Giant Cell Tumor of Bone

In a recent article in ***The Oncologist***, van der Heijden et al. [1] provided an overview of imaging, histopathology, genetics, and multidisciplinary treatment of giant cell tumor of bone (GCTB). The authors, however, do not mention the role of metabolic imaging with fluorodeoxyglucose F 18 (^{18}F-FDG) positron emission tomography/computed tomography scans (PET/CT) in the diagnosis of this disease; they cite only the reduced uptake on ^{18}F-FDG PET/CT after denosumab treatment [2]. In addition to conventional radiographs and contrast-enhanced magnetic resonance imaging (MRI), ^{18}F-FDG PET/CT may be helpful for gaining diagnostic information by assessing tumor metabolism [3–6]. Recently we observed a 55-year-old man with melanoma for which FDG-PET/CT performed as a staging procedure revealed enhanced ^{18}F-FDG uptake (a maximum SUV of 9.96) at the level of the proximal end of the right fibule (Fig. 1). This uptake was interpreted as bone metastasis from the melanoma. Conventional radiograph CT scans of the right leg revealed an osteolytic lesion; MRI confirmed the lesion with a low signal on T1- and T2-weighted spin-echo invading and reinflating the cortical bone and surrounded by a sclerotic area. To allow a definite diagnosis, an open biopsy of the lesion was performed, and histopathology examination showed a giant cell tumor of the bone and not metastatic melanoma, as suspected. As reported by van der Heijden et al. [1], GCTB is an intermediate, locally aggressive, but rarely metastasizing tumor. Despite their histopathology classification, giant cell tumors have generally enhanced ^{18}F-FDG uptake, attributable mainly to an enhanced vascular fraction and increased ^{18}F-FDG transport [6]; other authors attribute this to overexpression of hexokinase-2, a key enzyme in the glycolytic pathway in tumor cells [7]. We believe that the role of enhanced ^{18}F-FDG uptake of GCTB should be mentioned in an overview such as that reported by van der Heijden et al. [1], with regard not only to the response to denosumab treatment for unresectable GCTB [8] but also to the clinical implications for in the diagnosis of this disease [3, 9].

LUIGI CAVANNA
CLAUDIA BIASINI
MICHELA MONFREDO
Department of Clinical Oncology, Hospital of Piacenza, Italy

PIETRO MANISCALCO
Department of Orthopedic Surgery, Hospital of Piacenza, Italy

MONICA MORI
Department of Nuclear Medicine, Hospital of Piacenza, Italy

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Pietro Maniscalco: LIMA (ET). The other authors indicated no financial relationships.

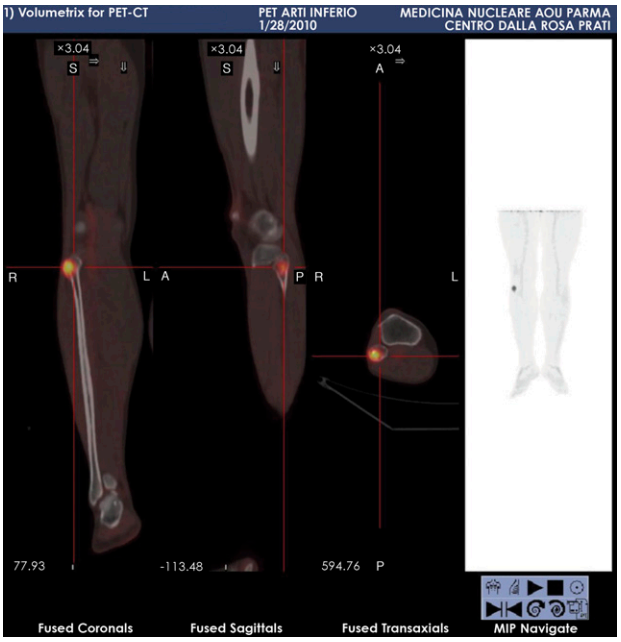

Figure 1. Positron emission tomography/computed tomography showing enhanced F-18 fluorodeoxy-D-glucose uptake at the level of the proximal end of the right fibula.

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