Prospective Clinical Outcomes Following Microfracture Surgery For Isolated and Multi-Site Defects: Mid-Term Follow-Up

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Introduction
• Cartilage defects remain a prevalent injury of the knee; surgical intervention is offered for symptomatic defects when nonoperative treatment fails
• Microfracture (MFX) offers the advantages of low surgical time, low cost, technical ease, and it is a single stage procedure

Purpose
• Evaluate the functional outcomes of a mixed group of patients undergoing MFX
• Determine which patient and defect related factors are associated with improved outcomes and which factors predict the need for additional surgery

Methods
• Inclusion criteria: Patients age 10-70 years, single or multi-site MFX, and two-year minimum follow-up
• Exclusion criteria: History of rheumatologic disease and/or concomitant procedures that violated the subchondral bone
• MFX surgery was performed using previously described technique¹ and a standardized rehabilitation protocol was followed (Table 2)

Results
• 101 knees (55 males, 46 females)
• Avg age 35.9 +/- 12.52 years
• Avg number of prior surgeries per patient: 0.8
• Avg follow-up: 5.6 +/- 2.54 years
• 72 had isolated MFX, 29 had concomitant procedures
• Avg defect size: 2.6cm² +/- 1.81cm²
• Patient Reported Outcomes (PROs):

Results
• Higher BMI resulted in decreased magnitude of improvement
• Males showed greater magnitude of improvement compared to females
• Multi-site MFX showed reduced improvements and reduced post-operative scores compared to single site MFX
• Defects larger than 3.6 cm² had worse outcomes
• Predictors of additional surgery:
  • Defect size (p=0.011)
  • Prior surgery (p=0.018)

Conclusions
• MFX is a successful treatment for cartilage defects in the mid-term
• Patients had statistically significant and clinically meaningful functional improvements
• Males and lower BMI patients may demonstrate greater improvements
• Isolated defects and those smaller than 3.6 cm² may be optimal for MFX
• Concomitant procedures do not alter the outcome of MFX; however, history of prior surgery predicts need for additional surgery

Disclosures:

Table 1: Data Acquisition.

<table>
<thead>
<tr>
<th>RAAM 1</th>
<th>RAAM 2</th>
<th>GARS</th>
<th>SMI</th>
<th>KOOS</th>
<th>SF-12</th>
<th>Lysholm</th>
<th>IKDC</th>
<th>NOS</th>
<th>statistically significant improvement of all PRO scores aside from SF-12 Mental (p = 0.07)</th>
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<tbody>
<tr>
<td>A</td>
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<td>Preoperative Evaluation</td>
<td>Postoperative Evaluation</td>
<td>Follow-up</td>
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Table 2: Postoperative rehabilitation protocol followed for all patients.

<table>
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<tr>
<th>Magnitude of Change</th>
<th>Clinically meaningful improvement of all PRO scores that have a known minimally clinically important difference (MCID) or minimal detectable change (MCD) – Lysholm, IKDC, KOOS</th>
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<tbody>
<tr>
<td>Change in PRO Score</td>
<td>MCID/MCD if available</td>
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References:


⁵Other financial or material support: Zimmer: Paid consultant.