

MULTIPLE MYELOMA-LIKE SPINAL MRI FINDINGS IN SKELETAL FLUOROSIS: AN UNUSUAL PRESENTATION OF FLUORIDE TOXICITY

Javed Ahsan Quadri,^aSaba Sarwar,^aM Meraj Alam,^bMohd A Ganai,^cTK Das^{a,*}
New Delhi and Guwahati, India

SUMMARY: Endemic fluorosis is a worldwide environmental problem due to excessive fluoride, commonly from due to increased drinking water fluoride levels but sometimes due to other sources such food with a high fluoride content. In India, 21 of the 35 states are known to have health problems associated with fluoride toxicity. The present report is a case of a 50-year-old female who was seen with progressive spinal complications and a MRI of the spine suggestive of multiple myeloma. The MRI of the lumbo-sacral spine showed a diffuse and heterogeneous marrow signal of the lower dorsal and lumbo-sacral vertebrae. The MRI was also suggestive of coarse trabeculation and appeared predominantly hypointense on the T1W image and had a mixed signal intensity on the T2W image. These findings were suggestive of neoplastic bone marrow infiltration and the presence of a proliferative disorder, with multiple myeloma being the most likely. During the patient workup, it was found that other family members were also having similar complications and, after investigation of these family members, it was found that they are suffering from systemic fluorosis. The patient was then evaluated for skeletal fluorosis and this condition was found to be present. Multiple myeloma was ruled out by the finding of a negative serum protein electrophoresis. The spinal complications appeared to be mainly due to the compression of the spinal cord and nerve roots by protruding osteophytes, thickening of the posterior longitudinal ligament, and thickening of the ligamentum flavum resulting in a compressive myeloradiculopathy and compressive myelopathy. The finding of multiple myeloma-like findings on the spinal MRI in association with skeletal fluorosis was considered to be a very rare event. This case report underlines the need to consider the presence of spinal skeletal fluorosis when evaluating spinal complications with unusual pseudo-multiple myeloma-like changes on the spinal MRI.

Key words: Dual-energy X-ray absorptiometry (DXA); Fluorotic myelopathy; Magnetic resonance imaging (MRI); M-protein electrophoresis (MPE); Neoplastic bone marrow infiltration; Spinal fluorosis.

^aDepartment of Anatomy, All India Institute of Medical sciences (AIIMS), Ansari Nagar, New Delhi, India-110029;

^bDepartment of Surgery, Guwahati Medical College and Hospital (GMCH), Guwahati, Assam; ^cDepartment of Endocrinology & Metabolism, All India Institute of Medical sciences (AIIMS), Ansari Nagar, New Delhi, India-110029.

*For correspondence: Professor TK Das, Department of Anatomy, All India Institute of Medical sciences (AIIMS), Ansari Nagar, New Delhi, India-110029, E-mail- drtkdasaiims@gmail.com; Presenting author: Javed Ahsan Quadri, E-mail- javedaiims@gmail.com