CASE REPORT

Idiopathic pseudoaneurysm: a rare cause of parotid mass

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SUMMARY

A 77-year-old woman presented with a pulsatile blue-tinged mass over the left parotid, present for 5 years, and slowly enlarging. The size of the mass fluctuated during this period and there was no associated pain. The patient reported no history of surgery or trauma. Vascular lesions are rarely encountered within parotid glands in adults. MRI with contrast demonstrated a soft tissue lesion; despite the presence of feeding vessels it was thought unlikely to be an arterial venous malformation or aneurysmal change. The appearance was thought to be in keeping with an enlarged lymph node or sebaceous cyst. Fine-needle aspiration was obtained using ultrasound guidance and yielded bloody fluid. The lesion was closely related to the superficial temporal artery and a diagnosis of a thrombosed pseudoaneurysm was made. The vessel had thrombosed and the decision was made to enact a watchful waiting policy. The patient will be monitored in the outpatient setting.

BACKGROUND

Pseudoaneurysm of the branches of the external carotid artery are known, yet rare, constituting only 0.4–4% of all aneurysms.¹ Pseudoaneurysms of the external carotid artery and its branches are most commonly associated with trauma,² when damage to the artery can result in communication between the lumen of the vessel and the layer in which extravasation and haematoma occurs.

Vascular lesions are rarely encountered within parotid glands in adults,³ yet clinicians should be aware of the many possible causes of parotid

Figure 2 T2-weighted MRI (coronal view) demonstrating the lesion in the left temporal region (white arrow).

masses, including pseudoaneurysm. The following case describes a parotid mass caused by idiopathic pseudoaneurysm of the superficial temporal artery (STA). This is the second case of an idiopathic parotid aneurysm reported in the literature.

CASE PRESENTATION

A 77-year-old woman presented with a palpable pulsatile blue-tinged mass over the left parotid, present for over 5 years, and slowly enlarging. The size of the mass had fluctuated during this period and there was no associated pain. The patient reported no history of surgery or trauma. She was a lifelong non-smoker, with no significant medical history other than hypertension and high cholesterol. On examination, she had no weakness of her facial nerves and was otherwise in good health.

Figure 1 T1-weighted MRI without contrast (axial view) demonstrating the lesion in the left temporal area (white arrow).

Figure 3 Three-dimensional-time of flight MR angiography technique (coronal view) used to demonstrate the lesion (white arrow) with a feeding vessel (black arrow).

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Figure 4 Ultrasound scan (A) with Doppler (B) of the lesion showing blood inflow into a thrombosed pseudoaneurysmal sac (white arrow). Colour-flow Doppler (B) showing the 'to-and-fro' sign as blood enters and leaves a partially thrombosed aneurysm (white arrow).

INVESTIGATIONS

A contrast MRI study was requested owing to the pulsatile nature of the mass (figures 1–3). The MRI demonstrated a well-encapsulated 17×10 mm soft tissue lesion deep in the area of palpable swelling. Despite the presence of feeding vessels providing a rich vascular supply to the lesion, it was thought unlikely to be an arterial venous malformation or aneurysmal change, owing to the anatomical site and long history of the mass. The appearance was thought to be more in keeping with an enlarged lymph node or sebaceous cyst. Ultrasound-guided fine-needle aspiration (FNA) was advised to obtain a sample for cytological analysis. Ultrasound scan revealed a well-defined round solid lesion closely related to the STA (figure 4A). Colour-flow Doppler featured the 'to-and-fro' sign as blood enters and leaves a partially thrombosed aneurysm (figure 4B).

Three passes for FNA were performed, during which blood-stained fluid was obtained. Initial management with local pressure for 1 min did not arrest the bleeding. Thereafter, 5 min of local compression was placed on the lesion and there was no further bleeding or swelling. Cytologically, the specimen consisted of only blood and was therefore deemed non-diagnostic. Facial nerve function remained intact post-FNA. The lesion was closely related to the STA and, on retrospective review of the previous MRI, the suggestive diagnosis of a thrombosed pseudoaneurysm was made despite an absence of evidence of atherosclerotic change to the vessel, or history of trauma.

DIFFERENTIAL DIAGNOSIS

The most common causes of parotid masses are benign tumours (pleomorphic adenoma and Warthin's tumour).⁴ Other causes, such as malignant lesions, are less common, representing 15% of all salivary gland tumours, with mucoepidermoid carcinoma being the most common malignant tumour.⁵ Vascular lesions, such as vascular tumour, arteriovenous malformation or a meningeal aneurysm, are rarely considered in the age group of this patient. Imaging modalities that can be used to confirm or exclude the differential vascular diagnoses of a probable STA aneurysm include sonography, CT, MR and digital subtraction angiography (DSA).⁶ CT and MR have the advantage of being non-invasive imaging techniques that can easily delineate adjacent soft tissue structures. DSA may underestimate the size of a lesion due to poor flow in aneurysmal structures,⁶ and also carries an inherent risk of bleeding, cerebrovascular injury, further damage to vessel wall and potential reaction to contrast agent. The risk of cerebrovascular injury during DSA was deemed unacceptable by the patient and thus not performed.

TREATMENT

The vessel was thrombosed clinically and, following discussion with the patient, the decision was made to enact a watchful

clinical monitoring policy. Six months on, the patient remains well, with a notable reduction in the size of the mass.

OUTCOME AND FOLLOW-UP

The patient is satisfied with the conservative management and is reassured that the lesion is not of a sinister nature. She is undergoing regular review in the outpatient clinic at 3-month intervals, and has been advised to contact the department if any changes to the lesion occur in the interim period, specifically any signs of facial weakness or swelling.

DISCUSSION

Parotid masses are a common cause for referral to ear, nose and throat surgeons, with benign tumours the most common cause in adult patients.⁴ Trauma is the predominant causative factor in the patient diagnosed with pseudoaneurysm of the external carotid artery and its branches, and nearly all published cases in the English literature are attributable to trauma or iatrogenic injury.⁷ STA aneurysms as a result of trauma represent <1% of reported aneurysms,⁸ and the authors found only one other idiopathic case described in the English literature, which was speculatively attributed to repeated Valsalva manoeuvres by the patient.⁷ Although the diagnosis of STA pseudoaneurysm can be made clinically,⁶ FNA is a useful diagnostic investigation. In our case, the blood-stained aspirate was helpful in suggesting the diagnosis.

Learning points

- ▶ Vascular lesions are a rare but important cause of parotid masses.
- ▶ Spontaneous pseudoaneurysm can occur in the absence of a history of trauma or evidence of atherosclerotic change.
- ▶ Clinical findings should be taken into account in the interpretation of radiological investigations.
- ▶ Reassurance and follow-up in outpatients is an ideal treatment plan for an elderly patient with thrombosed pseudoaneurysm of the superficial temporal artery.
- ▶ Other management options for vascular lesions include embolisation or surgical excision.

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