Detection of multiple muscle involvement in eosinophilic myositis with ^{18}F -FDG PET/CT

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A 41-year-old woman presented with gradually increasing swelling of the lower limbs for 12 months and red papule at the right lower limb for 6 months accompanied by intermittent fever. The white blood cell count was $6.89 \times 10^9/\text{L}$ with 23.1 % eosinophils. Creatine kinase (CK), CK-MB, γ -hydroxybutyrate dehydrogenase and lactate dehydrogenase were elevated in serum. Serological antibody tests for parasites were negative.

^{18}F -fluorodeoxyglucose (FDG) positron emission tomography (PET)/CT was performed to exclude malignancy. Obvious FDG uptake was revealed not only in muscles of the lower limbs [maximum standardized uptake value (SUV_{max}) 5.8] but also in the right pectoralis major muscle and muscles of the right shoulder and neck (SUV_{max} 4.6). Heterogeneous FDG uptake and concomitant muscle enlargement with low densities on CT scan suggested active inflammation. Biopsy from the left gastrocnemius muscle demonstrated a large number of lymphocytes and a few eosinophils, and eosinophilic myositis was diagnosed.

FDG uptake in skeletal muscles can occur in a variety of conditions, such as primary malignancy [1], metastasis [2], inflammatory myopathies [3] and other physiological states [4]. Eosinophilic myositis is a rare inflammatory condition of skeletal muscle which can clinically mimic soft tissue sarcoma or metastasis [5]. FDG PET/CT can play a potential role in differentiating inflammation from malignancy and accurately guiding the biopsy site selection.

Conflicts of interest None.

References

1. Broski SM, Bou-Assaly W, Gross MD, Fig LM. Diffuse skeletal muscle F-18 fluorodeoxyglucose uptake in advanced primary muscle non-Hodgkin's lymphoma. *Clin Nucl Med* 2009;34:251–3.
2. Khandelwal AR, Takalkar AM, Lilien DL, Ravi A. Skeletal muscle metastases on FDG PET/CT imaging. *Clin Nucl Med* 2012;37:575–9.
3. Agrawal K, Bhattacharya A, Harisankar CN, Abrar ML, Mittal BR, Tripathy SK, et al. [^{18}F]Fluoride and [^{18}F]fluorodeoxyglucose PET/CT in myositis ossificans of the forearm. *Eur J Nucl Med Mol Imaging* 2011;38:1956.
4. Bar-Shalom R. Muscle uptake of 18-fluorine fluorodeoxyglucose. *Semin Nucl Med* 2000;30:306–9.
5. Mardi K, Sharma J. Focal eosinophilic myositis—a rare cause of pseudotumor. *Indian J Pathol Microbiol* 2006;49:390–1.

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