

F-18 Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography in a Case of Subcutaneous T-cell Lymphoma Presenting as Breast Mass and Panniculitis-Like Features: A Rare Entity

Abstract

Subcutaneous panniculitis-like T-cell lymphoma (SPTCL) is an unusual subtype of cutaneous lymphoma and clinically appears as erythematous, subcutaneous infiltrates, and recurrent papulonodules. It is defined as a rare cytotoxic a/b T-cell lymphoma characterized by primary involvement of subcutaneous tissue-mimicking panniculitis and a predominant CD3+/CD4/CD8+ phenotype in (2005) the World Health Organization-European Organization for Research and Treatment of Cancer classification for cutaneous lymphomas. On metabolic imaging, these lesions are invariably fluorodeoxyglucose (FDG) avid. SPTCL which presents as a breast mass is a rare entity. Here, we present a case of SPTCL presents as FDG avid breast mass and subcutaneous nodules.

Keywords: Breast mass, fluorodeoxyglucose positron emission tomography/computed tomography, subcutaneous panniculitis-like T-cell lymphoma

A 53-year-old female patient with on and off fever and swelling in the right breast for 2 months was referred to our department for fluorodeoxyglucose positron emission tomography/computed tomography (FDG PET/CT). Ultrasonography of the right breast depicted a lesion in lower medial quadrant. Excisional biopsy on the right breast was showing infiltration and rimming of the adipocyte cells by many atypical lymphoid admixed with few histiocytes and plasma cells. The atypical cells are medium-sized, have high n/c ratio, prominent nucleoli at places, and scant amount of cytoplasm. On immunohistochemistry, these cells are positive for CD 3 and negative for CD 4, CD 8, CD 30, and CD 20. FDG PET/CT of the patient was planned which revealed an ill-defined FDG avid (SUV max-4.6) soft-tissue density lesion in inner quadrant of the right breast with relative sparing of the nipple-areola complex and multiple areas of cutaneous and subcutaneous soft-tissue thickening and also soft-tissue thickening in the right breast parenchyma [Figures 1 and 2]. The patient underwent three cycles of Cyclophosphamide, Hydroxydaunorubicin, Etoposide: Oncovin,

Prednisolone (CHEOP) and underwent PET/CT. PET/CT revealed decrease in the number, size, and avidity of previously seen soft-tissue lesion suggestive of partial metabolic response (Deauville score II). After, this patient underwent three more cycles of chemotherapy (CHEOP). Postchemotherapy PET/CT was suggestive of complete metabolic response (Deauville score). T-cell lymphoma (TCL) is invariably FDG avid, allowing FDG PET/CT to be used for pretreatment staging and restaging.

Subcutaneous panniculitis-like TCL (SPTCL) is a rare subtype of cutaneous TCL. It was first described by Gonzalez *et al.* in 1991.^[1] The disease was recognized by the World Health Organization and the International Lymphoma Study Group in 1994 as a distinct entity in the recent classification of lymphomas.^[2] SPTCL is divided into two major subgroups ($\alpha\beta$ -STCL and $\gamma\delta$ -STCL), depending on the T-cell receptor expression on the malignant T-cells. $\gamma\delta$ -STCL is often associated with a more aggressive course and poor prognosis.^[3] It presents as multiple indurated, poorly circumscribed, firm, violaceous cutaneous plaques, and nodules mimicking lobular panniculitis. Sometimes it may lead to aggressive hemophagocytic syndrome infrequently.^[4] Involvement of

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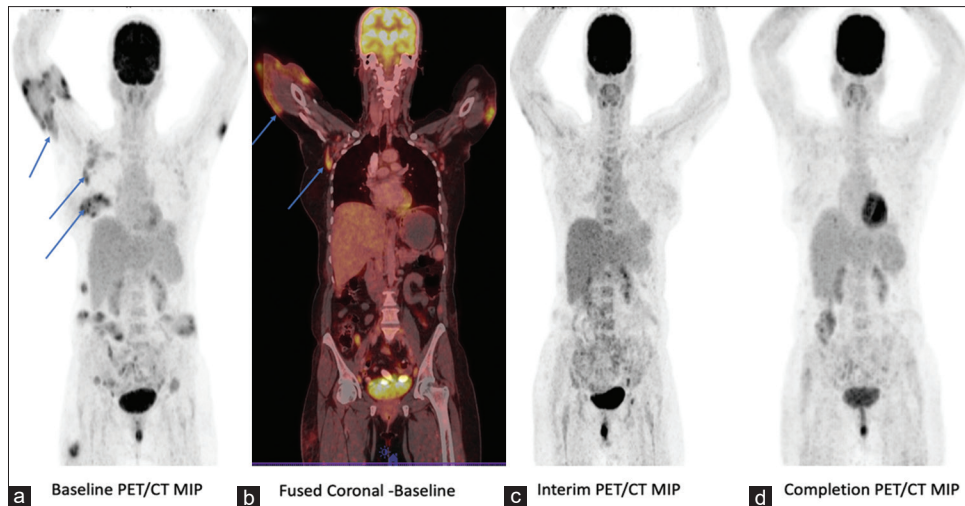


Figure 1: (a) Maximum intensity projection image of the whole body of baseline positron emission tomography/computed tomography, revealing multiple fluorodeoxyglucose avid subcutaneous and cutaneous soft-tissue thickening, soft-tissue thickening in the right breast parenchyma with axillary and pelvic lymphadenopathy. (b) Fused coronal positron emission tomography/computed tomography show similar changes. (c and d) Interim and end of treatment positron emission tomography/computed tomography shows partial and complete metabolic response, respectively

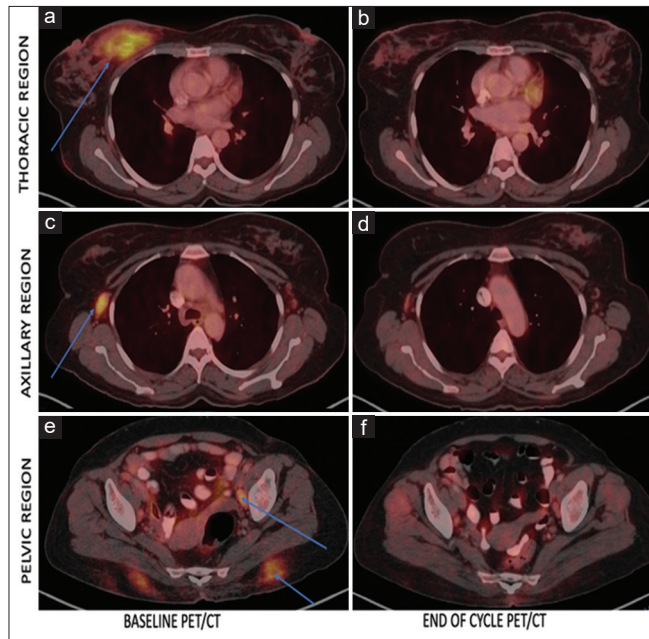


Figure 2: (a-f) Fused axial images of breast lesion, axillary, and pelvic lymph node in the baseline and end of treatment positron emission tomography/computed tomography, respectively

lymph nodes or other visceral organs is rarely reported. omentum may be involved.^[4-7]

The role of PET/CT in SPTCL is still evolving, attributable to the rarity and heterogeneity of disease presentation. Imaging findings may simulate various inflammatory and malignant pathologies.^[6,7] The involvement of breast parenchyma in SPTCL is a rare finding, and only a few case reports are found in the literature.^[4,6] Imaging features addressed in the previous studies of breast lymphoma are generally nonspecific and inadequate to guide clinical practice.^[8] It is of the

utmost importance SPTCL breast mass does not require surgery like carcinoma. We illustrate a rare case of SPTCL presenting as a breast mass. FDG PET/CT helped in pretherapy staging and response evaluation in this case.

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 initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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