Survivorship After Meniscal Allograft Transplantation According To Articular Cartilage Status

Jun-Gu Park, Seong-Il Bin, Jong-Min Kim, Bum Sik Lee

- Department of Orthopaedic Surgery, Asan Medical Center,
- University of Ulsan, College of Medicine, Seoul, Korea
Disclosure

All authors have no financial conflicts to disclose.
Introduction

Traditionally, to achieve good outcomes, MAT is indicated for symptomatic meniscectomized knees with intact articular cartilage.

Clinical outcomes after meniscal allograft transplantation (MAT) in arthritis knees are unclear.

Objective estimates of graft survival according to the articular cartilage status have not been performed.
Purpose

• We compared *graft survivorship* between low-grade and high-grade chondral lesions by using MRI and/or second-look arthroscopic surgery, in addition to clinical graft survivorship, which was determined by poor functional scores.
Hypothesis

- We hypothesized that the clinical success rate would be comparable between the groups but that graft survivorship would be poorer in knees with high-grade chondral damage.
Materials & Methods

- Period: 2008 ~ 2013,
- Patients: 222 patients who underwent primary MAT by a single senior surgeon
  - Medial meniscus: double bone plug technique
  - Lateral meniscus: Keyhole technique
- Clinical outcomes; modified Lysholm scores
  - Poor (<65) Defined as Clinical failures
- Objective evaluations; MRI and 2nd look A/S
  - Meniscal tear or meniscectomy of greater than 1/3 of the allograft → Graft failure
## Materials & Methods

Comparing clinical outcomes and graft survivorship between 3 Groups

<table>
<thead>
<tr>
<th>3 Groups</th>
<th>According to the degree and articular cartilage degeneration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal indication</td>
<td>ICRS grade $\leq 2$ on both femoral and tibial sides</td>
</tr>
<tr>
<td>Relative indication</td>
<td>ICRS grade $\geq 3$ on either femoral or tibial sides</td>
</tr>
<tr>
<td>Salvage indication</td>
<td>ICRS grade $\geq 3$ on both sides</td>
</tr>
</tbody>
</table>
Results

- **Overall clinical outcomes (mean 44.6 ± 19.7 mo)**
  - Lysholm scores; 63.1 ± 15.1 → 85.1 ± 14.3 (P < 0.001)
  - No difference between the 3 groups(P = 0.877)
    - Ideal group; 85.7 ± 14.2 / Relative group; 84.7 ± 17.0 / Salvage group; 84.7 ± 14.2

### Clinical Evaluation

<table>
<thead>
<tr>
<th>ICRS Grade Category</th>
<th>No. of Patients</th>
<th>Clinical Failure, n (%)</th>
<th>Estimated Cumulative 5-y Survival Rate, %(95% CI)</th>
<th>Graft Failure, n (%)</th>
<th>Estimated Cumulative 5-y Survival Rate, %(95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low grade on both sides</td>
<td>87</td>
<td>6 (6.9)</td>
<td>91.1 (83.3-98.9)</td>
<td>5 (5.7)</td>
<td>93.8 (88.5-99.1)</td>
</tr>
<tr>
<td>High grade on either side</td>
<td>74</td>
<td>10 (13.5)</td>
<td>82.0 (71.4-92.6)</td>
<td>6 (8.1)</td>
<td>90.9 (81.1-100.0)</td>
</tr>
<tr>
<td>High grade on both sides</td>
<td>61</td>
<td>3 (4.9)</td>
<td>93.5 (86.4-100.0)</td>
<td>14 (23.0)</td>
<td>62.2 (41.6-82.8)</td>
</tr>
<tr>
<td>Overall</td>
<td>222</td>
<td>19 (8.6)</td>
<td>88.3 (82.8-93.8)</td>
<td>25 (11.3)</td>
<td>83.5 (75.9-91.1)</td>
</tr>
</tbody>
</table>

*a Low grade = International Cartilage Repair Society(ICRS) grade 0,1, or 2; high grade = ICRS grade 3 or 4.*
Results

No Different Clinical Survivals

Significant Lower Graft Survival

End-point
Clinical failure ( Lys < 65 )
Graft failure ( Tears > 1/3 )

—— Ideal ; Low-Gr
—— Relative ; Unipolar High-Gr
—— Salvage ; Bipolar High-Gr
Conclusions

• Our findings showed that MAT was an effective symptomatic treatment in knees with advanced bipolar chondral lesions.

• However, better graft survival can be expected when articular cartilage is intact or if chondral damage is limited to a unipolar lesion.
Conclusions

• MAT should be considered before the progression of chondral damage to a bipolar lesion for better graft survivorship and should be performed cautiously in arthritic knees.
References


