

Focal hot spot induced by a central subclavian line on bone scan

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Abstract

The diagnostic accuracy of nuclear medicine reporting can be improved by awareness of these instrument-related artifacts. Both awareness and experience are also important when it comes to detecting and identifying normal (and abnormal) variants. We present a case of hot spot on the upper right chest in the region of right subclavicular region resulting from injection of radiotracer from central subclavian line. A 52-year-old woman with a history of left breast cancer and recent bone pain was referred to our nuclear medicine department for skeletal survey. Anterior views of chest show a focus of increased radiotracer uptake corresponding to anterior arch of one of the right second rib. The nuclear physician reported it as a focal rib bony lesion and recommended radiological evaluation. As technician later explained, physicians realized that injection site was a central subclavian line on the right side and hot spot on that region is due to injection site. The appearance of both skeletal and soft-tissue uptake depends heavily on imaging technique (such as the route of radiotracer administration) and the interpreting physicians should be aware of the impact of technical factors on image quality.

Key Words: Bone scan, central line, hot spot

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INTRODUCTION

Bone scintigraphy is one of the most common studies performed in nuclear medicine and is used routinely in the evaluation of patients with cancers to detect suspected bone metastases and in various benign musculoskeletal conditions, such

as traumatic or inflammatory disorders. Although it may seem self-evident, it is important to remain aware of those nonbiologic artifacts that are directly related to the patient's condition. Furthermore, at times the distinction between normal variants and artifacts can be difficult. Commonly encountered patient-related artifacts include artifacts caused by attenuation, contamination artifacts, and artifacts caused by intravenous lines, tubes, and catheters. The diagnostic accuracy of nuclear medicine reporting can be improved by awareness of these instrument-related artifacts. Both awareness and experience are also important when it comes to detecting and identifying normal (and abnormal) variants.^[1-6] We present a case of hot spot on the upper right chest in the region of right subclavicular

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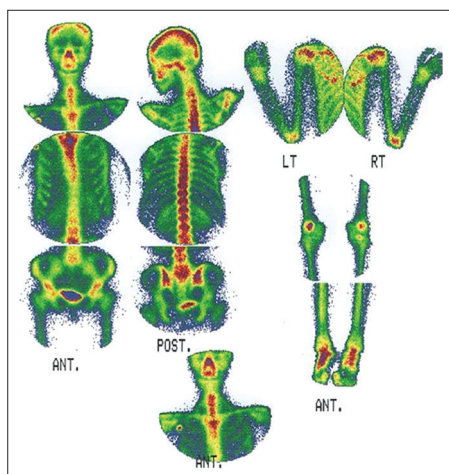


Figure 1: Right upper chest: Abnormal activity uptake in anterolateral region, resulting from injection of radiotracer from central subclavian line.

CASE REPORT

A 52-year-old woman with a history of left breast cancer and recent bone pain was referred to our nuclear medicine department for skeletal survey. Anterior views of chest show a focus of increased radiotracer uptake corresponding to anterior arch of one of the right second rib [Figure 1]. The nuclear physician reported it as a focal rib bony lesion and recommended radiological evaluation. On reviewing the images, the second reader noticed a technical question. Where is the injection site? As technician later explained, physicians realized that injection site was a central subclavian line on the right side and hot spot on that region is due to injection site.

DISCUSSION

The appearance of both skeletal and soft-tissue uptake depends heavily on imaging technique (such as the route of radiotracer administration) and the interpreting physicians should be aware of the impact of technical factors on image quality.^[2] The practitioners have to know the history, physical examination, technical issues before and during bone scanning for the most reliable interpretation. Oblique, lateral, and SPECT (Single Photon Emission Computed Tomography) views can also confirm the possible extraskeletal nature of suspicious radiotracer uptakes.^[7,8]

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