CASE REPORT

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Congenital True Aneurysm of the Right Superficial Temporal Artery

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ABSTRACT

Introduction: Superficial temporal artery aneurysms (STAAs) occur in 1% of arterial aneurysms; mostly (95%) are pseudoaneurysms following trauma; true aneurysms are rare (5%); forty-five cases are reported. **Aim:** To report a rare case of a congenital STAAA. **Case Report:** A67-year-old patient recalled the existence of a true-histologically evidenced- aneurysm of the right superficial temporal artery since his childhood denying any head injury; it was resected through a horizontal skin incisure. Brain arteries' magnetic imaging was negative. **Conclusion:** Spontaneous or congenital STAAs have to be removed respecting forehead lines. Intracranial vasculature must be investigated.

Keywords: superficial temporal artery, aneurysm, true, congenital.

1. INTRODUCTION

Superficial temporal artery aneurysm (STAA) is an apparent, pulsatile, commonly painless, swelling under the skin, over the route of STA. Its excision is dictated to prevent bleeding, or for cosmetic reasons, as in this case.

2. AIM

To report a rare case of a STAA along with a review of the literature are discussed.

3. CASE REPORT

A 67-year-old man recalls a painless, pulsatile swelling at the right forehand over the eyebrow, since his childhood, denying any head trauma; its size 4cm in length and 2 cm in width) remained the same for many decades. No nerve dysfunction existed. Proximal STA compression resulted in pulse elimination and minimization of the arterial Doppler signal. The aneurysm was excised under general anesthesia, following a horizontal and curved at its lateral end, skin incision. Both artery's ends were ligated using 3.0 silk suture. The temporal muscle was repaired with 4.0 polyglactin suture. Semi-mattress stitches (4.0 nylon) used for skin closure, were removed on the 4th postoperative day. The patient was discharged some hours following surgery with no postoperative local circulatory deficiency nor any nerve dysfunction (Figure 1).

Histology revealed that all three arterial wall layers were intact with partial atherosclerotic changes, defining the lesion as a true STAA (Figure 2). Brain magnetic resonance angiography (MRA) was negative (Figure 3).

4. DISCUSSION

Since the first STAA case reported by Bartholin in 1740, most STAAs are pseudoaneurysms (95%) usually occurring in young men and elder-

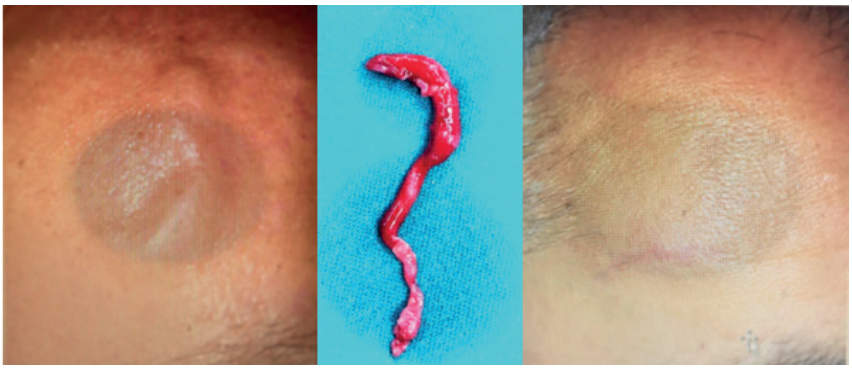

Figure 1. Superficial temporal artery aneurysm at the right temporal region, before surgery,after excision and at the 4th postoperative day

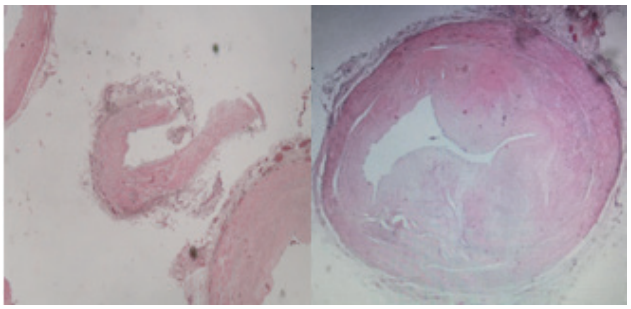

Figure 2. Histology of the superficial temporal artery aneurysm

ly people, after accidental falls, due to the shallow STA route. While according to Delen[1],approximately 400 posttraumatic STA pseudoaneurysms are reported, only 34 true aneurysms are published. The etiology includes atherosclerosis, usually met in the elderly, occasionally with hemodynamic wall stress (1-3). Congenital arterial wall defects due to arterial elastic membrane alterations, seems to be a primary cause for true aneurysms; according to Kawai (4) there is a high ratio of patients under 20 years of age with spontaneous STAAs; this strengthens the congenital component (1, 2). In the case of the patient we present here, we assume that his true aneurysm was congenital due to his history- a fast flow malformation, according to Hamburg classification (3).

A/A	Author/Year	Age/Sex	Pain	Size increase	Other aneurysms
1	Brown & Mehner/1942[5]	34/M	No	Yes	No
2	Martin & Shoemaker/ 1955[6]	60/M	No	Yes	No
3	Yonetani *et al*/1955[6]	63/W	No	Yes	No
4	Tamaki & Matsumoto/1980[7]	57/M	Yes	Yes	No
5	Suzuki *et al*/1980[7]	13/W	No	Yes	No
6	Buckspan & Rees/1986[7]	70/M	No	Yes	No
7	Nishioka *et al*/1988[8]	14/M	No	Yes	No
8	Ezoe *et al*/1988[8]	22/M	Yes	Yes	No
9	Ikeda & Watanabe/1998[8]	15/M	No	Yes	No
10	Uchida & Sakuma/1999[9]	34/M	No	Yes	No
11	Endo *et al*/2000[9]	85/M	No	Yes	No
12	Porcellini *et al*/2001[9]	24/W	No	No	No
13	Ohta *et al*/2003[10]	55/M	No	No	Intracranial
14	Riaz/2004[10]	65/M	No	Yes	No
15	Riaz/2004[10]	77/M	No	No	No
16	Ysa *et al*/2008[4]	59/W	Yes	Yes	No
17	Kawabori *et al*/2009[11]	78/W	No	Yes	No
18	Piffaretti/2009[11]	62/W	No	No	No
19	Piffaretti/2009[11]	47/M	No	Yes	STA
20	Karam *et al*/2010[11]	34/W	No	Yes	No
21	Sakamoto/2011[12]	77/W	No	Yes	No
22	Bozkurt *et al*/2011[13]	62/M	Yes	No	No
23	Nair *et al*/2011[14]	84/W	No	No	No
24	Mousa et al/2011[15]	72/W	No	Yes	No
25	Moriyama *et al*/2011[16]	67/W	No	Yes	No
26	Park *et al*/2012[17]	57/W	No	Yes	No
27	Sloane *et al*/2013[11]	32/M	No	Yes	No
28	Kawai *et al*/2014[2]	65/M	No	Yes	Intracranial
29	Kawai *et al*/2014[2]	76/W	No	No	No
30	Kawai *et al*/2014[2]	57/W	No	Yes	ECA, STA, OA
31	Pejkic *et al*/2014[18]	NR	Yes	Yes	No
32	Kim/2014[19]	44.7/6W/6M	No	Yes	STA
33	Zivkovic *et al*/2015[1]	20/M	No	Yes	No
34	Delen *et al*/2016[1]	79/W	No	No	Intracranial
35	**Kotsis *et al*/2017**	67/M	No	No	No

Table 1. Reported cases of true superficial temporal artery aneurysms (1,2,4-7,10-33). NR: No reference, W:Woman. M:Man, ECA:External carotid artery, STA: Superficial temporal artery, OA: Occipital artery

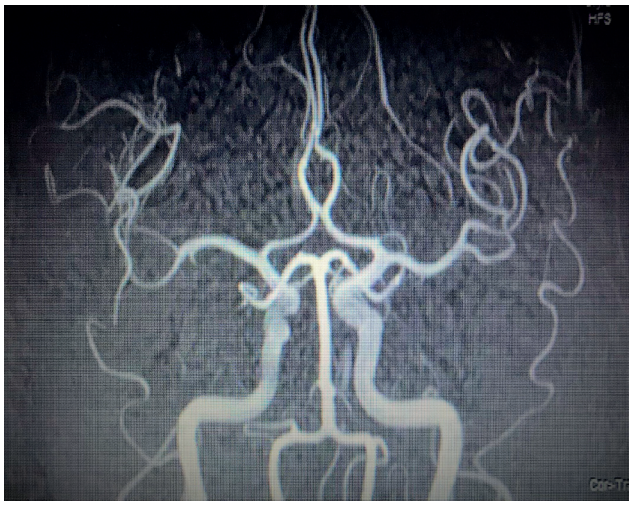

Figure 3. Magnetic resonance angiography of the brain vasculature was negative

Superficial TAAs appear equally in both sexes; few are painful or accompany other extracranial or intracranial aneurysms (Table 1) (1, 2, 4, 5-20). Few are related to subarachnoid hemorrhage and intracranial aneurysms, to Ehlers-Danlos and Marfan syndromes, or multicystic kidney (1, 2). Intracranial vessel investigation is justified in patients with true STAAs (2).

Commonly, patients with STAAs present with a pulsatile painful or nonpainful mass at some point along the artery, throbbing headache or ear discomfort or with dizziness, bleeding, or rarely neurologic deficits, as facial nerve paralysis (1, 2, 4).

Differential diagnosis includes lipoma, hematoma, lymphadenopathy, supraorbital nerve neuroma, dural arteriovenous fistula, arteritis, cysts, neoplastic disease as facial nerve schwannoma, parotid gland tumor, meningocele, pericranial sinus and subcutaneous abscess (2, 4). Occasionally STAA resembles a parotid mass involving the facial nerve, that may require superficial parotidectomy (1).

Diagnosis is confirmed by history, physical examination, Doppler study, and imaging such as ultrasonography; studies such as CTA, 3D-CTA and MRA may be used to identify the lesion and to investigate other intracranial lesions. Needle aspiration or core biopsy of the artery must be avoided (4, 11).

The risk of sudden rupture and bleeding of a STAA is a concern; though no similar case has been published as the forehead skin is thick and firm; most STAAS are removed before rupture due to their early detection; aesthetical improvement, pain or discomfort are reasons for treatment. Although no criteria/guidelines are established, surgery is the gold standard, with a skin incision that respects the skin lines as in this presented case; the parallel to frontal lines incision followed by cranial and caudal arterial resulted in scar elimination. Excision, and feeders' ligation is recommended; no vessel reconstruction is necessary. Super selective catheter embolization with glue or thrombin injection has been used where the depth of the artery or its contiguity to the facial nerve

and the parotid gland complicate surgery; however, there is the risk of embolism and the less cosmetic result due to the remnant thrombosed aneurysm (4, 7, 11).

5. CONCLUSION

Congenital STAAs have to be resected, as all removable congenital malformations. Spontaneous or post traumatic STAAs have also to be removed to avoid complications or discomfort. Skin incisions have to respect forehead/temporal skin lines. Intracranial vasculature must be investigated.

- **Author's contribution:** The first author and all co-authors were included in all phases of preparation this article. Final proof reading was done by first author.
- **Conflict of interest:** none declared.
- Declaration of patient consent: Authors certify that they have obtained patient consent form.

REFERENCES

1. Delen E, Ozkara E, Aydin HE. et al. True aneurysm of superficial temporal artery accompanying multiple intracranial aneurysm. Asian J Neurosurg. 2016; 11: 76-77.
2. Kawai H, Hamasaki T, Imamura J, et al. Three cases of spontaneous superficial temporal artery aneurysm with literature review. Neurol Med Chir. 2014; 54: 854-860.
3. Steiner JE, Drolet BA. Classification of Vascular Anomalies: An Update. Semin Intervent Radiol. 2017; 34: 225-232.
4. Ysa A, Arruabarrena A, Bustabad MR, et al. Images in vascular medicine. True aneurysm of the superficial temporal artery.Vasc Med. 2008; 13: 295-296.
5. Brown RK, Mehnert RH: Aneurysm of the temporal artery. Surgery. 1942; 12: 711-715.
6. Martin WL, Shoemaker WC: Temporal artery aneurysm. Am J Surg. 1955; 89: 700-702.
7. Buckspan RJ, Rees RS: Aneurysm of the superficial temporal artery presenting as a parotid mass. Plast Reconstr Surg. 1986; 78: 515-517.
8. Ikeda S, Watanabe T. Superficial temporal artery aneurysm associated with pathological changes mimicking cystic medial necrosis. Neurol Med Chir. 1998; 28: 1223-1227.
9. Porcellini M, Bernardo B, Spinetti F, Carbone F. Outpatient management of superficial temporal artery aneurysms. JCardiovasc Surg. 2001; 42: 233-236.
10. Riaz AA, Ismail M, Sheikh N, et al. Spontaneously arising superficial temporal artery aneurysms: report of two cases and review of the literature. Ann R Coll Surg Engl. 2004; 86: 861-863.
11. Piffaretti G, Castelli P. True aneurysms of the superficial temporal artery: report of three cases. Ann Vasc Surg. 2009; 23: 687. e15-7.
12. Sakamoto T, Sugimoto M, Kakigi A, et al. A spontaneous true aneurysm of the superficial temporal artery treated by surgical resection.Auris Nasus Larynx. 2011; 38: 119-122.
13. Bozkurt G, Ayhan S, Cakici N, et al. Spontaneous nonpulsatile aneurysm of the superficial temporal artery mimicking a subcutaneous mass lesion. J Craniofac Surg. 2011; 22: 371-372.
14. Nair R, Varsani D, Frecker P. An unusual bump on the head: spontaneous superficial temporal artery aneurysm. Indian J Surg. 2011; 73: 240-241.
15. Mousa AY, Jain AK, Campbell JE, et al. Degenerative (true) superficial temporal artery aneurysm: a case report with review of literature. Vasc Endovascular Surg. 2011; 45: 568-571.
16. Moriyama S, Kunitomo R, Sakaguchi H, et al. Intravascular papillary endothelial hyperplasia in an aneurysm of the superficial temporal artery: Report of a case. Surg Today. 2011; 41: 1450-4
17. Park SK, Bong HJ, Jang DK, et. Traumatic true aneurysm of the superficial temporal artery. Aesthetic Plast Surg. 2012; 36: 934-937.
18. Pejkić S, Sladojevic M, Koncar, et al. Isolated true aneurysm of the superficial temporal artery: a truly enigmatic lesion. Vasa. 2014; 43: 380-384.
19. Kim E. True aneurysms of the superficial temporal artery: Diagnosis and treatment. Clin Neurol Neurosurg. 2014; 126: 64-68.
20. Van Uden DJ, Truijers M, Schipper EE, et al. Superficial temporal artery aneurysm: Diagnosis and treatment options. Head Neck. 2013; 35: 608-614.