

Microfracture Technique vs Mosaic Plasty: No Difference in Knee Scores at 5-11 Years Follow Up in a Prospective Randomized Clinical Trial

Svend Ulstein, MD, NORWAY
Asbjørn Årøen, MD, PhD, NORWAY
Jan Harald Røtterud, MD, NORWAY
Sverre Løken, NORWAY
Lars Engebretsen, MD, PhD, NORWAY
Stig Heir, MD, PhD, NORWAY

Martina Hansens Hospital
Baerum, NORWAY

Summary:

Microfracture technique vs Mosaic plasty in a randomized clinical study with 5-11 years follow up, showed no difference in knee scores or X-ray appearance.

Abstract:

Long term results following cartilage repair in the knee show large variations. There are only two studies comparing microfracture technique (Mfx) and mosaic plasty (Mos) with more than 5 years follow up. The purpose of this study was to compare long term functional and radiological results following Mfx and Mos for cartilage defects in the knee.

Twentyfive patients (mean age 32.3 y, SD 7.7) were randomized to either Mfx (n=10) or Mos (n=15) between year 2000 and 2006. Inclusion criteria were isolated cartilage defects in an articulating surface of the femur, ICRS grade III-IV, area 2-4 cm², depth < 1cm (OCD) and Lysholm score < 80. At median 9.8 y follow up (range 4.9-11.4) the patients were evaluated by Lysholm score (n=25), KOOS (n=25) and X-rays using the Kellgren-Lawrence scale for grading of osteoarthritis (n=21). Lysholm score and KOOS at follow up were compared between treatment groups using Mann-Whitney U-test. Changes from baseline to follow up were compared using Wilcoxon signed-rank test. And changes at X-ray according to Kellgren-Lawrence grading were compared between the two groups using Chi-square test.

There were no significant differences between Mfx-treated patients and Mos-treated patients evaluated by Lysholm score or KOOS, neither in the final results at follow up, nor in the changes from baseline to follow up. Mean Lysholm score at follow up was 72.6 (95% CI [57.8-87.4]) for the Mfx group and 61.1 (95% CI [51.4-70.9]) for the Mos group. The overall mean Lysholm score increased significantly from 47.5 at baseline (95% CI [42.2-52.7]) to 65.7 at follow up (95% CI [57.7-73.7]). Kellgren-Lawrence = 2 was detected in 4 of 9 Mfx-patients and in 2 of 12 Mos-patients (p=0.16).

The main weakness of this study is the low number of patients. However, 100% of the patients showed up for a follow up = 4.9 years. This is one of very few studies including randomization between Mfx and Mos and therefore is an important contribution to our knowledge concerning cartilage repair techniques.

Microfracture technique and Mosaic plasty both improved long term knee function evaluated by Lysholm and KOOS, however, there were no significant differences between the two techniques regarding functional scores or radiological appearance.