Reliability Of Three Different Arthroscopic Classifications For Chondral Damage Of The Hip. A Prospective Multicenter Study.

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ISHA annual scientific meeting 2014- Rio do Janeiro, Brazil.
Disclosure
Introduction

• Increase in hip arthroscopies due to a better understanding of FAI.
• Morphologic conflict present in FAI leads to articular cartilage lesions mainly in the anterior-superior acetabular rim.
• Presence of articular cartilage damage is a bad prognostic factor and it is believed that can lead to early osteoarthritis and hip joint replacement.


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Introduction

• In order to properly describe these chondral lesions, we need a reliable chondral damage classification that:
  
  – would allow us to determine which characteristics have prognostic value and help to guide the treatment.
  
  – would help in the comparison of results from different cartilage repairing surgical techniques.


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The purpose of this study is to report the intra and interobserver reliability of three chondral damage classifications used to assess articular cartilage damage during hip arthroscopy.
Methods

• Prospective multicenter study. Clinica Alemana de Santiago, St Vincent’s Hospital Melbourne.
• April and May 2013.
• Inclusion criteria: Hip arthroscopy with presence of chondral injury.
• Exclusion criteria: Previous hip surgery, radiologic OA (Tonnis >2) trauma, infection, tumour and inflammatory conditions of the hip.

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Methods

• Recordings obtained in a standardized way by 3 surgeons with vast experience:
  – Two portals were established and recordings were done from anterior, anterolateral or anterior paratrochanteric portal.
  – Peripheral view and focus on the lesion from a closer view. Also, palpation of the chondral injury and surrounding structures with a hook probe, looking for cleavages, softening, debonding, a wave sign, and areas of full thickness chondral loss.

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Methods

Recordings were edited independently by one of the authors who didn’t participate in the surgeries (TA).

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Methods

- Four fellowship trained orthopaedic surgeons independently analyzed 40 recordings two times in randomized order and 4 months apart.
- Classified the lesions according to the Outerbridge, Beck and Haddad classifications.
- Values obtained were used for interobserver and intraobserver analysis. Percentage of agreement and weighted Cohen k values were calculated. The k values were classified as described by Landis and Koch.
## Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outerbridge</td>
<td>Easy to use, simple and reproducible. Widespread among orthopaedics and used to classify hyaline cartilage damage in every joint</td>
<td>Not designed specifically for hip. Difference between type II and III is related to diameter rather than depth or severity.</td>
</tr>
<tr>
<td>Beck</td>
<td>Developed for chondral injuries in the hip joint based on hips which had FAI.</td>
<td>Based on findings during surgical dislocation of the hip, not hip arthroscopy.</td>
</tr>
<tr>
<td>Haddad</td>
<td>Developed for chondral lesions encountered during arthroscopic hip surgery. Takes into account the progressive nature of the development of these lesions</td>
<td>Not widespread. Has not been assessed apart from the original publication.</td>
</tr>
</tbody>
</table>
## Results Interobserver

### Absolute agreement:
- 5 out of 40 cases (12.5%) for Outerbridge.
- 8 out of 40 (20%) for Beck.
- 16 out of 40 (40%) for Haddad.

<table>
<thead>
<tr>
<th></th>
<th>K value range (combinations between reviewers)</th>
<th>Average K value</th>
<th>Interpretation according to Landis and Koch criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outerbridge</td>
<td>0.09 to 0.45</td>
<td>0.28</td>
<td>Fair</td>
</tr>
<tr>
<td>Beck</td>
<td>0.22 to 0.53</td>
<td>0.33</td>
<td>Fair</td>
</tr>
<tr>
<td>Haddad</td>
<td>0.4 to 0.53</td>
<td>0.47</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

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## Results Intraobserver

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Outerbridge</td>
<td>0.39 to 0.74</td>
<td>0.62</td>
<td>Substantial</td>
</tr>
<tr>
<td>Beck</td>
<td>0.32 to 0.85</td>
<td>0.63</td>
<td>Substantial</td>
</tr>
<tr>
<td>Haddad</td>
<td>0.53 to 0.86</td>
<td>0.68</td>
<td>Substantial</td>
</tr>
</tbody>
</table>

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Our study shows that Haddad´s classification has the best interobserver reliability for arthroscopical assessment of chondral damage of the hip, although it is only moderate. We found no difference in the intraobserver reliability among the three classifications studied.