Prevalence and Clinical Relevance of Injuries Associated with Recurrent Anterior Shoulder Instability

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Disclosure

Dr. Narbona P.A.: I am Consultant for Arthrex

Martinez Gallino R.: I have no financial conflicts to disclose
Olmos M.I.: I have no financial conflicts to disclose
Acosta J.S.: I have no financial conflicts to disclose
Allende G.J.: I have no financial conflicts to disclose

No Potential Conflict of Interest
In this Presentation
Associated Injuries with SHOULDER DISLOCATIONS:

.Osseous: Glenoid / Hill-Sachs
.Labrum: Post / sup
.Chondral
.Rotator Cuff

"These injuries increase with recurrent instability"

*-Nakagwa SOJSM 2014.
*-Gutierrez V, CORR 2012.
PURPOSE

• Primary Purpose:
  To compare the prevalence of secondary injuries in patients treated after first shoulder dislocation vs recurrent instability

• Secondary Purpose:
  To evaluate recurrent rates in these groups.

HYPOTHESIS

There is a correlation between the number of episodes of anterior shoulder dislocation and the appearance of secondary injuries and Increase of Recurrent Rate.
METHODS

- Three groups according to number of episodes pre-op:

  **GROUP A:** 1 episode
  **GROUP B:** 2 to 4 episodes
  **GROUP C:** 5 or > episodes

**Inclusion Criteria**
- Arthroscopic bank repair
- Age >16 and <45 years
- Complete clinical records
- Pre-op MRI

**Exclusion Criteria**
- Previous surgery
- Multidirectional instability
- Labrum repair w/o dislocation
- Open surgery
Injuries Registered

- Bankart
- ALPSA
- HAGL
- Glenoid erosion
- Hill-Sachs
- Capsular Laxity
- Posterior Bankart
- SLAP
- Rotator Cuff injuries

CLINICALLY IMPORTANT INJURIES:
We considered that these injuries could add a surgical procedure to a standard Bankart repair

- Chronic Bony Bankart
- Glenoid erosion
- HAGL
- Hill-Sachs (engaging/off-track)
- Complete Rotator Cuff Tears
METHODS

Recurrence Rate

F-up ≥ 12 months

Statistical Analysis

- One-way ANOVA test: continuous
- Fisher Test or Chi-Square: categorical

$P < 0.05$ statistical significance
# RESULTS

187 patients included

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Num. of dislocations</td>
<td>1</td>
<td>2-4</td>
<td>&gt;5</td>
<td></td>
</tr>
<tr>
<td>N° of patients</td>
<td>58</td>
<td>55</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Media and SD</td>
<td>24.7±6.4</td>
<td>23.8±5.5</td>
<td>26.6±6.8</td>
<td>0.94</td>
</tr>
<tr>
<td>Range</td>
<td>17-42</td>
<td>16-38</td>
<td>16-45</td>
<td></td>
</tr>
<tr>
<td>Male/Female</td>
<td>54/4</td>
<td>52/3</td>
<td>65/9</td>
<td>0.43</td>
</tr>
<tr>
<td>Dominant/Non dom</td>
<td>20/38</td>
<td>17/38</td>
<td>32/44</td>
<td>0.84</td>
</tr>
</tbody>
</table>
### Glenoid Erosion

<table>
<thead>
<tr>
<th>Group</th>
<th>Value</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A (1 ep)</td>
<td>5</td>
<td>8%</td>
</tr>
<tr>
<td>Group B (2 - 4 ep)</td>
<td>8</td>
<td>15%</td>
</tr>
<tr>
<td>Group C (5 o &gt; ep)</td>
<td>23</td>
<td>30%</td>
</tr>
</tbody>
</table>

\[ p < 0.01 \]

### Capsular Laxity

<table>
<thead>
<tr>
<th>Group</th>
<th>Value</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A (1 ep)</td>
<td>4</td>
<td>7%</td>
</tr>
<tr>
<td>Group B (2 - 4 ep)</td>
<td>17</td>
<td>31%</td>
</tr>
<tr>
<td>Group C (5 o &gt; ep)</td>
<td>22</td>
<td>29%</td>
</tr>
</tbody>
</table>

\[ p = 0.02 \]

### Posterior Bankart

<table>
<thead>
<tr>
<th>Group</th>
<th>Value</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A (1 ep)</td>
<td>20</td>
<td>33%</td>
</tr>
<tr>
<td>Group B (2 - 4 ep)</td>
<td>17</td>
<td>38%</td>
</tr>
<tr>
<td>Group C (5 o &gt; ep)</td>
<td>29</td>
<td>38%</td>
</tr>
</tbody>
</table>

### SLAP

<table>
<thead>
<tr>
<th>Group</th>
<th>Value</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>22%</td>
</tr>
</tbody>
</table>

\[ 0.66 \]
### CLINICALLY IMPORTANT INJURIES*

<table>
<thead>
<tr>
<th>N of ep.</th>
<th>1</th>
<th>2-4</th>
<th>5 or &gt;</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRI * yes/no</td>
<td>9/49</td>
<td>18/37</td>
<td>37/37</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td></td>
<td>15%</td>
<td>32%</td>
<td>50%</td>
<td></td>
</tr>
</tbody>
</table>

* clinically relevant injuries that could add a surgical procedure to a standard bankart repair
Recurrence Rate

n = 110, F-up ≥ 12 months (med 33)  

<table>
<thead>
<tr>
<th>N of ep.</th>
<th>1</th>
<th>2-4</th>
<th>5 or &gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrence/Total</td>
<td>3/33</td>
<td>5/29</td>
<td>4/48</td>
</tr>
</tbody>
</table>

P = 0.39

10.9 %
Limitations

- Retrospective
- Glenoid bone loss (< 25%, not further discrimination)
- Selection bias (arthroscopic procedures)
- Short F-up to Evaluate recurrence

Conclusions

- 5 or > episodes: Increase clinically relevant injuries (Bone loss)
- SLAP tears, posterior labral tears similar incidence
- Primary vs recurrent Instability:
  - No difference in recurrence rate (12 months F-up)


