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Presentation and surgical management of a superficial temporal artery pseudoaneurysm: A case report

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ABSTRACT

INTRODUCTION AND IMPORTANCE: A Superficial Temporal Artery Pseudoaneurysm is an uncommon, but important, differential diagnosis for masses in the head and neck region.

This work has been reported in line with SCARE 2020 criteria [1].

CASE PRESENTATION: An 81-year-old male presented to the Oral and Maxillofacial Department with a facial swelling that had been present for a duration of three weeks. A provisional diagnosis of a haematoma was made and an ultrasound carried out to confirm diagnosis. Ultrasonography and CT Angiography confirmed a pseudoaneurysm arising from the left superficial temporal artery.

CLINICAL DISCUSSION: Although this is a relatively uncommon diagnosis it is important to be aware of the key diagnostic tools used to identify a pseudoaneurysm. Specifically, their potential to exclude a pseudoaneurysm prior to diagnosing a simple post-traumatic haematoma. This is important as the treatment strategies for the two pathologies differ considerably. Useful learning points from this case include diagnostic aids such as the unique pulsatile nature of the mass and the role of ultrasonography and CT Angiography in confirming diagnosis and guiding surgical management.

CONCLUSION: Pseudoaneurysms are an important consideration as a differential diagnosis of masses in the head and neck region. This case report may impact upon management of future similar cases by highlighting significant aspects of their clinical diagnosis and surgical management, enabling early identification and appropriate management.

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1. Introduction

We present a case of an 81-year-old man referred by his General Practitioner with a left sided forehead mass which arose following trauma. Clinical examination and ultrasound imaging of the mass confirmed a pseudoaneurysm of the superficial temporal artery. Following a CT angiogram to facilitate planning, surgical excision was carried out. We would like to highlight this case to raise awareness of a pseudoaneurysm as an uncommon, but important, differential diagnosis for masses in the head and neck region. Specifically the importance of excluding a pseudoaneurysm prior to diagnosing a simple post traumatic haematoma. The treatment strategies for the two pathologies differ considerably.

2. Presentation of case

An 81-year-old male attended the Oral and Maxillofacial Department following a referral from his General Medical Practitioner



Fig. 1. Initial clinical presentation.

regarding a facial swelling present for a duration of three weeks (Fig. 1). The patient reported falling and hitting his head on the blunt edge of a kitchen unit. In the following days a swelling appeared on his forehead which gradually increased in size. He described tenderness to touch but no other symptoms.

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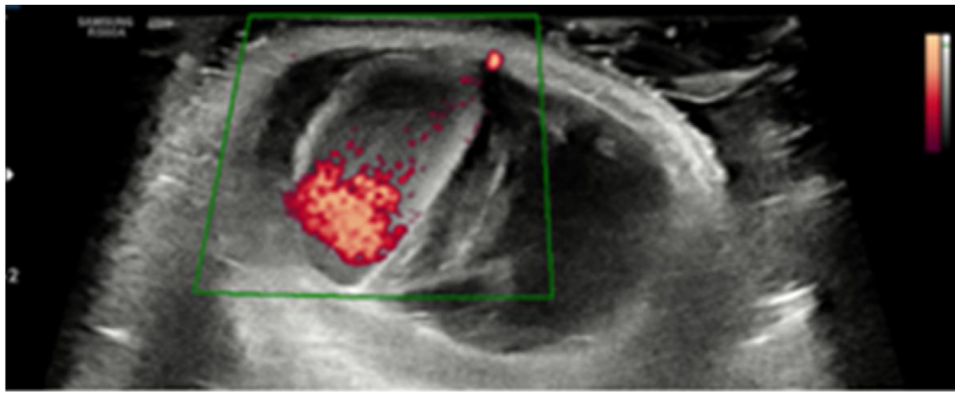


Fig. 2. Ultrasound imaging of lesion.

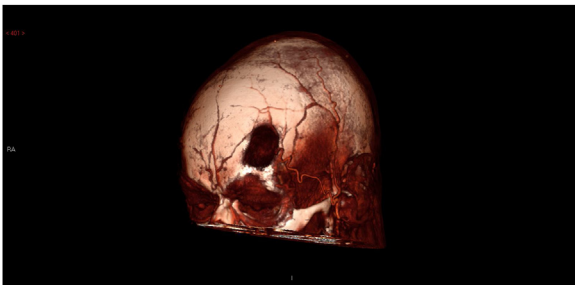


Fig. 3. CT Angiography imaging of lesion.

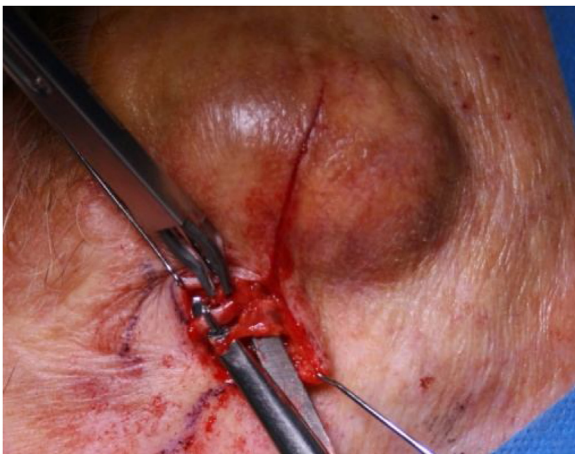


Fig. 4. Ligation of vessels intra operatively.

The patient was taking Edoxaban for atrial fibrillation.

Clinical examination found a mass on the left aspect of the forehead. A provisional diagnosis of a haematoma was made. An ultrasound identified an ovoid mass consisting primarily of a haematoma with a 12 mm focus of pulsatile flow at the superior aspect, consistent with a pseudoaneurysm (Fig. 2). A CT angiogram confirmed a pseudoaneurysm arising from the left superficial temporal artery (STA) (Fig. 3).

Surgical excision of the pseudoaneurysm was carried out in theatre under local anaesthetic with intra-venous sedation by consultant and registrar maxillofacial surgeons. The patient's Edoxaban was omitted for 7 days pre-surgery.

An incision was made to expose the mass; the left superficial temporal artery was identified and ligated along with two further minor feeding vessels (Fig. 4). The mass was excised and sent for histopathological analysis. An ellipse of redundant skin was excised

to allow for aesthetic primary closure of the incision. The surgery went without complication and the patient was discharged with a review appointment scheduled.

The pathologist reported a blood clot surrounded by a fibrotic wall with scanty haemosiderin macrophages. No active inflammation, vasculitis or granuloma was seen. There was no endothelial lining evident.

The patient was examined at one and two weeks post-operatively and was happy with the cosmetic outcome. There was a transient weakness of the temporal branch of the facial nerve however this was resolved.

3. Discussion

After branching from the external carotid artery the superficial temporal artery follows a tortuous course and is relatively unprotected, leaving it susceptible to injury. A pseudoaneurysm is characterised by a damaged arterial wall leaking blood into the surrounding tissues, eventually resulting in a haematoma surrounded by a fibrin wall. In contrast a true aneurysm is a widening within the vessel due to damage. Less than two hundred cases of STA pseudoaneurysm following trauma have been reported in the literature [2]. A thorough history is essential with most STA pseudoaneurysms being associated with blunt trauma related to sporting injuries, falls, accidents and altercations [2].

A key characteristic of clinical presentation is the classic pulsatile nature of the mass. Although the majority of these pseudoaneurysms are asymptomatic, associated symptoms may include headache and ear discomfort [3].

Ultrasonography and CT angiography can aid diagnosis and guide management. Surgical ligation and excision of the pseudoaneurysm is considered the gold standard therapy, although coil embolization and US-guided thrombin injection are amongst more recently described minimally invasive treatments [4].

Possible risks of surgical intervention include facial nerve palsy, hypoglossal nerve palsy, facial scarring and wound-related complications [2]. No specific follow-up is necessary as recurrence is very rare [5]. This work has been reported in line with SCARE 2020 criteria [1].

4. Conclusion

Although an uncommon diagnosis, it is imperative to be aware of such lesions as complications include thromboembolism, haemorrhage and spontaneous rupture [6].

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No conflicts of interest.

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Consent

Publication of photographs and case with patient's consent.

Author contribution

Hannah Muir- Concept and design, acquisition of data, analysis and interpretation of data, drafting of article.

Kirsty Cowan- Acquisition of data, analysis and interpretation of data, drafting of article.

Peter Steele- Acquisition of data, analysis of data, drafting of article, Final approval.

John Jeff Downie- Concept and design, guarantor of manuscript.

Registration of research studies

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Guarantor

Hannah Muir, Peter Steele, Kirsty Cowan, John Jeff Downie.

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