Effect on Patient-Reported Outcome of Debridement or Microfracture of Concomitant Full-Thickness Cartilage Lesions in Anterior Cruciate Ligament-Reconstructed Knees
A Nationwide Cohort Study from Norway and Sweden of 357 Patients with 2-Year Follow-up

Authors: Jan Harald Røtterud, MD\(^1\), Einar Sivertsen, MD, PhD\(^2\), Magnus L. Forssblad, MD, PhD\(^3\), Lars Engebretsen, MD, PhD\(^4\), Asbjorn Arøen, MD, PhD\(^1\)
\(^1\)Akershus University Hospital, Lørenskog, Norway, \(^2\)Martina Hansens Hospital, Bærum, Norway, \(^3\)Capio Artro Clinic, Sophiahemmet, Stockholm, Sweden, \(^4\)Oslo University Hospital Ullevål, Oslo, Norway

Objectives: To evaluate the effect of debridement or microfracture compared with no treatment of concomitant full-thickness (International Cartilage Repair Society [ICRS] grades 3–4) cartilage lesions on patient-reported outcome after ACL reconstruction in a large population-based cohort study.

Methods: 644 patients with a primary unilateral ACL reconstruction and a concomitant full-thickness cartilage lesion treated simultaneously by debridement (n=78) or microfracture (n=88), or receiving no treatment (n=191) of the cartilage lesion, registered in the Norwegian and the Swedish National Knee Ligament Registry during 2005–2008 were included. Knee Injury and Osteoarthritis Outcome Score (KOOS) was used to measure patient-reported outcome. At a mean follow-up of 2.1 years (SD, 0.2) after surgery, 357 (55%) patients completed the KOOS. Linear regression analyses were used to evaluate the effect of debridement or microfracture on KOOS. The multiple regression analyses were adjusted for gender, age, previous knee surgery, time from injury to surgery, concomitant ligament injury, concomitant meniscal lesion(s), type of ACL graft, area of cartilage lesion, ICRS grade of cartilage lesion, location of cartilage lesion and preoperative KOOS scores.

Results: No significant effects of debridement were detected in the unadjusted or adjusted regression analyses on any of the KOOS subscales at 2-year follow-up. Microfracture treatment of the cartilage lesions had significant negative effects at 2 year follow-up on the KOOS subscales Sport/Recreation (regression coefficient [β] = -8.9; 95% CI, -15.1 to -1.5) and Knee-Related Quality of Life (QoL) (β = -8.1; 95% CI, -14.1 to -2.1) in the unadjusted analyses. When adjusting for confounders, microfracture had significant negative effects on the same KOOS subscales, Sport/Recreation (β = -9.1; 95% CI, -16.9 to -1.2), and QoL (β = -7.3; 95% CI, -13.7 to -0.9). For the remaining KOOS subscales Pain, Symptoms and Activity of Daily Living (ADL) there were no significant unadjusted or adjusted effects of microfracture.

Conclusion: Microfracture of concomitant full-thickness cartilage lesions showed adverse effects on patient-reported outcome at 2-year follow-up after ACL reconstruction. Debridement of concomitant full-thickness cartilage lesions showed neither positive nor negative effects on patient-reported outcome at 2-year follow-up after ACL reconstruction.