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A Review of Applications of MRI in Soft Tissue and Bone Tumors

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ABSTRACT: Due to excellent soft tissue contrast and multiplanar imaging capability, MRI is assuming a major role in recognition, staging, and treatment planning of soft tissue and bone tumors. Direct sagittal, coronal, and axial images permit assessment of intraosseous and extraosseous extension of tumors and their relationship to the joints and neurovascular structures, and detection of "skip" lesions. MRI allows improved detection of recurrent tumors in the presence of non-ferromagnetic metallic implants as compared to CT. In the evaluation of soft tissue tumors, MRI is more sensitive than CT and allows differentiation among fat, muscle, tendon, bone, and vascular structures based on signal characteristics. Over a period of 18 months, 100 soft tissue masses and bone tumors were evaluated using MRI. Spin echo sequences with T1 and T2 weighted images were most valuable in differentiating normal and abnormal tissues. Calculated comparative measurements of relaxation times showed no reliable difference between benign and malignant tumors.

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Abstract

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References ▼

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