction of the main superficial temporal artery with no history of trauma. She underwent an uncomplicated and curative surgical excision of the aneurysm and ligation.

Keywords: Aneurysm; Artery; Excision; Ligation; Superficial; Surgical; Temporal; True

Case Report

A 67-year-old female patient was transferred from another hospital to our vascular outpatient's clinic with a spontaneous pulsatile aneurysmal swelling over the right pre-auricular region at the direction of the main superficial temporal artery with history of more than two years. She noticed incidentally and had progressively increased in size over the last six months. She had a disturbance during sleeping on the right lateral position. Also, she could feel a trembling and throbbing sensation mostly during the use of her reading glasses. She had no history of trauma in the head or neck region. The only chronic disease that she had was an allergic sinusitis without treatment at the moment. Physical Examination revealed about 1.7 × 1.5cm a spherical mass over the right pre-auricular region, had expansile pulsation, compressible, soft and painless without signs of infection or inflammation (Figure 1). The pulsation of the mass disappeared with pressure of the afferent site of the superficial temporal artery. A duplex ultrasound that she had done 6 months. Before revealed: Right STA aneurysm, diameter about 1.24cm x 0.63cm.



Figure 1: The Right preauricular STA aneurysmal swelling.

CTA angiography of the extracranial and intracerebral arteries 6 months before showed right superficial temporal artery aneurysm, diameter about 0.9cm x 1.0cm, no intracranial aneurysms (Figure 2). A new duplex ultrasound: showed STA aneurysm diameter 1.7cm x 1.1cm, arterial flow within the mass and this flow reduces by external pressure on the feeding vessel (Figure 3). The patient underwent surgical excision under general anesthesia. The aneurysm was dissected from adjacent structures

after identification of the proximal and distal STA. It was completely excised with a small part of proximal and distal STA after ligation. There was no thickening or fibrosis of surrounding tissue (Figure 4 and 5).

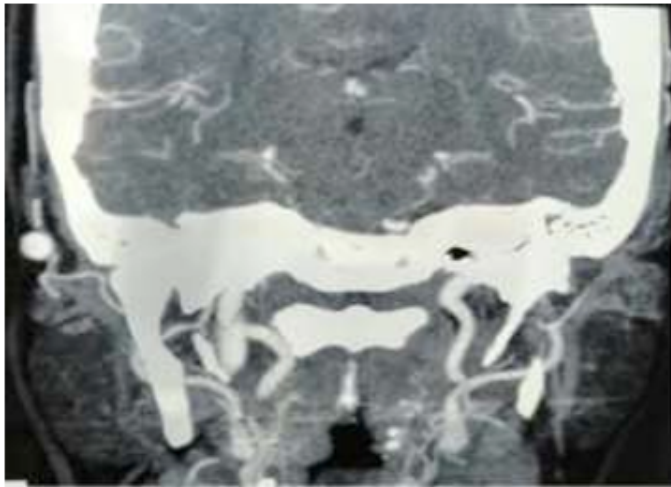


Figure 2: CTA angiography of the extracranial and cerebral arteries showed right superficial temporal artery aneurysm.



Figure 4: Intra-operative picture shows the proximal and distal parts of STA with aneurysm.



Figure 5: Excised STA aneurysm with proximal and distal parts of the artery.

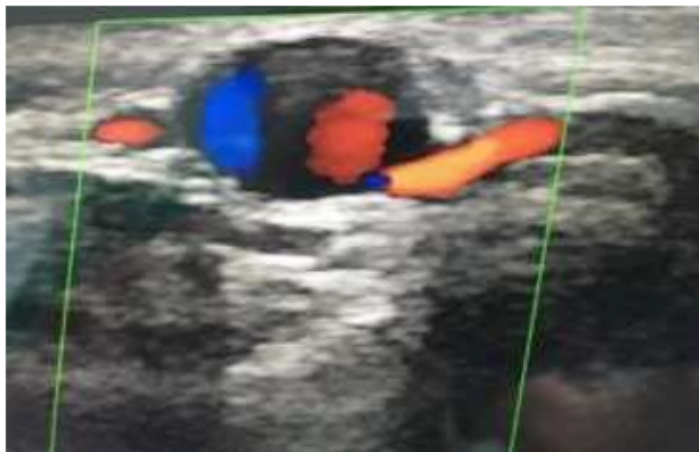


Figure 3: Duplex Ultrasound: A. Proximal STA, B. Distal STA, C. STA aneurysm.

Histopathological examination of the specimen revealed fusiform aneurysm 2.5cm x 1.0 cm in diameter. The wall of the aneurysm is composed of three layers intima, media and adventitia without lesion. The diagnosis was a true fusiform aneurysm of STA (Figure 6).

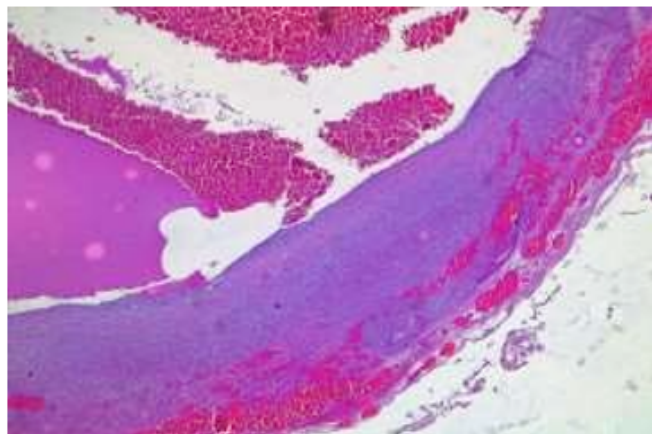


Figure 6: Microscopic histopathological examination: aneurysm composed of three layers intima, media and adventitia without lesion.

Discussion Literature Review

The first case report of an STA aneurysm was by Thomas Bartholin in 1740 [1-3]. The largest a 4-cm STA aneurysm was reported by Kawabori [4]. To our knowledge, A comprehensive literature review conducted in 2017 identified just 35 cases by Kotsis T were reported 2 cases more of true STA aneurysm, our case report is 38 and the first one in Ecuador where has been reported [1,5,6]. True superficial temporal artery aneurysm is extremely rare representing approximately 5-10% of all STA aneurysms comparing to a more common pseudo-aneurysms about 95%, which develops within 2-6 weeks after trauma [1]. The exact pathophysiology of the true aneurysms has not been established. However, the etiology of true STA aneurysm varies could be a congenital, atherosclerotic, degenerative, connective tissue disorder and infective pathology. In particular, it has been suggested that the congenital changes in the elastic membrane may cause the development of a true aneurysm.

Pseudo-aneurysms, there is a partial rupture in the arterial wall leading to the absence of the media, usually the trauma (partial transection or contusion) is the common cause to be due to the artery-undergoing shear and crush as it passes over the bony ridge from where the temporalis muscle takes origin, also could be by the cause of infection and surgery in this region [1]. Differential diagnosis includes pseudoaneurysm, cysts, lipoma, haemangioma, neuromas, an arteriovenous fistula, inflammatory lesions, and malignancies [7]. We think a history, physical examination and duplex ultrasound by expert technician is enough to diagnose a STA aneurysm. Duplex ultrasound will show an arterial flow within the lesion, proximal and distal part of STA, also on external compression of the feeding vessel the pulsation will disappear or reduce and this will confirm with the duplex imaging.

A CTA or MRA of the head and neck perform if needs an additional information about any associated intra-cranial aneurysms and STA aneurysm [8]. Needle aspiration or core biopsy of such masses prior to such imaging has the risk to cause bleeding and hematoma. Indications for surgery pain, increasing size, cosmetic reasons, and overlying skin changes. Open ligation and resection are the gold standard treatment, curative and safe. Compression ultrasound and Endovascular embolization has a limited effect [7,9].

Conclusion

A true superficial temporal artery aneurysm is a rare pathology. Our opinion is a history, physical examination and duplex ultrasound by expert technician is enough to make the diagnosis. CTA is indicated for more additional information about STA aneurysm or any associated intra-cranial aneurysms. The gold standard of treatment resection and ligation of aneurysm, preferable make the surgical incision over the preauricular crease as possible for cosmetic reason. Ultrasound compression not used because of its recurrence. Endovascular embolization still has a limited use. Looking to have a center of registry of these cases and develop these techniques in the future.

Conflict of Interest

None.

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