

Figure 1. A. Sagittal slice of a usable scan at 4 months; B. the same patient at 24 months; C. arthrofibrosed joint at 4 months; D. arthrofibrosis has resolved at 24 months.

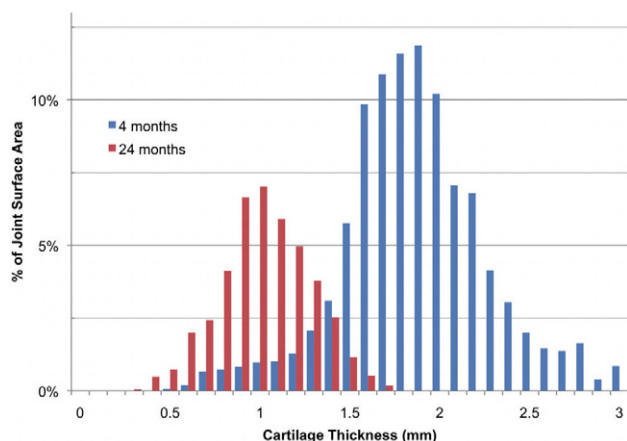


Figure 2. Example case demonstrating global loss of cartilage thickness from 4 to 24 months.

pected with the development of PTOA, cartilage thickness tended to decrease over time (Figure 2), although with modest numbers, no firm statistical conclusions could be drawn.

Conclusions: Although double-contrast MDCT scans have been shown to be better than MRI at quantifying cartilage thickness in intact ankles, our clinical experience indicates that after high-energy articular fractures, ankle cartilage cannot consistently be imaged for reliable quantification. Images could not be quantitatively interpreted in up to 50% of cases. Reasons were both inherent joint pathology (arthrofibrosis) and technical (failed injection, metal artifact). Moreover, some patients would not consent for a second study due to discomfort during the first. We are currently pursuing MRI with metal artifact suppression techniques for this purpose. The early arthrofibrosis that was observed after these high-energy articular fractures merits further study.

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430

CENTRAL VS. CLINIC READING OF KNEE RADIOGRAPHS FOR BASELINE OA IN THE OSTEO-ARTHRITIS INITIATIVE PROGRESSION COHORT: IMPLICATIONS FOR PUBLIC DATA USERS

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Purpose: Studies of knee OA often use a decentralized, clinic-based x-ray reading to screen for OA status and eligibility. Central reading of the x-rays may disagree on OA status compared screening readings, with implications for sample stratification and analysis. In this study, we compare baseline knee OA status from central reading of OAI knee x-rays with that from the clinic screening readings.

Methods: Baseline bilateral PA fixed-flexion knee x-rays were read by one of multiple readers at each of the 5 OAI clinics for definite (OARSI atlas grade ≥ 1) osteophytes (OST) and joint space narrowing (JSN). Clinic readers were trained centrally by teleconference and certified for agreement with standard examples of OST and JSN using a web-based program. Early in recruitment a sample of clinic readings was reviewed centrally by a musculoskeletal radiologist and feedback given on discrepancies. Subjects with an OST and frequent pain in the same knee were assigned to the Progression cohort. As part of an ongoing central reading for progression, baseline knee x-rays of 624 of 1,389 Progression cohort subjects have each been read by 2 expert readers for Kellgren-Lawrence grade (KLG). Disagreements were adjudicated by a panel of 3 readers (including the first 2) with a requirement that 2 of 3 agree on presence/absence of OA, defined as $KLG \geq 2$ (presence of a definite OST). Knees were assigned $KLG=1$ when the presence of osteophytes was uncertain. Films of 43 randomly selected subjects were fed back to the readers; weighted kappa for KLG (0-4) was 0.88 and kappa for $KLG < 2$ vs > 1 was 0.88.

Results: 25% of knees with OA (definite OST) by clinic reading had $KLG < 2$ by central reading; nearly half of these were $KLG=1$. For knees with OST and JSN by clinic reading, 87% had a $KLG \geq 2$, while 53% of knees with OST and no JSN by clinic had OA by the central reading. Based on the central reading, an estimated 17% of subjects in the Progression cohort have $KLG < 2$ in both knees, 8% are bilateral $KLG=0$, and 18% do not have symptomatic OA ($KLG \geq 2$ and frequent pain) in either knee.

Table 1. OA status of knees by clinic reading: N (%) with KLG

Central Reading	No Definite OST (N=210)	Definite OST, No JSN (N=357)	Definite OST and JSN (N=675)	All knees with definite OST (N=1032)
$KLG = 0$	94 (44.8%)	108 (30.3%)	28 (4.1%)	136 (13.2%)
$KLG = 1$	57 (27.1%)	61 (17.1%)	58 (8.6%)	119 (11.5%)
$KLG \geq 2$	59 (28.1%)	188 (52.6%)	589 (87.3%)	77 (7.5%)

Conclusions: OAI screening readings and central reading often disagree on baseline knee OA status, suggesting different thresholds for, or interpretation of, definite OST. Analyses of OAI data requiring knees with a high specificity for definite radiographic OA should select those with OST+JSN by clinic reading or, when central a reading is available, $KLG \geq 2$.