

SLAP Tears and Bicep Pathology

Barton R Branam, MD
Department of Orthopaedics & Sports Medicine
University of Cincinnati
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1

Superior Labrum

- Biceps labrum complex attaches to the superior glenoid
- Variable attachment
- Difficult to diagnose and treat
- Must continue to evolve



2

Variety of Labral/Biceps Pathology

- SLAP Tear
- Tendinitis



3

Biceps Pathology



- Tendinopathy/Delamination
- Tear/Rupture



4

Biceps Pathology


- Subluxation
- Dislocation
- Entrapment



5

Is the SLAP/Biceps pathologic?


- Are the History, PE and diagnostic studies consistent with SLAP/Biceps Labral pathology



6

Consistency

- History
 - Overhead athlete
 - Laborer
 - Pulling injury to the arm
 - Pain
 - Mechanical Symptoms
 - +/- instability
- If the history doesn't make sense, ? diagnosis



7

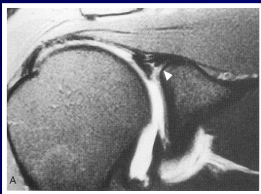
Consistency

- Exam
 - Pain
 - Anterior
 - Deep → key
 - Often vague
 - Biceps signs can be +
 - O'Brien's
 - Down > up
 - Conversion
 - 90/90

8

Consistency

- Radiology
 - XR often neg
 - MRI w or w/o
 - Can see paralabral cyst
 - Can be negative



9

SLAP Tear

- IF the Hx, PE and the MRI are consistent with a SLAP tear it is likely real
- If there is ambiguity a GH cortisone shot can be **extremely** helpful
 - Engage the patient

10

So the SLAP tear is real?

- Non operative
 - Medications
 - NSAIDS
 - Steroid taper
 - Cortisone injection
 - Activity Modification
 - Physical Therapy
- Operative
 - Debridement
 - Repair
 - Biceps Tenotomy
 - Biceps Tenodesis

11

Operative Treatment

- Repair the SLAP
 - Isolation
 - With Biceps Tenotomy
 - With Biceps Tenodesis
- Biceps release
 - Tenotomy
 - Tenodesis

12

Operative Treatment


- Repair SLAP alone
 - Unstable tears in young patients
 - Overhead athletes
 - Avoid biceps overconstraint
 - Trending toward knotless anchors
 - Portal of Wilmington
 - Small cannulas
 - Stay medial



13

Operative Treatment

- Repair SLAP and release biceps
 - All “older” patients
 - Unstable, mobile SLAP tears and those extending posteriorly
 - Ultra low threshold in non overhead athletes
 - Caution
 - Overhead athletes
 - Instability



14

Operative Treatment


- Release Biceps and debride SLAP
 - “More” stable isolated type II tears
 - Degenerative tears in older patients
 - Patients with pain and wanting a shorter recovery
 - Predictable



15

Biceps Fate

- Tenotomy
 - Simple
 - Efficient
 - Predictable
 - Expeditious Rehab
 - Popeye deformity
- Tenodesis
 - Proximal
 - Groove
 - Subpec
 - Simple
 - Efficient
 - Predictable
 - Restores contour
 - Dramatic change in rehab timeline if no associated SLAP repair



16

Biceps Fate

- I Discuss both options with the patient preoperatively when it could go either way
 - Are they OK with a Popeye deformity?
 - Do they do repetitive activity
 - Are they OK with a longer rehab?
 - Given lack of marked difference may consider both options and base on other concomitant treatment

17

Tenotomy vs. Tenodesis

- Isokinetic strength, endurance and subjective outcomes after biceps tenotomy versus tenodesis
- Wittstein, et al, AJSM, 2011
- Postoperative Study
- Tenotomy (19pts) vs Tenodesis(16 pts) with contralateral limb as control

18

Wittstein, et al

- Subjective outcome scores were similar
- Supination peak torque was diminished in tenotomy side
- 4 tenotomy popeye deformity(2 with painful cramping)
- 2 tenodesis with pain at site
- Conc-Similar subjective outcome scores. Tenotomy decreases peak torque relative to native and tenodesed state

19

Biceps Tenodesis vs Tenotomy

- Biceps tenodesis versus tenotomy in isolated LHB lesions: a prospective randomized clinical trial
- Hufeland et al
- Arch Orthop Trauma Surg. 2019
- 22 consecutive patients 40-70y
 - 20 patients avail for f/u
- Isolated SLAP or biceps pulley lesions
- Eval flexion/supination strength, popeye, SST, ASES, Constant-Murley and LHB scores

20

Hufeland et al

- Results
 - 9 LHB tenodesis, 11 tenotomy
 - Strength and scores no different at 12 m
 - Tenodesis sig increase in strength 6 months post op compared to preop
 - Popeye-1 tenodesis, 3 tenotomy
- Conclusions
 - No sig diff in elbow flexion/forearm sup force and clinical scores after 12 mos
 - Tenotomy sig trend for higher rate of popeye deformity and biceps muscle cramps

21

Biceps Tenodesis <25y/o

- Biceps Tenodesis Is a Viable Option for Management of Proximal Biceps Injuries in Patients Less Than 25 Years of Age.
- *Arthroscopy* Apr 2019
- Griffin JW, et al, Rush group

22

Griffin JW, et al

- 45 consecutive patients
- Subpectoral biceps tenodesis
- Ind-biceps tendinopathy or biceps labral complex injuries including SLAP tears

23

Biceps Tenodesis <25y/o

- Results
 - 36/45 f/u at min 2y
 - Mean 19.8 y, 38.6 mos
 - 34/36 athletes, 20 college
 - All clinical outcome scores improved
 - ASES score 54.7→81.7
 - ASES functional score 17.5→25.1
 - Simple Shoulder Test score 7.4→10.1 (p<.001)
 - 4(11%) revision for other injuries
 - 25/34 (73%) athletes returned to sport
 - 19 same level, 6 lower level
 - 77% overhead athletes returned to sport

24

Biceps Tenodesis <25y/o

- Authors conclusions
 - Biceps tenodesis offers alternative to SLAP repair in young patients
 - Satisfactory outcomes in patients < 25y
 - 2/3 patients return to sport with low revision rate

25

Rehab

<ul style="list-style-type: none">• SLAP repair<ul style="list-style-type: none">– 1st Month<ul style="list-style-type: none">• 90/90 PROM, no ER– 2nd Month<ul style="list-style-type: none">• Begin full active motion with goal full AROM at end of month– 3rd Month<ul style="list-style-type: none">• Strengthening– 4 months<ul style="list-style-type: none">• No restrictions, WEAN to normal activities• Start Throwing Program	<ul style="list-style-type: none">• SLAP repair, Biceps Tenodesis<ul style="list-style-type: none">– No ROM restrictions– No resisted elbow flexion x 10-12w• Biceps Tenotomy<ul style="list-style-type: none">– No restrictions– Progress as tolerated– Goal-full recovery 4-8w
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26

Summary

- Difficult Diagnosis
- Multiple different treatment options
- Opportunity

27



28
