A Potential Pitfall Associated with F-18 FDG Imaging in a Patient with Malignant Disease: Osteoid Osteoma: Original Image

Malgn Hastalıklı Bir Olguda F-18 FDG Görüntüleme ile İlişkili Bir Tuzak: Osteoid Osteoma

ABSTRACT This case illustrates a pitfall associated with F-18 fluoro-deoxyglucose (FDG) imaging in a patient with malignant disease. We presented the F-18 FDG positron emission tomography (PET)/computed tomography (CT) images of a 42-year-old woman with non-Hodgkin’s lymphoma that showed intense accumulation of F-18 FDG in the proximal metaphysis of the right femur that could simulate extranodal involvement. The fusion PET/CT images demonstrated that accumulation of F-18 FDG in the nidus was surrounded by a halo of reactive sclerotic bone. Combined PET/CT imaging has facilitated the descriptions of FDG uptake by allowing accurate anatomic localization of the FDG uptake.

Key Words: Osteoid osteoma; F-18 FDG; PET/CT

ÖZET Bu makale, malign hastağlı olan bir olguda F-18 fluorodeoksiglukoz (FDG) görüntüleme ile ilişkili bir tuzak tanımlamaktadır. Sağ femurunun proksimalinde primer hastalığın ekstranodal tutulumu taklit edebilecek yoğun F-18 FDG akumülasyonu gösteren, 42 yaşında non-Hodgkin lenfomalı bir kadın hastanın F-18 FDG pozitron emisyon tomografi (PET)/bilgisayarlı tomografi (BT) görüntülerini sunuyoruz. Füzyon PET/BT görüntülerinde, reaktif sklerotik bir halo ile çevrili nidusta F-18 FDG akumülasyonu izrendi Kombine PET/BT görüntüleme doğru anatominik lokalizasyonu belirleyerek FDG tutulumunun tanımlanmasını kolaylaştırmaktadır.

Anıhtar Kelimeler: Osteoid osteoma; F-18 FDG; PET/BT


We present the F-18 FDG PET/CT images of a 42-year-old woman with non-Hodgkin's lymphoma that shows intense accumulation of F-18 FDG in the proximal metaphysis of right femur that could simulate extranodal involvement. The fusion PET/CT images demonstrated that accumulation of F-18 FDG in the nidus surrounded by a halo of reactive sclerotic bone (Figure 1).

Osteoid osteoma is a relatively frequent benign bone tumor, consisting of osteoid and woven bone, and surrounded by a halo of reactive sclerotic bone, with an average size of the nidus less than 1.5 cm. Pathologically, a nidus of highly vascularized stroma within cortical or cancellous bone or in a subperiosteal location incites exuberant bone sclerosis. The appearance consists of a lucent nidus that is sometimes calcified, associated with surrounding sclerosis. Often, clinical symptoms and radiographic findings are di-
agnostic. A lucent lesion, usually less than 1 cm in diameter, surrounded by a rim of sclerosis is seen in few other entities. The goal of treatment is removal or destruction of the nidus.\textsuperscript{1,2}

The interpretation of F-18 FDG PET can be quite challenging, particularly on PET alone in a patient with malignant disease. Some reports have described F-18 FDG avid bone lesions mimicking metastatic disease including skeletal sarcoidosis, nonossifying fibroma, Paget’s disease, osteoradionecrosis and osteoid osteoma.\textsuperscript{3-7} Combined PET/CT imaging, which combines both functional and morphologic imaging in a single examination, has facilitated the descriptions of FDG uptake by allowing accurate anatomic localization and definition of the FDG uptake. The CT part significantly improved the performance of FDG-PET/CT in differentiation of benign and malignant bone lesions compared to PET alone. Combined PET/CT imaging can be helpful to identify benign bone lesions mimicking metastatic or residual disease in F-18 FDG PET as illustrated by this case.
REFERENCES