Arthroscopic Circumferential Acetabular Labral Reconstruction using Fascia Lata Allograft; One-Year Patient-Reported Outcomes

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Disclosure

- I have the following financial relationships to disclose:
  - Consultant: Arthrex, Stryker
Background

- As discussed in previous talk, several studies have shown improved biomechanical stability, decreased friction and decreased load to articular cartilage with intact labrum or reconstruction when compared with resection.

- Promising clinical results in small series—particularly in patients without osteoarthritis
Background

• Personal experience
  o Disappointed with my own non-reconstruction revision hip experience in practice
  o Transitioned to doing more primary reconstructions
Background

• Personal experience
  o Technique evolved substantially with longer and longer grafts showing better and better results
    • More stability
    • Elimination of pain generators
    • No weak junction points
  o January 2014 developed a robust infrastructure for data collection on current technique
  o Current study reflects those patients available for 1 yr follow-up at time of abstract deadline
Labral Recon Technique
Materials and Methods

- Retrospective review of prospectively collected data
- Single surgeon
Materials and Methods

• 46 patients consecutive patients undergoing circumferential labral reconstruction (RECON)
  o Moderate to severe labral damage
  o Included patients with
    • Segmental defects
      o Failed repairs
      o Failed debridements
    • Severe pincer deformities
    • Ossified labra
    • Intercalated os acetabuli/acetabular rim fractures

• 61 patients consecutive patients undergoing labral repair (REPAIR)
  o Minimal to moderate labral damage
Materials and Methods

- Intraobserver reliability assessment performed to assess accuracy of complexity of tear determination
- Groups compared using two-tailed, unequal sample size and unequal variance independent sample Student’s t-test with regards to continuous demographic and 1-year outcome data
- Pearson’s chi-squared test employed for categorical data
- P-value of less than 0.05 determined to be statistically significant
Results

• Follow-up obtained for 41 of 44 eligible RECON patients, for 91% follow-up rate
  o One RECON patient excluded after subsequent THA
  o One RECON patient excluded after core muscle injury procedure

• Follow-up obtained for 51 of 60 eligible REPAIR patients for 85% follow-up rate
  o One REPAIR patient excluded after subsequent THA
Results

• Severity of labral damage evaluated in separate sidearm study of 20 patient videos not involved in current study

• Videos were evaluated by surgeon one week apart

• Kappa value = 0.66 indicating moderately good reliability
# Cohort Comparison

<table>
<thead>
<tr>
<th>Table 1: Patient Characteristics</th>
<th>Repairs</th>
<th>Reconstructions</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, $\mu \pm $ Std. Err</td>
<td>30.36 ± 1.60</td>
<td>42.55 ± 1.94</td>
<td>2.82E-6*</td>
</tr>
<tr>
<td>Sex, n</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>19</td>
<td>11</td>
<td>0.326†</td>
</tr>
<tr>
<td>Female</td>
<td>42</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Procedure, n</td>
<td></td>
<td></td>
<td>0.0001†</td>
</tr>
<tr>
<td>Primary</td>
<td>49</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Revision</td>
<td>2</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Complexity of Tear, n</td>
<td></td>
<td></td>
<td>2.96E-15†</td>
</tr>
<tr>
<td>Mild</td>
<td>28</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>23</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>0</td>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>

* = Independent sample student’s t-test  
† = Pearson’s chi-squared test
## Cohort Comparison

<table>
<thead>
<tr>
<th></th>
<th>CAM Osteoplasty n (%)</th>
<th>Pincer Osteoplasty n (%)</th>
<th>Excision Acetabular Rim Fx n (%)</th>
<th>Gluteus Medius Repair n (%)</th>
<th>Osteoplasty AIIS n (%)</th>
<th>Osteoplasty Lesser Trochanter n (%)</th>
<th>Osteoplasty Fovea n (%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLR</td>
<td>38 (95)</td>
<td>28 (70)</td>
<td>7 (17.5)</td>
<td>1 (2.5)</td>
<td>9 (22.5)</td>
<td>1 (2.5)</td>
<td>1 (2.5)</td>
<td>0.015</td>
</tr>
<tr>
<td>REP</td>
<td>39 (76.5)</td>
<td>19 (37.3)</td>
<td>1 (2)</td>
<td>1 (2)</td>
<td>2 (4)</td>
<td>1 (2)</td>
<td>0 (0)</td>
<td>0.002</td>
</tr>
<tr>
<td>p-value</td>
<td>0.009</td>
<td>0.009</td>
<td>0.862</td>
<td>0.862</td>
<td>0.007</td>
<td>0.256</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cohort Comparison

• Mean age in RECON cohort (42.55 yrs) was significantly higher than in REPAIR cohort (30.36 yrs) (P=0.0000028)
Cohort Comparison

Complexity of Tear: REP Cohort

- Mild: 28
- Moderate: 23
- Severe: 8

Complexity of Tear: CLR Cohort

- Mild: 32
- Moderate: 8
- Severe: 32
Results

Table 2. Outcomes at 1-Year Follow-up

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>ΔRepairs μ ± Std Err</th>
<th>ΔReconstructions μ ± Std Err</th>
<th>p-value</th>
<th>power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain VAS</td>
<td>-1.91 ± 0.35</td>
<td>-2.74 ± 0.39</td>
<td>0.116</td>
<td>0.651</td>
</tr>
<tr>
<td>HOS-ADL</td>
<td>16.84 ± 2.36</td>
<td>22.50 ± 4.23</td>
<td>0.302</td>
<td>0.766</td>
</tr>
<tr>
<td>HOS-SSS</td>
<td>28.71 ± 4.25</td>
<td>27.19 ± 4.84</td>
<td>0.813</td>
<td>0.944</td>
</tr>
<tr>
<td>mHHS</td>
<td>16.59 ± 2.51</td>
<td>19.24 ± 3.31</td>
<td>0.523</td>
<td>0.902</td>
</tr>
<tr>
<td>IHOT-12</td>
<td>26.81 ± 3.44</td>
<td>28.09 ± 4.52</td>
<td>0.822</td>
<td>0.944</td>
</tr>
<tr>
<td>SF-12</td>
<td>9.52 ± 1.49</td>
<td>9.03 ± 1.71</td>
<td>0.828</td>
<td>0.945</td>
</tr>
</tbody>
</table>

• No significant difference between RECON and REPAIR for HOS-SSS, mHHS, IHOT-12, or SF-12 (Power > 0.9)
• RECON cohort showed improved outcomes for Pain VAS, HOS-ADL, mHHS, and IHOT-12 when compared to REPAIR cohort
Results

IHOT-12

Pre-Op: 46.0
Post-Op: 66.0
Delta: 20.0

mHHS

Pre-Op: 60.0
Post-Op: 80.0
Delta: 20.0
Results
Results

Pain VAS

SF-12
Conclusions

- Patient demographics were significantly less favorable in patients undergoing reconstruction:
  - 12 yrs older
  - 35% revisions in RECON group vs. 3.9% revisions in REPAIR group
  - More severe labral damage or defect
Conclusions

• Short term results of Circumferential Labral Reconstruction approximate those of patients undergoing labral repair for more modest labral damage at one-year follow-up.
Conclusions

• Circumferential labral reconstruction may be a viable option for treatment for patients with moderate or severe labral damage
References


Thank You