Winter SKS
2018 Shoulder, Knee, and Sports Meeting

Honesty, Does Any of this Work to Preserve the Knee?

February 24, 2018 (Saturday) 8:10 am
Snowbird, Utah

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Disclosure of Conflicts of Interest

James L. Carey MD, MPH

Vincell Corporation
AbbVie
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The American Journal of Sports Medicine
International Cartilage Repair Society

Field Consultant
Research Support
Research Support
Editor/Managing Board
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AAOS
Evidence at that Point

Osteochondritis Dissecans of the Knee
Long Term Results of Excision of the Fragment

Rick W. Wight, MD, Matthew McLean, MD, Matthew J. Heaton, MD, and Robert A. Skelly, MD

Only six of 17 patients (35%) had a good or excellent result. Eleven of 17 (65%) had a fair or poor result.

n=30 knees
Mean age 26 years
Mean follow-up 8.9 years

Evidence at that Point

Osteochondritis Dissecans of the Femoral Condyles
Long-term Results of Excision of the Fragment

Mark F. Anderson, MD, and Michael J. Papros, MD

The short-term results of excision are good, but the long-term results are extremely poor.

n=27 knees
Mean age 21 years
Mean follow-up 9.0 years
Long-term Project 1

High Rate of Osteoarthritis After Osteochondritis Dissecans Fragment Excision Compared With Surgical Restoration at a Mean 16-Year Follow-up

Thomas L. Sanders, MD, Ayush Pareek, BS, Mitchell R. Obey, BA, Nicholas R. Johnson, BS, James L. Carney, MD, MPH, Michael J. Stuart, MD, and Aaron J. Krych, MD

Investigation performed at Mayo Clinic, Rochester, Minnesota, USA

The American Journal of Sports Medicine, Vol. 45, No. 8
DOI: 10.1177/0363546517760684
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Methods
Surgical procedures defined as:
– Palliative (fragment excision)

– Restorative (drilling, fixation, or osteochondral allograft or autograft)

Outcomes Measured
– Arthritis
  Symptomatic arthritis defined as symptoms severe enough to seek care from a physician and required radiographs demonstrating degenerative changes.

– Arthroplasty
  Progression to Total Knee Arthroplasty (TKA) or Unicompartmental Knee Arthroplasty (UKA).
Patient Characteristics

- 221 patients included
  - 157 Males: 64 Females
  - Mean Age: 26.1±13.6
  - Mean follow-up: 16.3±11.4 years
  - Lesion location:
    - MFC (82%)
    - LFC (14%)
    - Patella (3%)
    - Trochlea (1%)

Treatments

- 131 (59%) patients received fragment excision
- 90 (41%) patients received restorative treatment:
  - 34 (15%) lesion drilling
  - 49 (22%) fragment fixation
  - 7 (3%) osteochondral autograft/allograft

Kaplan-Meier Survival Analysis: Arthritis

Patients in the palliative group progressed to arthritis at a significantly higher rate than patients in the restorative group (p=0.03)
Patients in the palliative group underwent arthroplasty at a significantly higher rate than patients in the restorative group (p=0.02).

Limitations

- Certain current "state-of-the-art" procedures of markedly underrepresented or non-represented
  - 7 osteochondral autograft/allograft
  - 0 autologous chondrocyte implantation with or without bone grafting

ACI Systematic Review
with Mayo Clinic (Long-term Project 2)

Clinical Paper

Long-Term Outcomes after Autologous Chondrocyte Implantation: A Systematic Review at Mean Follow-Up of 11.4 Years

Ayoosh Parsee', James L. Carey', Patrick J. Reardon', Lars Peterson', Michael J. Stuart', and Aaron J. Krysch'
ACI Systematic Review with Mayo Clinic

- Nine studies with a total of 771 patients
- Mean of 11.4 years of follow-up
- Mean defect size 6 cm squared

ACI Systematic Review with Mayo Clinic

Successful outcomes in 82% of patients at long-term follow-up
Reoperation rate was 37%
Increased age and lesion size (>4.5 cm squared) were significantly correlated with increased risk of reoperation and failure.
Long Term Outcomes of Osteochondral Allograft Transplantation

Do Fresh Osteochondral Allografts Successfully Treat Femoral Condyle Lesions?

Yadie D. Lucy MD, Simon Grote MD,
Patricia S. Palls RN, Julie C. McCoy MPH,
William D. Hughes MD


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Long Term Outcomes of Osteochondral Allograft Transplantation

- Graft survivorship of 82% at 10 years
- Reoperation rate was 47%
- Increased age (>30 years) and having two or more previous surgeries were significantly correlated with increased risk of failure.

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Long Term Project 3 (Current Study)

ACI by Dr. Peterson in Sweden

- Minimal follow-up: 10 years
- Patient-oriented outcome measures
  - Lysholm
  - Tegner
  - Brittberg-Peterson
  - KOOS
  - Marx activity level (post-operative only)
- Failures – arthroplasty or revision ACI
ACI for OCD Project with Dr. Peterson in Sweden

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ACI for OCD Project with Dr. Peterson in Sweden

• 55 of 59 patients (93%) responded
• Follow-up duration: range 10 to 25 years
• Median follow-up was 19 years

Arthroscopy after ACI (including 2nd looks per study protocol)

<table>
<thead>
<tr>
<th>None</th>
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<tbody>
<tr>
<td>Once</td>
<td>22</td>
</tr>
<tr>
<td>Twice</td>
<td>6</td>
</tr>
<tr>
<td>More than twice</td>
<td>8</td>
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ACI for OCD Project with Dr. Peterson in Sweden

• 47 patients (86%) would undergo ACI again if in the same situation
• Mean KOOS Pain scores at most recent follow-up were 79

Other surgery after ACI

| Revision ACI | 9 |
| Osteotomy | 3 |
| Microfracture | 2 |
| Arthroplasty | 2 |
| Meniscus allograft transplantation | 1 |
Summary

• Long-term follow-up study supports restorative treatments over palliative treatments
• Specifically, patients with OCD that undergo ACI seem particularly satisfied. 86% would undergo ACI again if in the same situation.
• Only 2 knees (~3%) out of 63 knees underwent arthroplasty at median 19-year follow-up.

Thank you