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LETTERS TO THE EDITOR

State-of-the-art Musculoskeletal Magnetic Resonance Imaging: Technical Review

To the Editor: I read with great interest the article by Xiao and Yuen.[1] As technology advances, magnetic resonance imaging (MRI) can be performed with higher field strength, more specialised surface coils, and a variety of pulse sequences and post-processing techniques. Nonetheless, these advances can lead to an increased signal-to-noise ratio and soft-tissue contrast and hence artefacts. The article provided practical tips and techniques including ways to reduce artefacts from metallic implants (such as scanning at a lower magnetic field, using a spin-echo protocol, shorter echo time, decreasing slice thickness), and reviewed the differences in short tau inversion recovery and fat-suppressed sequences.

Rapid isotropic three-dimensional imaging can depict anatomy and pathology of ligaments and cartilage. It has potential in imaging obliquely oriented structures such as the scapholunate and lunotriquetral ligaments in the wrist. At our institute, there were instances when additional two-dimensional planning sequences oriented along the oblique planes of each of the scapholunate and lunotriquetral ligaments were required to study their integrity.[2] Other techniques such as traction[3,4] have also been applied to increase the joint distension in order to study cartilage defects in detail. These additional sequences are time-consuming, whereas the excellent spatial resolution of isotropic three-dimensional sequences enables enhanced lesion detection with a shorter imaging time.

The article also highlighted the future in musculoskeletal MRI, including T2/T2* mapping for studying the biochemical properties of cartilage, whole-body diffusion-weighted imaging techniques, and ultrashort echo-time imaging. Indeed, advances in hardware and software have expanded the range of clinical problems amenable to MRI.

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