

MRI IN SPINAL BONE MARROW REPLACEMENT ISORDERS

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Abstract

Objectives. The paper aims are: to present and illustrate the MRI aspects of the normal and athological bone marrow involving the spine, focusing on MR techniques and interpretation in a precise clinico-biological context of each patient.

Material and methods. The cases included in this study were explored using a 1.5 MRI system in T1-weighted, T2 FSE, STIR, FSE T2 Fat Sat sequences, in sagittal and or coronal plane. Sections made in the axial plane in T2 wi, were centered at the level of the lesion(s). In case of primitive or secondary tumoral lesions we have performed T1-weighted SE sequences Fat Sat pre-/ and post-iv. injection of Gd-BOPTA in multiple planes. In particular cases, we have used T1-weighted sections with a TE in and /out of phase. Imaging features. Normally, the bone marrow shows intermediate signal both on T1-/T2 -/, Stir- weighted images in comparison to paravertebral muscle. Pathological aspects include: diffuse and focal tumor infiltration (leukemia, lymphoma, multiple myeloma, metastasis), that must be differentiate from hyperplasia (reconversion) of the red marrow, bone marrow depletion, supportive tissue pathology (primary and secondary myelofibrosis, Gaucher disease).

Conclusions. MRI is the only imaging method that allows the analysis of the bone marrow. Knowledge of normal signal in different MRI sequences in correlation with the age and the clinico-biological context of the patient is essential for a correct interpretation and detection of different types of diseases involving bone marrow of the spine. In patients with a diffuse T1 hyposignal of the spinal bone marrow the differential diagnosis includes three main entities: conversion, myeloproliferative lesions and pathology of the support structures.

Key words: spinal bone marrow pathologies, tumoral lesions, MRI techniques and findings

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