18F-Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography Scan Findings in a Rare Case of Subcutaneous Panniculitis-Like T-Cell Lymphoma

Abstract

Skin lymphomas are less common and subcutaneous panniculitis-like T-cell lymphoma (SPTCL) is a fairly rare subtype of primary cutaneous lymphoma. Skin lymphomas involve subcutaneous adipose tissues with no involvement of lymph nodes. Diagnosis of these cases is generally a challenge to clinicians. These cases present with fever, weight loss, and local discomfort in the region of involvement of subcutaneous tissues and sometime with skin eczema and rashes. Positron emission tomography/computed tomography (PET/CT) scan can guide in determining the extent of involvement being whole-body imaging and can guide the site of biopsy and can help to prevent misdiagnosis. It also helps in correct and early diagnosis and successful treatment. We report a case of a young adult who presented with pyrexia of unknown origin in which PET/CT scan revealed mildly fluorodeoxyglucose-avid diffuse subcutaneous panniculitis involving the whole body, trunk, and extremities. Biopsy was taken from the most appropriate site according to the PET/CT scan report and reported as SPTCL.

Keywords: *18F-fluorodeoxyglucose positron emission tomography/computed tomography, pyrexia of unknown origin, subcutaneous panniculitis*

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Introduction

Gonzalez *et al* described a new type of T-cell lymphoma with clinicopathologic features simulating a panniculitis, in year 1991 which was often associated with an aggressive clinical course. Under the term subcutaneous panniculitis-like T-cell lymphoma (SPTL), which is rare form of skin lymphoma and this new condition was included subsequently as a distinct disease entity in the World Health Organization (WHO) classification. Subcutaneous panniculitis-like T-cell lymphoma (SPTCL) preferentially infiltrates the subcutaneous adipose tissue. It was categorized as a type of mature T-cell and natural killer cell lymphoma in year 2008. We report a young male who presented with multiple subcutaneous lesions and was diagnosed with SPTCL.[1,2]

Case Report

A 24-year-old male presented with facial puffiness, chest wall heaviness, and fever. On evaluation, contrast-enhanced computed tomography (CECT) abdomen revealed hepatosplenomegaly, minimal ascites, diffuse subcutaneous thickening, and fat stranding in the abdominal wall; CECT chest revealed subcutaneous edema in the anterior chest wall and splenomegaly. Biochemical investigations showed increased inflammatory markers like raised lactate dehydrogenase, ferritin, Creactive protein was positive with mild transaminitis, (Erythrocyte sedimentation rate) ESR – 22 mm in 1st hour, raised Immunoglobulin G (Ig G), and Ddimer was positive. Anti Nuclear antibody/peri nuclear antineutrophil cytoplasmic antibody/Anti neutrophil cytoplasmic antibody (ANA/pANCA/cANCA) were negative; serum procalcitonin was – 2.72ng/ml, (Rheumatoid Arthritis factor) RA factor was negative. Bone marrow studies were carried out which showed myeloid preponderance with left shift. Reverse transcriptionpolymerase chain reaction test for COVID-negative. In view of no definitive diagnosis of fever (pyrexia of unknown origin), the patient was subjected to 18F-fluorodeoxyglucose (FDG) positron emission tomography (PET)/CT which reveals diffuse subcutaneous panniculitis

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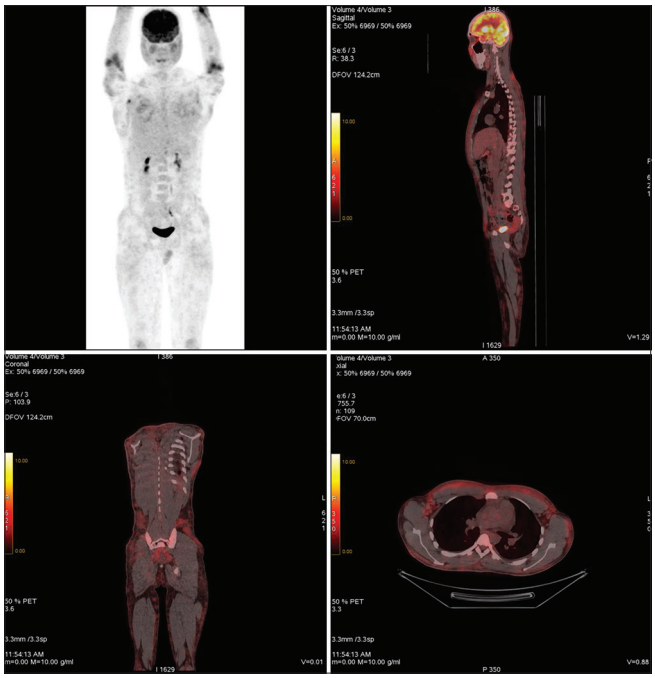

Figure 1: MIP, sagittal, coronal, and axial images of the thorax region show diffuse subcutaneous panniculitis involving the whole body both trunk and extremities. MIP: Maximum intensity projection

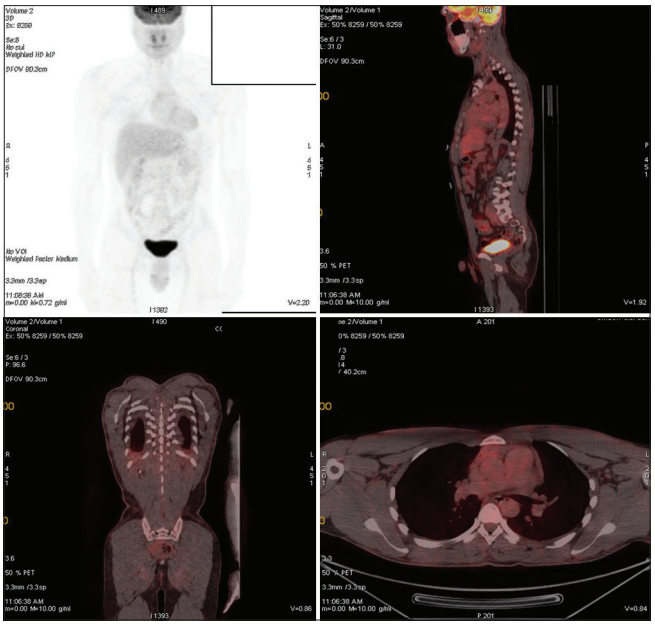

Figure 2: MIP, sagittal, coronal, and axial images of the thorax region show metabolic resolution of diffuse subcutaneous panniculitis (posttreatment) involving the whole body. MIP: Maximum intensity projection

involving the whole body with hepatosplenomegaly and diffuse bone marrow uptake [Figure 1]. Skin biopsy was taken from most metabolic active subcutaneous thickening in the anterior chest wall which reveals subcutaneous panniculitis-like T-cell lymphoma (SPTCL). Patient treated with Hemophagocytic Lymphohistiocytosis (HLH)-2004 protocol with steroid, etoposide, dexamethasone, and cyclosporine. Four weeks post initial treatment follow-up, PET/CT scan reveals minimal subcutaneous fat stranding in the anterior chest wall with a metabolic resolution of preexisting diffuse subcutaneous panniculitis involving the whole body [Figure 2]. There was a resolution of diffusely FDG-avid subcutaneous fat stranding and normalization of marrow uptake as well.

Discussion

SPTCL is a rare subtype of primary cutaneous lymphoma, it is about <1% of all cutaneous lymphomas.[3] It is a subtype of T-cell lymphoma, which mimics panniculitis.[1] SPTCL was considered a distinct entity in 2008 update of the World Health Organization-European Organization for Research and Treatment of Cancer classification.[2] Subcutaneous adipose tissue involvement is the main clinical feature of SPTCL.[4] There were no typical imaging features found in CT, ultrasound, and magnetic resonance imaging.[5,6] 18F-FDG PET/CT is useful in providing the burden of tumor, detecting disease extent, and staging of SPTCL.[7]

SPTCL involves subcutaneous fat and presents as panniculitis.[8] SPTLC commonly presents in young adults with a reported median age of 36-year. Patients usually present with fever, weight loss, skin discomfort, and rarely with eczema and skin rashes.[9] Given the rarity of the condition, diagnosis is generally challenging.

Conclusion

18F-FDG PET/CT demonstrates to be valuable in detecting disease extent, providing diagnostic work-up, staging, and monitoring treatment response for patients with SPTCL. 18F-FDG PET/CT scan can also guide the most appropriate site for a skin biopsy.

SPTCL is a rare and distinct clinicopathological condition. It has a protracted clinical course and presents as recurrent panniculitis. It has a favorable prognosis. Awareness of these types of rare clinical conditions facilitates early diagnosis and appropriate management of these patients.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initial s will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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