Multiple Myeloma: Lytic Bone Lesions of the Skull

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A 77-year-old woman with a 1 years history of Multiple Myeloma (MM) presented with headache, fatigue, and bone pain. She underwent whole body multi-detector computed tomographic (MD-CT) to evaluate possible lytic bone lesions. MD-CT showed small, multiple osteolytic lesions, particularly at the skull level (Figure 1, 2).

MM is a plasma cell disorder. It is characterized by the monoclonal proliferation of malignant plasma cells [1,2]. These cells, among their various characteristics, determine an infiltrate haemopoietic locations [1]. Pathogenesis of MM related bone disease is the uncoupling of the bone remodelling process. There is an increased activity of osteoclastogenesis with the suppressed osteoblastic one, resulting in bone loss [1-3]. This process creates lytic lesions without reactive bone formation [2]. Bone disease could be from single lytic lesion to multiple lytic lesions affecting any part of skeleton, preferably skull, spine and long bones [3]. MD-CT, with dedicated low-dose protocols, is able to provide whole body skeletal volume information with a greater sensitivity than conventional X-ray studies in MM patients [3]. Whole body CT with low-dose protocols can detect lesions with less than 5% trabecular bone destruction, and it is the first-line diagnostic imaging procedure for the diagnosis of lytic bone disease in patients affected by MM [4].

When skull is involved, its most common MD-CT presentation is by numerous, well-circumscribed and punched-out lytic bone lesions, without reactive bone formation and diffuse osteopenia [1-5], as in the case presented.

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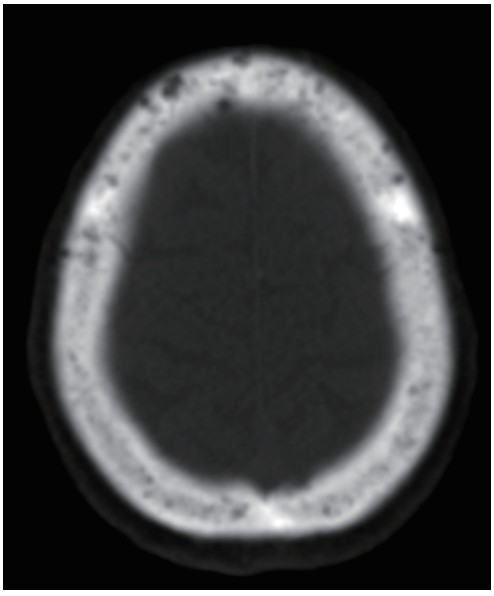

Fig. 1. Multi-detector computed tomographic axial image (bone window) at the level of the skull vault that demonstrates small, round, multiple, well-circumscribed lytic bone lesions and diffuse osteopenia.

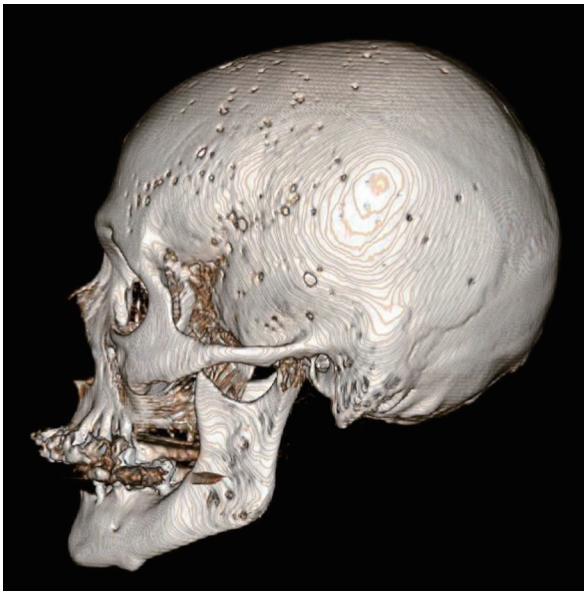

Fig. 2. Multi-detector computed tomographic sagittal Volume Rendering Technique (VRT) image reconstruction of the head that confirms small, round, multiple, well-circumscribed punched-out lytic bone lesions varying in shape and size at the level of skull and mandible.

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