^{18}F-FDG PET/CT Imaging in Detection of Intravascular Large B-Cell Lymphoma

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Abstract: Intravascular large B-cell lymphoma (IVLBCL) is a rare type of extranodal large B-cell lymphoma. Now, it remains a diagnostic challenge, because of non-specific findings on clinical, laboratory, and imaging studies. Here we present a case of an IVLBCL patient, who presented with fever of unknown origin and had skin involvement, that ^{18}F-FDG PET/CT showed increased metabolism on systemic subcutaneous fat layer with a SUVmax of 1.29. After five courses of R-CHOP, 18F-FDG PET/CT showed disappearance of the diffuse FDG accumulation on systemic subcutaneous fat layer with a SUVmax of 0.55. These features make this case unique.

Keywords: Lymphoma, Fever, ^{18}F-FDG, PET/CT.

A 71-year-old man was known for a 3-month long history of intermittent fever as high as 39°C. He had no abnormal findings on physical examination, but had abnormal laboratory findings, including elevated LDH (2425IU/L), IgE (297IU/ml) and ferroprotein (1208.59ug/L). Because clinical and radiological evaluation did not provide valuable information on the localization of an infectious focus, ^{18}F-fluorode-Oxyglucose (FDG)-positron emission tomography/ computed tomography (PET/CT) was performed. The image of pre-therapeutic ^{18}F-FDG PET/CT demonstrated intense and diffuse homogeneous hypermetabolism on systemic subcutaneous fat layer (A, the yellow arrow). Maximum SUV reached 1.29 to 0.45. The diagnosis of Intravascular large B-cell lymphoma (IVLBCL) was established with the skin biopsy performed. The low microscopic view showed the skin interstitial vessels was filled with tumor cells (H&E staining, ×40) (C, the black arrow), and the high microscopic view showed invasion of many atypical lymphoid cells into the capillary vessels of the skin (H&E staining, ×400) (D, the black arrow). The patient underwent FDG-PET after five courses chemotherapy consisting of rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisolone (R-CHOP), with the results demonstrating disappearance of the diffuse FDG accumulation in skin (B, the yellow arrow). Maximum SUV reached 0.55 to 0.17.The red arrows delineate urethral catheter and pollutant. Several articles have reported the successful use of FDG-PET in diagnosing IVLBCL in cases of fever of unknown origin [1, 2]. A few authors also have reported

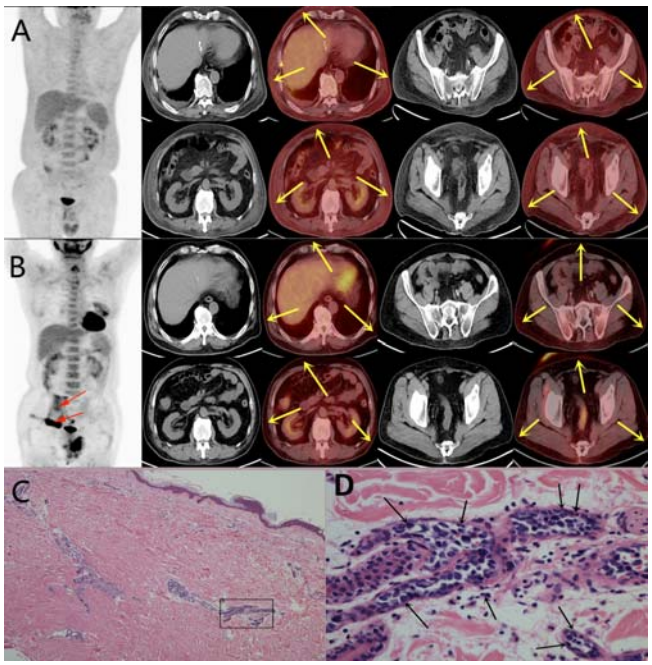

Figure 1:

FDG-PET is useful in the diagnosis of IVLBCL when this type of lymphoma is clinically suspected [3-5]. And combined chemotherapy of R-CHOP can improve the treatment outcome of IVLBCL [6]. The revised response criteria for malignant lymphoma reveals that FDG-PET is highly recommended for initial and post-treatment assessment of diffuse large B-cell lymphoma (DLBCL) and Hodgkin lymphoma (HL) [7]. We present a case in which the FDG-PET was particularly useful to suspect the diagnosis, to detect unexpected locations, to guide contributive biopsy, and to assess the response to treatment. However, its diagnostic accuracy in IVLBCL remains unclear, as false-negative results have also been noted [8]. In case of negative results, FDG-PET should be repeated in the course of

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clinical evolution, because an initial negative FDG-PET may become highly positive a few months later.

ACKNOWLEDGMENTS

This work was supported by PET Centre, Huashan Hospital, FuDan University and Chinese National Natural Science Foundation (Number: 81171189).

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Received on 27-11-2015 Accepted on 02-12-2015 Published on 29-01-2016

DOI: http://dx.doi.org/10.6000/1929-2279.2016.05.01.2