

Bone Lipogranuloma Mimicking Metastatic Disease on ^{18}F -FDG PET/CT

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Abstract: Primary bone lipogranuloma is an extremely rare disease associated with reactive inflammatory granulomatous reaction associated with exogenous or endogenous lipids. Herein, we report a case of bone lipogranuloma with intense ^{18}F -FDG uptake, which mimics metastatic disease on ^{18}F -FDG PET/CT in a patient with breast cancer.

Key Words: lipogranuloma, bone lipogranuloma, breast cancer, metastasis, ^{18}F -FDG PET/CT

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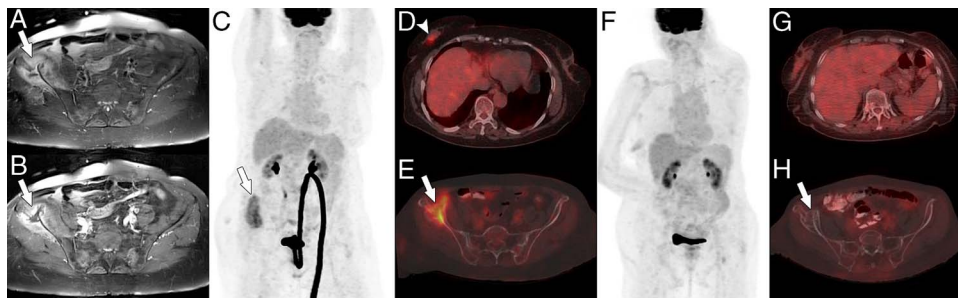


FIGURE 1. A 73-year-old woman presented with right hip pain and pelvis MRI revealed a displaced fracture and bone marrow edema in the right iliac bone with contrast enhancement on axial T2-weighted (A) and T1-weighted (B) images secondary to a possible metastasis (arrow). Subsequently, during diagnostic workup, her mammography showed a lobulated lesion in the right breast, and biopsy results revealed mucinous carcinoma of the breast. She was referred to ^{18}F -FDG PET/CT for primary staging. MIP (C) and axial ^{18}F -FDG PET/CT images (D) revealed mild ^{18}F -FDG uptake in the 2 × 3-cm lobulated lesion in the right breast with sparing of the contralateral breast and axilla (arrowhead). Also, intense ^{18}F -FDG uptake was noted in the lytic destructive expansile lesion of the right iliac bone, suggestive of pathological fracture due to metastatic disease (E, arrow). Intermittent MRI of the patient was also consistent with metastasis (not shown). Clinical suspicion led to the lesion's bone biopsy, which revealed lipogranuloma, and the patient was deemed to be clear of metastases. One year after, follow-up ^{18}F -FDG PET/CT revealed response to treatment in the primary malignancy in the right breast (F and G) and complete metabolic regression on the lipogranuloma lesion (H, arrow).

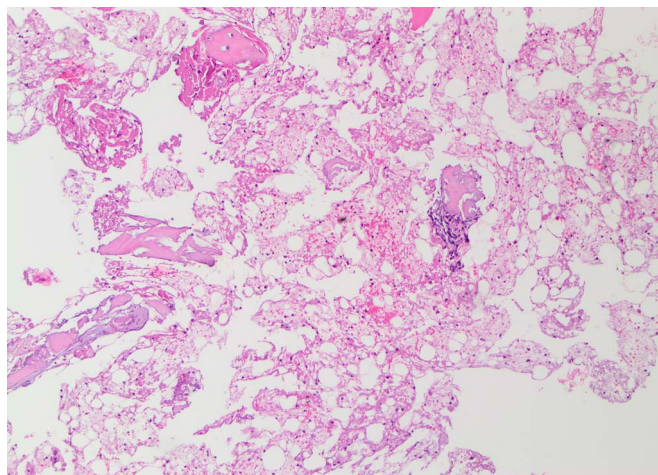


FIGURE 2. Hematoxylin and eosin staining revealed necrotic adipose tissue accompanying mature bone lamellae consistent with lipogranuloma of bone. The lipogranuloma is a collection of histiocytes surrounding exogenous or endogenous lipids mainly in the dermis and subcutaneous tissue.¹ Granulomatous lesions in bone marrow are uncommon and related to infectious diseases, sarcoidosis, autoimmune diseases, malignancies, therapy-induced granulomas, and idiopathic.^{2,3} Bone lipogranuloma is an extremely rare condition, which can be associated with Hand-Schüller-Christian disease, reticuloendotheliosis, or eosinophilic granuloma. Lesions tend to enlarge and cause spontaneous fractures.⁴ Intense ^{18}F -FDG uptake was reported in foreign body granulomas and lipogranuloma lesions in retroperitoneal and mesenteric space due to the increased inflammatory process.⁵⁻⁸ Although rare, this case highlights the fact that bone lipogranulomas may cause false-positive findings for malignancy on ^{18}F -FDG PET/CT images.