0.2-Tesla magnetic resonance imaging of internal lesions of the knee joint: a prospective arthroscopically controlled clinical study.

Abstract: The results of magnetic resonance imaging (MRI) were compared with those of arthroscopy in a prospective series of 244 patients. A dedicated system for MRI of limbs and peripheral joints—the 0.2-T Artoscan (Esaote, Italy)—was used for imaging knee joint lesions. T1-weighted spin-echo sagittal images, T2-weighted gradient-echo coronal images, and axial views for lesions of the femoropatellar joint were acquired. Paraxial sagittal and oblique coronal views were obtained for imaging of the cruciate ligaments. This protocol allowed excellent visualization of the cruciate ligaments and medial and lateral meniscus in almost all patients. Compared with arthroscopy performed within 48 h after imaging, the sensitivity, specificity, and accuracy were respectively 93%, 97%, and 95% for tears of the medial meniscus; 82%, 96%, and 93% for tears of the lateral meniscus; 100%, 100%, and 100% for tears of the posterior cruciate ligament; 98%, 98%, and 97% for tears of the anterior cruciate ligament; and 72%, 100%, and 92% for full-thickness articular cartilage lesions. The examination can be performed within 30-45 min at lower cost than diagnostic arthroscopy. MRI with a 0.2-T magnet is a safe and valuable adjunct to the clinical examination of the knee and an aid to efficient preoperative planning.