

# An Unusual Case of Extraskelatal Retroperitoneal Osteosarcoma Incidentally Detected by $^{18}\text{F}$ -FDG PET/CT

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A 20-year-old male patient previously treated with chemotherapy 5 years before for Hodgkin lymphoma underwent fluorine-18-fluorodeoxyglucose positron emission tomography/computed tomography ( $^{18}\text{F}$ -FDG PET/CT) for surveillance.

After fasting for at least 6 h, the patient underwent intravenous injection of 270 MBq of  $^{18}\text{F}$ -FDG. Before injection, the glucose blood levels corresponded to 95 mg/dl. PET images were acquired 1 h after the radiopharmaceutical injection and were interpreted visually and semi-quantitatively by using the maximal standardized uptake value (SUV<sub>max</sub>).

$^{18}\text{F}$ -FDG PET/CT showed an area of increased radiopharmaceutical uptake corresponding to a 4 cm retroperitoneal calcified lesion (SUV<sub>max</sub>, 4.9). No other areas of abnormal  $^{18}\text{F}$ -FDG uptake were detected in the rest of the body (Fig. 1).

Based on this PET/CT finding, the patient underwent biopsy of the retroperitoneal lesion. Histology showed the presence of an extraskelatal retroperitoneal osteosarcoma. Radiologic imaging excluded other sites of disease in the

skeleton, but the retroperitoneal lesion infiltrated the inferior vena cava, therefore the patient was referred to chemotherapy.

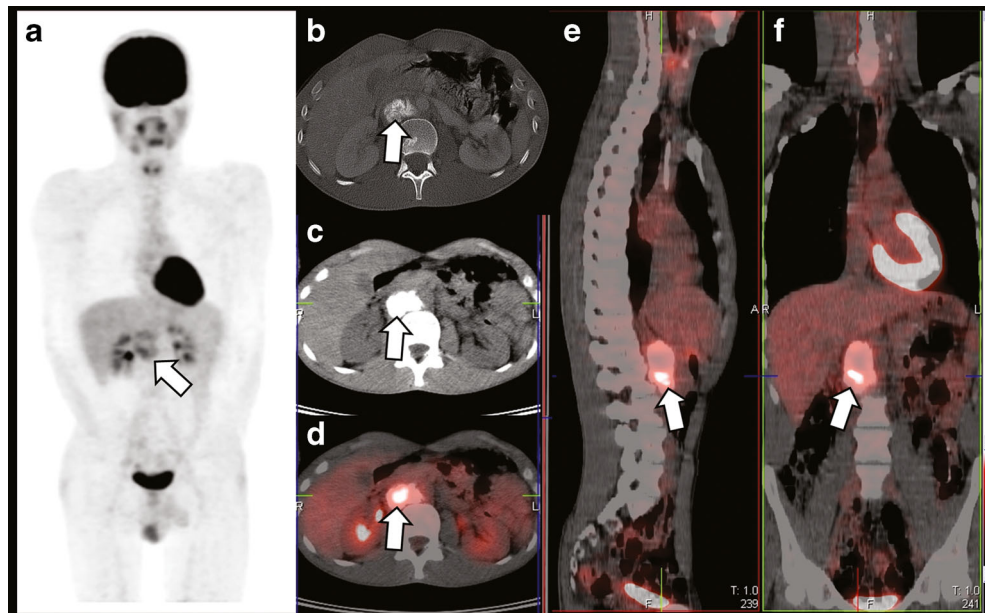
Extraskelatal osteosarcomas are rare and aggressive mesenchymal tumors accounting for less than 4 % of all osteosarcomas and usually affecting individuals beyond the 5th decade of life [1–3].

The diagnosis of these tumors can be very challenging in cases of abdominal or pelvic lesions, often requiring histological confirmation. Such tumors usually presenting as calcified masses may reach enormous sizes before detection because the enlarging mass may not be associated with pain [1–3].

$^{18}\text{F}$ -FDG PET/CT has been demonstrated to be a useful imaging method in the evaluation of patients with osteosarcoma [4]. A previous case reported the usefulness of  $^{18}\text{F}$ -FDG PET in the staging of a 58-year-old patient with extraskelatal retroperitoneal osteosarcoma [5]. In our case,  $^{18}\text{F}$ -FDG PET/CT has been useful in the incidental detection of an extraskelatal retroperitoneal osteosarcoma in a young adult patient.

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**Fig. 1** Whole-body maximum intensity projection (MIP)  $^{18}\text{F}$ -FDG PET image (**a**), axial CT with bone (**b**) and abdominal (**c**) windows, and fused PET/CT images in axial (**d**), sagittal (**e**) and coronal (**f**) projections showing an area of increased  $^{18}\text{F}$ -FDG uptake (SUVmax, 4.9) corresponding to a 4-cm retroperitoneal calcified lesion (density measurement, 650 HU). The  $^{18}\text{F}$ -FDG uptake pattern in the calcified lesion was inhomogeneous and not related to the calcification pattern. No other areas of abnormal  $^{18}\text{F}$ -FDG uptake were detected in the rest of the body



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