

Prognostic significance of tumor burden assessed by whole-body magnetic resonance imaging in multiple myeloma patients treated with allogeneic stem cell transplantation

Jennifer Mosebach,^{1*} Sofia Shah,^{2*} Stefan Delorme,¹ Thomas Hielscher,³ Hartmut Goldschmidt,²
Heinz-Peter Schlemmer,¹ Stefan Schönland,²
Ute Hegenbart^{2*} and Jens Hillengass^{2*}

¹Department of Radiology, German Cancer Research Center, Heidelberg; ²Department of Medicine V, Multiple Myeloma Section, University of Heidelberg and ³Department of Biostatistics, German Cancer Research Center, Heidelberg, Germany

JM, SS, UH and JH contributed equally to this work

©2017 Ferrata Storti Foundation. This is an open-access paper. doi:10.3324/haematol.2017.176073

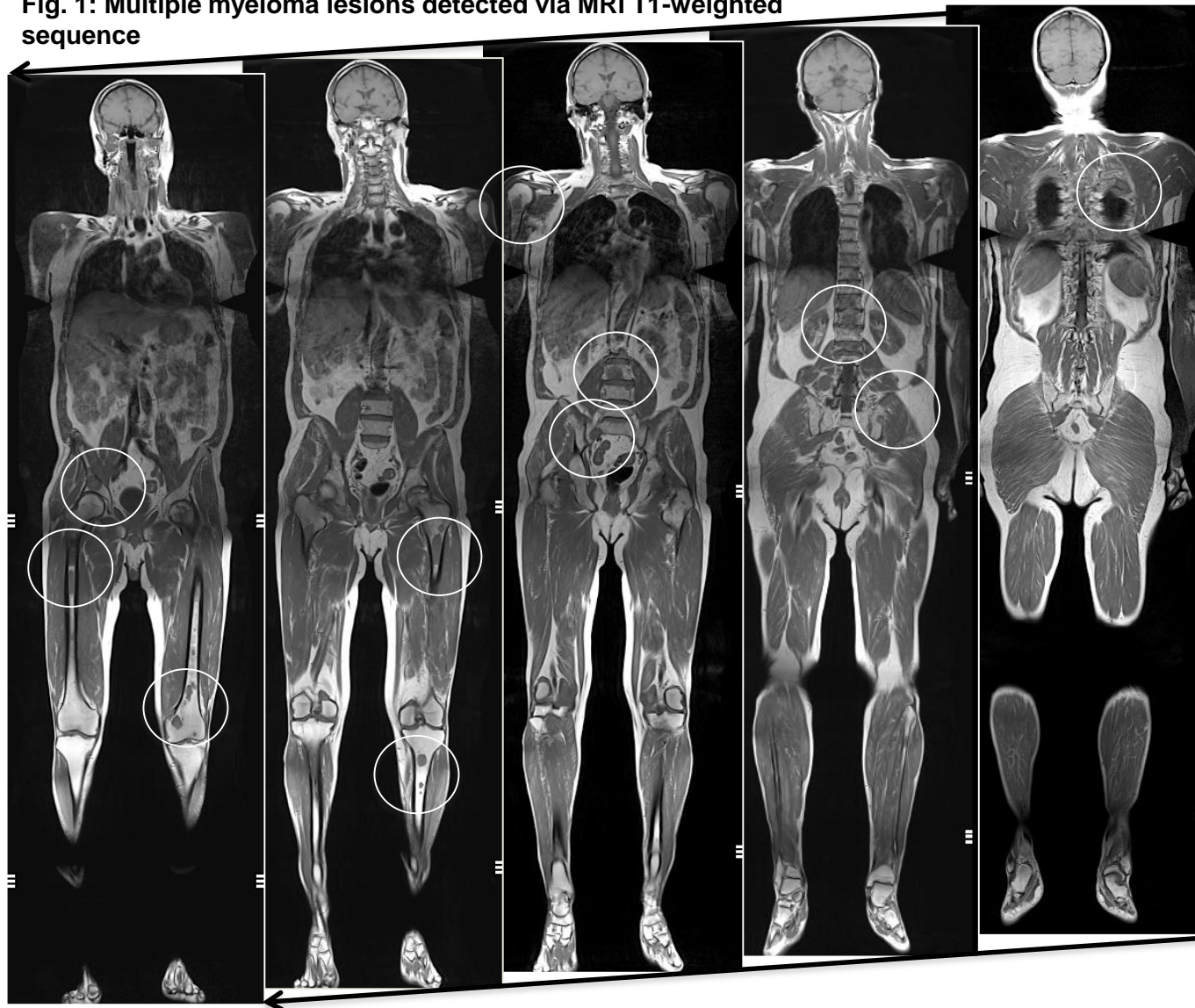
Received: July 11, 2017.

Accepted: December 5, 2017.

Pre-published: December 7, 2017.

Correspondence: j.mosebach@dkfz-heidelberg.de

Fig. 1: Multiple myeloma lesions detected via MRI T1-weighted sequence

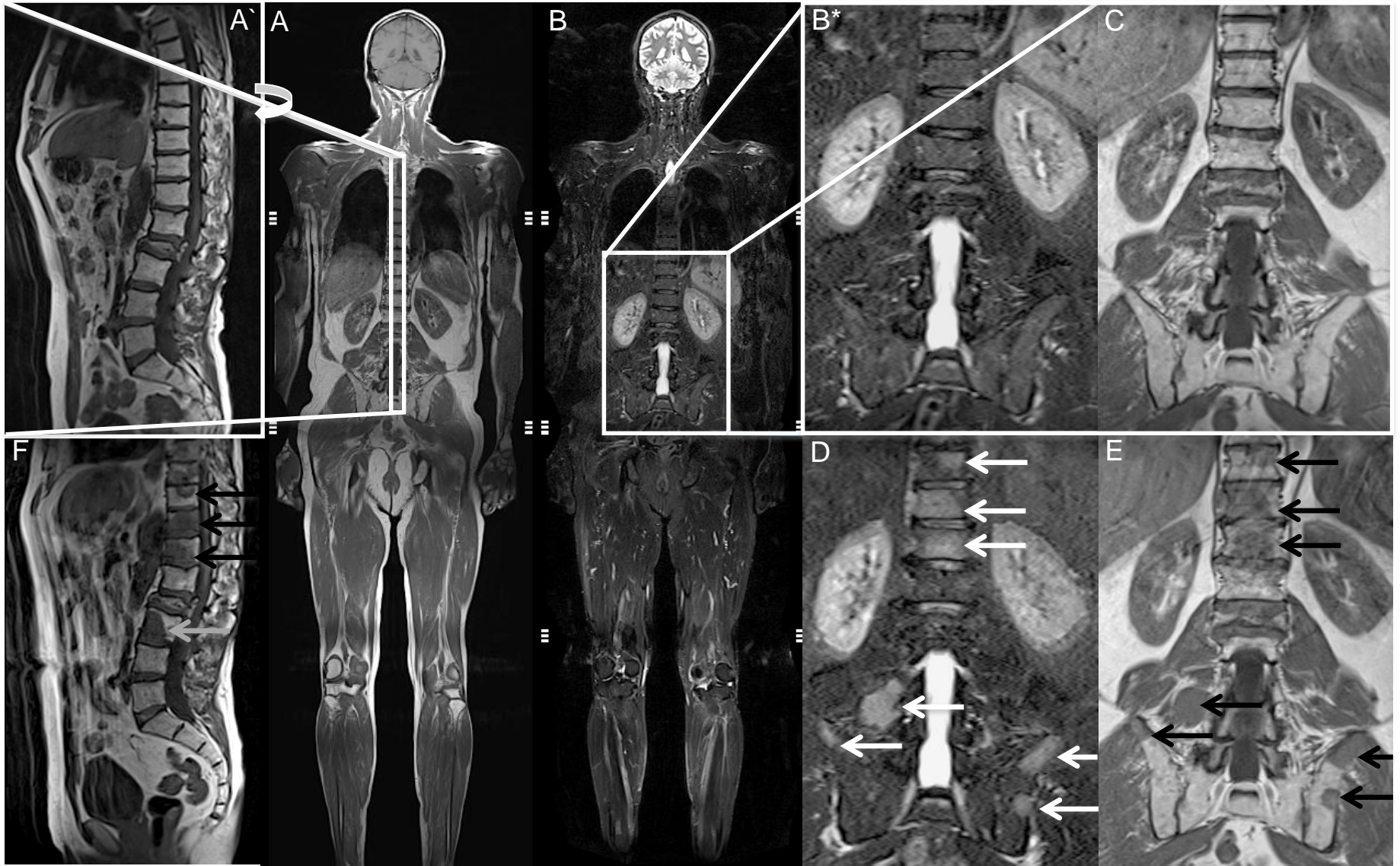


Myeloma infiltrates were diagnosed if they were hypointense in T1w as well as hyperintense in T2w fat-attenuated sequences, and >5 mm in diameter after standardized criteria from Stäbler et al. (AJR Am J Roentgenol., 1996) and Baur et al. (Cancer, 2002).

In the applied protocol coronal T1w- and T2-TIRM as well as sagittal T2w images were acquired (please refer to Table 3). Axial series are not included standardly, but in case of cortical destruction and suspected spinal compression. Artefacts, degenerative or other benign changes were not included. Lesions which could not clearly be defined as suspicious were not counted.

Coronal whole-body images showing multifocal T1w-hypointense multiple myeloma lesions, which in this patient were located in the tibia, femur, pelvis, vertebrae, humerus, and left ribs.

Fig. 2: Progressive disease



Coronal whole-body MRI with T1-w (A) and T2-TIRM sequences (B) of a 60-year old male patient; (B*) shows magnification of pelvis and spine; (C) corresponding magnified image of T1-w image at the same date proves normal bone marrow. (D) and (E) depict focal progression in follow up after alloSCT (black and white arrows). Sagittal T1w- image at follow-up (F) confirms spine lesions, whereas at baseline exam only pre-existing compression fracture of L2 was seen (A'). Lesions were not counted if they lay in locations typical for degenerative changes.