Osteoarthritis of the knee: Comparison of Radiography, CT and MR Imaging to Assess the Extent and Severity

陳榮邦

Chan WP;Lang Ph;Stevens M;Sack K;Stoller DW;Barsch C;Genant HK

摘要

Abstract

Although conventional radiography is the method most frequently used for monitoring progression of osteoarthritis, it may not show osteoarthritic changes of the knee until late in the disease, and it may show involvement of only one or two compartments in patients who have tricompartmental disease. We compared radiography, CT, and MR imaging for assessing the extent and severity of osteoarthritis of the knee in 20 patients. Radiography included posteroanterior weight- bearing, true lateral, and sunrise patellar projections. Axial CT scans were reformatted in sagittal and coronal planes. MR imaging consisted of spin-echo (600-800/20; 2000/60, 120 [TR/TE]), and gradient-echo (600/30, theta = 30 degrees) sequences. The severity of osteoarthritic changes was graded from 0 to 3. MR frequently showed tricompartmental cartilage loss when radiography and CT showed only bicompartmental involvement in the medial and patellofemoral compartments. In the lateral compartment, MR showed a higher prevalence of cartilage loss (60%) than radiography (35%) and CT (25%) did. In the medial compartment, CT and MR showed osteophytes in 100% of the knees, whereas radiography showed osteophytes in only 60%. Notably, radiography often failed to show osteophytes in the posterior medial femoral condyle. On MR images, meniscal degeneration or tears were found in all 20 knees studied. Partial and complete tears of the anterior cruciate ligament were found in three and seven patients, respectively. MR is more sensitive than radiography and CT for assessing the extent and severity of osteoarthritic changes and frequently shows tricompartmental disease in patients in whom radiography and CT show only bicompartmental involvement. MR imaging is unique for evaluating meniscal and ligamentous disease related to osteoarthritis.