



GIANT TRAUMATIC SUPERFICIAL TEMPORAL ARTERY ANEURYSM: A RARE CLINICAL PRESENTATION

Plastic Surgery

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ABSTRACT

In the literature very few cases of giant superficial temporal artery aneurysms have been reported and majority of the same are in its frontal branch. Proximal superficial temporal artery aneurysms are less frequently reported. They are usually seen after blunt or penetrating injuries to head. Clinically they present with pulsatile or non pulsatile swelling along the course of Superficial temporal artery. A detailed clinical examination should clinch on the diagnosis. Presently, surgical management is considered the gold standard treatment. The primary aim of this paper to highlight the importance of clinical evaluation in this modern day (investigative) practice.

KEYWORDS

Superficial temporal artery aneurysm, giant Pseudo-aneurysm, post-traumatic

INTRODUCTION:

Superficial temporal artery pseudo-aneurysms are rare facial swellings encountered by plastic surgeons across the world.¹ Although, benign they may have an array of clinical features. These aneurysms are frequently observed after blunt or penetrating injuries of the head especially in the temporal region.² Because of the rarity they can be misdiagnosed. In this paper we report a case of giant Superficial temporal artery Pseudo-aneurysm with associated facial nerve weakness.

CASE DETAILS:

A 28-year-old gentleman was referred to our Plastic surgery department with a painless left sided pre-auricular swelling of six months' duration (Figure 1). Two months' prior a biopsy of the swelling was done by other specialty with the clinical diagnosis of parotid tumor which was inconclusive. Ultra-sonography with Doppler study revealed the benign nature of the swelling and disclosed a 5.4 cm x 4.5 cm x 4.5cm swelling in the proximal part of superficial temporal artery. It displayed findings suggestive of Pseudo-aneurysm with swirling-pattern waveform. There was partial thrombosis of the lumen. He was planned with selective external carotid angiography which demonstrated an aneurysm arising from proximal part of superficial temporal artery which was embolized (Figure 2). Unfortunately, even after procedure the swelling kept on increasing over the next one month. On further inquiry he revealed to have sustained a neuro-facial blunt trauma nine months back in a road traffic accident where his right angle of mandible and Zygomatic fractures were managed with open-reduction and internal fixation. Whilst his neuro-trauma was managed conservatively.

On examination, a solitary ill defined pulsatile swelling measuring 7cm x 6 cm x 5 cm was felt in left pre-auricular region with facial nerve weakness (Figure 1d). A clinical diagnosis of Superficial temporal artery aneurysm was established. Later he underwent ligation and excision of superficial temporal artery (Figure 3). Histopathology report suggested the benign nature of the lesion. He is currently under regular follow up with no recurrence.

DISCUSSION:

In 1970 Danish Physician Thomas Bartholin was the first to report a case of Superficial temporal artery aneurysm (STAA).³ Since then less than 400 cases of STAA have been reported, the exact figure still remains elusive.³ The Giant subtype with diameter larger than 5 cm are even remarkably rare.^{2,4} Statistically majority of these are reported in young males and elderly secondary to accidental falls.³

Anatomically, Superficial temporal artery (STA) has long and superficial course after its origin from external carotid artery. Although it may be seen all throughout its course, STAA are more commonly encountered in its frontal branch a point where the vessel pierces temporalis fascia. A bony ridge created by the origin of temporalis muscle at the above described point is believed to exert a shearing and crushing force which damages this superficially placed vessel.^{1,2,5}

Whatever the site (proximal or distal) and the mechanism of injury (penetrating or blunt) be, it results in an incomplete transection or contusion of STA eventually leading to vessel wall necrosis and weakness. This insult ultimately leads to hemorrhage and confined hematoma which may be manifested as sudden onset pain and swelling along the course of STA. With progressive organization of hematoma, a surrounding fibrous pseudo-capsule is formed. With gradual lysis and resorption of the luminal thrombus, a substantial flow is established through the vessel. Progressive dilation of hematoma capsule explains the delayed appearance of a pulsating mass.¹

Clinically they present by 2-6 weeks as pulsatile compressible swellings along the course of STA which progressively increase in size after a recent neuro-facial trauma.⁶ They can manifest with compressive symptoms, cosmesis or fear of cancer (the 3 'C' s). The proximal lesions can mimic parotid tumor like in our case. Pathologically these aneurysms can be true or false.⁶ An underlying preexisting vessel wall abnormality could be the possible reason for true STAA. A thorough detailed History and physical examination should unveil majority of STAA. Any patient with recent history of neuro-facial trauma with appearance of a pulsatile swelling along the anatomical course of STA should raise a suspicion of STAA. Non-invasive modality like Doppler ultrasonography can define the anatomy and the flow pattern. This can be combined with simple proximal pressure test in ruling out other pathologies. Nonetheless angiography still remains the gold standard modality.

Literature provides a wide array of surgical and non surgical techniques to manage STAA. Amongst all, surgical ligation and excision remains the gold standard.^{1,6} Surgical excision is safe, reliable, effective, time-tested and avoids recurrences. For more proximal aneurysms combined approaches have also been described with limited success.^{2,5}

To conclude, STAA are rare lesion which should be part of differential diagnosis especially while evaluating pre-auricular non-pulsatile swellings. A through history and physical examination should clinch the diagnosis. In Patients with no prior history of trauma and multiple aneurysms, an underlying connective tissue disorder should be evaluated.

Fig. 1. Pre-operative photos(a-d): showing the location and extent of the swelling. Note the previous attempted biopsy scar(c) and facial nerve weakness (d).



Fig.2. Digital Subtraction angiography(a-d): showing the course of superficial temporal artery with partially occluded pseudoaneurysm.

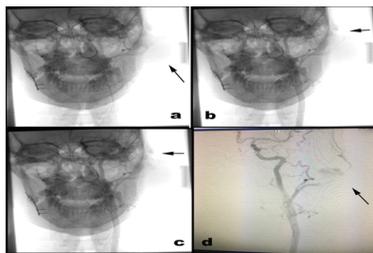
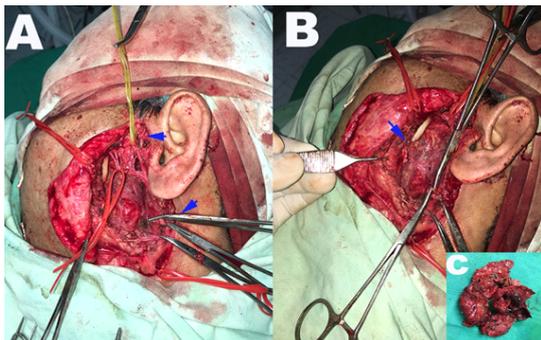


Fig.3. Intra-operative imaging(A-C): showing the extent of the lesion. Note the thinned out facial nerve branches been looped and secured with the two arrows pointing at ligated superficial temporal artery (A). Also observe the bony erosion by the lesion (B). Inset(C) showing the cut opened pseudoaneurysm.



REFERENCES

1. Sawyer O, Staruch R, Ellabban M. Post traumatic superficial temporal artery aneurysm: highlighting the importance in history and examination. *Eplasty*. 2014 Dec 30;14: ic48. eCollection 2014.
2. Khandelwal P, Akkara F, Dhupar V, Louis A. Traumatic pseudoaneurysm of the superficial temporal artery. *Natl J Maxillofac Surg* 2018; 9:74-7
3. Shenoy S N, Raja A. Traumatic superficial temporal artery aneurysm: Case report. *Neurol India* 2003; 51:537-8
4. Coenegrachts K, Hermans R, Vander Poorten V, Thijs M, Wilms G. Non-traumatic giant aneurysm of a superficial temporal artery. *JBR-BTR*. 2005; 88:72-4.
5. Pipinos II, Dossa CD, Reddy DJ. Superficial temporal artery aneurysms. *J Vasc Surg*. 1998;27(2):374-7
6. Jake Sloane, Abdul Aziz, and Khalid Makhdoomi. A true aneurysm of the superficial temporal artery: Is there an underlying pre-disposition to such rarities? *Int J Surg Case Rep*. 2013; 4(10): 852-854. PMID: 23959418.