IMAGE

18F-FDG PET/CT in cutaneous calcinosis disease

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ABSTRACT

A positron emission tomography–computed tomography (18F-FDG PET/CT) scan was conducted to evaluate the extent of recently diagnosed breast carcinoma in a 59-year-old patient. This was done following inconclusive results from a CT scan and bone scan, primarily due to extensive skin calcinosis complicating dermatomyositis. The PET/CT scan identified abnormal metabolic activity in the right breast and hypermetabolic lymph nodes. Interestingly, no other abnormal metabolic foci were found elsewhere in the body, despite discreetly diffuse hypermetabolic subcutaneous calcifications in the trunk and limbs. This underscores the diagnostic effectiveness of 18F-FDG PET/CT in such challenging cases.

Keywords: Calcinosis, breast carcinoma, TEP-FDG, dermatomyositis.

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Case Description

A 59-year-old woman, monitored for dermatomyositis since 2011, presented with extensive cutaneous calcinosis and infiltrating right breast carcinoma. A 18F-FDG positron emission tomography–computed tomography (PET/CT) scan was conducted for staging, following inconclusive thoraco-abdomino-pelvic CT and bone scintigraphy due to widespread skin calcifications, obstructing the visualization of metastatic locations.

In our examination, we identified a hypermetabolic pathological mass in the upper-inner quadrant of the right breast (standardized uptake value (SUVmax) = 8.3), linked to the primary tumor (Figure 1A). There was also a suspicious hypermetabolic involvement of lymph nodes in the right axillary (SUVmax = 4.2) (Figure 1B) and internal mammary chain. Furthermore, the PET/CT scan indicated the absence of any other pathological hypermetabolic focus in the rest of the body, from the head to mid-thigh. Notably, this was observed despite the presence of discreetly hypermetabolic multiple disseminated subcutaneous calcifications affecting the trunk and the roots of all four limbs, associated with the known extensive cutaneous calcinosis (SUVmax = 2.0) (Figure 2A and 2B).

Calcinosis, a challenging complication associated with juvenile dermatomyositis, can also affect adults [1]. Its unclear pathophysiology often leads to late-stage diagnosis [2]. It generally manifests diffusely, often localizing around the trunk and limbs [3], as observed in our patient (Figures 2 and 3). While clinical examination and histology are commonly used for diagnosis, imaging plays a crucial role in scenarios ranging from diagnostic uncertainty to monitoring the condition's evolution. Various imaging modalities, such as CT scans, magnetic resonance imaging (MRI), bone scintigraphy (Figure 4), and ultrasound, are mentioned in the literature, with PET/CT being able to reveal areas of hypermetabolism, reflecting inflammation [4]. In our specific case, 18F-FDG PET/CT enabled us to visualize this unusual aspect and perform a comprehensive assessment of breast neoplasia extension

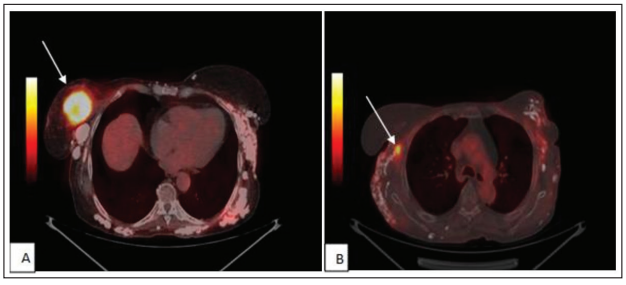

Figure 1. *Axial fused images of 18F-FDG PET/CT scan revealing a voluminous hypermetabolic pathological mass in the right breast (Panel A) and suspected hypermetabolic pathological right axillary lymphadenopathy (Panel B).*

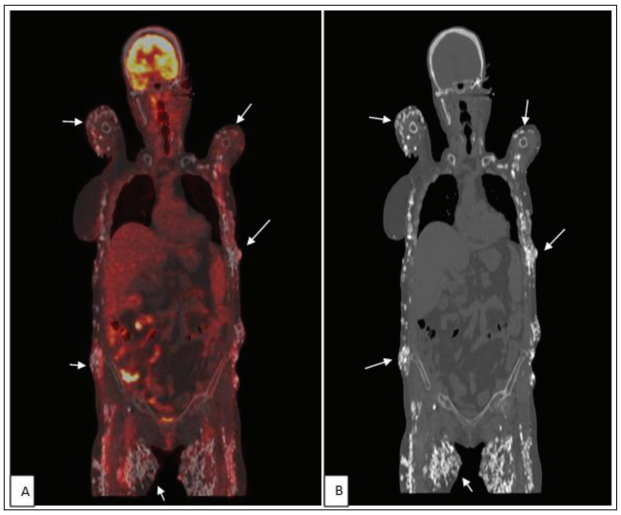

Figure 2. *Coronal fused images (Panel A) from 18F-FDG PET/CT and a localization CT scan (Panel B) showing discreetly hypermetabolic subcutaneous calcifications distributed across the trunk and limbs, confirming extensive calcinosis.*

Figure 3. *Bilateral cutaneous and axillary calcinosis.*

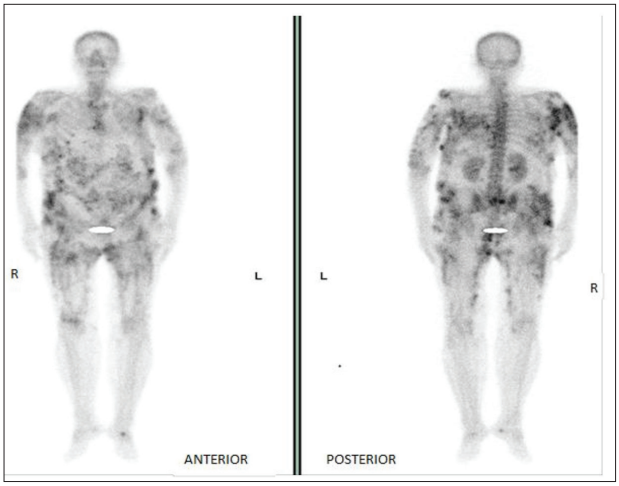

Figure 4. *99mTc-HMDP bone scintigraphy: anterior and posterior planar images reveal extensive extra-osseous hyperfixations in the trunk and limbs, indicative of dystrophic calcifications, which have not substantially contributed to the extension assessment of our patient.*

due to the metabolic activity and avidity of neoplastic cells for FDG.

Author contributions

Conceptualization: Salah Oueriagli Nabih, Chaymae Bensaid
Literature search: Chaymae Bensaid
Methodology: Salah Oueriagli Nabih, Chaymae Bensaid
Manuscript preparation: Chaymae Bensaid
Manuscript editing and manuscript review: Abderrahim Doudouh, Salah Oueriagli Nabih, Chaymae Bensaid

List of Abbreviations

18F-FDG PET/CT	18F-FDG positron emission tomography–computed tomography
SUVmax	Standardized uptake value

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