SLAP Lesions in Throwing Athletes: a Novel Repair Method and Outcomes

Kazutomo Onishi, Hiroyuki Sugaya, Norimasa Takahashi, Keisuke Matsuki, Morihito Tokai, Yusuke Ueda, Shota Hoshika, Hiroshige Hamada, Yasutaka Takeuchi

Shoulder and Elbow Service, Funabashi Orthopedic Sports Medicine & Joint Center, Japan

No disclosures for all authors

**Subjects**
- SLAP lesions are frequently seen in throwing athletes and becomes a main cause of internal impingement.
- Although physical therapy correcting scapular dyskinesis is the first choice of treatment, some requires surgical intervention due to their refractory symptoms.
- Currently, most surgeons perform the rigid anterior and postero-superior labrum repair using suture anchors for SLAP detachment.
- Previous studies have reported that complete return is often difficult especially in elite baseball players.
- We do not repair the postero-superior portion, but instead, we are performing procedures that provide space by debridement to reduce internal impingement during the acceleration phase of throwing.
- The purpose of this study was to evaluate the outcomes of our surgical management for SLAP lesions in baseball players.

**Material & Methods**
- Subjects
  - Between January 2006 and May 2014, 77 throwing athletes underwent AS labrum surgeries.
  - Exclusions: PASTA repair, 12 shoulders; lost follow-up, 15 shoulders
  - We analyzed 50 shoulders, including 11 shoulders only with questionnaire survey, with a mean age of 22 years (range, 16-44 years).
  - The mean follow-up period was 28 months (range, 12-51).
- Pathology
  - All patients demonstrated type II SLAP lesion.
  - Concomitant PASTA lesion was observed in 24 shoulders (48%).
- Procedures
  - Debridement alone: 21 shoulders (42%)
  - Debridement & Repair: 29 shoulders (58%)
  - Debridement was solely performed for concomitant PASTA lesions.
- Return to Play
  - Although 1 collegiate pitcher failed to return due to persistent pain, 49 players (98%) could returned to games.
  - Based on subjective assessment of performance level, 72% assessed that their performance returned to the pre-injury level.
  - The mean times to start throwing and to return to the pre-injury level were 3 and 9 months, respectively.

**Results**
- Complete Return Rate

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Complete Return Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debride alone</td>
<td>67</td>
</tr>
<tr>
<td>Debride + Repair</td>
<td>64</td>
</tr>
<tr>
<td>Pitchers (n=32)</td>
<td>75</td>
</tr>
<tr>
<td>Field players (n=10)</td>
<td>67</td>
</tr>
<tr>
<td>Professional (n=12)</td>
<td>67</td>
</tr>
<tr>
<td>Collegiate (n=14)</td>
<td>64</td>
</tr>
<tr>
<td>High school (n=15)</td>
<td>73</td>
</tr>
<tr>
<td>Recreational (n=9)</td>
<td>78</td>
</tr>
</tbody>
</table>

**Discussion**
- Rationale for “rigid” SLAP repair
  - Increased GH Translation in throwers (Fagnani, JRJS,1995; McMahon, JSES, 2004, Burkart, AJSM 2003)
  - Most surgeons prefer ‘rigid repair’ to prevent instability
- Rationale for our procedures
  - If MGHL attachment is intact, SLAP does not affect stability of the GHJ (Kisson, Tihone, ElAttrache et al. JISM, 2008)
  - No patients developed clinical subluxation after labral debridement.

**Conclusion**
- Our procedures can preserve the physiological motion of the superior labrum and eventually restrict normal GH rotation, which is a bit excessive compared to that in non-throwing arm. This might be one of the reason of low return rate, especially in elite level.
- Our procedures can preserve the physiological motion of the labrum. We believe that this resulted in the preferable return rate even in elite players.