CLINICAL IMAGE

^{18}F-FDG PET/CT findings in an HIV-infected patient with systemic Kaposi sarcoma

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Kaposi sarcoma (KS) is a rare multifocal vascular tumor associated with *Human herpesvirus 8* that occurs in HIV-infected patients and has a low malignant potential. It is a multifocal disease typically involving mucocutaneous junctions, but lymph node and visceral organ involvement may occasionally be seen, therefore imaging studies are required for precise staging.[1,2] We hereby present a case of systemic KS in which the staging was performed based on fluorodeoxyglucose labeled with fluorine-18 (^{18}F-FDG) positron emission tomography (PET) coregistered with computed tomography (CT) imaging.

A 30-year-old Chinese man, who was diagnosed with HIV infection 7 years previously but never received any antiretroviral therapy, presented with a several-month history of edema and progressive bilateral pain in hands and legs. There were widespread diffuse erythema and multiple purple macules on his face, neck, torso as well as both legs and hands, especially in the distal parts. Laboratory tests showed a CD4 count of 160 cells/mm^3 and an HIV-1 RNA viral load of 57 000 copies/ml. Kaposi sarcoma was confirmed by a skin biopsy of the lesions on the torso and the right hand. As determined by immunostaining, the lesions were positive for *Human herpesvirus 8*. The patient underwent an ^{18}F-FDG PET/CT examination for the purpose of further accurate staging of the tumor. The PET/CT (Discovery STE 16, GE, Waukesha, Wisconsin, United States) imaging was performed 62 minutes after an FDG injection of 300 MBq; images of the whole body and lower extremities were obtained. Maximum intensity projection image showed multiple hypermetabolic lesions throughout the body, particularly on the extremities and both sides of the chest (FIGURE 1A). Axial fused PET/CT imaging showed multiple hypermetabolic nodules and masses in both lungs (FIGURE 1B), pathologically increased FDG uptake on left cervical, paraaortic, and both inguinal lymph nodes (FIGURE 1C and 1D),

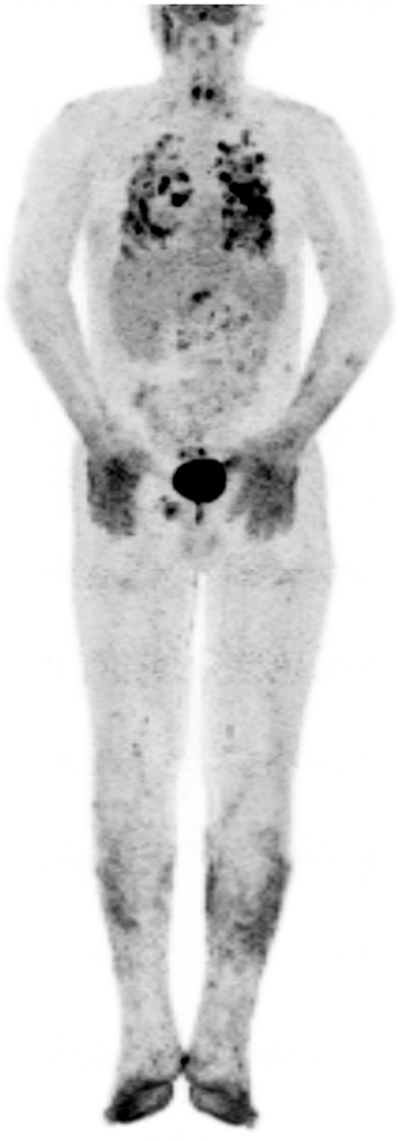

FIGURE 1 **A** – maximum intensity projection image showing multiple hypermetabolic lesions throughout the body, particularly on the extremities and both sides of the chest

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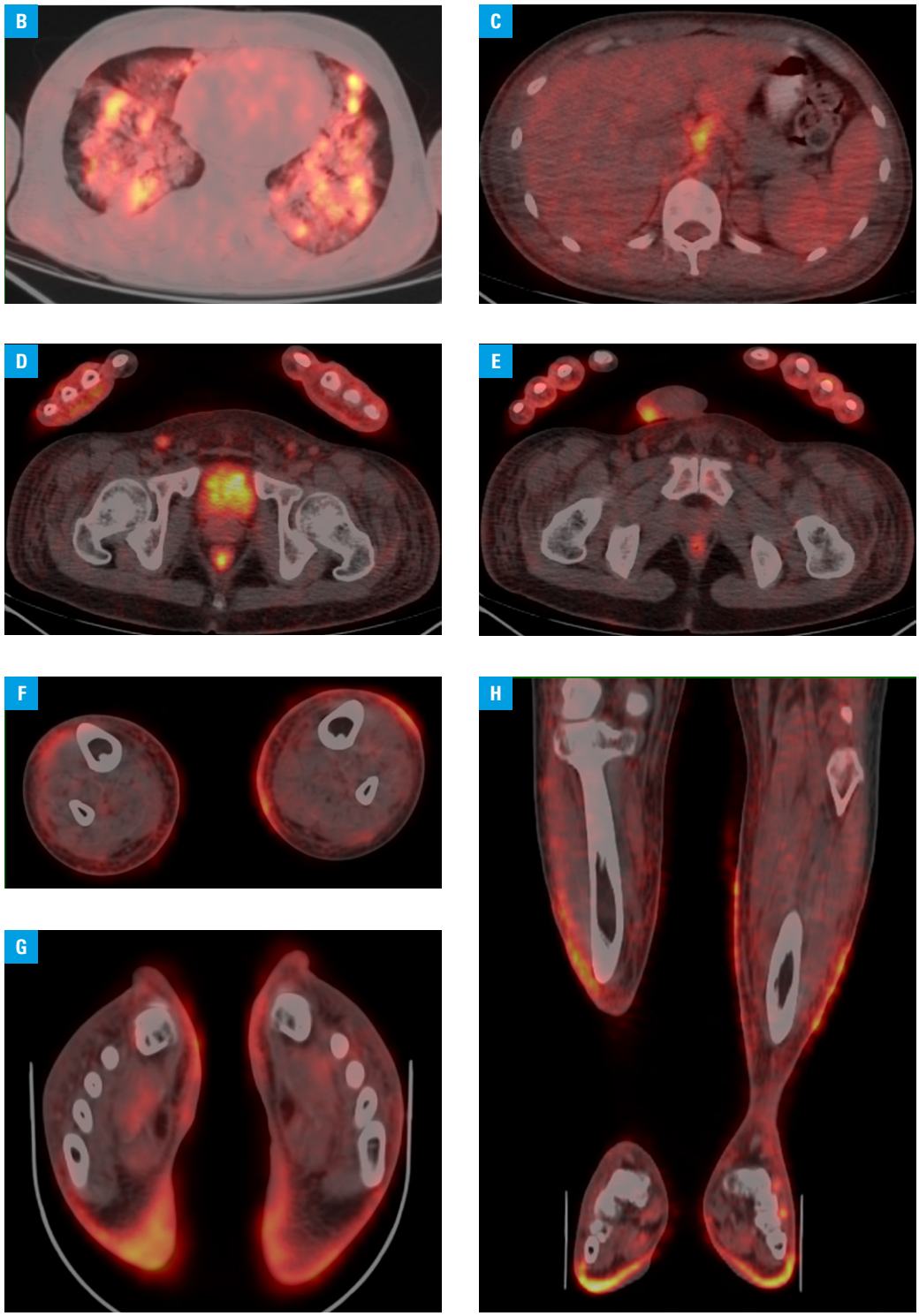

FIGURE 1 **B–G** – axial fused positron emission tomography coregistered with computed tomography (PET/CT) imaging revealing multiple hypermetabolic nodules and masses in both lungs, with a maximum standardized uptake value (SUV_{max}) as high as 8.2 (**B**), pathologically increased fluorodeoxyglucose (FDG) uptake at left cervical, paraaortic, and both inguinal lymph nodes, with a SUV_{max} of approximately 4.9 (**C** and **D**), and a diffuse uptake of fluorine-18–labeled FDG over the skin and the glans penis, especially in the distal part of the extremities, with a SUV_{max} of approximately 5.0 (**E–G**). **H** – coronal fused PET/CT imaging showing diffuse uptake of FDG over the skin of the lower limbs; the lesions were distributed symmetrically in a sleevelike pattern. Reference SUV_{max}: cardiac blood pool, 1.3; liver, 2.3

as well as a diffuse uptake of ^{18}F-FDG over the skin and the glans penis, especially in the distal part of the extremities (FIGURE 1E–1G). Coronal fused PET/CT scan showed a diffuse uptake of FDG over the skin of the lower limbs, and the lesions were distributed symmetrically in a sleevelike pattern (FIGURE 1H).

Imaging is the most common method for determining the extent of a disease. Computed tomography and magnetic resonance imaging are used regionally rather than for a whole-body investigation, and therefore are not ideal modalities in the case of systemic diseases such as KS. Van de Luijtgaarden et al[3] evaluated the potential of Indium-111-bevacizumab scintigraphy to detect KS lesions; however, uptake was observed only in a minority of these lesions. The combination of scintigraphy and sequential thallium (Tl) and gallium (Ga) scanning is said to be useful for differential diagnosis, as ^{67}Ga-negative and ^{201}Tl-positive uptake most likely points to KS.[4] However, there was also a report in which both the ^{67}Ga and ^{201}Tl scans showed a negative uptake in KS lesions.[5] ^{18}F-FDG PET/CT imaging achieves high sensitivity and specificity and is useful for detecting malignancies, including KS. According to the current literature, it is an accurate and noninvasive staging tool which identifies

more sites of disease, especially clinically occult lesions, than conventional diagnostic methods.[2,5] In our case, ^{18}F-FDG PET/CT imaging detected the involvement of multiple lymph nodes, which could not have been achieved by conventional diagnostic methods, and also, it provided very interesting images. Therefore, we believe that this imaging modality is a useful tool in systemic KS.

ARTICLE INFORMATION

NOTE An online identifier was ascribed to ZM (ORCiD ID, https://orcid.org/0000-0002-4478-878X).

PATIENT CONSENT Informed consent was obtained from the patient for the anonymous use of patient clinical, imaging, and histological data.

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CONFLICT OF INTEREST None declared.

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