Cartilage Calcification Mimics Polychondritis in Bone Scintigraphy

Kemik Sintigrafisinde Polikondrit Benzeri Bulgu Veren Kartilaj Kalsifikasyonu

Polikondrit Benzeri Bulgu Veren Kartilaj Kalsifikasyonu / Calcification Mimics Polychondritis

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Özet

58 yaşında erkek hasta 2.5 aydır var olan göğüs orta kesimde, sternal ağrı şikayetiyle Nükleer Tıp Kliniğimize refere edildi. Çekilen üç fazlı kemik sintigrafisinde, patolojik perfüzyon artışı veya hiperemi alanı saptanmaksızın, geç görüntülerde: bilateral 1. sternokostal bileşke kesiminde belirgin artmış aktivite tutulumu, ayrıca 3, 4 ve 5. sternokostal bileşke kesiminde ve korpus sterni alt kesim her iki lateral alanında artmış aktivite tutulumları gözlenmekteydi. Çekilen 3 boyutlu toraks duvarı kemik yapıların BT incelemesinde, bilateral birinci kosta, sternokostal eklem düzeyinde ve sternumda xiphoid proçes sağ kesiminde yumuşak dokuya ait dansiteler ve litik görünüm izlendiği rapor edildi. Kemik sintigrafisi ve CT'de izlenen sternokostal lezyonlar biyopside normal kıkırdak ve yumuşak dokular olarak rapor edildi.

Anahtar Kelimeler

Kemik Sintigrafisi; Polikondrit; Bilgisayarlı Tomografi

Abstract

58 year-old male patient with sternal pain was referred to our Nuclear Medicine Clinic for bone scintigraphy for 2.5 months. Markedly increased activity accumulation in the first bilateral sternocostal junction and increased activity accumulations in 3rd, 4th, 5th sternocostal junctions and lateral portion of inferior part of corpus sterni were seen in late static images without increased perfusion and hyperemia. Soft tissue density and lytic lesions were seen bilaterally in bilateral first costa, sternocostal joints and in right side of xiphoid in his 3D computed tomography (CT). Sternocostal lesions that were seen in bone scintigraphy and CT, was reported as normal in biopsy.

Keywords

Bone Scintigraphy; Polychondritis; Computed Tomography

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Introduction

Bone scintigaphy is a widely used and valuable imaging modality for the pathologies of bone and joints (1). Bone scintigraphy has high sensitivity, but low specificity. This low specificity may cause confirmation with other imaging modalities or even with biopsy. Herein, we report a case that has activity accumulation in the sternocostal junctions with bone scintigraphy and suspicious metastatic foci with three dimensional (3D) computed tomography (CT), but reported as normal cartilage and soft tissue in pathological examination.

Case Report

58 year-old male patient admitted to thorax surgery clinic with pain around sternum for 2.5 months. Patient was referred to our clinic for three phase bone scintigraphy. In his physical examination, he had tenderness around sternum, but he didn't have swelling or erythema. He didn't have any trauma or surgery history. In his blood analysis, ALP:139 U/L (normal: 30-120 U/L) and calcium: 9.9 mg/dL (normal: 8.8-10.6 mg/dL).

For the bone scintigraphy, 20 mCi Technetium-99m hydroxymethylene diphosphonate was injected. The images were taken when the patient was in supine position. A large field of view with a dual head gamma camera (GE Millenium, USA), equipped with a low energy general purpose, parallel hole collimator was used. A blood flow (1 s/frame, 64x64 matrix, 60 images) and blood pool (2 min/image, 128x128 matrix) image were taken from the thoracal region In the 3rd hour after injection, anterior and posterior whole body and static image from the thoracal region (14cm/min, 256x1024 matrix were taken.

In perfusion and blood pool phases of three phase bone scintigraphy, there was not any pathologically increased perfusion or hyperemia. Markedly increased activity accumulation in first sternocostal junction, increased activity accumulation in 3rd, 4th and 5th sternocostal junctions and lateral portion of inferior part of corpus sterni were seen in late static and whole body images. The lesion was evaluated as benign lesions like polychondiritis, because there was not any increased perfusion or hyperemia in perfusion and blood pool phases [Figure 1].

In his 3D CT of thoracal bones, soft tissue density and lytic lesions were seen bilaterally in first sternocostal joints and in right side of xiphoid. Because of lytic lesions in CT, it was thought that the lesions may be associated with a metastatic cancer. To rule out metastatis five pieces of tissue sample were taken and evaluated histopathologically and the samples were reported as normal cartilage and soft tissue [Figure 2].

Discussion

Bone scintigraphy is an imaging modality that has high sensitivity, but limited specificity in the evaluation of bone pathologies [2, 3]. Because of its low specificity, diagnosis can be difficult. Three phase bone scintigraphy is used for the diagnosis of primary bone pathologies and differentiation of malign and benign lesions [4]. Bone scintigraphy can identify abnormal changes in cartilage [5]. Increased radioactivity accumulation is seen in costocartilages and sternoclavicular joints in polychondiritis [6]. In this case, after scintigraphic and 3D CT imaging possible metastasis is thought and so histopathological confirmation is needed. Sternocostal lesions that were seen in bone scintigra-

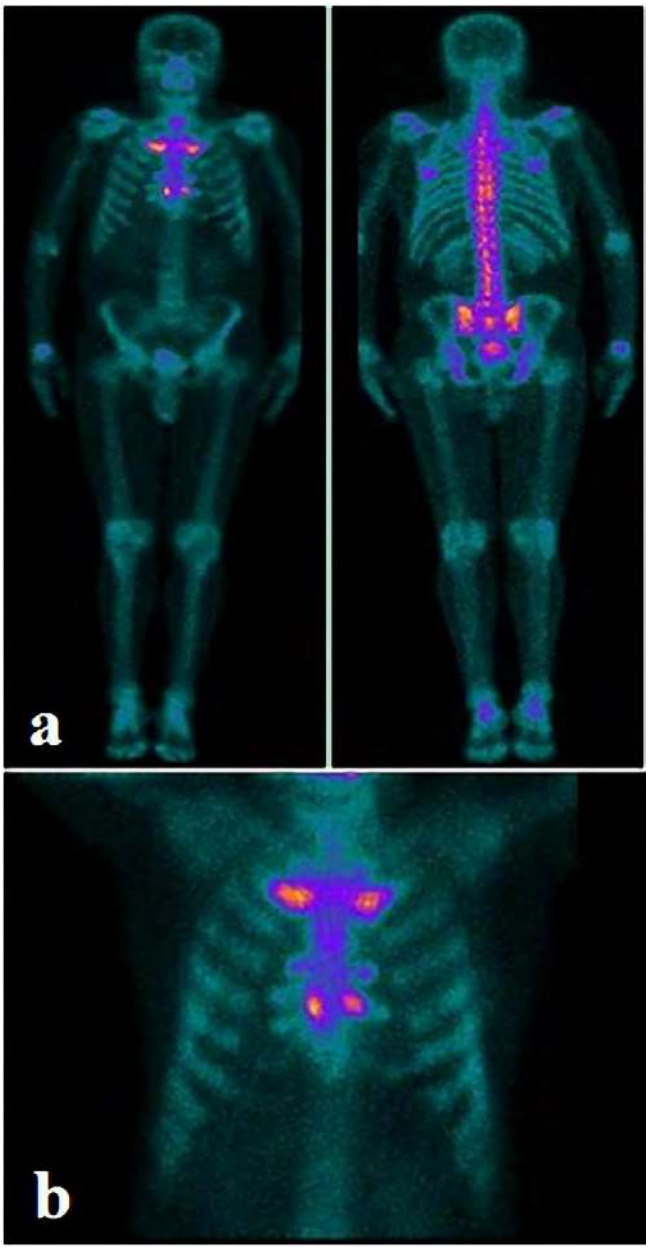


Figure 1. Late whole body (A) and static (B) bone scintigraphy images, markedly increased activity accumulation in first sternocostal junction, increased activity accumulation in 3rd, 4th and 5th sternocostal junctions and lateral portion of inferior part of corpus sterni is seen.

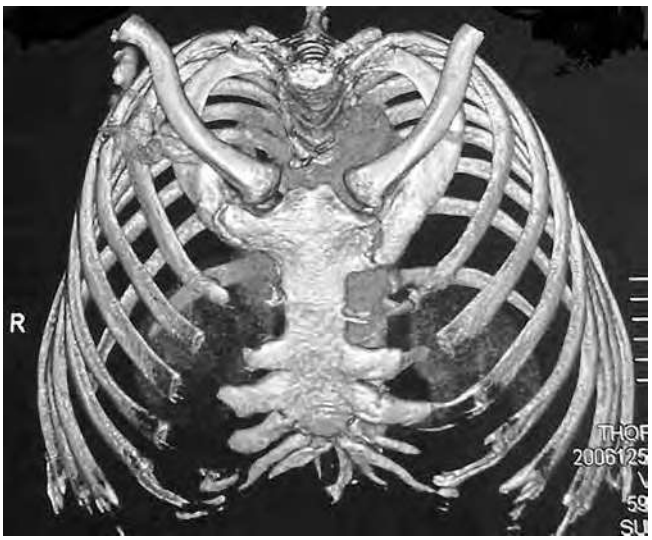


Figure 2. 3D CT of thoracal bones, soft tissue density and lytic lesions were seen bilaterally in 1st sternocostal joints and in right side of xiphoid.

phy and 3D CT, were reported as normal cartilage in biopsy. The lesions which were misinterpreted as polychondritis were infact false positive due to cartilage calcifications.

Competing interests

The authors declare that they have no competing interests.

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