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A Rare Case of Pulmonary Alveolar Microlithiasis with Diffuse Lung Uptake on Bone Scintigraphy

Kemik Sintigrafisinde Diffüz Akciğer Tutulumu Olan Nadir Bir Pulmoner Alveolar Mikrolitiazis Olgusu

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Abstract

Pulmonary alveolar microlithiasis is a rare disease characterized by accumulating intraalveolar small calcium phosphate stones. The disease is slow and does not show any signs in the early stages, but the shortness of breath, cough, and right heart failure may develop as it progresses. Methylene diphosphonate used in bone scintigraphy shows high uptake of calcium deposits in the alveoli and causes diffuse increased radiopharmaceutical uptake in the lungs.

Keywords: Pulmonary alveolar microlithiasis, MDP, bone scintigraphy

Öz

Pulmoner alveolar mikrolitiazis intraalveoler küçük kalsiyum fosfat taşlarının birikmesi ile karakterize nadir görülen bir hastalıktır. Hastalık yavaş seyirlidir ve ilk dönemlerinde bulgu vermese de ilerledikçe nefes darlığı, öksürük ve sağ kalp yetersizliği gelişebilmektedir. Kemik sintigrafisinde kullanılan metilendifosfonat alveollerdeki kalsiyum depozitlerinde yüksek tutulum göstererek akciğerlerde diffüz artmış radyofarmasötik tutulumuna sebep olur.

Anahtar kelimeler: Pulmoner alveolar mikrolitiazis, MDP, kemik sintigrafisi

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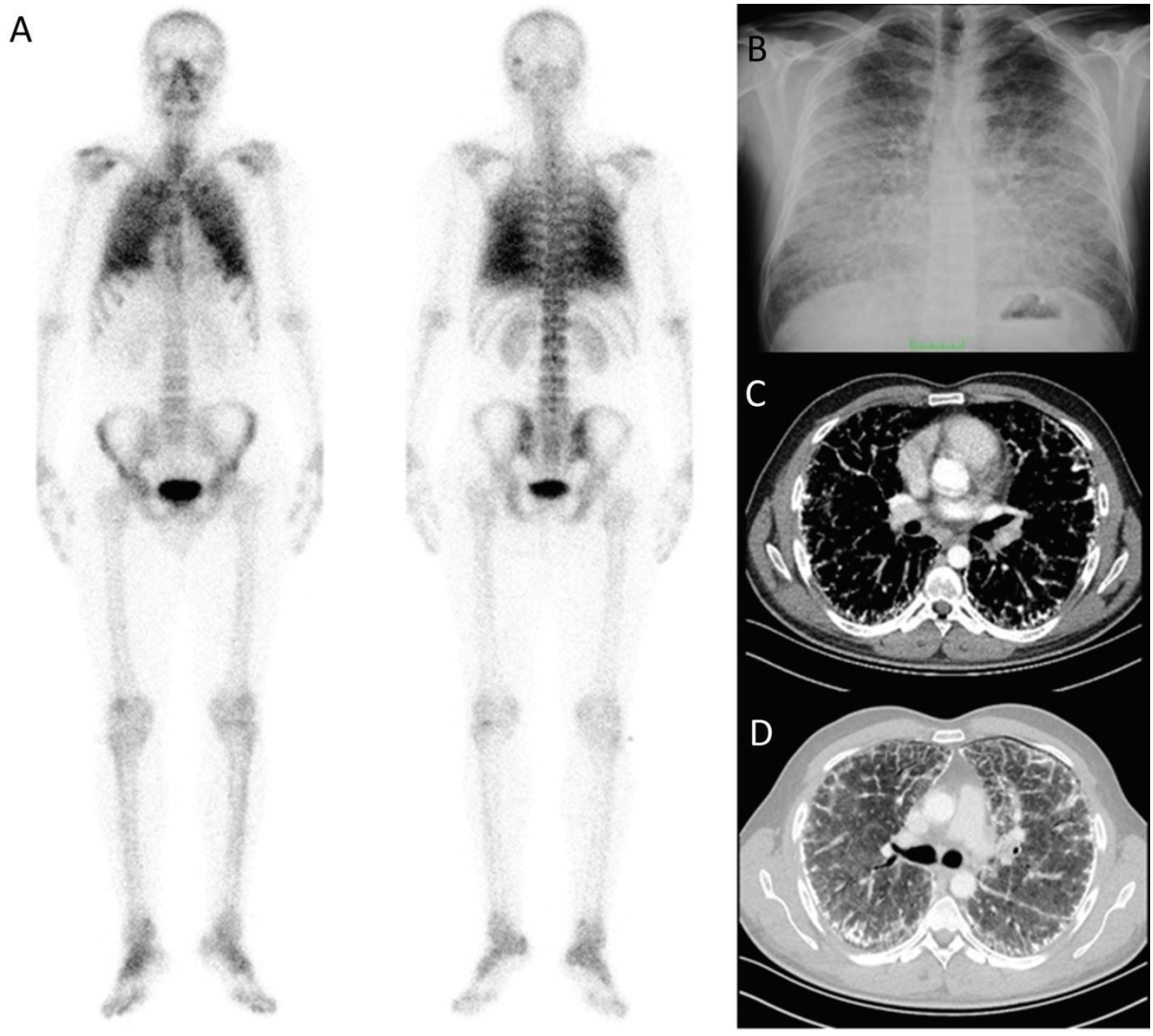

Figure 1. Twenty eight years old male patient was admitted to the outpatient clinic of chest disease with cough and dyspnea complaints for several months. was diagnosed with pneumoconiosis was suspected on the posteroanterior (PA) chest X-ray performed seven years before the military service. The patient could not be accurately diagnosed and did not undergo further examination. A bilateral, diffuse, micronodular pattern erasing the heart shadow was observed on the PA chest radiograph (B). Contrast-enhanced thorax-computed tomography (CT) showed diffuse ground-glass densities, septal thickening, and occasionally clustered high-density opacities in both peripheral parenchymas (C, D). Tc-99m methylene diphosphonate (MDP) whole-body bone scintigraphy was performed considering pulmonary alveolar microlithiasis (PAM). Scintigraphy showed diffuse increased radioactivity uptake in both lungs, consistent with PAM (A). PAM is a rare disease characterized by intraalveolar, widespread, large numbers of calcium and phosphate-rich microliths reaching 3 mm in size. The majority of cases in the literature have been reported in Turkey, China, Japan, India, and Italy. Although the disease has been known for nearly 90 years, its etiology has not been fully elucidated. In addition to being known as an autosomal recessive disorder, sporadic cases have been reported (1,2,3,4,5,6,7). Diagnosis is usually made at an advanced stage since it is slow, and the clinical findings are minimal. In the following years, shortness of breath, cough, pulmonary fibrosis, and pulmonary heart disease (cor pulmonale) may develop. Serum calcium and phosphorous levels are normal in these patients (1,2). Microlith can be identified in sputum, bronchoalveolar lavage, and transbronchial biopsy specimens (1,3). Symptoms are less severe in these patients than in radiological findings (2). In the PA chest radiography, the appearance of common thin calcific micronodules called sandstorm in both lungs may be observed (1). Thorax CT may show microcalcification, ground-glass opacities, parenchymal bands, prominent fissure, and paraseptal emphysema (8). CT findings may be similar to those of miliary histoplasmosis, interstitial lung disease, pneumoconiosis, pulmonary amyloidosis, and military tuberculosis. In case of doubt in the diagnosis, Tc-99m MDP bone scintigraphy may be performed. Tc-99m MDP bone scintigraphy shows widespread radioactivity involvement in the lungs. In the presence of scintigraphic findings, the need for biopsy may be eliminated. This specific finding assists the clinician in the differential diagnosis of PAM (1,2,3).

Ethics

Informed Consent: Written informed consent was obtained.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: A.E.Ş., Z.A., Concept: Ö.Ş., Design: Ö.Ş., B.K., Data Collection or Processing: A.E.Ş., Ç.E., Analysis or Interpretation: Ö.Ş., B.K., Literature Search: A.E.Ş., Z.A., Ç.E., Writing: A.E.Ş., Ö.Ş., B.K.

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