Intramasseteric venous malformation: A case report on management and correct terminology

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Introduction

Vascular malformations are a major subgroup of vascular anomalies in the International Society for the Study of Vascular Anomalies (ISSVA) classification system. Although relatively uncommon overall, vascular malformations occur frequently within the neck and neck Accurate diagnosis can be difficult, due to variability in clinical presentation and inconsistent use of terminology. Intramasseteric vascular malformations (IVMs) are one type of presentation that illustrate these points.

Case Report

Clinical History An 18-year-old Samoan female presented with a six-month history of a progressively enlarging mass over the left masseter. There were no other symptoms. On examination, a soft palpable lump was prominent with masseter contraction and when lying on her left side. The mass was not expansile or pulsatile.

Investigations A fine needle aspirate aspirated only bloody contents. Magnetic resonance imaging showed a 3.7cm × 2.6cm × 4.0cm T2-hyperintense heterogenous mass confined to the left masseter. Multiple phleboliths were demonstrated. There was no osseous involvement. Angiography showed venous phase enhancement with no arterio-venous shunting. The patient was presented at a multidisciplinary meeting, where the suggested diagnosis was a "low-flow vascular malformation in keeping with an intramuscular haemangioma".

Management The patient missed subsequent appointments but re-presented two years later. The mass had significantly grown, with her main concern being cosmesis. A second multidisciplinary meeting recommended surgical transoral excision. On preoperative assessment, the mass had again grown significantly, making a transoral approach no longer viable. A transcervical approach was adopted with a modified Blair's incision. The facial nerve was identified and monitored intraoperatively. Dissection revealed a bosselated, encapsulated vascular mass found completely within the masseter. A feeding vessel identified at the superior aspect of the mass was ligated. The mass was excised completely with no complications. The post-operative period was unremarkable.

Histopathology The mass measured 5.5cm × 3.5cm × 2.0cm and was enclosed within a thin fibrous layer with adherent skeletal muscle fragments. Microscopically, dilated thin-walled vascular channels were lined by flattened endothelial cells. Some vessels showed thick, disorganized smooth muscle walls merging with the stroma. Lumina showed thrombosis and areas of fibrotic occlusion with calcification. Small nerves were present within the lesion. The lesion ramified through skeletal muscle. There was no evidence of mitotic activity, spindle cell proliferation or malignancy.

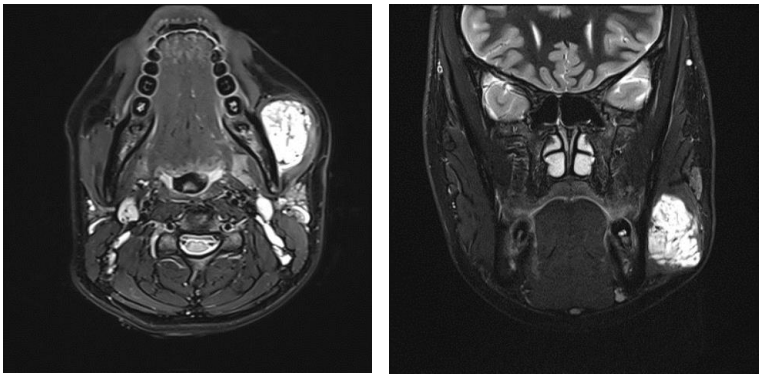

Figure 1. Axial and coronal contrast T2-weighted magnetic resonance imaging, showing a hyper-intense lesion within the masseter

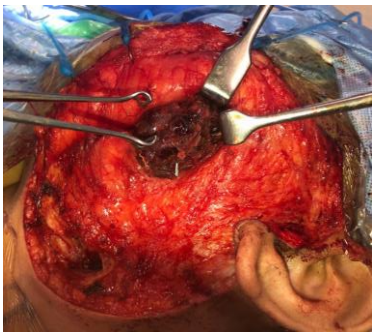

Figure 2. Left reflected cheek flap with lesion in situ

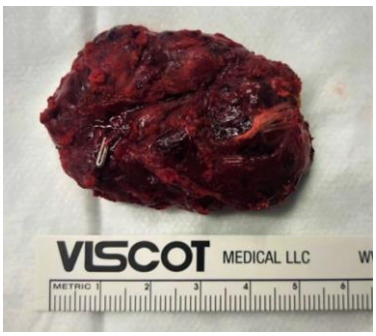

Figure 3. Excised lesion

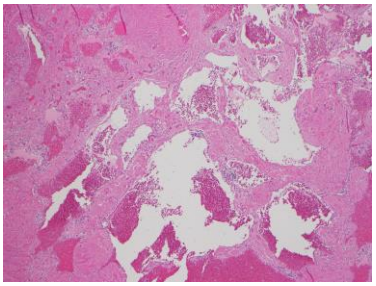

Figure 4. x40 H&E section of thin dilated walled vessels dissecting into the skeletal muscle of the masseter

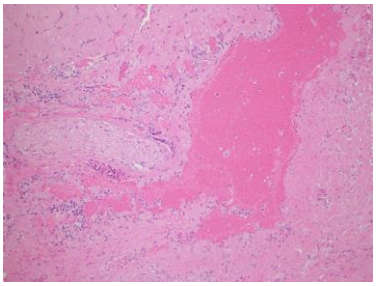

Figure 5. x100 H&E section of a thin walled dilated vessel with an adjacent small nerve within masseter

Discussion

Treatment of IVMs is variable but often multidisciplinary. Complete surgical excision and sclerotherapy are effective treatment options. Sclerotherapy offers a more conservative approach but cosmetic improvement may not be satisfactory. Surgery was considered the best option to address our patient's concerns.

Accurate diagnosis of vascular malformations is challenging as the clinical presentation can be variable and non-specific. IVMs can have a delayed presentation until reaching a critical size that causes deformity. The clinical history should be correlated with radiological and histopathological investigations to improve diagnostic accuracy.

Lack of consistent terminology also contributes to diagnostic confusion. The ISSVA classification system provides a consistent language, allowing efficient multidisciplinary treatment planning. The ISSVA system differentiates vascular anomalies into **vascular tumours** or **vascular malformations** based on clinical history and histopathology. Using the appropriate terminology can impact on patient care, as treatment options for various vascular anomalies can differ.

Vascular anomalies

Vascular tumours	Vascular malformations	
	Simple	Combined
Benign	Capillary	Of major named vessels
Borderline	Lymphatic	
Malignant	Venous	Associated with other anomalies
	Arteriovenous	

Table 1. International Society for the Study of Vascular Anomalies (ISSVA) Classification. Adapted from issva.org/classification

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