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Letter

Nondiabetic thigh muscle infarction presenting as a possible primary antiphospholipid syndrome

Masahiko Nishikai · Naoaki Ichihara · Seiji Bito · Kumiko Akiya

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To the Editor:

Thigh muscle infarction has been reported as a rare complication of type 1 diabetes mellitus,[1,2] with one such account describing a Japanese patient.[3] Palmer and Greco[4] recently reported two cases of diabetic thigh muscle infarction in which they suggested the pathogenetic involvement of antiphospholipid antibodies. We now report the case of a nondiabetic patient with thigh muscle infarction presenting as a *possible* antiphospholipid syndrome.

An 82-year-old woman presented with a 3-week history of pain on urination and haematuria, and left thigh muscle swelling and pain for 3 days. She was normotensive and did not smoke, but her past medical history included cerebral infarction.

On admission, she was diagnosed with acute haemorrhagic cystitis caused by *Enterococcus faecalis*. Although her urinary symptoms decreased promptly with antibiotic treatment, her left thigh muscle swelling and pain continued to worsen. Her serum creatine kinase and myoglobin concentrations were slightly elevated to 340 U/l (normal <200 U/l) and 335 ng/ml (normal <65 ng/ml), respectively. Serum concentrations of fasting blood sugar (88 mg/ml) and haemoglobin A1c (4.8%) were normal. Antinuclear antibodies (ANA) and anti-ENA antibodies (precipitating antibodies) were not present. Anticardiolipin IgG antibodies were detected at two tests more than 6 weeks apart (13 and 23 U/ml; normal <10 U/ml; Special Reference Laboratories, Tokyo, Japan). Lupus anticoagulant and anti-β2-glycoprotein 1 antibodies were not present. Her platelet count was 28.6 × 104/μl, prothrombin time 10.2 s, activated partial thromboplastin time 25.6 s, fibrinogen 382 mg/ml, and total cholesterol 223 mg/dl. Magnetic resonance imaging (MRI) showed increased signal intensity in T2-weighted images in the left vastus intermedius and adductor magnus muscles (Fig. 1b), but normal T1-weighted images (Fig. 1a) suggested the presence of edema or inflammation. Electromyographically, quadriceps femoris muscles were normal bilaterally. Guided by the MRI findings, we obtained a biopsy specimen from the left vastus intermedius muscle 6 weeks after onset. Histologic examination showed a marked loss of muscle fibers, necrosis, interstitial fibrosis, and muscle fiber regeneration. No arterial occlusion, thrombosis, advanced stenosis, or vasculitic involvement were seen. These results ruled out focal myositis, localized nodular myositis, myositis ossificans, abscess, thrombophlebitis, and tumor. Clinical and laboratory examinations did not suggest the presence of systemic lupus erythematosus (SLE) or other connective tissue disease. No other history that might explain muscle infarction, such as drug abuse[5] or sickle cell anaemia,[6] was present. A diagnosis of thigh muscle infarction was made, after considering the clinical course and histological findings. In addition, alghough her illness did not completely fufill current preliminary criteria,[7] the patient was diagnosed with possible primary antiphospholipid syndrome. Her symptoms resolved spontaneously over several weeks.

While most patients reported with thigh muscle infarction have been diabetic,[2] a nondiabetic patient with thigh muscle infarction and a long history of idiopathic thrombocytopenic purpura was reported in 1994 by Selva-O'Callaghan et al.[8] Unfortunately, antiphospholipid antibodies were not examined in that patient.

In addition, a recent study indicated that antiphospholipid antibodies can be detected in some otherwise healthy elderly people.[9] Since our patient had a history of cerebral infarction, thigh muscle infarction might have resulted from a generalized arteriosclerosis obliterans.[10] Interestingly, recent studies have suggested that the progression

M. Nishikai (✉) · N. Ichihara · K. Akiya
Department of Internal Medicine, National Tokyo Medical Center, 2-5-1 Higashigaoka, Meguro-ku, Tokyo 152-8902, Japan
Tel. +81-3-3411-0111; Fax +81-3-3412-9811
e-mail: mnishikai@ntmc.hosp.go.jp

S. Bito
Department of General Medicine, National Tokyo Medical Center, Tokyo, Japan

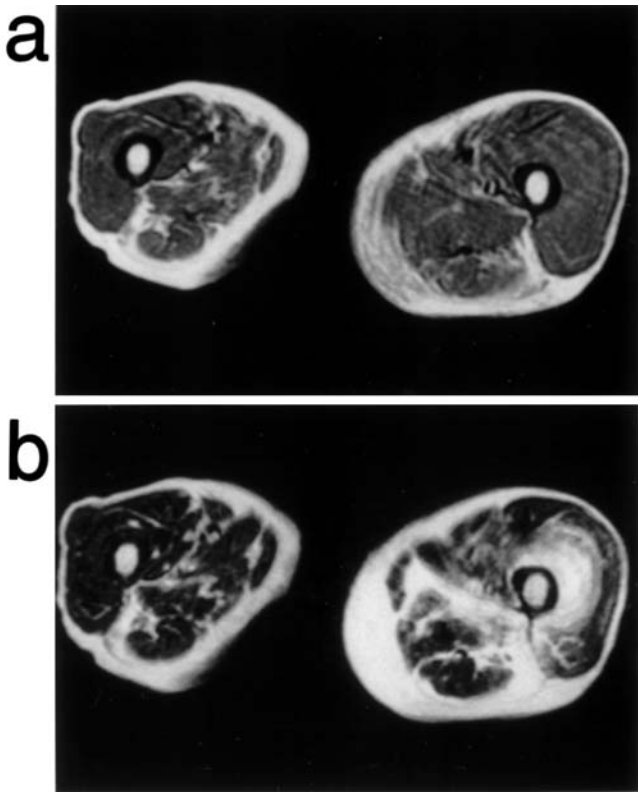

Fig. 1. Magnetic resonance imaging findings in the left thigh. **a** Normal appearance in a T1-weighted image. **b** Increased signal intensity in the vastus intermedius and adductor magnus muscles in a T2-weighted image

of arteriosclerosis may be related to antibodies against oxidized cardiolipin.

Our patient was not diabetic, but antiphospholipid antibodies were detected, as they often are in diabetic thigh muscle infarction.[11–13] These observations suggest that antiphospholipid antibodies rather than diabetes mellitus itself might cause thigh muscle infarction in some patients.

Recent studies[14,15] have implicated infection in the induction of antiphospholipid antibodies and the development of the antiphospholipid syndrome. Our patient's urinary tract infection might have contributed to the occurrence of the possible antiphospholipid syndrome.

Hypercoagulable states have been considered to be a cause of some arterial occlusions.[16] In the present case, however, no coagulation abnormality was found.

In conclusion, our case showed that thigh muscle infarction can present as primary antiphospholipid syndrome even in the absence of diabetes mellitus or autoimmune disease. Thus, etiologies can vary in thigh muscle infarction.

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