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Focal myositis of the sternocleidomastoid muscle

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Abstract
Focal myositis is an unusual inflammatory lesion of skeletal muscle. It usually affects the extremities, but can present rarely in the head and neck region. We present a case of an elderly woman with focal myositis of the sternocleidomastoid muscle and review of the previous literature on this subject.

Key words: Myositis, focal; Muscle diseases

Introduction

Focal myositis is a benign, inflammatory pseudotumour of skeletal muscle. It is an unusual condition which usually affects the muscles of the extremities and was first described as recently as 1977. It can present in the head and neck region and its specific importance in this area is that it is usually mistaken clinically for a neoplasm.

Case report

An 83-year-old woman presented with a palpable mass overlying the right upper sternocleidomastoid muscle. She had noticed a feeling of discomfort and aching in this area over the preceding weeks and reported that the swelling had appeared within the previous few days. Further ENT examination revealed no other lymphadenopathy and no abnormality of the ears, nose or throat. A fine needle aspirate was performed and computed tomography (CT) scan arranged. The scan revealed a diffuse enlargement of the upper third of the right sternocleidomastoid muscle (Figure 1). The sample from fine needle aspiration was unfortunately unsatisfactory and it was repeated, once again failing to reveal any specific pathology. An incisional biopsy was performed under local anaesthetic revealing a pale, rubbery tumour which was firmly adherent to the underlying muscle. The diagnosis of focal myositis was made as outlined below and, in view of the usual good prognosis in this condition, the patient was treated conservatively. Three months post-operatively the original lesion was almost undetectable.

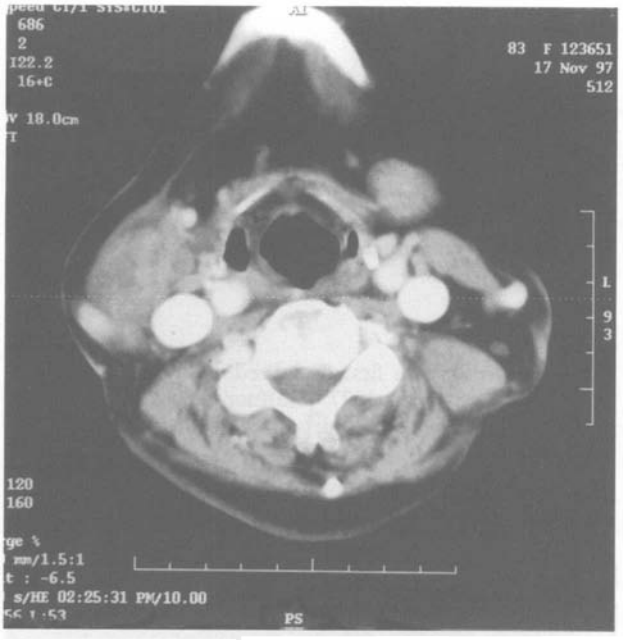

FIG. 1
Axial CT scan of the superior neck. Note the diffuse enlargement of the right sternocleidomastoid muscle.

Histopathology

Macroscopically the specimen consisted of grey, slightly nodular, firm tissue with some attached skeletal muscle, the whole specimen measuring $19 \times 12 \times 12$ mm. On sectioning, there was a pale grey focus of arborizing fibrous-appearing tissue within the specimen measuring approximately $16 \times 10 \times 10$ mm.

On microscopy there was a lobulated outline to groups of inflammatory cells and sketetal muscle fibres, the latter showing a mixture of degenerative (Figure 2) and regenerative (Figure 3) changes. Thick bands of collagenous connective tissue, in areas suggestive of markedly thickened perimysium, separated these areas of inflammatory myopathy. The inflammatory cell infiltrate included neutrophil polymorphs, lymphocytes, plasma cells and macrophages although the predominant inflammatory cell elements were lymphocytic. By immunohistochemistry these were a mixture of B cells (CD20 positive) and T cells (CD3 positive). The regenerative appearing myosites were of mononuclear and multinucleate type (Figure 3) and demonstrated mild nuclear enlargement. These cells were immunopositive for myoglobin and desmin confirming skeletal muscle differentiation. Immunostains for S100 protein and cytokeratins (CAM 5.2 and MNF116) were

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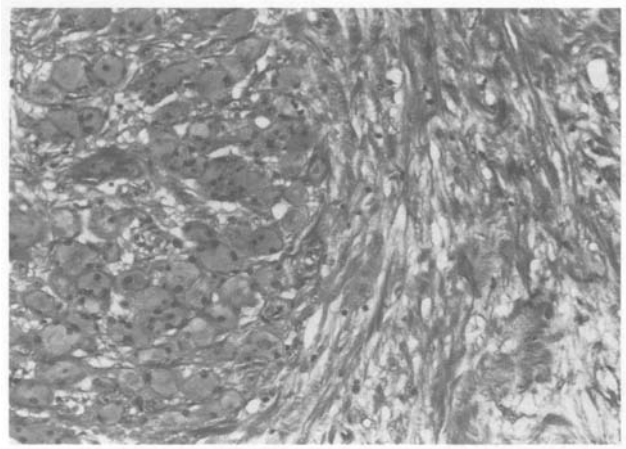

FIG. 2

This shows degenerate myosites with rounded cytoplasm admixed with a few lymphocytes adjacent to collagenous connective tissue which also contains a few lymphocytes. (H &E; × 240)

negative. All immunostain positive and negative controls were appropriate. A gram stain for bacterial organisms and periodic acid Schiff stain for fungi were negative.

The histopathological appearances of degenerative and regenerative changes in myosites in association with fibrosis were considered to be in keeping with focal (nodular) myositis.

Discussion

Focal myositis was first described, as a distinct clinicopathological entity in 1977 (Heffner *et al.*, 1977) with a series of 16 cases, all of which affected the muscles of the limbs. The paper stressed that the diagnosis must be made taking into account both the clinical and pathological findings. Their clinical description was of a mass located within a muscle group and not attached to the overlying skin. The lesions were found at surgery to be pale, ovoid and rubbery in consistency and frequently considered a neoplasm. Their histological description was of lymphocytic infiltration, scattered muscle fibre necrosis and interstitial fibrosis.

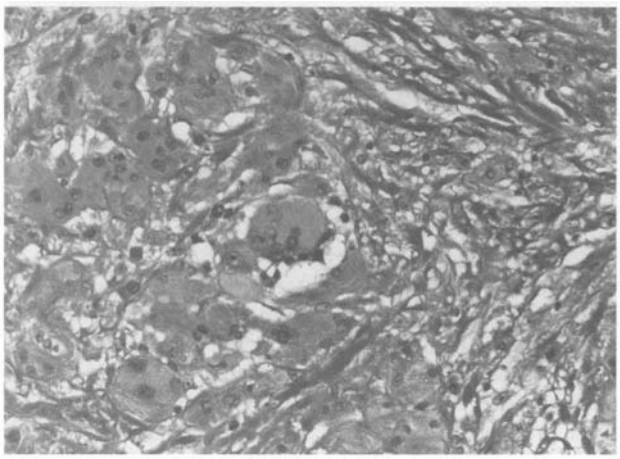

FIG. 3

This shows a mixture of degenerate muscle fibres and regenerative muscle fibres. The latter are a mixture of mononuclear forms with central vesicular nuclei containing prominent nucleoli and multinucleate forms. A mild lymphocytic infiltrate is present. This focus of myositis merges with an area of fibrosis characterized by collagenous connective tissue containing a few fibroblasts and lymphocytes on the right side of the photomicrograph. (H & E; × 375)

Since this initial series was published, the condition has been described in the literature approximately 30 times. Almost all of these cases have involved muscles of the extremities, but there have been a few head and neck cases. Focal myositis has been reported to affect the sternocleidomastoid muscle on four previous occasions, twice in children (Shapiro *et al.*, 1986; Isaacson *et al.*, 1991) and twice in adults (Ho *et al.*, 1979; Josephson *et al.*, 1996). There are also isolated reports of focal myositis affecting the temporalis muscle (Naumann *et al.*, 1993) and the muscles of the tongue (Azuma *et al.*, 1987).

Although this condition is unusual, further diagnostic problems are caused because it is easily confused with other forms of myositis. Myositis ossificans contains cartilaginous or osseous deposits which do not occur in focal myositis. Polymyositis has been described as beginning as a focal process (Heffner and Barron, 1981) and this could easily be mistaken for focal myositis, but macroscopically the lesion has the same colour and appearance as the surrounding muscle and unlike focal myositis there is then progression to a more generalized polymyositis. Proliferative myositis contains typical ganglion-like cells and a background reminiscent of nodular fasciitis which is not seen in focal myositis.

The aetiology of this unusual condition remains unclear, but a study in 1980 (Heffner and Barron, 1980) suggested that a denervating process may play an important role. The alternative suggestion of a viral aetiology is as yet unproven (Toti *et al.*, 1997).

The prognosis for this condition is good and all cases reported in the literature were self-limiting, gradually resolving with time.

Although this condition is unusual, it is obviously a differential diagnosis of importance. It is an accurate clinical mimic of neoplasia and the correct diagnosis is not usually suspected until the lesion is biopsied.

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