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Online Case Report

Spontaneously arising superficial temporal artery aneurysms: a report of two cases and review of the literature

AA Riaz[1], M Ismail[1], N Sheikh[1], N Ahmed[1], G Atkin[1], P Richman[2], A Loh[1]

[1]*Department of Surgery, Barnet General Hospital, Barnet, London UK*
[2]*Department of Histopathology, Mount Vernon Hospital, Northwood, London, UK*

The majority of superficial temporal artery (STA) aneurysms are due to trauma and are, in reality, false aneurysms. However, true STA aneurysms are extremely rare. Here, we present two cases of spontaneous superficial temporal artery aneurysms arising without any previous history of trauma.

Key words: Aneurysm – Spontaneous – Superficial temporal artery

Spontaneous aneurysms of the superficial temporal artery (STA) are exceedingly rare and are usually atherosclerotic in origin. STA aneurysms are more commonly associated with trauma, surgery, and hair transplantation. In the literature, very few cases of spontaneous aneurysms of the STA have been reported.[1] Here, we present two rare cases of spontaneously arising temporal artery aneurysms in our unit, without any previous history of trauma.

Case report 1

A 65-year-old male was referred to the vascular clinic with a 2-year history of a lump above his right temple region which had gradually been increasing in size. The lump was painless, and the patient denied any trauma or surgery in the region to this area in the past.

On examination, there was a 1 cm pulsatile mass arising above the right temple, which had well demarcated edges and a bruit over it. The overlying skin was intact. There were no other peripheral aneurysms felt. The patient's ESR was normal and there was no family history of any connective tissue disorders. Initial duplex scanning of the lump revealed it to be a 6.5 mm dilatation of the temporal artery, fusiform in shape and patent with a normal peripheral vasculature. As the lump was asymptomatic and the patient was not initially keen on surgery, a 'watch and wait' policy was adopted. However, the mass continued to increase in size and became tender so it was surgically excised.

The surgery was uneventful and confirmed the lump to be a STA aneurysm, with three feeding vessels; it measured approximately 1 cm x 2 cm in size. This was sent for histological examination. Figure 1 shows a section of superficial temporal artery stained with hematoxylin and eosin (H&E). There is dilatation involving all layers of the arterial wall, suggesting true aneurysm formation. There is hyperplasia of the tunica intima and media, but no evidence of atherosclerosis, giant cells or inflammation.

There was no evidence of any giant cells, inflammation or vasculitis. The postoperative course was uneventful, and the patient was doing well on follow-up.

Correspondence to: Mr AA Riaz, SpR in Surgery, Barnet General Hospital, Wellhouse Lane, Barnet, London EN5 3NN, UK
Tel: +44 208 216 4000 bleep 449; Fax: +44 208 216 4401; E-mail: mrariaz@hotmail.com

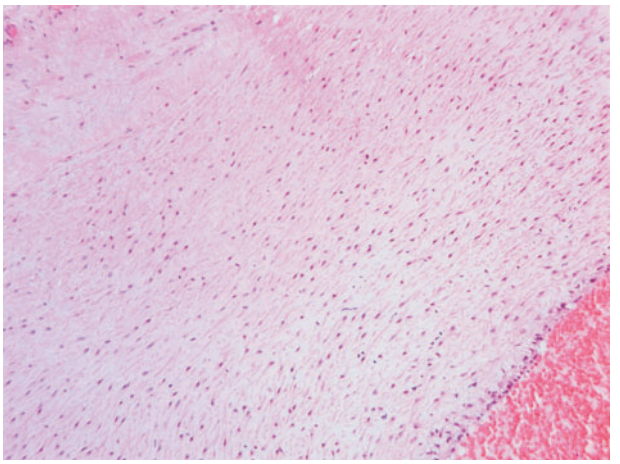

Figure 1 Section of superficial temporal artery stained with hematoxylin and eosin (H&E). There is dilatation involving all layers of the arterial wall, suggesting true aneurysm formation. There is hyperplasia of the tunica intima and media, but no evidence of atherosclerosis, giant cells or inflammation.

Case report 2

A 77-year-old male was referred to the out-patient department after noticing a swelling in his right temporal region as an incidental finding on routine examination. It was found to be pulsatile in nature, with an overlying bruit. The whole of the superficial temporal artery was noted to be hypertrophic, but the patient was asymptomatic. He denied any prior trauma to the region. The patient's ESR was normal and there was no family history of any connective tissue diseases.

Duplex scanning of the swelling showed a 1.5 cm x 1.2 cm x 0.85 cm aneurysm in the right temporal artery with normal blood flow and no evidence of leakage or fluid collection in the surrounding tissue. The patient's ESR was normal.

Surgical excision of the swelling was performed and the swelling was confirmed to be a STA aneurysm, with two feeding vessels, which were tied and excised. Histology again revealed a true aneurysm. The patient made a good postoperative recovery, and was well on routine follow-up.

Discussion

Here, we have presented two cases of STA aneurysms which are a medical rarity. They appear to be 'true' aneurysms, arising spontaneously as there is no predisposing traumatic event. True aneurysms are defined from histological examination, where all three layers of the arterial wall are seen to be intact; they are due

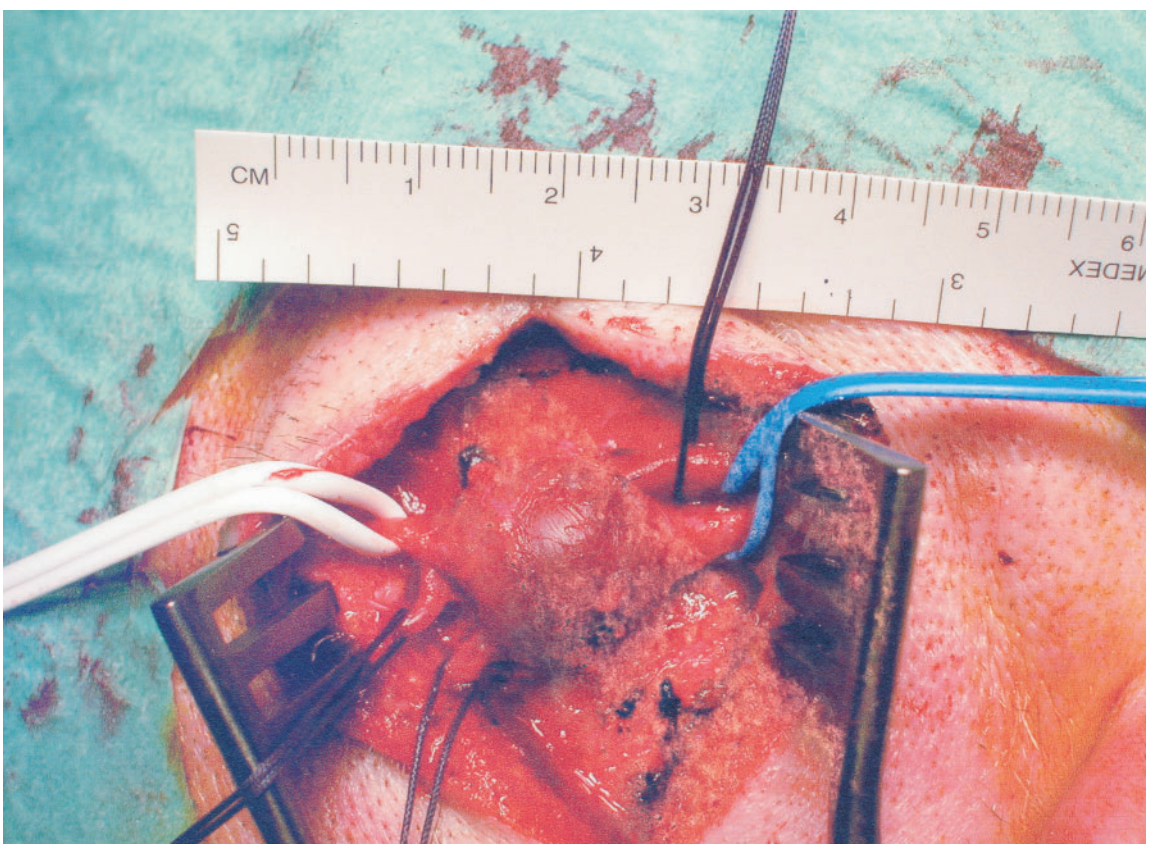

Figure 2 Intra-operative image of the superficial temporal artery aneurysm with its branches clearly shown.

to a weakness in the vessel wall, which may be congenital in nature or associated with atherosclerosis.[1] True aneurysms are distinct from false (or 'pseudo-') aneurysms, in which there is a partial break in the arterial wall, usually the result of trauma.[2] The majority of STA aneurysms are false aneurysms arising secondarily to trauma. Approximately 80% occur in men usually aged 20–40 years.[3] A review of STA aneurysms by Peick *et al*.[3] found that of 174 cases, 90% were caused by trauma. Uchida and Sakuma[4] found only 9 cases (18.8%) were true aneurysms with only single cases of congenital, arterial dissection, and atherosclerotic aneurysms.

The temporal artery is relatively superficial being covered only by a relatively thin temporalis muscle and overlying skin. Both of our patients presented as incidental findings and, on routine physical examinations, were found to have a pulsatile mass in the temporal region. Differential diagnosis include an A-V fistula, meningeal artery aneurysm, a neuroma of the facial nerve, an abscess, or a parotid lesion. The diagnosis is confirmed by performing a duplex scan. STA aneurysms have also been found to be non-pulsatile due to the aneurysm being thrombosed off. Other diagnostic modalities such as arteriography and contrast-enhanced CT scan are too invasive and not required.

The recognised indications for surgery include pain, rapidly increasing size, cosmesis, changes to the overlying skin or adjacent structures. In the literature, there is no indications as to the optimum size of the aneurysm to initiate surgical excision. We decided to excise the STA aneurysms due to patient concerns, cosmesis, pain and increasing size. Indeed, full vascular surveillance of the peripheral vasculature revealed no other associated aneurysms.

Therapeutic options include a conservative 'active surveillance policy', radiologically induced embolisation, or surgical excision. Surgical excision may be done under local or general anaesthesia. Surgical excision includes full dissection of the aneurysm with complete ligation of all feeding vessels and there can be four or five of these (Fig. 2).

Conclusions

These cases illustrate three important issues. First, we report two cases of spontaneous STA aneurysm picked up as incidental findings on routine examination which are very rare. Furthermore, they were not associated with aneurysms at other sites and that embolisation was not optimal as there can be up to five or six feeding vessels making surgery the best option.

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