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Calf muscular infarction in a diabetic patient

Sirs,

Diabetic muscle infarction (DMI) is a rare complication of diabetes mellitus. The thigh is commonly affected. Calf muscles are exceptionally involved (1-4). We report a case of DMI presenting as a painful calf mass and review the data in the literature on its diagnosis and management.

A 36-year-old woman presented with a 4month history of pain and swelling of the right calf. She had a 10-year history of diabetes mellitus, poorly controlled and complicated by proliferative retinopathy, nephropathy and sensory neuropathy. Physical examination showed a firm, tender mass in the right posterior-medial calf. There were no associated systemic symptoms or signs indicative of infection, and no discoloration of the skin suggesting cellulitis, gangrene or deep venous thrombosis. Laboratory tests indicated: erythrocyte sedimentation rate 113 mm/hr, blood glucose 1.03 g/l, serum creatinine 60 mg/l, and serum creatinine kinase 144 UI/L. Ultrasonography of the posterior portion of the calf demonstrated an area of heterogeneous decreased echogenicity. Magnetic resonance imaging showed in the T2-weighted image a high signal intensity within the soleus and plantaris musculus (Fig. 1).

The MRI features were most consistent with a muscular infarction or myositis. A limited muscle biopsy showed necrotic areas compatible with infarction, thrombosis of the vessels, necrosis of the vessel walls, intravascular inflammation and signs of muscle regeneration. A diagnosis of idiopathic muscular infarction was retained. The patient was treated with bed rest and analgesics. Her pain and swelling gradually improved over about 4 months.

Muscle infarction is a rarely reported complication of diabetes. DMI is usually seen in patients with long-standing poorly controlled diabetes mellitus, with a mean duration of 17.4 years; most patients also have multiple end-organ microvascular complications. The cause of diabetic muscle infarction appears likely to be diabetic microvascular disease, since most patients with DMI have multiple end-organ microvascular diabetic complications (5). The characteristic clinical presentation is the acute onset of severe pain. The calf is exceptionally involved. On clinical examination, there is usually a palpable, painful mass with swelling and induration of the surrounding tissue. Muscular enzyme levels (creatine kinase and aldolase) may be elevated. Standard radiographic films are rarely helpful, except to exclude bony abnormalities or soft tissue calcification. CT studies may demonstrate muscle swelling, but this is a non-specific and inconstant finding. Areas of muscle infarction are seen on MR images as marked muscle swelling that is isointense on T1-weighted images and hyperintense compared with skeletal muscle on T2weighted, inversion-recovery, and gadolinium-enhanced MR images. Nevertheless, MR changes are not specific for DMI, and also accompany the edema of tumor or inflammatory disease (2, 6-8).

The radiologic differential diagnosis of diabetic muscle infarction includes soft-tissue abscess, pyomyositis, necrotizing fasciitis, and other causes of myositis (dermatomyositis, focal myositis, nodular myositis, and proliferative myositis). The diagnosis of diabetic muscle infarction remains a clinical and radiographic diagnosis and, at times, may require histopathologic confirmation. Focal myositis, proliferative myositis, and nodular myositis are not individually distinguishable on clinical examination or MR imaging, and muscle biopsy is necessary to identify the characteristic histologic features.

Clinical treatment is predominantly symptomatic and conservative, although some have suggested a role for anticoagulation therapy.



Fig. 1. Magnetic resonance imaging showed on the T2-weighted image a high signal intensity within the soleus and plantaris musculus.

The symptoms of diabetic muscle infarction resolve over several weeks (8, 9). Recurrence in the same or another location may be relatively frequent (1, 10).

While there have been only a small number of cases reported, DMI may be mistaken for other disorders and is probably under-recognized. Careful consideration of the clinical, radiologic and if necessary, biopsy features of the syndrome will distinguish it from the other neuro-muscular complications of diabetes and other causes of leg pain.

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