The Diagnosis and Response to Treatment of an Extrapulmonary Sarcoidosis on F^{18}-FDG PET/CT: A Case Report

Ekstrapulmoner Sarkoidozda Tanı ve Tedavide F^{18} FDG PET/BT: Bir Olgu

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Özet

Altmış dokuz yaşında kadın hasta, bacaklarda deri döküntüleri ile hastanemize başvurdu. Cilt biyopsisinde eritema nodosum tanısı konuldu. Bronkoskopik biyopsi, kronik non-nekrotizan granülomatöz enflamasyon olarak raporlandı. FDG PET/BT'de hipermetabolik multipl lenfadenopati, pulmoner nodüller ve masif splenomegali görüldü. Dalak rüptürü riski nedeniyle hastaya oral kortikosteroid tedavisi verildi. Tedavi sonrası kontrol FDG PET/BT' de dalakta ve multipl lenfadenopatilerde tam gerileme gözlemlendi. FDG PET/BT görüntüleme akciğer dışı sarkoidoz tedavi kararı verilmesinde ve tedaviye yanıtın takibinde yararlıdır.

Anahtar Kelimeler

FDG PET/BT; Ekstrapulmoner Sarkoidozis; Tanı; Tedavi

Abstract

A 67-year-old female patient was admitted to our hospital with skin eruptions on her legs. The skin biopsy verified a diagnosis of erythema nodosum histopathologically. The bronchoscophic biopsy was reported as chronic non-necrotizing granulomatous inflammation. FDG PET/CT revealed hypermetabolic multiple lymphadenopathy, pulmonary nodules and giant splenomegaly. The patient was treated with oral corticosteroid for the risk of splenic rupture. A complete regression was observed in the spleen and multiple lymphadenopathy. FDG PET-CT imaging may be useful to establish the treatment decision and response to treatment of extrapulmonary sarcoidosis.

Keywords

FDG PET/CT; Extrapulmonary Sarcoidosis; Diagnosis; Treatment

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Introduction

Sarcoidosis is a systemic disease that can involve all organ systems [1]. It is seen especially in the lungs and lymph nodes but it may also be seen as extrapulmonary sarcoidosis (ES). For diagnosis of ES, radiological methods are used such as scintigraphy, USG and MRI. In recent years, 18-fluorodeoxyglucose positron-emission tomography/computer tomography (FDG PET/CT) can also be used for diagnosis of ES. We present a rare case of sarcoidosis with multisystem involvement identified on FDG PET/CT.

Case Report

A 67year-old female patient was admitted to our hospital with skin eruptions on her legs that had not responded to treatment by local steroid. The skin biopsy verified a diagnosis of erythema nodosum histopathologically. The blood Angiotension Converting Enzyme (ACE) level was found to be 84 U/l. Transbronchial Needle Aspiration with fiberoptic bronchoscopy revealed chronic non-necrotizing granulomatous inflammation. The FDG-PET/CT detected multiple hypermetabolic bilateral chest lymphadenopathy, a butterfly-shaped distribution pattern which is typically seen in patients with sarcoidosis mediastinal lymph nodes, multiple abdominal, inguinal lymph nodes, and hypermethabolic splenomegaly (FIGURE 1-2-3-4). Therefore, the patient was treated with oral corticosteroid (OCS) throughout one year. A complete regression was observed in the spleen and multiple lymphadenopathy after 3 months initiationof treatment (FIGURE 5).

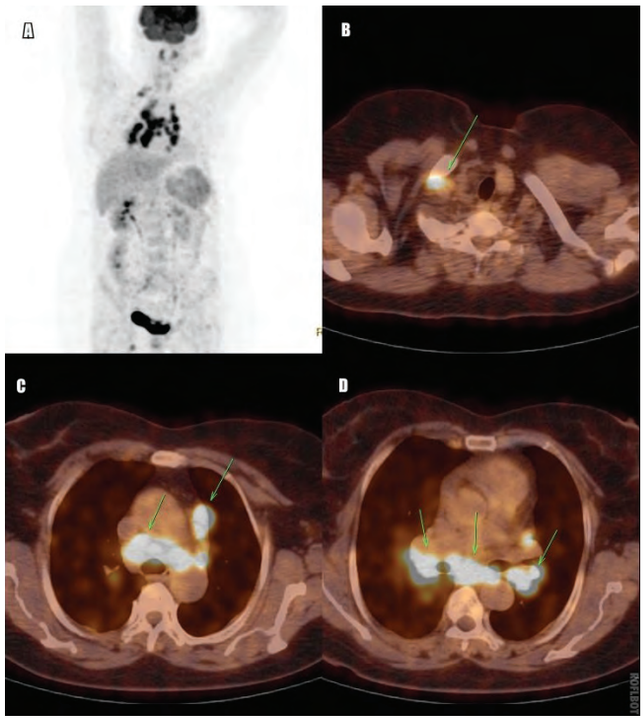


Figure 1. MIP image. FDG PET/CT axial images revealed intensely hypermetabolic bilateral chest lymphadenopathy in a butterfly-shaped distribution pattern, which was typically seen in patients with sarcoidosis(A). Supraclavicular and infraclavicular hypermetabolic multiple LAPs which the largest was 16 mm sized (SUDmax: 8.5) (B). Intensely hypermetabolic LAPs which the biggest was 27 mm diameter (SUDmax: 14.0) were observed in the mediastinal prevascular area, right upper and lower paratracheal, aortopulmonary, carinal, subcarinal, paraesophageal and bilateral hilar areas (C-D).

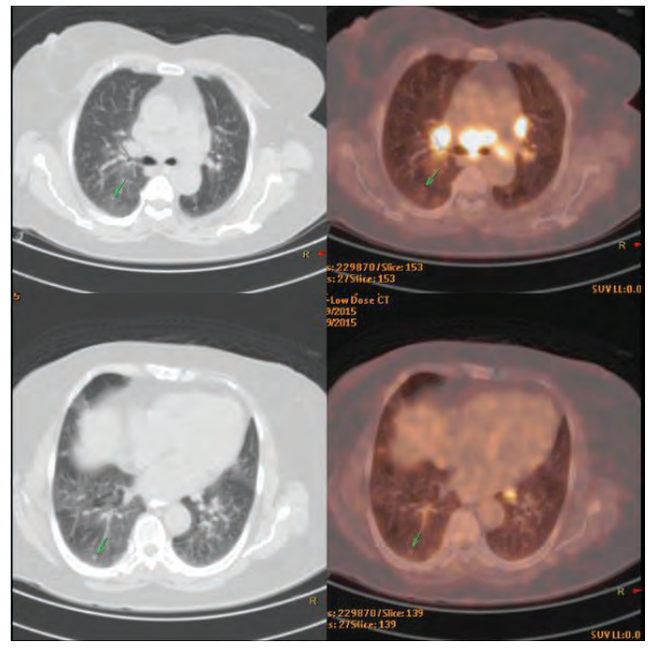


Figure 2. In the right lower lobe superior and posterobasal segments were seen mild hypermetabolic nodular densities which the largest was 9 mm diameter (SUDmax: 3.8).

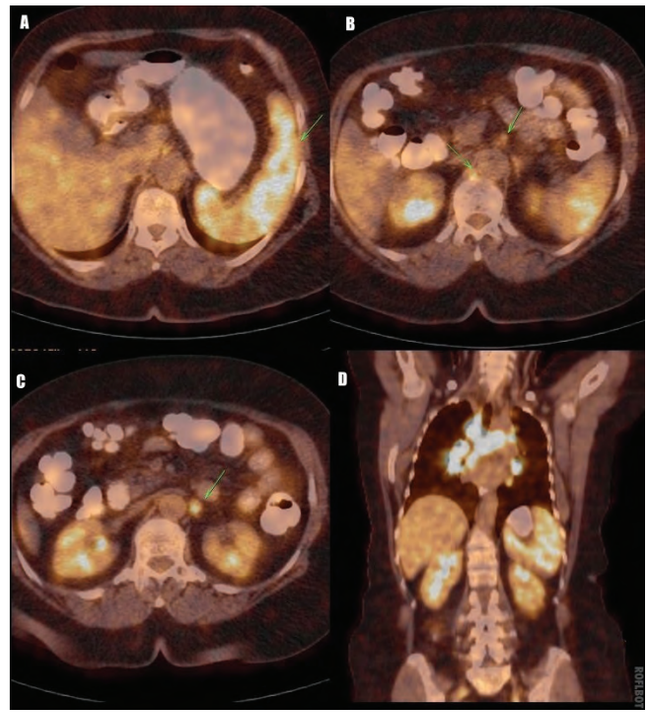


Figure 3. The size of the spleen and FDG uptake were increased (spleen SUDmax: 6.5, liver SUDmax: 3.9) (A). In right retrocrural and left paraaortic area were seen hypermethabolic lymph nodes (SUDmax: 6.2)(B-C) In coronal image was seen hypermetabolic mediastinal lymph nodes and hypermetabolic splenomegaly(D).

Discussion

Sarcoidosis may be a life-threatening disease due to involvement of all organ systems to a varying extent and degree. The lungs and lymph nodes are the most frequently involved organs with a frequency of 90% and 30%, respectively [2]. Less frequently, the skin, liver, and spleen may be involved. Skin involvement of sarcoidosis has been reported between 10-30% [3-4]. Liver involvement is 5-15%. Spleen involvement ranges from 1% to 40% [5-6]. Spleen, liver and skin involvement, as found in this case, is an extremely rare combination in the literature.



Figure 4. Common heterogen mild FDG uptake was seen in skin of the left medial and in the distal part of both lower extremities (SUDmax: 3.7)(A,B,C,D).

The use of gallium-67 scintigraphy is prevalent in the diagnosis of ES. And an alternative tracer, 68Ga-DOTA-1-Nal3-Octreotide (68Ga-DOTANOC) binds to somatostatin receptors on inflammatory cells in sarcoid granulomas. However, its use has gradually decreased. FDG PET/CT imaging has undergone important advances in recent years and has a higher sensitivity than gallium scintigraphy [7]. FDG PET/CT has a great advantage in the detection of inflammatory, active granulomatous disease in patients with ES [8].



Figure 5. Supra-infraclavicular, mediastinal, intraabdominal hypermetabolic LAPs were observed significant metabolic and morphologic regression on PET-CT images three months after initializing of treatment. In the spleen was observed complete regression findings as metabolic and morphological.

In sarcoidosis, the risk of rupture due to massive splenic involvement is high and splenectomy is required if treatment is not given. Our case also had massive spleen involvement of sarcoidosis as diagnosed via FDG PET CT. However, we observed complete regression of metabolic and morphological changes in the spleen after treatment. So we claim that our case is important to highlight the use of FDG PET/CT in the diagnosis and response to treatment of ES.

Competing interests

The authors declare that they have no competing interests.

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