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Common Shoulder Injuries in the Athlete

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PROJECT ECHO

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Goals

- Review normal shoulder anatomy
- Discuss biomechanics and how injury occurs
- Understand treatment options for common injuries
Normal Shoulder Anatomy

- **Bones**

![Diagram of shoulder anatomy with labeled bones](image-url)
Normal Shoulder Anatomy

- Muscle / Tendon Units
Normal Shoulder Anatomy

- Ligaments
Normal Shoulder Anatomy

- Glenoid Labrum
Normal Shoulder Anatomy

- Glenohumeral joint
The glenohumeral joint is a balance between stability and mobility.
Laxity and Instability

- Laxity is physiologic. Instability is pathologic.
Shoulder Instability

Why does it occur?

Congenital

- Generalized joint laxity may lead to multi-directional instability in the shoulder.
- Glenoid dysplasia.
Shoulder Instability

Why does it occur?

Trauma - 85% of shoulder dislocations are anterior

Anterior Dislocation

Posterior Dislocation
Shoulder Instability

- Anterior Dislocation
  - What happens?
    - Bankart
      - soft-tissue labral tear +/- bone from anterior glenoid rim
    - Hill-Sachs lesion
      - traumatic bony divot at posterior humeral head
  - Other –
    - HAGL, greater tuberosity fracture, rotator cuff tear, neurovascular injury
Anterior Dislocation

- **Statistics:**
  - 90% recurrence rate in patients < 20 y.o.
  - 10% recurrence rate in patients > 40 y.o.
  - 80% incidence of RC tear in patients > 60 y.o.
  - 30% incidence of axillary neuropathy in 1st time dislocators.
Axillary Neuropraxia

Axillary Nerve Function:

Motor – Deltoid, Teres Minor
Sensory – Lateral Arm
Shoulder Instability

Posterior dislocation

- What happens?
  - Reverse Bankart = Posterior labral tear
  - Reverse Hill-Sachs lesion
  - Other: Reverse HAGL, lesser tuberosity fracture, RC tear, neurovascular injury
Shoulder Instability – How should we treat it?

- Reduction
- Sling
- Imaging studies
- Physical therapy
- Surgery
Shoulder Instability - How should we treat it?

- Consider surgery for patients < 30 yo with shoulder instability.

- Why? High recurrence rate, and with repeated dislocations, bone loss and articular cartilage damage progresses.
Shoulder Instability –
How should we treat it?

- Open versus Arthroscopic?
Arthroscopic Labral Repair

Suture Anchor Insertion for Labral Repair

Suture Anchors  Cannulas  Suture Lassos
Arthroscopic Labral Repair
SLAP lesions

- Superior Labrum Anterior – Posterior Lesions
SLAP lesions

- Peel-back mechanism causing a SLAP lesion

Superior View of Left Shoulder in a Thrower
As a result, the biceps anchor is peeled back under tension (SLAP lesion), which allows for further anterior laxity and torsional failure of the undersurface rotator cuff fibers.
SLAP lesion – O’Brien’s test

- Shoulder forward flexed 90 degrees, and adducted 10 degrees, internally rotated (thumb down)
- Repeat in externally rotated position (palm up)
SLAP lesion

- MR arthrogram
SLAP lesions

- Beware of the MRI report!
  - Age or activity related degenerative change in labral tissue
  - Normal labral recess (>50%)
  - Sublabral foramen (11%)
“Return to play after treatment of superior labral tears in professional baseball players.”

Rate of return to prior level of performance

<table>
<thead>
<tr>
<th>Category</th>
<th>Treatment Type</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Pitchers</td>
<td>Non-operative</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>Operative</td>
<td>7%</td>
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<tr>
<td>Positional Players</td>
<td>Non-operative</td>
<td>26%</td>
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<tr>
<td></td>
<td>Operative</td>
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</table>

AJSM, May 2014
Fedoriw, et.al.
Houston, TX
Treatment

- Non-operative.
- Non-operative.
- Non-operative.

- Surgery only if failed non-operative treatment and well-defined pathology.
Rotator Cuff Tears

- Rotator cuff tears in overhead athletes are usually PASTA lesions.

PASTA = Partial Articular-Sided Tendon Avulsion
Impingement

- Classic (subacromial)
- Secondary
- Internal

Impingement - To collide or strike. To encroach upon.
Classic Impingement

- Pressure on the rotator cuff by a part of the surrounding anatomy.
  - Subacromial
  - Subcoracoid
Rotator cuff impingement due to increased glenohumeral joint motion from capsular laxity and/or muscle fatigue.
Internal Impingement

- Hyperangulation of humerus during acceleration phase, causing the undersurface of the rotator cuff to abut the glenolabral margin.
Impingement

- **Treatment**
  - **Rehabilitation**
    - Improve throwing mechanics
    - Core strengthening
    - Scapular control
    - Stretch posterior capsule if tight
  - **Arthroscopic Surgery**
    - Address labral pathology
    - Debride undersurface rotator cuff tear
    - Treat anterior capsular laxity, and/or posterior capsular contracture
Acromioclavicular Joint Injuries

- **Anatomy**

  Coracoclavicular ligaments (Conoid and Trapezoid)

  Acromioclavicular ligaments
AC joint injuries

- Mechanism of Injury – Direct impact
AC joint injury

- Clinical Presentation
AC joint injuries

- Classification

[Image showing Rockwood Classification with Type I to Type V]
AC joint injuries

- **Treatment**
  - Grade 1, 2 – Non-operative, sling for comfort
  - Grade 3 – Controversial, mostly non-operative
  - Grade 4, 5, 6 - Operative
AC joint injuries

Rehabilitation / Return to Play

- Non-operative –
  - Sling for comfort, ice, ROM/strengthening, RTP 1-4 weeks

- Operative –
  - Sling for 6 weeks, RTP 4-6 months
AC joint injuries

- **Surgery**
  - Reduce AC joint with fixation device between coracoid and clavicle
  - Add graft support if chronic to allow for biological healing
In summary...

- Listen to the patient.
- Inspection
- Range of Motion
- Strength
- Instability
- Neurovascular
Thank you.