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Intramuscular haemangioma of head and neck region

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Abstract

Intramuscular haemangiomas are rare benign haemangiomas occurring within the skeletal muscle. These are uncommon tumours in the head and neck region and occur most frequently on the trunk and extremities. Fewer than 80 cases of intra-muscular haemangioma in the head and neck region have been reported in the literature.

A case of intramuscular haemangioma of the sternocleidomastoid muscle is presented. The review of occurrence and natural history of such tumours is described and clinical and radiological presentation, histological classifications and treatment modalities are discussed.

Key words: Muscle, skeletal; Haemangioma, cavernous; Head and neck neoplasms

Introduction

Haemangiomas arising within the skeletal muscle account for less than one per cent of all haemangiomas (Allen and Enzinger, 1972). These occur most frequently in the muscles of the trunk and extremities. The head and neck region is an uncommon site for these tumours with approximately 13.5 per cent of intramuscular haemangiomas occurring in this region (Scott, 1957). The masseter muscle represents the most common site of involvement in the head and neck. Pre-operative diagnosis is difficult in these cases due to the rarity, variable size and consistency, deep location and unfamiliar clinical and radiological presentation.

A case of intramuscular haemangioma of the sternocleidomastoid muscle is reported which was diagnosed post-operatively on histopathological examination of the specimen.

Case report

A 15-year-old male student presented with swelling in the upper part of the neck on the right side for one and half years. There was no pain associated with the swelling but it was gradually increasing in size. The patient did not give any history of trauma prior to the appearance of the swelling. On examination of the neck, there was a diffuse painless swelling in the right upper cervical region extending from the angle of the mandible to the upper cornu of the thyroid cartilage covering the upper one third of the sternocleidomastoid muscle. The surface was smooth and the margins were ill-defined (Figure 1). It was soft and mobile on palpation, non-tender, and became less prominent when the patient was made to turn the neck against resistance. There were no bruits or pulsations over the swelling.

Plain radiograph of neck showed an ill-defined soft tissue shadow in the upper part of the neck. Computed tomography (CT) scan revealed a moderately enhancing mass with poorly defined margins beneath the sternocleidomastoid muscle on the right side (Figure 2). Small calcifications were seen within the mass at three places.

Fine needle aspiration cytology was inconclusive. The patient underwent surgical exploration and excision of the mass was performed under general anaesthesia. The mass bled profusely and was fed by the external carotid system by a number of branches. The various feeding vessels were ligated and cut. The mass was engulfing a part of the sternocleidomastoid muscle and the internal jugular vein and it was impossible to dissect it free from these structures. It was, therefore, removed along with a part of muscle and a pedicle of the internal jugular vein. Histological examination of the excised specimen revealed the cavernous type of intramuscular haemangioma (Figure 3).

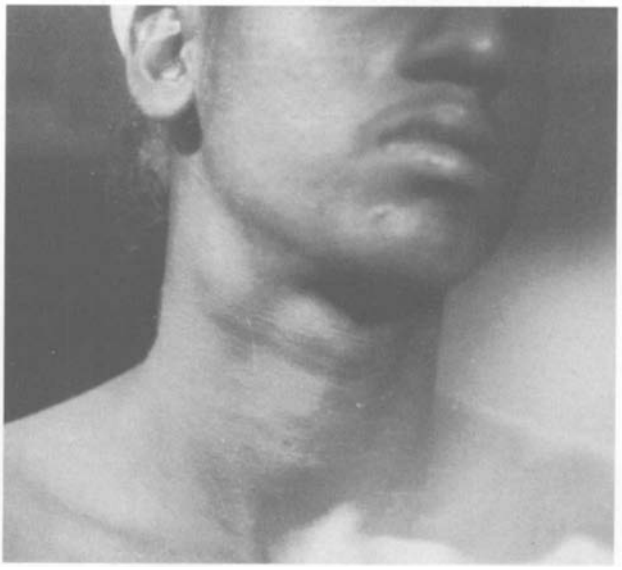

FIG. 1

Photograph of the patient showing diffuse swelling on the right side of the neck in the upper one third.

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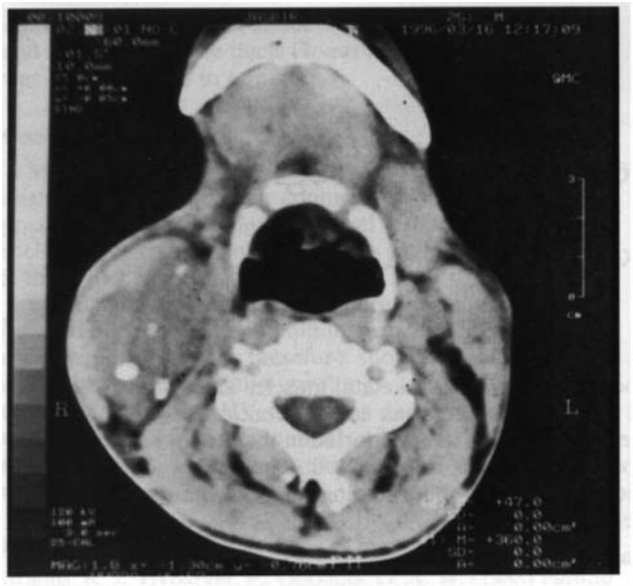

FIG. 2

CT scan of the patient showing a moderately enhancing mass with poorly defined margins beneath the sternocleidomastoid muscle on the right side.

Discussion

Intramuscular haemangiomas are benign congenital neoplasms. Liston in 1843, was first to describe this tumour in semimembranous muscle in the popliteal space (Clemis *et al.*, 1975; Rossiter *et al.*, 1993). Incidence of these tumours in the head and neck varies from 14 to 21 per cent. Various muscles involved in the head and neck region are masseter, trapezius, sternocleidomastoid, periorbital and temporalis. Intramuscular haemangiomas usually present in the second and third decades of life. Sex incidence is equal or there is a slight male preponderance.

Many theories have been described to explain the aetiopathogenesis of these tumours, but these are most likely congenital in origin and slowly give rise to symptoms by late childhood or early adulthood. Muscular trauma and hormonal influence have also been suggested to explain the aetiology of these tumours (Wolf *et al.*, 1985).

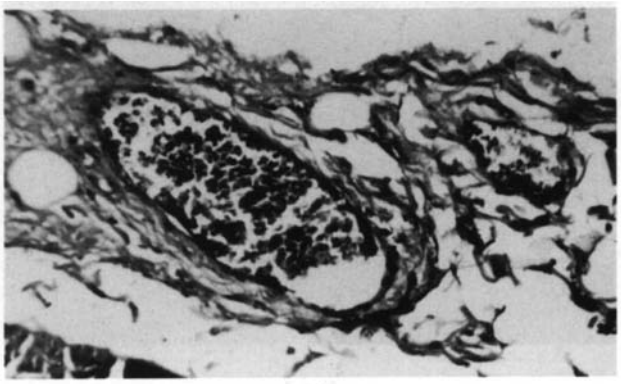

FIG. 3

Histological examination of the excised specimen revealed intramuscular haemangioma (cavernous type). There were multiple vascular spaces interspersed between bundles of muscle fibre (H & E; × 250)

Intramuscular haemangiomas can be histologically subtyped into small vessel or capillary haemangiomas, large vessel or cavernous haemangiomas and the mixed vessel haemangioma. Fifty per cent of all intramuscular haemangiomas and 68 per cent in the head and neck region are of the capillary type. Cavernous haemangiomas account for 29 per cent and mixed tumour 21 per cent of all intramuscular haemangiomas. Only 19 per cent of cavernous and five per cent of mixed tumour occur in the head and neck (Clemis *et al.*, 1975).

Clinically these tumours present as distinct, localized, rubbery swellings with distinct margins and a smooth surface. The palpable mass is non-compressible. Pulsations or bruits are usually absent due to the surrounding muscular fibrosis concealing the vascular nature of the tumour. Pain, if present, is due to compression by the enlarging mass and there is no neural or perineural invasion. As the result of their deep location, the consistency may vary from soft cystic diffuse to firm localized. The mass is mobile in the perpendicular plane of the muscle and the contraction of this muscle results in the mass becoming prominent or fixed (Rossiter *et al.*, 1993).

A plain radiograph may show soft tissue calcification in 15 per cent of cases, whereas phleboliths in areas devoid of venous plexi suggest cavernous tumours. CT scan usually shows an enhancing, well-circumscribed intramuscular mass but it usually fails to define the tissue planes and does not always clearly indicate the vascularity and full extent of the lesions (Buetow *et al.*, 1990).

Previous reports show the superiority of magnetic resonance imaging (MRI) over CT for the detection and delineation of the extent of intramuscular haemangiomas. It shows a clear distinction between the normal muscle and the tumour resulting from the presence of non-vascular tissue such as fat, smooth muscles, fibrous and myxoid tissue and thrombus. MRI findings suggestive of intramuscular haemangioma are (1) high signal intensity on both T1 and T2 weighted image (2) serpiginous pattern, septated – striated high signal channels and curvilinear areas of low intensity consistent with vascular spaces (3) focal heterogenicities representing areas of thrombosis, fibrosis or calcification (4) adjacent focal muscular atrophy (Cohen *et al.*, 1988; Buetow *et al.*, 1990).

Fine needle aspiration cytology results in misdiagnosis or no diagnosis due to an excessively bloody specimen (Rossiter *et al.*, 1993).

Differential diagnosis includes lymphadenopathy, salivary gland tumour or cysts, congenital cysts, lymphangiomas, angiosarcomas, rhabdomyosarcoma, benign muscular hypertrophy, myositis ossicans (Welsh and Hengeren, 1980; Wolf *et al.*, 1985).

Spontaneous regression of these tumours is not known. Many forms of treatment have been recommended. Sclerosing agents and radiation provide palliative treatment and result in relieving pain and regression in the size of the tumour but the effect is only temporary (Stofman *et al.*, 1989).

The optimal treatment is complete surgical excision. Due to the infiltrative nature of the tumour, normal muscle should be removed well beyond the confines of the tumour to prevent recurrence. The feeding vessels should be ligated. Local recurrence occurs in 18 per cent of cases and is mostly due to incomplete excision (Rossiter *et al.*, 1993).

Summary

Intramuscular haemangiomas are rare tumours of the head and neck region. Pre-operative diagnosis is difficult unless these tumours are kept in mind as the differential diagnosis of a soft tissue mass. When intramuscular

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haemangioma is suspected, MRI helps in providing a presumptive diagnosis. Complete surgical excision is the treatment of choice.

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