LESS COMMON THROWING INJURIES

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SUBJECTS
• Adolescent injuries
• Throwing Injuries in Adults
• Common causes
• Other Injuries

ADOLESCENT INJURIES
• Little league shoulder
• Little league elbow
• Ligament injury of the elbow
• SICK scapula
CAUSES

• Main cause is overuse
• Muscle imbalance
• Poor preparation
• Playing on more than one team
• Playing all year
• Pitcher and catcher
• Throwing the wrong pitches

EVALUATION

• Poor lower extremity and core strength
• Poor scapular strength
• GIRD
• Poor mechanics and technique
**SICK SCAPULA**

- Ages 10 to 14 common
- Generalized shoulder pain
- Nonspecific RC findings
- Reproduced by crank testing
- Tenderness of humeral region
- Usually gradual

**LITTLE LEAGUE SHOULDER**

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LITTLE LEAGUE ELBOW

- Valgus extension overload
- Usually medial pain at epicondyle, not sublime tubercle
- Not easily reproduced by milking
- Tenderness all around medial epicondyle
- Sometimes history of pop or sudden onset but usually gradual onset
- Lateral pain less common
- Loss of motion and effusion common
NERVE PROBLEMS

- Always consider the neck for shoulder pain
- Suprascapular nerve entrapment
- Thoracic outlet syndrome

SUPRASCAPULAR NERVE

- Sphinoglenoid notch
- Aching and dead arm
- Sometimes acute scapular pain
- Progressive weakness of the cuff
- Gradual atrophy of the scapular fossa
- Often permanent
- Does not seem to affect long term
• Unexplained shoulder or arm pain
• Neuralgia’s usually ulnar distribution
• May have tinel’s at cubital tunnel
• EMC generally not positive
• Doppler of thoracic outlet may help
• Venous and arterial issues rare
• Surgery generally not needed
LATISSIMUS INJURY

Rare: few reported cases in the literature
Generally conservative care with good results
Surgery results still an unknown due to small sample
Generally at the MT junction
C/O axillary discomfort
FUNCTION

- Internal rotation of the humerus
- Adduction of the shoulder
- Lies adjacent to the teres major
- Both have similar functions
- Often injured together

EXAM FINDINGS

- Tenderness in the axilla
- Avulsions often with palpable mass
- Occasional tenderness on humeral attachment
MARINER’S EXPERIENCE

2 injuries in past 2 years
Both pitcher’s with very overhead delivery
Primary fastball pitcher’s
Both treated with PRP
1 required surgery due to reinjury- still not preinjury
1 with 12 week full recovery

INTERNAL IMPINGEMENT

• Arthroscopic Findings: Relocation Test
  100% Contact of RTC and Glenoid
  93% Undersurface RTC Tear
  88% Posterosuperior Labrum Fray
  36% Anterior Labrum Fraying

Paley, Mike, PRP et al. Arthroscopy 2000
CAUSES OF INTERNAL IMPINGEMENT

• Jobe
  – Loss of anterior stability can permit anterior translation of the humeral head from within the glenoid fossa.
  – Associated with a normal subacromial space.

INTERNAL IMPINGEMENT/INSTABILITY

• Evaluation:
  – Routine history
  – Younger Patient (18-36)
  – No specific injury

INSTABILITY RAMIFICATIONS

• Internal Impingement-Jobe
IMPINGEMENT - POSTERIOR

- Walsh G et al. (1992)
- Jobe CM (1996)
- Expanded Spectrum
- i: “throwing injury”

INTERNAL IMPINGEMENT - PHYSIOLOGIC?

- “To know the offender... Study the crime”
- John Douglas FBI Profiler

GIRD

- Glenohumeral
- Internal
- Rotation
- Deficit
SCIENCE BEHIND THE CONCEPT

Tightening of the posterior capsule resulted in significant superior translation with flexion of the shoulder. (Harryman et al. JBI 1990)

The effect of posterior capsule tightening in glenohumeral translation in the late cocking phase of throwing. (Harryman et al. JBI 1990)

WHAT IS SIGNIFICANT?

Kibler 1995-1998

- 38 Post. slaps in throwers
- All hadIRD > 25°
- Mean = 32.50°
- Range = 26-58°
**THE PATHOLOGIC CASCADE**

- Internal Rotation Deficit
- Post. GH Shift In Abd & Ext. Rot.
- Biceps Tension & Peel Back Mech.
- Slap Lesion
- Internal Impingement
- RTC Tear

**PRODROME**

- “Posterior stiffness or tightness”
- ± Post pain in cocking
- No mechanical symptoms
- Marked IRD at 90°

**PRESENTATION**

- Post. Tightness
- Post Pain
- Slap Event
- Mechanical Sx’s
- Pain
- Loss of Velocity
- Inability to Pitch

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Verna 1991: 39 Prof. Pitchers
- All with > 25 IR
- 63% Shoulder problems
- 58% Elbow problems
- 37% Shoulder + elbow
- 26% Shoulder + LBP
- 15% No problems

Cooper ’97 - ’99
22 Major League Pitchers Stretched Daily
- 3 year results:
  - No innings lost
  - No intraarticular lesions
  - No surgical procedures

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PEEL BACK

• Burkhart-Results: Dead Arm
  – SLAP repairs
    87% Return to Pre-injury level for two or more seasons.

Repair the SLAP=Repair instability