Title:

AN UNUSUAL NECK LUMP – INTRAMUSCULAR HAEMANGIOMA OF THE STERNOCLEIDOMASTOID MUSCLE

Authors:

Mr I. Moumoulidis (MRCS, MD)

Mr V.S. Durvasula (FRCS, MSc)

Mr P. Jani (FRCS)

Institution:

Department of Otolaryngology-Head & Neck Surgery
Addenbrooke's Hospital
University of Cambridge
Cambridge,
United Kingdom

Contact Details:

I. Moumoulidis
36 Moorhouse Way
Kettering
Northants, NN15 7LX
United Kingdom
Tel: 0044 7711 384981
E-mail: moumoulidis@aol.com

Abstract

Neck lumps can often present a diagnostic dilemma, with a wide pre-operative differential diagnosis. We present an unusual case of an intramuscular haemangioma arising in the sternocleidomastoid muscle. Pre operative diagnosis is often difficult, as these lesions are extremely rare in the head and neck region and only few sporadic cases have been reported in the literature. We report the presentation diagnosis and management of intramuscular haemangiomas of the sternocleidomastoid muscle.

Keywords:

haemangioma, neck lump, sternocleidomastoid muscle, intramuscular

Introduction

Haemangiomas are benign congenital neoplasms. Intramuscular haemangiomas are a subset of benign vascular lesions of the skeletal muscle and represent 1% of all haemangiomas [1]. They were first reported by Liston in 1843, who described a slowly increasing in size lesion in the calf muscle of a 10-year-old boy [2]. Scott noted that, in order of frequency, intramuscular haemangiomas occur in the lower limbs, upper limbs, back, abdomen, head, neck and less commonly in chest [3]. Intramuscular haemangiomas of the head and neck region are relatively uncommon and represent 15% of all intramuscular haemangiomas, with the masseter being the most commonly involved muscle (36% of cases) [4]. Other, less commonly involved muscles, are the trapezius (12%) and temporalis (10%) muscles [5]. Haemangiomas of the buccinator and periorbital muscles have also been described [6].

We present a case of intramuscular haemangioma arising in the sternocleidomastoid muscle. Diagnosis was not apparent or suspected until histological examination of the specimen was performed. The presentation of these lesions is unusual in respect of their history and their site of origin.

Case Report

A 71-year-old female patient presented with eighteen month's history of a neck lump that had gradually increased in size over a two years period. Examination revealed a well-defined, smooth, soft, non-tender mass in the right upper third of the neck, in line with sternocleidomastoid muscle, measuring 4x3cm. The skin over the swelling was normal, non-pulsatile and there was no thrill or bruit. The mass was not transluminant and did not change in size with the Valsalva manoeuvre. There was no regional lymphadenopathy and no associated neurological deficit.

Fine-needle aspiration (FNA) cytology of the mass revealed blood and was inconclusive. Ultrasound-guided biopsy revealed a mixed cystic and solid lesion, which on histological examination showed evidence of chronic inflammation. A computed tomography (CT) scan of the neck demonstrated a well defined swelling with faint enhancement of a nodular pattern and although was thought to be non-specific, neoplasia could not be ruled out (Fig. 1). Hence, excision of the mass with the surrounding muscle fibres was performed. Microscopic examination revealed a cavernous type intramuscular haemangioma with intravascular thrombosis (Fig. 2). Patient had an uneventful postoperative recovery with no clinical evidence of recurrence.

Discussion

Neck lumps can often present a diagnostic dilemma, particularly when they are the only presenting symptom. The aetiology ranges from inflammatory to neoplastic. Although the radiological and pathological investigations are helpful, the diagnosis remains uncertain in some cases, warranting an excision biopsy. While it is safe to observe certain lesions, this is not often the case, especially when the diagnosis is in doubt or malignancy is suspected.

Intramuscular haemangiomas are rare, benign tumours, infrequently reported in the head and neck region. There are only three documented cases of such lesions in the literature [7,8,9] (table 1). Intramuscular haemangiomas usually present in second or third decades of life and the sex incidence is almost equal with a slight male preponderance [3,10]. The cause of intramuscular haemangioma is unknown but it is generally considered to be a congenital tumour arising from embryonic rests, similar to congenital arteriovenous malformation [3,5]. Traumatic and hormonal influences may contribute to the cause or growth of these lesions[5].

Haemangiomas can be histologically subdivided into small vessel or capillary haemangiomas, large vessel or cavernous haemangiomas and a mixed type, which contains both small and large vessels. Capillary haemangiomas are the commonest type, accounting for 68% of all the intramuscular haemangiomas occurring in the head and neck, while cavernous and mixed types account for 19% and 5% respectively [11]. The histological appearance of these lesions is variable. The vascular spaces differ from normal blood vessels in the way that there are no demonstrable walls [12]. The spaces communicate freely with each other, giving a honeycomb appearance. There may be evidence of degeneration of muscle fibres. Usually there is minimal evidence of inflammation.

A palpable, discrete, usually non-compressible mass that enlarges on contraction of the muscle is the common presentation. Pain on palpation is present in approximately 50% of cases and is thought to be due to compression rather than invasion of the neural elements [7]. If the lesion is compressible, then a Valsalva manoeuvre, prolonged recumbency or jugular vein compression may cause the tumour to increase in size [3]. Pulsation or bruit are usually absent due to surrounding muscular fibrosis concealing the vascular nature of the tumour. Accurate preoperative diagnosis is reported in less than 8% of cases [13].

Magnetic resonance imaging (MRI) has been shown to provide better detection and delineation of the extent of intramuscular haemangioma than computed tomography (CT) because of its multiplanar capability and the distinct contrast between normal muscle and the intramuscular haemangioma. The MRI findings consist of an intense signal on T1 weighted images and an intense signal with well-defined margins, clearly differentiated from the surrounding normal muscles, on T2 images [14]. Low-signal linear structures throughout the lesion, representing the fibrous or fatty septa between the endothelium lined channels and absence of flow related phenomena, with stagnant blood, giving a high intensity signal, confirms the diagnosis [15,16]. Fine needle aspiration of haemangiomas usually yields blood and is non-diagnostic [6]. Arteriography or angiography are helpful before surgical intervention and may give definitive information about the nature of the tumour. The discovery of a large feeder vessel connected to the tumour is important if a surgical approach is planned. Preoperative embolisation can also be performed during preoperative angiography to minimise blood loss [6,7].

Unlike their cutaneous counterparts, intramuscular haemangiomas are not known to show spontaneous regression. While it is safe to observe asymptomatic tumours, indications for treatment include accelerated growth, cosmetic deformity, functional impairment, local skin necrosis, uncontrollable pain and suspicion of malignancy. Many forms of treatment have been recommended for intramuscular haemangiomas including sclerosing agents, carbon dioxide snow, cryotherapy, steroid administration, blood vessel ligation and embolisation [5,17]. Results achieved by these measures are usually temporary and complete surgical excision is usually advised. Excision of the lesion along with the surrounding muscle fibres is necessary due to the infiltrative nature of the lesion, along with ligation of the feeding vessel. It should be noted however that there might be minor arterial feeding vessels that are not visible on preoperative angiograms and that these may cause excessive blood loss during surgery. These minor feeder vessels may also be responsible for recurrence of the haemangioma. Rossiter *et al* reported a recurrence rate of up to 18% in these lesions, when excision is incomplete. Another treatment, with considerable reported success, is the use of embolisation [6].

Conclusion

Intramuscular haemangiomas are unusual, benign tumours, not commonly seen in the head and neck region. When evaluating intramuscular lesions, a wide range of differential diagnoses including both, benign and malignant lesions, must be considered. The preoperative diagnosis is often difficult in these cases due to their variable size, consistency, deep location and unfamiliar clinical and radiological presentation. In order to avoid misdiagnosis and to ensure appropriate management, it is necessary that the surgeon who deals with these tumours is aware of their distinctive histopathology and biological behaviour. Optimal management requires good clinical judgement, surgical planning and complete excision together with a cuff of normal tissue. Postoperative cosmetic and functional disability after excision of these lesions has been minimal, even with significant removal of surrounding muscle. Incomplete excision or other forms of treatment are associated with an unacceptably high rate of local recurrence and are to be discouraged.

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Table 1

Author/ year	Age/ Sex	Clinical Presentation	Investigations	Histology	Excision
Present	71/F	2 years Neck swelling	FNA- Blood CT Scan- a well defined swelling with faint enhancement of a nodular pattern	Cavernous type Haemangioma	Wide excision involving the muscle
Jani *et al* (1990) [7]	26/F	6 month neck swelling, rapid onset associated with pain	FNA- Blood Angiogram	Mixed type haemangioma	Wide excision involving the muscle
Chaudhary *et al* (1998) [8]	15/M	Gradually increasing in size neck lump	FNA- Inconclusive CT Scan- Moderately enhancing mass with poorly defined margins within muscle	Cavernous type haemangioma	Wide excision involving the muscle
Feng-Huang *et al* (1997) [9]	55/M	14 years gradually increasing in size, pulsatile soft neck mass	FNA- inconclusive MRI –non homogeneous neck mass Carotid arteriogram- carotid artery displacement	Giant cavernous type haemangioma	Enucleation

Table 1. All reported intramuscular haemangiomas of sternocleidomastoid muscle. Presentation, investigations and management of each individual case is described.

Figure Legends

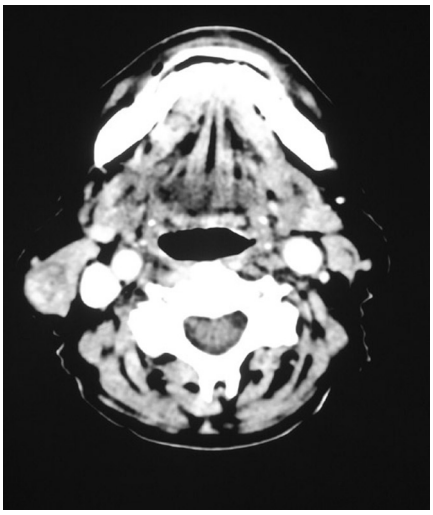

Figure 1

Axial CT scan of the neck showing a well defined swelling, with faint enhancement of a nodular pattern within the right sternocleidomastoid muscle (arrow).

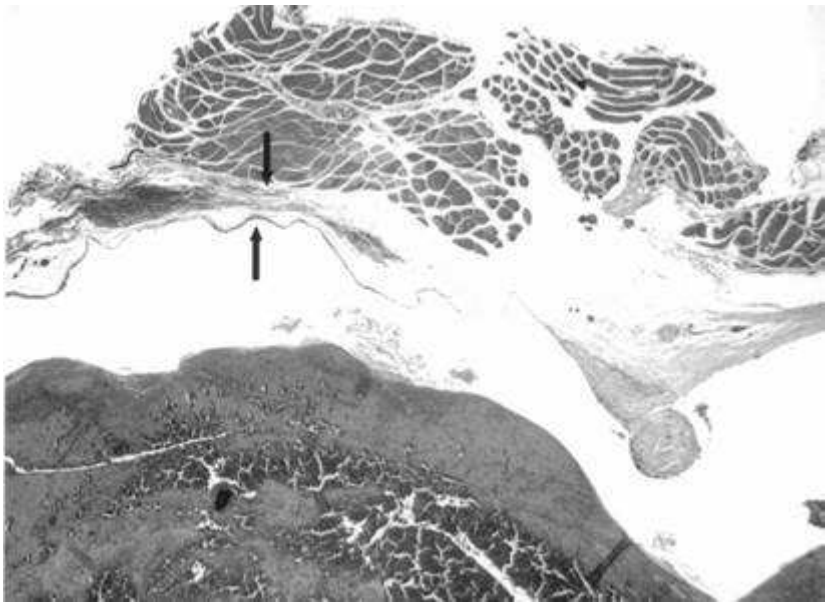

Figure 2

Histological section showing the intramusculat haemangioma. The margin of the skeletal muscle (top arrow) and the endothelium (bottom arrow) can be seen (H&E x100).