ICL #11 - SLAP and Biceps Injury Chair: Klaus Bak

Faculty: Mike Baums, Jiwu Chen, Eugene Ek, Dan Guttmann, Klaus Bak

- Clinical characteristics and imaging of the SLAP tear, Klaus Bak, MD, Senior Consultant, Kysthospitalet, Denmark – 10 minutes
- Anatomy and biomechanics of the superior labrum and the long head of the biceps tendon, Mike Baums, Dorsten Knee Surgery & Shoulder, Germany – 15 minutes
- Controversies in the management of SLAP II tears, Jiwu Chen, Sports Medicine Center, Fudan University Huashan Hospital, China – 15 minutes
ICL #11 - SLAP and Biceps Injury

• Biceps tenotomy or tenodesis? Indications, techniques and prognosis, Dan Guttmann, Director of Shoulder and Elbow Surgery Service, Taos Orthopaedic Institute, New Mexico, USA – 15 minutes

• Treatment of superior labrum anterior-posterior (SLAP) lesions: physiotherapy versus repair versus biceps tenodesis, Eugene Ek – 15 minutes, Clinical Associate Professor, Monash University, Melbourne, Australia

• Cases and discussion – 20 minutes
Clinical characteristics and imaging of the SLAP tear and the Long Head of the Biceps tendon

Klaus Bak, MD, COO
The most important talk of this ICL.....

• ....because a precise diagnostic evaluation is the important base for correct treatment and assessing the prognosis
Disclosures
Klaus Bak, MD

Leadership position/advisory role for: none
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The upper labrum and the long head of the biceps is connected, but...

- In general true SLAP lesions is seen more often in younger patients, whereas pathology of the long head of biceps is more often seen in patients over 50 and related to rotator cuff pathology.

- I don’t believe a true SLAP lesion exists in patients over 50 years meaning that if I see an MRA describing a SLAP tear in a 65 y.o. I will look for another cause of symptoms.
Lesions of the LHB in patients with shoulder pain

Mahirogullari, Chloros, Ferguson, Weisler, Poehling (ESSKA 2008)

- 264/1622 (16 %) shoulder arthroscopies - Habermeyer-Walch classification LHB pathology
- 17 % isolated LHB pathology, 83 % ass w cuff tears

Bak & Malta Hansen (DSSAK 2009, SECEC 2009)

- Of 196 with shoulder pain, 41 (21 %) had LHB-pathology shoulder pain
- 17 % Isolated LHB-pathology, 83 % ass w cuff tears
Clinical findings – SLAP lesion

- Dead arm sensation after
  - A fall on a stretched arm
  - A fall on an adducted arm with axial load
  - Long term overhead activity – peel-back lesion

- Pain and clicking when using the arm overhead
- O’Brien’s test – Active compression test
- Dynamic shear test

In overhead athletes
- Scapular dyskinesis (>90%)
- Kinetic chain dysfunction?
Clinical findings – LHB pathology

• Anterior shoulder pain after an external rotational trauma or after overhead overuse
• Tenderness on palpation in the bicipital groove
• Speed test
• Upper cut test
• Cuff tests positive? (Jobe abd test, Impingement signs, IRLS, Bear hug)
• Instability of the LHB
  • Painful clicking on rotation
• In overhead overuse - Scapular dyskinesis
How precise are the diagnostic SLAP tests?

*Dynamic Labral Shear Test (DLST)*

Sodha et al, AJSM 2017: Clinical Assessment of the Dynamic Labral Shear Test for Superior Labrum Anterior and Posterior Lesions

- The Dynamic Labral Shear Test (DLST) is useful for diagnosing *isolated SLAP lesions* (OR 3.58)
- In patients with *combined SLAP lesions*, the DLST is not as useful for diagnosing SLAP lesions
How precise are the diagnostic tests for detecting SLAP lesions?

• The sensitivity and specificity is low for all SLAP tests in most studies and systematic reviews.

  Dessaur & Magarey, JOSPT 2008
  Karlsson, Clin Sport Med 2010
  Sandrey, J Athlet Train 2013
  Walton & Sadi, Phys Ther Sport 2008
Kibler et al., AJSM 2009: Clinical utility of traditional and new tests in the diagnosis of biceps tendon injuries and SLAP lesions in the shoulder

- Level 2, 325 consecutive patients
- For *biceps disease*, the bear hug and upper cut were most sensitive (0.79 and 0.73, respectively), whereas the belly press and Speed's test were most specific (0.85 and 0.81, respectively)
- The upper cut was most accurate (0.77) and produced the highest positive likelihood ratio (3.38)
- **The combination of the upper cut and Speed's tests were significantly better at detecting biceps lesions (P = .021)**
Kibler et al., AJSM 2009: Clinical utility of traditional and new tests in the diagnosis of biceps tendon injuries and superior labrum anterior and posterior lesions in the shoulder

• For labral injury, the modified dynamic labral shear demonstrated sensitivity of 0.72, specificity of 0.98, accuracy of 0.84, and a positive likelihood ratio of 31.57.

• Labral lesions were best identified by combination of the modified dynamic labral shear and O'Brien's maneuvers (P = .045)
The association of scapular dysfunction, LHB pathology and SLAP tears

- Upper labrum pathology is often associated with scapular dyskinesis (SD) – most often the SD is secondary to structural pathology in the GH-joint
- Scapular dyskinesis with increased internal rotation an anterior tilt of the scapula affects the long head of biceps. Primary SD often results in affection of the LHB
- Primary SD is more susceptible to prevention and correction whereas secondary SD as a result of labral pathology may be less susceptible to non-operative treatment
Effect of surgical labral repair – 17 y.o
1 year physio
Imaging LHB

• X Ray
  – Axillary view - Osteophytes in bicipital groove

• Ultrasound
  – Dynamic stability
  – Synovitis
  – Sensitive & specific for rupture or dislocation

• MRI
  – Instability
  – Associated cuff lesions
The efficacy of ultrasound in the diagnosis of long head of the biceps tendon pathology

JSES 2006

Armstrong A, Teefey SA, Wu T, Clark AM, Middleton WD, Yamaguchi K, Galatz LM.

- Overall, ultrasound diagnosed 35 of 36 normal biceps tendons (specificity, 97%) and 17 of 35 abnormal biceps tendons (sensitivity, 49%)
- Superior in diagnosing instability compared to clinical examination and MRI
Imaging SLAP

- MR arthrography >> MRI
Sheridan et al, KSSTA 2015: Accuracy of magnetic resonance imaging to diagnose superior labrum anterior-posterior tears

- Of the 444 patients having an MRI and arthroscopy for shoulder pain, 121 had a SLAP diagnosis by MRI and 44 had a SLAP diagnosis by arthroscopy
- MRA had an accuracy of 69 %, sensitivity of 80 %, and a PPV of 29 %
- MRI had an accuracy of 85 %, sensitivity of 36 %, and a PPV of 13 %
- **CONCLUSION**: ..even with intra-articular contrast, MR had limitations in the ability to diagnose surgically proven SLAP lesions
Amin & Youssef, Eur J Radiol 2012: The diagnostic value of magnetic resonance arthrography of the shoulder in detection and grading of SLAP lesions: comparison with arthroscopic findings

• Overall sensitivity of MRA in detection of SLAP lesions was 90%, specificity 50 %
• MRA and arthroscopy results were concurrent in 79.3% patients
• CONCLUSION: MR arthrography is a sensitive minimally invasive technique for detection and grading of SLAP lesions, it can help in avoiding patients unnecessary diagnostic arthroscopy
CONCLUSION

• In both SLAP lesions and lesions of the LHB the history and the clinical examination plays an important role for choosing the correct treatment plan, however, specific clinical tests are not accurate, and despite technologic improvements in diagnostic imaging there is a risk of false positive findings.

• In order to choose the right treatment, analysis of dysfunctions of the scapula and the kinetic chain is important in overuse injuries.

• Diagnosis of SLAP and biceps lesions requires a high level of specialist experience.
DONT KEEP CALM
SLAP THAT BITCH, HARD

KYSTHOSPITALET

THE SLAP
Thank you for your attention