A rare presentation of multiple myeloma: Tc-99m MIBI SPECT imaging of orbital involvement

Multiple myeloma (MM) is a plasma cell malignancy often associated with destructive skeletal lesions. Apart from calvarial infiltration, intracranial structures are very rarely involved by MM. Here we present the case of an extremely rare presentation of MM with orbital involvement. The case of a 57-year-old male presenting with proptosis, pain and redness in the left eye. MM had been diagnosed seven years previously. Ophthalmological examination revealed a diffuse swelling in the left periorbital and temporal region, pain, redness, proptosis and prominent limitation of left eye movements and bilateral optic disc oedema. Gadolinium–DTPA enhanced axial MR image (Fig 1) revealed a large myelomatous lesion with well-defined borders in the left frontal bone with associated soft tissue component. The lesion arising within the bone causing marked bony expansion and destruction, it displaces the brain parenchyma. The calvarial mass extends into the orbital compartments (Fig 2, T1-weighted). Tc-99m Sestamibi (MIBI) SPECT imaging (Fig 3, OM: Orbital mass, FM: Frontal mass) showed the increased activity corresponding to myelomatous lesion on left orbit and frontal bone. Histopathologic findings and further systemic examination confirmed the reactivation of the MM. Proptosis and visual acuity improved following external beam radiation therapy of the left orbit and repeated systemic chemotherapy.

Orbital involvement in multiple myeloma is very rare and has been described in the medical literature mainly as case reports of single patients. The incidence of myeloma as an orbital

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tumour represents less than 1% of all orbital tumours [1-2]. Tc-99m MIBI imaging has been reported to be useful for the detection of a variety of tumours, including myeloma. In myeloma, uptake of Tc-99m MIBI reflects both activated mitochondria and the density of malignant plasma cells. Tc99m-MIBI uptake of lesion is related to percentage of plasma cell infiltration [3-7].

References