A low-grade bone angiosarcoma presented as low to mild ^{18}F-FDG uptake mimicking multiple myeloma

Abstract

Angiosarcoma is a rare and aggressive malignancy disease. It constitutes less than 1% of all sarcomas. According to previous reports, angiosarcoma usually shows hypermetabolic features on fluorine-18-fluorodeoxyglucose positron emission tomography (^{18}F-FDG PET/CT) and therefore ^{18}F-FDGPET/CT may be helpful to staging and assessing therapeutic efficacy. We report a rare case of multicentric bone angiosarcoma in a 51-year-old female patient showing low to mild ^{18}F-FDG uptake, mimicking multiple myeloma, which often presents mild ^{18}F-FDG avid lesions.

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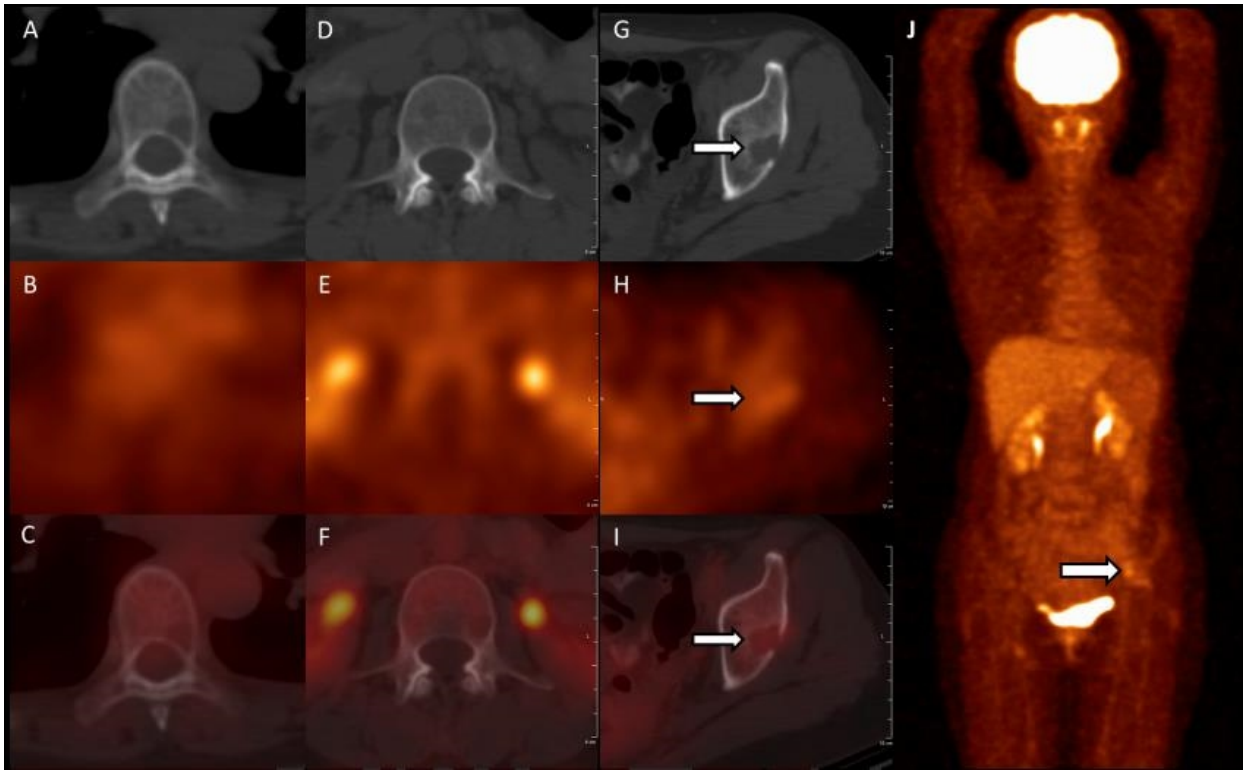

Figure 1. A 51-year-old female patient was admitted with recent onset of lower back and left lower limb dull pain. She had a history of endometrial carcinoma and had undergone hysterectomy and bilateral oophorectomy. On the computed tomography (CT) of the pelvis, multiple osteolytic lesions were detected in the lumbar spine and pelvic bones. Differential included multiple myeloma and metastatic malignancy. Patient was referred to ^{18}F-FDG PET imaging for further evaluation. The axial images of thorax (A: CT, B: PET and C: fusion) and lumbar spine (D: CT, E: PET and F: fusion) showed multiple osteolytic bone lesions involving of the thoracic and lumbar vertebrates on CT, but there was no definitely increased ^{18}F-FDG uptake on PET images. The maximum intensity projection (MIP) image (J) revealed only one mild increased ^{18}F-FDG activity in the left iliac region (arrow) with a maximum standardize uptake value (SUVmax) of 3.2 (in comparison to the hepatic SUVmax of 3.1). On axial images (G: CT, H: PET and I: fusion), this activity corresponded to a lytic lesion (arrows). There was no other abnormality, which could be a primary lesion. The laboratory data including carcinoembryonic antigen (CEA), cancer antigen 125 (Ca 125), serum light chain and immunofixation electrophoresis, were within normal rangers.

Angiosarcoma is a very rare malignant endothelial vascular tumor with five-year disease-specific survival estimated at 60%. A previous study demonstrated that 76% of these tumors were intermediate or high grade, and high histologic grade is usually associated with poor prognosis [1]. Although the diagnosis of angiosarcoma is exclusively anatomopathological, ^{18}F-FDG PET/CT is maybe useful in differentiating diagnosis, assessing the extent of disease and evaluating therapeutic efficacy since the tumor is usually intensive ^{18}F-FDG-avid (SUVmax 6.1-19.0) [2-10]. In our case, multiple lytic bone lesions with low metabolic activity on ^{18}F-FDG PET/CT likely be mistaken as multiple myeloma, which sometime presents mild ^{18}F-FDG avid lesions [11]. Our case illustrated the possibility of mild uptake of angiosarcoma and it should be included in the differential diagnosis of multiple osteolytic lesions.

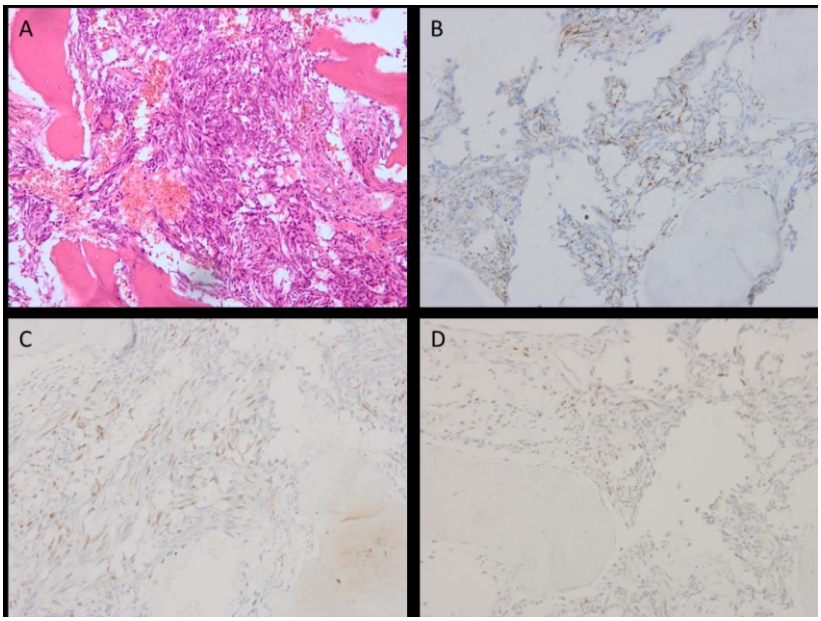

Figure 2. Biopsy of left iliac bone showed irregular vascular channel and hyperplasia of atypical cells arranged in diffuse sheets within filtrative growth pattern, replacing the marrow and encasing bony trabeculae, which suggested a well differentiated vascular malignancy (A, hematoxylin-eosin, original magnification×400). Immunohistochemistry was positive for CD 31 (B, original magnification×400), CD 34 (C, original magnification×400) and ERG (D, original magnification×400), which have been established as endothelial markers of vascular tumors. These histopathological findings demonstrated characteristics of a low to interediate grade angiosarcoma.

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