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 (99mTc-MDP) by muscles of thighs and calves was observed (Figure 1). Diagnosis: polymyositis due to Cox-

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

**References**


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**Figure 2.** Bone scintigraphy using technetium-$^{99m}$ methylene diphosphonate ($^{99m}$Tc-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.