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Well-circumscribed intramuscular lipoma of the sternocleidomastoid muscle

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Abstract

Intramuscular lipomas are unusual benign mesenchymal tumours, which infiltrate the skeletal muscle, and are exceedingly rare in the head and neck region. They commonly infiltrate the skeletal muscle fibres from which they arise and are rarely well circumscribed. We present the only documented case of well-circumscribed intramuscular lipoma arising from the sternocleidomastoid muscle. Although the recurrence is commoner in the infiltrative variety the surgeon should be aware that differentiation between infiltrative and well circumscribed is based on histological diagnosis, and hence wide excision in all cases of intramuscular lipomas is essential.

Keywords: Sternocleidomastoid; Lipoma; Intramuscular

1. Introduction

Lipomas are undeniably one of the most frequently encountered benign mesenchymal soft tissue tumours that are ubiquitous and can occur in every body system and location. They are usually located in a fairly superficial subcutaneous location on the trunk or extremities. They are often solitary and usually asymptomatic except for a cosmetic effect. In about 7% of cases they are multiple with a strong familial predisposition [1].

Histologically, lipomas are well circumscribed and encapsulated and up to 5% recur after excision [2]. On the other hand, a separate entity called intramuscular lipoma has been recognised. It arises from skeletal muscle and is most commonly found in the upper or lower extremities but can also rarely present in head and neck areas. These tend to grow in between large muscle bundles infiltrating them and are thought to arise from inter muscular fascial septa. Fletcher and Martin-Bates, in a systematic review of 2478 adipose tissue tumours, noted that these rare benign lesions comprise 1.9% of all lipomas [3]. There are very few reports of intramuscular lipomas in head and neck areas.

We present one rare case of intramuscular lipoma arising from the sternocleidomastoid muscle, characterised by circumscribed margins without infiltrating the muscle fibres. To our knowledge this is the first report of such a case in the literature.

2. Case report

A 52-year-old male presented with a 4-year history of diffuse swelling on the right side of the neck. Physical examination revealed a 3 cm × 2 cm soft non-tender mass on the right side, in the region of the sternocleidomastoid muscle. There was no accompanying lymphadenopathy. The rest of the ear, nose and throat examination was unremarkable. Ultrasound-guided biopsy was performed which showed a hyperechoic mass arising from the sternomastoid muscle and the histology report suggested adipose tissue. The diagnosis of intramuscular lipoma within sternomastoid was made and the patient was kept under observation. Although the patient remained asymptomatic, the swelling gradually increased in size. In view of this, a CT scan of the neck was performed which revealed a well-defined non-enhancing area of low at-

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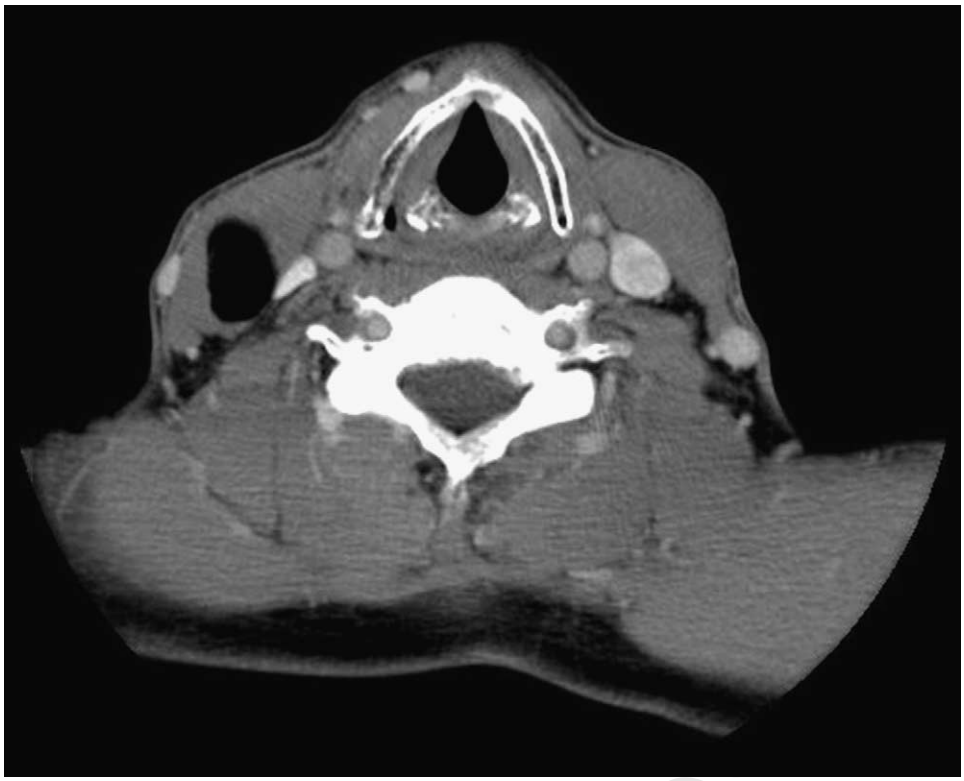

Fig. 1. Axial CT scan of the neck showing a well-defined non-enhancing area of low attenuation within the right sternocleidomastoid muscle.

tenuation within the right sternocleidomastoid muscle with the same density as fat (Fig. 1). The appearances suggested a fatty tumour within the muscle and lipoma seemed to be the most likely diagnosis. There were no features of local tissue infiltration but the remote possibility of a malignant degeneration could not be entirely excluded. Following a transverse neck incision, sub-platysmal flaps were raised. The entire length of the sternocleidomastoid muscle was then exposed. The lesion was excised along with a portion of the sternocleidomastoid muscle with at least 2 cm margins of clearance. Histology revealed a well-circumscribed nodule encased in the muscle, consistent with adipose tissue (Fig. 2). Postoperatively the patient had an uneventful recovery with no evidence of recurrence at 36 months follow-up.

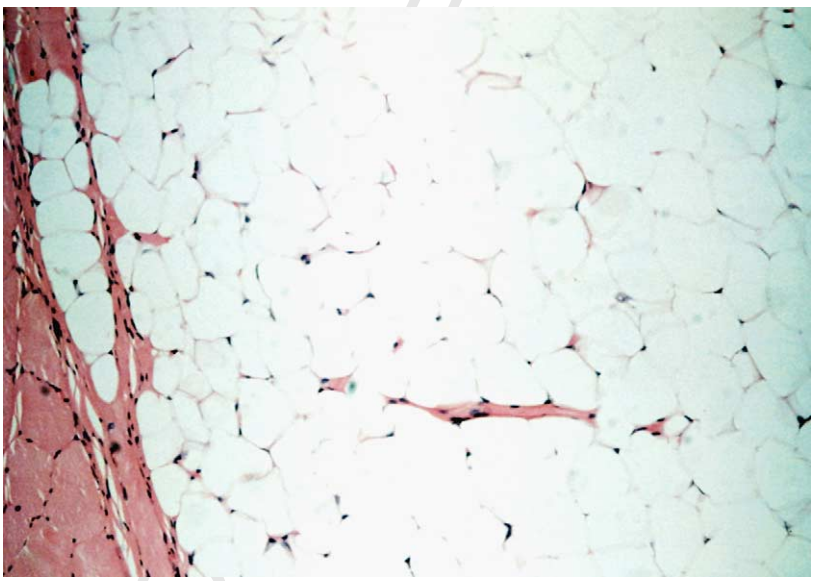

Fig. 2. Histology specimen showing adipose tissue surrounded by muscle fibres.

3. Discussion

Piaget first described intramuscular lipomas in 1853 and since then there have been several case reports and small series of cases. Most of the cases in the literature are based on intramuscular lipomas in the upper and lower limbs and abdomen. However, these are rare in the head and neck region and are reported in the tongue [1,4,5], temporalis muscle [6,8], sternomastoid [9] and in the strap muscles [10].

Fletcher and Martin-Bates in 1988 sub-classified intramuscular lipomas into well-circumscribed and infiltrative types, which comprised 17 and 83% of cases, respectively [3]. However, only a single case of well-circumscribed intramuscular lipoma arose from the forehead and there was no mention of the muscle of origin.

The histological appearance of intramuscular lipomas shows they are usually unencapsulated and are composed of mature adipocytes with sparse blood vessels [3]. However, they can be divided into two types based on the appearance of the margins in relation to the adjacent muscle fibres. The infiltrative type is characterised by margins that irregularly invade the surrounding muscle fibres, and in places, completely replace them. The well-circumscribed type, on the other hand, is composed solely of a discrete mass of uniform, mature adipocytes that are clearly delineated from the surrounding muscle [3]. There is no fatty infiltration of adjacent muscle fibres and entrapped muscle fibres are never evident within the tumour itself. The differentiation of intramuscular lipomas from a liposarcoma can be difficult; however, these never demonstrate lipoblastic proliferation, myxoid differentiation, pleomorphism and mitoses that characterise a malignant lesion although haemorrhage followed by dystrophic calcification is known to occur [11].

A review of the literature indicates that all except the case reported by Uemura et al. [6], are of the infiltrative type. In the present case, the tumour is originating from the sternomastoid muscle although the margins are well circumscribed. Such a case has not been reported before. We found no calcification in this case and the radiological opinion could not exclude the possibility of malignancy and therefore excision of the lesion was advised.

A separate entity of infiltrating lipoma–angiolipoma, characterised by strong predominance of blood vessels together with large amount of connective tissue intermixed with mature adipose tissue has also been reported. Stimpson in 1971 reported a case of angiolipoma arising from the strap muscles [10]. These are now recognised to be intramuscular haemangiomas. A clinical differentiation however, is extremely difficult and a heavy reliance on histological diagnosis is necessary.

Clinically intramuscular lipomas present as slow-growing diffuse masses, arising from the muscle and giving them a rounded appearance. They can however become more spherical and firm on contraction of the muscle. Symptoms depend on the location of the tumour and are secondary to local pressure effects. The differential diagnosis includes sarcoma, haematoma, muscle herniation, fibrous myositis, cystic hygroma and other soft tissue tumours.

A CT scan can usually be diagnostic due to the characteristic low-attenuation. Som et al., in 1986 reported the reliability of this investigative modality [12]. The identification of infiltrative margins is not often apparent on CT scanning, but using magnetic resonance imaging with fat suppression techniques, this can become more evident [13].

These lesions are associated with high recurrence rate. Dionne and Seemayer have noted a high recurrence rate of 62.5% with follow up of 4 months to 20 years (mean 7.5 years) [14]. Scherl et al. in 1986 reported a recurrent intramuscular lipoma presenting in the cheek but originally arising from temporalis muscle. The recurrence was attributed to the infiltrative nature of the tumour and wide excision was duly recommended [8]. Fletcher and Martin-Bates in 1988 reported that recurrence was only associated with the infiltrative intramuscular tumours and not with the well-circumscribed variety [3].

The patient in the present report demonstrated no evidence of recurrence postoperatively. We recommend wide excision of all intramuscular lipomas, as the margins may not be clearly evident at the time of operation where it is impossible to reliably differentiate the infiltrative from the circumscribed variety.

Uncited reference

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