Advanced multiple myeloma with negative bone marrow biopsy and positive soft tissue lesions in the ^{18}F-FDG PET/CT scan

To the Editor: In multiple myeloma (MM) patients, the extent of the disease may be difficult to evaluate. Especially, soft tissue plasmacytomas are often difficult to detect although they have a major impact on staging and prognosis [1]. ^{18}F-fluorodeoxyglucose positron emission tomography (^{18}F-FDG-PET) demonstrated focally increased accumulation of ^{18}F-FDG in the left suprascapular and above the left deltoid region, subcutaneously and in the deltoid muscle. Biopsy specimen taken deeply from the deltoid muscle, showed amyloid positive plasmacytoma. A few patients have extramedullary manifestations. These lesions are often difficult to detect but have a major impact on staging and prognosis [1].

The glucose analogue ^{18}F-FDG has the unique ability to reveal nodal and extranodal manifestations of lymphoma in a single examination [1]. The extent of MM may be difficult to assess [2]. Conventional X-rays, the mainstay of diagnostic imaging evaluation for patients with MM, may demonstrate the usual lucent (punched-out) osseous lesions but is unable to demonstrate soft tissue plasmacytomas. Although magnetic resonance imaging (MRI) can be used for this purpose, it may not be able to differentiate between treated lesions and viable neoplastic tissue [3]. It has been shown that bone scintigraphy is inadequate for the detection of all myeloma-associated bone lesions [4].

A 43 years old male, Caucasian, with known MM for the last 6 years, was referred to us for the evaluation of subcutaneous nodules and pain at left shoulder. At the time of diagnosis, he had MM IgG kappa in stage IIA according to the Durie-Salmon staging system. He was treated by chemotherapy, radiotherapy, autologous peripheral blood stem cell transplantation and after relapse he was treated with thalidomide-dexamethasone (T-D). He then complained of left shoulder pain with only limitation of abduction. After 6 months of T-D treatment he felt well, his shoulder movement was improved and his clinical-laboratory signs indicated a plateau phase. This remission continued for only six months and then he relapsed with severe pain and evident multiple painful, subcutaneous, supraclavicular, infraclavicular and also located on the left arm, nodules, of about 2cm each in diameter. His bone marrow biopsy showed necrobiotic changes without any plasma cell infiltration. Congo-red staining was negative for amyloid.

^{18}F-FDG-PET scan showed the sites of the above nodules (Figs. 1, 2) and biopsy in the deltoid muscle showed amyloid positive plasmacytoma.

MM accounts for approximately 10% of haematological malignancies and shows a peak incidence during the seventh decade [5]. It is clear that the detection of occult MM lesions is very important for both diagnosis and staging. Bone scintigraphy is considerably less sensitive than X-ray films fot the diagnosis of MM, due to the minimal osteoblastic activity and

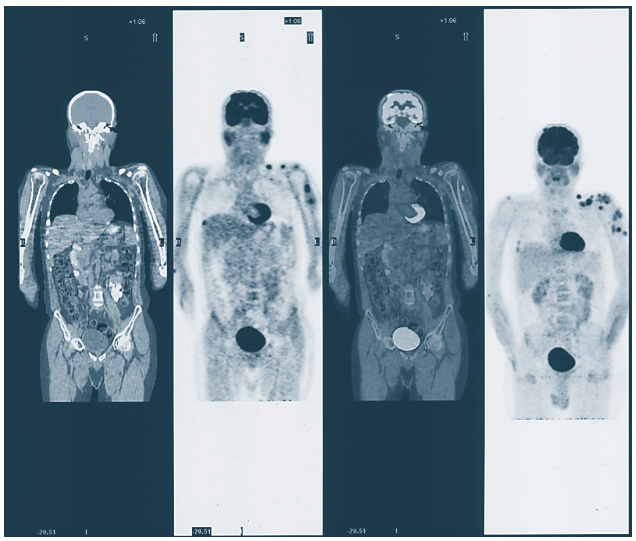

Figure 1. Coronal images of the patient.

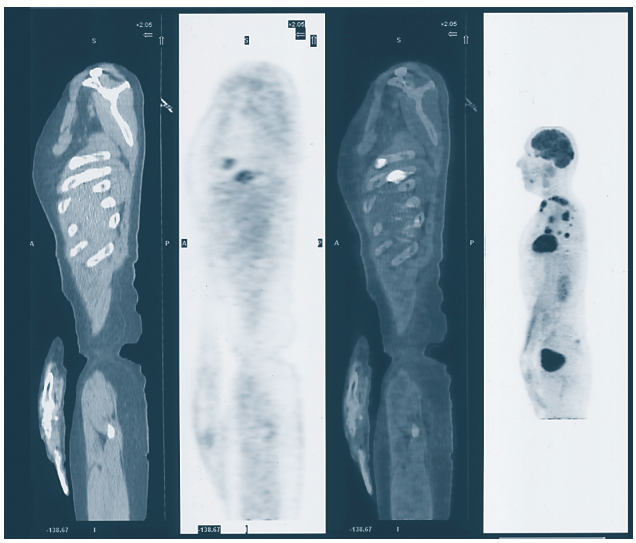

Figure 2. Sagittal images of the patient.

hypovascularity of the lesions. However, scintigraphy with ^{99m}Tc-sestamibi and ^{201}TlCl has been useful in demostrating the extent and activity of the disease [3]. Experience with ^{18}F-FDG-PET is rather limited [3, 6, 7].

Our patient had not residual plasma cells in his bone marrow so it was not possible to have any diagnostic information by trephine biopsy before the ^{18}F-FDG-PET imaging. ^{18}F-FDG-PET imaging revealed a positive biopsy site.

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