Fine Needle Aspiration Cytology of Focal Myositis

A Case Report

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Background

Focal myositis is an unusual inflammatory lesion of the skeletal muscle first described by Heffner. It is a benign condition and usually involves the muscles of the limbs.

Case

A man presented with a palpable mass in the left leg of 6 months' duration. Nuclear magnetic resonance of the leg showed a mass in the tibial muscle; the presumptive diagnosis was sarcoma of the muscle. Smears showed inflammatory cells, skeletal muscle fibers with degenerative and regenerative changes, and fibrous tissue, suggesting a diagnosis of focal myositis. An incisional muscle biopsy was performed, confirming the diagnosis.

Conclusion

Focal myositis should always be considered when aspirating muscle masses because it is a clinical mimic of a neoplasm. The prognosis is good, and all cases reported in the literature were self-limiting and gradually resolved. (Acta Cytol 2005;49:653–655)

Keywords: myositis, focal; aspiration biopsy, fine-needle; muscular diseases.

Focal myositis is an unusual inflammatory lesion of the skeletal muscle first described by Heffner.[1] It is a benign condition and usually involves the muscles of the limbs.

Case Report

[Focal myositis] is an accurate clinical mimic of a neoplasm, and the correct diagnosis is not usually suspected until the lesion is biopsied.

A 60-year-old man presented with a palpable, painful, progressively growing mass in the left leg. Laboratory data, including erythrocyte sedimentation rate, creatine kinase and lactate dehydrogenase, were within normal limits. The nuclear magnetic resonance of the leg revealed a mass in the tibial muscle measuring 7 × 4 cm (Figure 1). A fine needle aspiration (FNA) was performed.

The FNA smear was stained with routine Papanicolaou stain. The smear showed inflammatory cells and skeletal muscle fibers with degenerative and regenerative changes. The degenerative changes showed necrotic fibers, some containing mononuclear cells. The regenerative appearance of the muscle fiber cells was mononuclear and multinucleated, with nuclei in the cell center (Figure 2) and demonstrated mild nuclear enlargement and fibrous tissue separating skeletal fibers (Figure 3). A diagnosis of focal myositis was considered.

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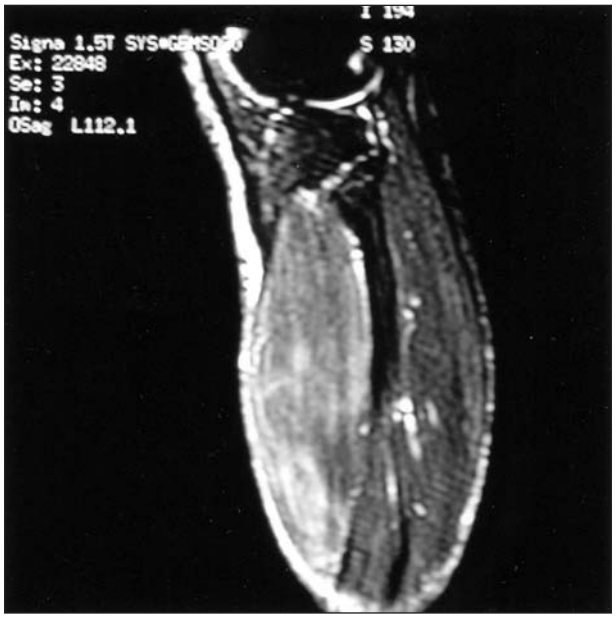

Figure 1 Nuclear magnetic resonance of the left leg revealed a mass measuring 7×4 cm.

An incisional muscle biopsy confirmed the diagnosis of focal myositis. Microscopic study of the lesion showed inflammatory infiltration and skeletal muscle fibers with typical myopathic alterations; the latter showed a mixture of degenerative and regenerative changes. The regenerative appearing muscle fibers were of a mononuclear and multinucleated type and demonstrated mild nuclear enlargement. Thick bands of collagenous connective tissue separated these areas of inflammatory myopathy (Figure 4). The inflammatory cell infiltration included neutrophil polymorphs, lymphocytes, plasma cells and macrophages, although the predominant inflammatory cell elements were lymphocytes.

During follow-up 6 weeks later, the patient had tumefaction of the leg.

Discussion

Focal myositis was first described as a distinct clinicopathologic entity in 1977.[1] This focal inflammatory process can affect various muscles, most commonly those of the limb.[1,2] There are reports of focal myositis involving the muscles of the trunk,[1] arm,[3] and head and neck,[4] including the temporalis muscle,[5] muscles of the tongue[6] and sternocleidomastoid muscle.[7] The clinical presentation and appearance are that of a malignant neoplasm of the muscle,[8] although the disease has a completely benign clinical course. It presents as a rapidly enlarging, intramuscular mass with no history of trauma. The diagnosis is made on cytologic or histopathologic examination but is helped by imaging.

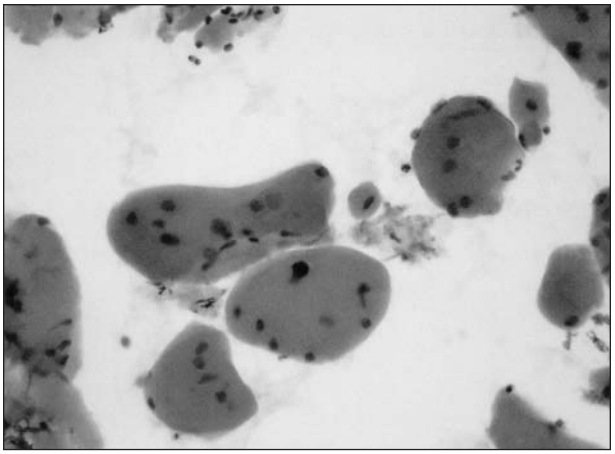

Figure 2 Regenerative changes with nuclei in the cell center.

Clinically, cytologically and histologically, the differential diagnosis includes sarcoma, lymphoma and pseudotumors, such as nodular fasciitis, myositis ossificans and proliferative myositis. In nodular fasciitis the lesion involves primarily the subcutaneous tissues or fascia of the upper extremities. Of the cytologic findings, the most important feature is the wide variation in size and shape of the proliferative fibroblasts. A further typical finding is polyhedral or triangular cells with abundant cytoplasm. They have 1 or 2 rounded nuclei and closely resemble ganglion cells. These features are not seen in focal myositis. Proliferative myositis contains typical ganglionlike cells and a background reminiscent of nodular fasciitis, which is not seen in focal myositis. These cells are usually large and binucleate, with abundant cytoplasm and enlarged round nuclei. They have prominent nucleoli. These cells are a characteristic finding and are not seen in

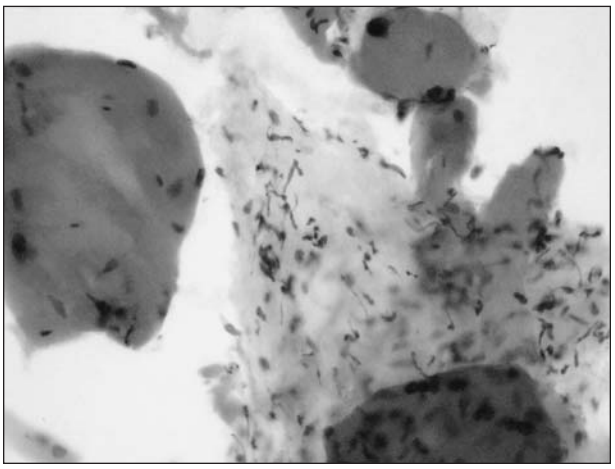

Figure 3 Regenerative muscle fibers with nuclear enlargement and fibrous tissue separated by skeletal fibers.

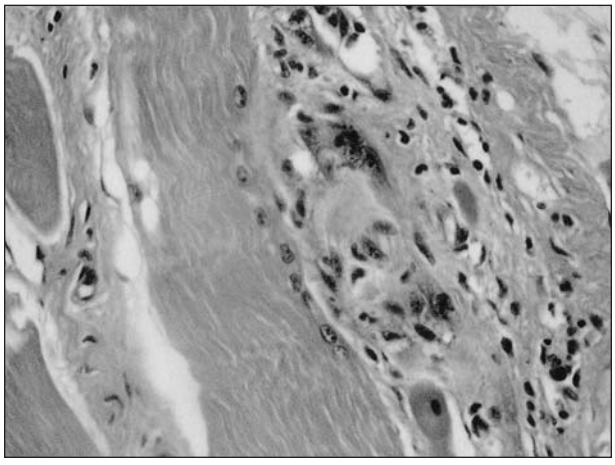

Figure 4 Histologic image showing thick bands of collagenous connective tissue separated by areas of inflammatory myopathy.

nodular fasciitis.

Myositis ossificans is a rapidly proliferating soft tissue lesion and generally arises in young adults. The characteristic feature is the mixture of proliferating fibroblasts, osteoblasts and osteoclasts. Polymyositis occasionally has started as a focal process and can easily be mistaken for focal myositis, but macroscopically the lesion has the same color and appearance as the surrounding muscle; unlike focal myositis, there is progression to more generalized polymyositis. The muscle fiber hypertrophy and interstitial fibrosis that are seen in focal myositis are absent from focal polymyositis.

The etiology remains unclear, but a study in 1989 suggested that a denervating process may play an important role.[9] The alternative suggestion of viral etiology is yet unproven.[10] The prognosis for this condition is good, and all cases reported in the literature were self-limiting, gradually resolving.

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

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