An Unusual Case of Plasmablastic Lymphoma Presenting as Paravertebral Mass Evaluated by ^{18}F -FDG PET/CT

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A 60-year-old man underwent radiological investigations due to the onset of back pain. Computed tomography (CT) and magnetic resonance imaging (MRI) showed the presence of a paravertebral mass located ahead the body of the third thoracic vertebra. Based on these findings the patient underwent biopsy of the paravertebral mass, which showed the presence of a plasmablastic lymphoma. Therefore, the patient underwent fluorine-18-fluorodeoxyglucose positron emission tomography/computed tomography (^{18}F -FDG PET/CT) for staging. Before ^{18}F -FDG injection, the patient had fasted for at least 6 h; at the time of the radiopharmaceutical injection he presented glucose blood levels corresponding to 98 mg/dl. Images were acquired 1 h after intravenous injection of 280 MBq of ^{18}F -FDG according to the body mass index. PET images were interpreted visually and semiquantitatively by using the maximal standardized uptake value (SUVmax).

^{18}F -FDG PET/CT showed moderate radiopharmaceutical uptake corresponding to the paravertebral lesion (SUVmax 3.3) and diffuse uptake in the skeleton suspicious for bone

marrow neoplastic involvement, with more evident hypermetabolic areas in the left scapula (SUVmax 3.7), right sixth rib (SUVmax 3.5), and left iliac bone (SUVmax 3.4) (Fig. 1). Subsequent bone marrow biopsy confirmed the bone marrow infiltration by plasmablastic cells.

Based on these findings, a final diagnosis of plasmablastic lymphoma with bone marrow involvement was performed and the patient was addressed to chemotherapy.

Plasmablastic lymphoma is a rare CD20-negative large-cell lymphoma with plasmablastic features occurring primarily in HIV or Epstein-Barr virus positive individuals. Distinguishing this tumor from myeloma could be challenging [1–3]. The most frequent site of presentation is the oral cavity, whereas extraoral localizations of plasmablastic lymphoma are considered to be very rare [1–3] and they should be differentiated from extraosseous localization of multiple myeloma or plasma cell leukemia which have similar characteristics at ^{18}F -FDG PET/CT [4, 5]. In our case ^{18}F -FDG PET/CT has been very useful in the disease assessment of this rare tumor with an atypical presentation.

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Fig. 1 Whole-body maximum intensity projection (MIP) ^{18}F -FDG PET image (a), axial CT (b) and fused PET/CT images (c-f) showed an area of moderate ^{18}F -FDG uptake (SUVmax 3.3) corresponding to the paravertebral lesion ahead the body of the third thoracic vertebra (red arrows, b, c). A seroma due to the recent biopsy is also evident (white

arrows, b, c). Furthermore PET/CT demonstrated diffuse ^{18}F -FDG uptake in the skeleton suspicious for bone marrow neoplastic involvement (a), with more evident hypermetabolic areas (yellow arrows) in the left scapula (d) with a SUVmax of 3.7, right sixth rib (e) with a SUVmax of 3.5, and left iliac bone (f) with a SUV max of 3.4

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References

1. Hsi ED, Lorscheich RB, Fend F, et al. Plasmablastic lymphoma and related disorders. *Am J Clin Pathol*. 2011;136:183–94.
2. Makis W, Ciarallo A, Lisbona R. Plasmablastic lymphoma of the oral cavity in an HIV-positive patient: staging with 18 F-FDG PET/CT. *Acta Radiol*. 2011;52:970–2.
3. Cazaentre T, Sanhes L, Laurent G, et al. Interesting image. Assessment of plasmablastic lymphoma by F-18 FDG PET/CT: case report. *Clin Nucl Med*. 2010;35:882–3.
4. Cocciolillo F, Treglia G, Villani MF, et al. Atypical presentation of plasma cell leukemia secondary to multiple myeloma detected by F-18 FDG PET/CT. *Clin Nucl Med*. 2011;36:e220–3.
5. Caldarella C, Treglia G, Leccisotti L, et al. Coexistence of physiologic and abnormal muscle uptake of fluorine-18-fluorodeoxyglucose in a patient with plasma cell leukemia. *Nucl Med Mol Imaging*. 2012;46: 311–3.