Scleroderma Case with Pulmonary uptake on Bone Scan: a case report

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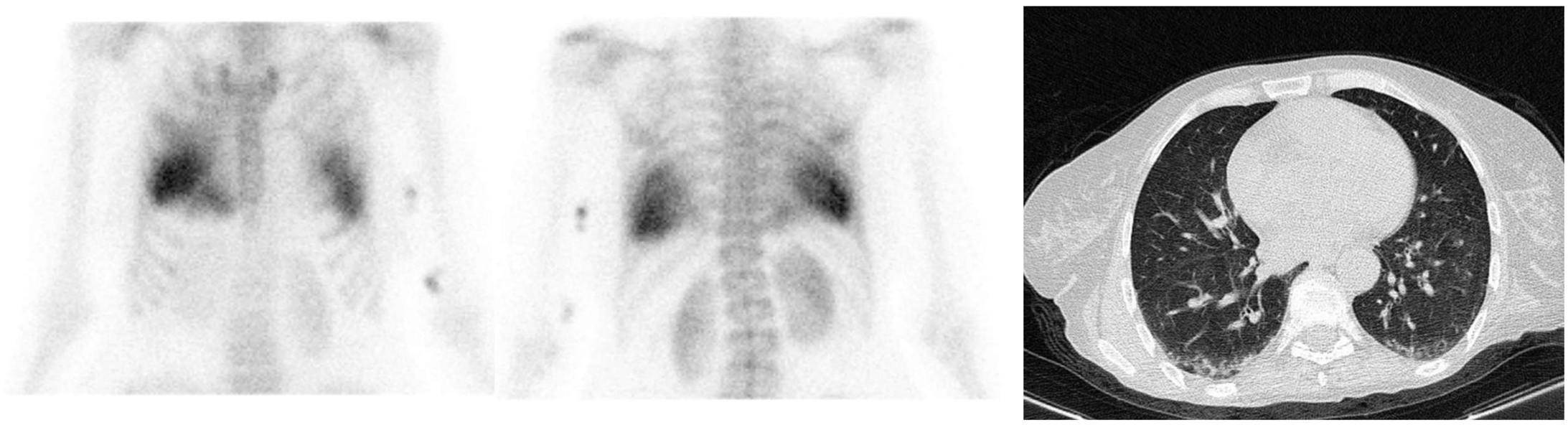

Anterior and posterior static images from chest showed remarkable increased tracer uptake in the lower lobes of both lungs. HRCT revealed reticular and ground glass opacity in both lower lobes.

Introduction

A 61-year-old female patient with known scleroderma since last year was admitted because of severe fatigue and weight loss. Except for anemia, other laboratory tests including WBC count, Cr, Ca, P, and tumor markers were in a normal range. During hospitalization, signs of cellulitis appeared in her left wrist with no history of recent trauma or fracture. She was referred to our nuclear medicine department for evaluation of possible osteomyelitis with bone scintigraphy.

Methods

An early dynamic scan from the hands was performed immediately after IV injection of 740 MBq Tc-99m MDP followed by static images from the same region. Delayed images were acquired three hours later with a large field of view (LFOV) gamma camera, equipped with low-energy high-resolution collimators, and peaked at 140 keV with 20% window. Single photon emission computed tomography (SPECT) acquisition was also performed from the thoracic region because of abnormal findings in static images.

Results

The scan showed remarkably increased radiotracer uptake in the left wrist on both early and delayed images which were in favor of osteomyelitis. Interesting incidental finding in this scan was significant bilateral pulmonary MDP uptake mainly in the lower lobes. HRCT imaging was done for evaluation of lung parenchyma which revealed symmetrical reticular and ground glass opacities more prominently in lower lobes with subpleural sparing which suggested cellular form of nonspecific interstitial pneumonia (NSIP).

Discussion

NSIP is the most common pattern of lung involvement in the scleroderma which is classified into two main subtypes: fibrotic and cellular types. In cellular form infiltration of inflammatory cells is seen and in fibrotic form, the predominant pattern is fibrotic changes. Pulmonary MDP uptake in bone scintigraphy is often an incidental finding and also pathologic. In most cases, it is suggestive of lung damage. The reasons include metastatic calcification (due to hypercalcemia), dystrophic calcification (deposition of Ca in tissues due to disruption), metabolic calcification (extraosseous bone formation), and sequestration (slow wash out of bone tracer from soft tissue or a compartment), although in some cases the exact mechanism was unclear. In our case report, there was significant pulmonary MDP uptake in a known case of scleroderma with lung involvement and cellular form of NSIP which was characterized by inflammation. The exact mechanism for accumulation of bone imaging agents in the inflammatory foci is not clear but it is thought to be secondary to increased blood flow or dystrophic calcification caused by tissue necrosis. This observation may be suggestive of active lung disease in this patient and lead to further evaluation and changing management of pulmonary involvement.

Conclusion

We described an unusual pattern of increased MDP uptake in the lung caused by the cellular form of NSIP in a patient with scleroderma for the first time. The reason for this pattern is most likely inflammation or parenchymal damage. NSIP should be added to other causes of pulmonary MDP uptake mentioned in previous case reports.

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