

Clinical note

Asymmetrically increased uptake in upper extremities on ^{99m}Tc -MDP bone scintigraphy caused by intra-arterial injection: Different uptake patterns in three cases

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ABSTRACT

Unexpected findings on bone scintigraphy such as asymmetrical uptake in extremities may cause confusion for the diagnosis. The authors describe three cases of accidental intraarterial injection of ^{99m}Tc -methylene diphosphonate (^{99m}Tc -MDP) on the antecubital region and discuss the findings and differential diagnosis.

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Aumento asimétrico de la captación en las extremidades superiores de una gammagrafía ósea con ^{99m}Tc -MDP producida por inyección intra-arterial: diferentes patrones de captación en tres casos

RESUMEN

Hallazgos inesperados en la gammagrafía ósea, tales como la captación asimétrica en las extremidades, pueden causar confusión en el diagnóstico. Los autores describen tres casos de inyección intraarterial accidental de ^{99m}Tc -metilenedifosfonato (^{99m}Tc -MDP) en la región antecubital, discutiendo el origen de los hallazgos y su diagnóstico diferencial.

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Palabras clave:

Gammagrafía ósea

Inyección intraarterial

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Introduction

Bone scintigraphy with ^{99m}Tc labeled radiopharmaceuticals is a valuable technique in nuclear medicine practice for the evaluation of skeletal system. In routine practice bone scintigraphy has been performed 3 hours after the injection of ^{99m}Tc labeled diphosphate compounds into a peripheral vein. Unexpected findings such as asymmetrically increased activity of a limb may cause diagnostic confusion. At this point, it is important to be aware of the differential diagnosis. In this report we present three cases with different uptake patterns in the upper extremities caused by accidental intra-arterial injection on the antecubital region.

Clinical cases

Case 1

An 83 years old woman with a suspicious mass at the 9th vertebra underwent three phase bone scintigraphy. Whole body imaging showed increased activity at the right side of 9th thoracic vertebra and heterogeneous increased activity on the left forearm. Patient

had a history of fracture at the right arm 30 years prior to the study but she had no complain on her left forearm. Reevaluation was done in another day after pedal vein injection, and no abnormality in the left forearm was detected in all three phases (fig. 1).

Case 2

A 51 years old woman was referred to our department for whole body bone scan. Bone scintigraphy revealed diffusely increased activity on the right forearm. For clarification reevaluation was done with three phase bone scintigraphy with pedal vein injection and there was no abnormality on the right forearm in all three phases (fig. 2).

Case 3

A 60 years old man with recently diagnosed prostate carcinoma was evaluated for bone metastases. Whole body imaging and static views showed diffusely increased activity at the right forearm which was significant on the radial half of the wrist; first, second and third metacarpals and fingers. There was no clinical history to explain this finding. Differential diagnosis could not be made. Confirmative three phase study with a pedal vein injection had shown no abnormality on the right hand and wrist (fig. 3).

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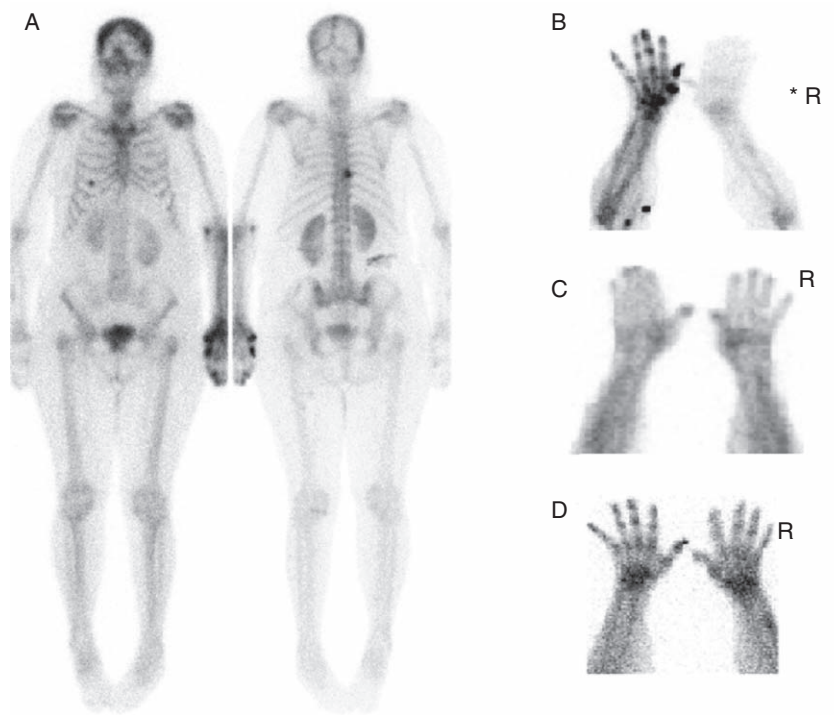


Figure 1. Whole body (A) and static images (B) showed heterogeneous uptake of Tc-^{99m} MDP on the left forearm which was not observed on blood pool (C) and static images (D) of repeated bone scan.

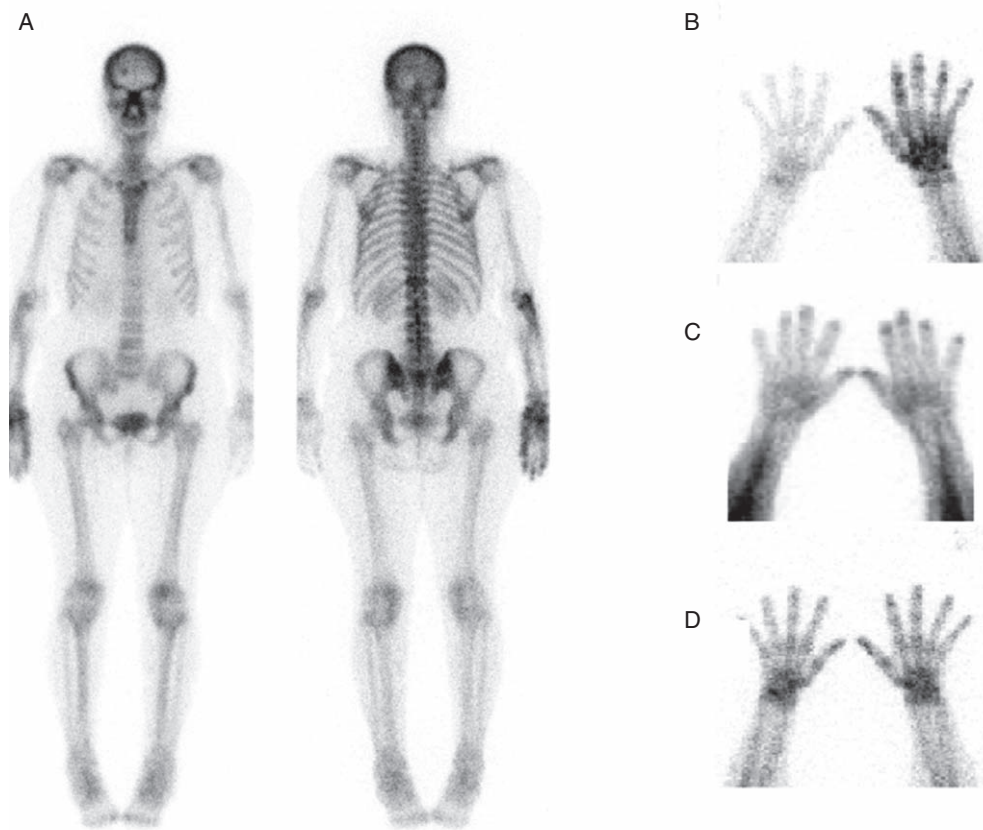


Figure 2. Whole body (A) and static images (B) showed diffusely increased activity on the right forearm. Blood pool (C) and static images (D) of repeated bone scan revealed no abnormality on the right hand and wrist.

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