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Interesting image

Increased uptake of technetium-99m methylene diphosphonate in muscles in the course of polymyositis

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Abstract

A case of a woman aged 46 years with signs of rhabdomyolysis and acute renal failure is presented. Coxsackie serum test was positive. Increased uptake of Technetium-99m methylene diphosphonate (99mTc-MDP) by muscles of thighs and calves was observed. After 1 year no increased accumulation of radiotracer in the muscles was found.

Keywords: bone scintigraphy, polymyositis

Case presentation

A woman aged 46 years was admitted to a department of nephrology because of acute renal failure. Serum level of creatinine was 9 mg/dl. She presented signs of rhabdomyolysis: creatine kinase (CK) — 100 000 IU/l (normal value: 26–140). After 5 weeks of treatment, serum level of creatinine was 1.2 mg/dl and serum level of CK was 120 IU/l. Coxsackie serum test was positive. Due to the elevated serum level of calcium, bone scintigraphy was performed. Increased uptake of Technetium-99m methylene diphosphonate (^{99m}Tc-MDP) by muscles of thighs and calves was observed (Figure 1). Diagnosis: polymyositis due to Cox-

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Figure 1. Bone scintigraphy using technetium-99m methylene diphosphonate (99mTc-MDP). Increased uptake of the radiotracer in the muscles of lower extremities.

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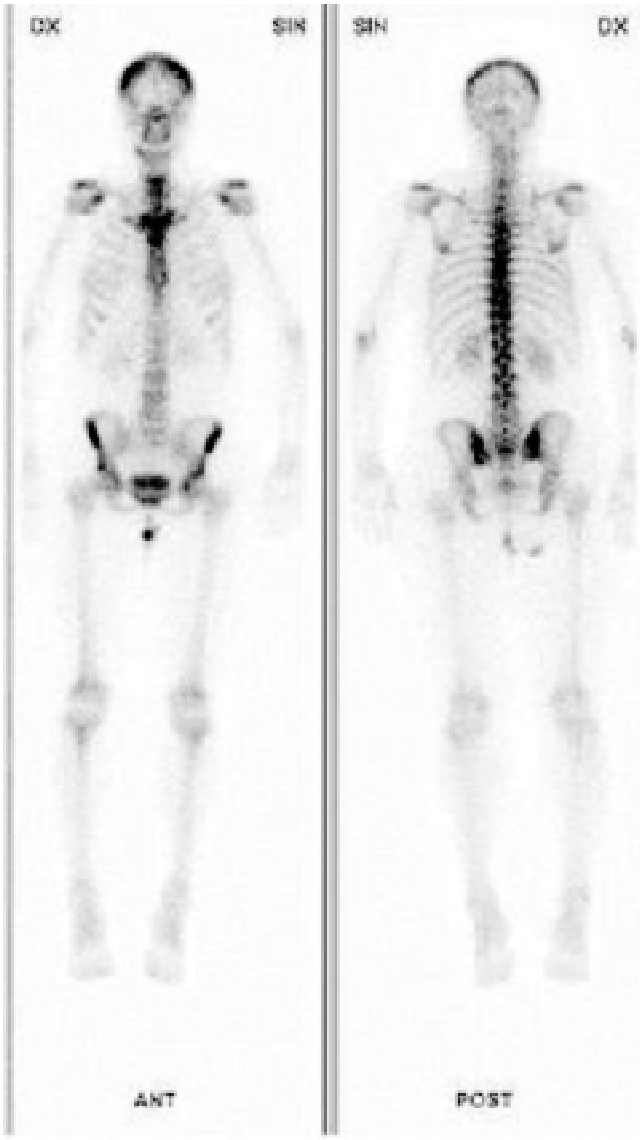

Figure 2. Bone scintigraphy using technetium-99m methylene diphosphonate (99mTc-MDP) performed 1 year after the previous one. Activity of the radiotracer in the muscles is markedly diminished.

sackie infection. A follow-up scan was obtained after one year of oral steroid treatment. No increased accumulation of radiotracer in the muscles was found (Figure 2). Serum level of creatinine was 1.1 mg/dl, CK — 110 IU/l.

Increased uptake of radiotracer in the muscles can be found due to calcification, inflammation, certain intramuscular drug injections (e.g. iron supplementation, pethidine).

In this report, a case of inflammatory rhabdomyolysis was described. Increased uptake of ^{99m}Tc-MDP was found in the muscles of the lower extremities. This scintigraphic sign disappeared with a successful anti-inflammatory treatment.

As postulated by Nakayama et al., location of inflammatory myopathy can be detected using ^{99m}Tc-MDP scintigraphy. The scan can indicate the site of muscle biopsy [1].

Increased accumulation of ^{99m}Tc-MDP in the muscles was described in the case of muscle injury after cardiac resuscitation [2], rhabdomyolysis caused by drug intake (statins, heroin) [3–4].

Malignant disease may be connected with muscle uptake of the bone-seeking agents as well [5–7].

It should be remembered that excessive exertion may also cause unexpected uptake of ^{99m}Tc-MDP in the muscles [8–10].

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