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Magnetic Resonance Imaging of Accelerated Bone Remodeling

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Abstract

A regional acceleration of bone remodeling may possibly follow biomechanical insults to the bone. This review assesses the literature and clinical arguments supporting the hypothetical association between accelerated bone remodeling and bone marrow edema (BME)-like signal intensity on magnetic resonance imaging. BME-like signal is defined as a confluent ill-delimited area of bone marrow with a moderate decrease in signal intensity on fat-sensitive sequences and a high signal intensity on fat-suppressed fluid-sensitive sequences. In addition to this confluent pattern, a linear subcortical pattern and a patchy disseminated pattern have also been recognized on fat-suppressed fluid-sensitive sequences. These particular BME-like patterns may remain occult on T1-weighted spin-echo images. We hypothesize that these BME-like patterns, with particular characteristics in terms of distribution and signal, are associated with accelerated bone remodeling. Limitations in recognizing these BME-like patterns are also discussed. © 2023. Thieme. All rights reserved.

Author Keywords

bone marrow edema; bone remodeling; bone turnover; magnetic resonance imaging; regional acceleratory phenomenon

Index Keywords

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