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Case Report

Rare cavernous haemangioma arising in the temporalis muscle: a clinical case and review

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ABSTRACT

Haemangiomas are benign vascular neoplasms characterized by an abnormal proliferation of blood vessels and can occur in any vascularized tissue, including the skin, subcutaneous tissue, muscle, and bone. Intramuscular haemangioma, a distinctive type of haemangioma within the skeletal muscle, account for <1% of all haemangiomas and temporalis muscle is a very uncommon site. This report describes a case for a 71-year-old man, who underwent an excision of lump from left scalp, at day surgery unit in King's college hospital London. The patient had noticed two lumps, one on his right neck and one on the left sides of his scalp which had been increasing in size and causing him discomfort. Surgical excision was performed under local anaesthesia with a differential diagnosis of a lipoma. The lump presented under the muscular plane was found to be very vascular with no typical features of a lipoma and this appeared to be haemangioma or haemangiolipoma, histopathology later confirmed-a cavernous haemangioma with focal thrombosis and recanalization. This case report includes imaging findings, intraoperative findings and histology findings which are discussed with a review of the current literature on this subject.

Keywords: Intramuscular haemangioma, Temporalis muscle, Cavernous haemangioma, Surgical excision, Histology

INTRODUCTION

Haemangiomas are most common in infancy and childhood, with about one-third present at birth and the remainder appearing within the first few months of life. Based on the type of vessel involved, haemangiomas can be classified as capillary, cavernous, or mixed types. While they affect the skin and mucosa, intramuscular haemangiomas-those occurring within skeletal muscle-are rare, accounting for less than 1% of all haemangiomas.[2] These lesions most frequently involve the trunk and extremities, with the temporalis muscle being an exceptionally uncommon site. Typically, they present as an enlarging painful soft tissue mass, without any cutaneous changes. Specific findings associated with these are phleboliths on radiographs.[3] To obtain a diagnosis, an X-ray followed by MRI is the most common method of imaging, with MRI being the procedure of choice-MRI can differentiate haemangiomas from malignant tumours without the need for biopsy.[4] Definitive treatment for this condition is surgical excision.[5]

CASE REPORT

A 71-year-old man was seen in the general surgery clinic at King's College Hospital London, in February 2024 after he noticed two lumps, one on his right neck and one

on the left side of his scalp which had been increasing in size causing him discomfort.

Ultrasound scan was performed which confirmed the appearances of probable lipomas: The palpable lump on the right neck corresponded to a well-defined, compressible and non-vascular lesion measuring 30×30×7 mm within the subcutaneous fat with no evidence of communication to deeper structures seen. The palpable lump on the left side of the head corresponded to a well-defined, compressible non-vascular lesion measuring 33×20×7 mm within the subcutaneous fat with no evidence of communication to deeper structures seen.

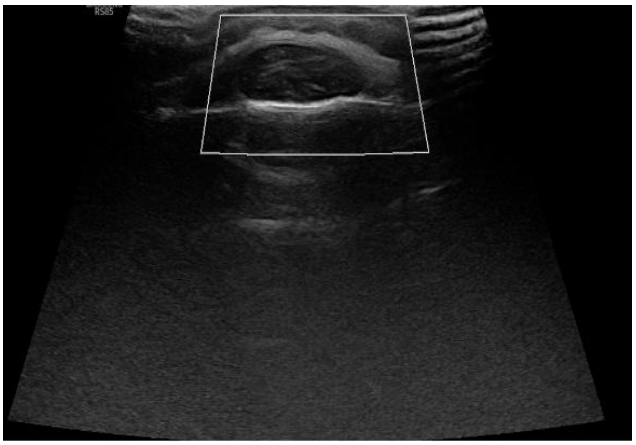

Figure 1: Ultrasound images of previously suspected lipoma, clarified to be haemangioma as per histopathology.

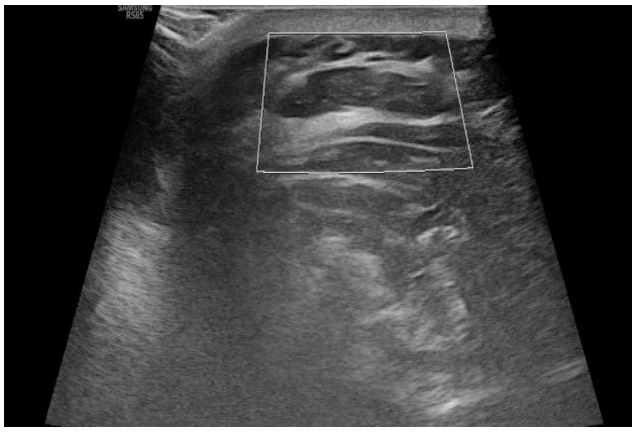

Figure 2: Ultrasound images of previously suspected lipoma, clarified to be haemangioma as per histopathology.

He was keen to have them removed and was placed on an elective list for which surgery was performed in December 2024. A transverse incision was made directly over the lump in the left parietotemporal region. The lump was located beneath the muscular plane and was highly vascular, lacking the typical features of a lipoma. It was a possible haemangioma or haemangiolipoma. This was excised in total. Haemostasis was ensured throughout the procedure. The wound was closed using 2-0 Vicryl and 3-0 Monocryl with a subcuticular closure of the skin. Local infiltration of 15 ml of 0.25% Bupivacaine was administered. The dressing was completed with Steri-Strips and Opsite.

As there was a doubt regarding the nature of the lump, histopathology was sent and the examined sections revealed pieces of tissue containing dilated, irregular vascular spaces lined by bland endothelial cells and filled with red blood cells. Some vascular structures exhibited thrombosis with evidence of recanalization. Additionally, separate fibrous tissue was observed. No cytological atypia was noted. The diagnosis was of a cavernous haemangioma with focal thrombosis and recanalization from the excised left scalp lesion. The patient recovered well post operatively and was discharged home later the same day.

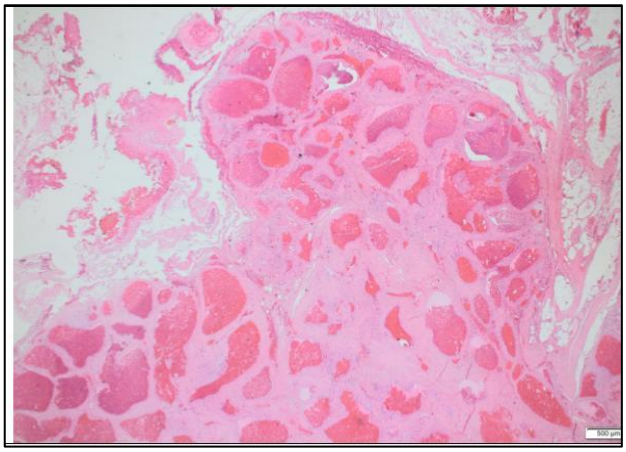

Figure 3: Histopathology images of resected haemangioma-at scanning magnification, the lesion is well circumscribed and surrounded by the intact lobules of subcutaneous tissue.

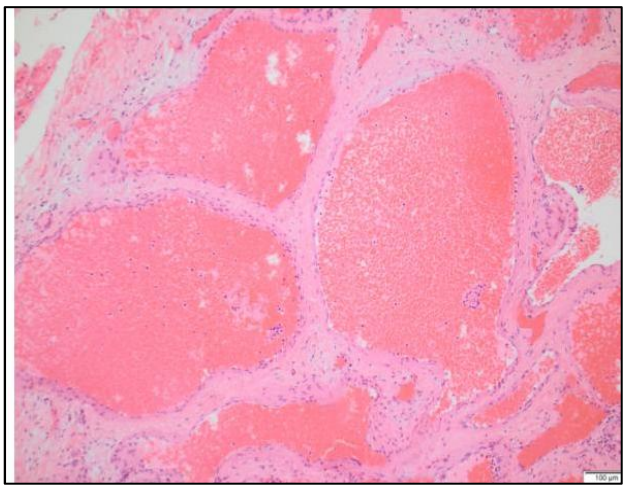

Figure 4: Histopathology images of resected haemangioma. Dilated irregular vascular spaces filled with RBCs.

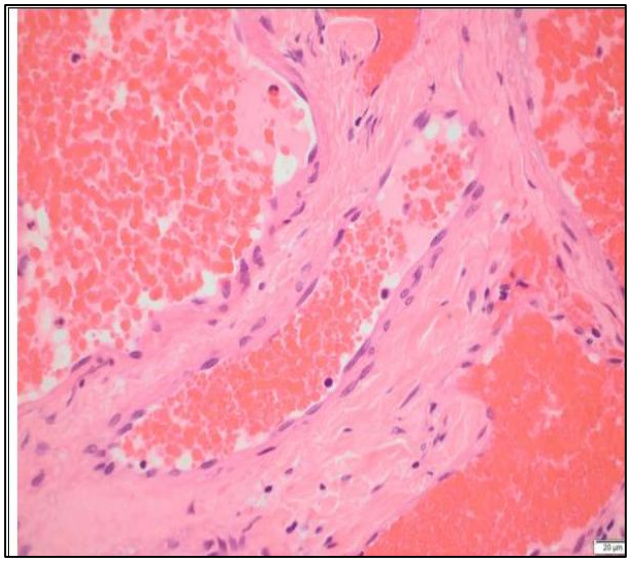

Figure 5: Histopathology images of resected haemangioma. The vascular spaces are lined by bland endothelial cells with cytological atypia.

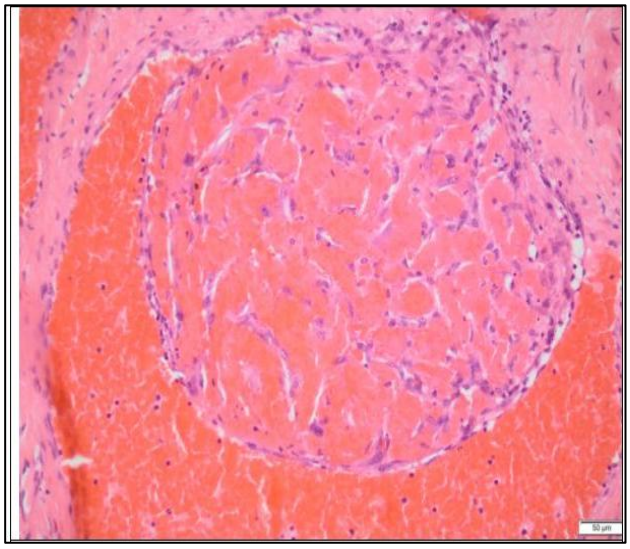

Figure 6: Histopathology images of resected haemangioma. The vascular lumen partially occluded by a plug of fibrin exhibiting fibroblast and capillary ingrowth. Residual lumen is still patent.

DISCUSSION

Haemangiomas make up 7% of all benign soft tissue tumours; they are abnormal proliferations of blood vessels. Most often found in subcutaneous adipose tissue but can also be found in muscle. Intramuscular haemangiomas account for approximately 0.8% of all benign soft tissue tumours.[3] Anatomical distribution of intramuscular haemangiomas was 32% in lower limbs, 27% in head/neck region, 24% in upper limbs, and 17% at the trunk.[8] Within the head and neck region, they usually are found in the masseter muscle followed by temporalis and sternocleidomastoid muscles.[5]

Hemangiomas
Superficial (capillary hemangioma)
Deep (cavernous hemangioma)
Compound (capillary cavernous hemangioma)
Vascular malformations
Simple lesions
Low-flow lesions
Capillary malformation (capillary hemangioma, port-wine stain)
Venous malformation (cavernous hemangioma)
Lymphatic malformation (lymphangioma, cystic hygroma)
High-flow lesions
Arterial malformation
Combined lesions
Arteriovenous malformations
Lymphovenous malformations
Other combinations

Figure 7: Different types of haemangiomas.

In 1843, intramuscular haemangioma was primarily reported by Liston.[11] Allen and Enzinger established the most comprehensive classification of intramuscular haemangiomas, whereas Enzinger and Weiss subsequently identified three subtypes based on histological findings, denoted as small, large, and mixed-type vascular haemangiomas.[12] Capillary haemangiomas are considered to account for 68% of all intramuscular haemangiomas that involve small capillary-sized vessels, followed by cavernous haemangiomas (with an incidence of 26%), which are distinguished by thin-walled and cystic blood spaces, and finally, venous or mixed-type haemangiomas (6%) that comprise widened veins of irregular thickness inside loose fatty fibrous stroma.[7]

The diagnosis of intramuscular haemangioma requires a high index of suspicion whenever a mass of soft tissue density is encountered in the region of skeletal muscle in a young adult. Haemangioma should be considered in the differential diagnosis.[10] MRI has been shown to provide better detection and delineation of the extent of intramuscular haemangioma (IMH) than computed tomography. MRI is superior because of its multiplanar capabilities and the distinct contrast between normal muscle and the IMH. IMH are characteristically much brighter on T2- than on T1-weighted images because of the increased free water present within the stagnant blood in the larger vessels.[8]

The differential diagnosis includes neurofibroma, lipoma, dermoid cyst, enlarged lymph nodes, soft-tissue sarcoma, myositis ossificans, and temporal arteritis.[13] Because of low incidence and lack of specific symptoms, it is difficult to diagnose, and the accuracy of preoperative diagnosis is <8%.[5,14] CT, MRI, and ultrasound examinations play an important role in diagnosing; however, in our case, it was an incidental finding, initially thought to be a lipoma, but during surgery, due to the vascular nature of the mass associated with excessive

bleeding and postoperative histology, it was proven to be an intramuscular haemangioma.[14]

Recently, sclerotherapy has been recommended as the preferred treatment; however, surgical excision remains one of the main methods of treatment.[9] The optimal treatment for small haemangioma in adults is the complete surgical excision of the lesion with a rim of normal surrounding muscle to minimize the risk of recurrence.[10]

CONCLUSION

Intramuscular haemangiomas are rare, benign vascular tumours that can pose diagnostic challenges due to their nonspecific clinical presentation and resemblance to other soft tissue masses. This case highlights the importance of maintaining a broad differential diagnosis when evaluating subcutaneous and intramuscular lesions, particularly in atypical locations such as the scalp. While imaging modalities like MRI are valuable in preoperative diagnosis, unexpected findings during surgery may necessitate histopathological evaluation to confirm the nature of the lesion. In this case, what was initially presumed to be a lipoma was identified intraoperatively as a highly vascular mass, later confirmed to be a cavernous haemangioma with focal thrombosis and recanalization.

Surgical excision remains the definitive treatment, particularly when the lesion is symptomatic or increasing in size. This case underscores the importance of careful intraoperative assessment, adequate haemostasis, and histopathological confirmation to ensure accurate diagnosis and appropriate management.

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