Introduction to the shoulder

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Contents

1 Bony anatomy

- Humerus: upper part of arm
- Clavicle: (wishbone) only connection from shoulder to rest of bones
- Scapula: shoulder blade
  - Offset about from frontal plane
  - Three processes (bony projections):
    - Glenoid: humerus ball-and-socket socket
    - Caracoid: hook at top
    - Acromion: bump at top

1.1 Glenohumeral joint

- Small shallow socket (golf ball on a golf tee)
  - Thus stability in shoulder is based mostly on soft tissue
  - Wide range of motion at extense of stability
- Static stabilizers:
  - Glenoid labrum: fibrous ring, similar to meniscus
    - Attaches to articular region
  - Capsule
  - Capsular ligaments:
    - Thickenings of joint capsule

1.2 Acromioclavicular joint

- Two ligaments

2 Muscles

- Many: latissimus dorsi, trapezius, rhomboids, pectoralis, serratus anterior, levator scapulae, deltoids, Teres major, rotator cuff
- Rotator cuff are big time stabilizers of shoulder joint
  - Supraspinatus
  - Infraspinatus
  - Subscapularis
  - Teres Minor
- Dynamic stabiliziers of GH joint
  - Biceps tendon
  - Rotator cuff muscles

3 Shoulder stability

- Pathologic excessive motion (different from laxity)
- Degree: subluxation, dislocation
- Direction
- Mechanism: traumatic, atraumattic, microtrauma

4 Common pathologies

- Dislocation:
  - Most result as trauma
  - Anterior dislocation most common
  - Microtrauma: constantly loading and stressing of capsule, small damage per shot; multidirectional instability
- Bankart Lesion
  - IGHL C (interior-glenohumeral ligament capsule) detached from glenoid rim, most common
- SLAP lesion
  - Superior Labrum Anterior to Posterior lesion, second most common
  - Common in throwing athletes
  - Immobilization and rehabilitation: sling, gunslinger brace
- Rehab:
  - Restore ROM
    - Decrease pain, let it hang and don't use the muscles
    - Pendulum (Codman's) exercises
  - Isometric strengthening
  - Rotator cuff strengthening
  - Proprioception and neuromuscular control
- Surgical treatment

  - Open
    * Motion loss
    * More stability
  - Closed (arthroscopic)
    * Less stiffness, better appearance
    * Greater recurrence
  - Staples, bioabsorbable tacks, sutures
- Rotator cuff tears
  - Usually supraspinatus tear
  - Treatment:
    * Small tears with conservative treatment (rehab and cortisone)
    * Large ones with surgery
- Double-row repair
- AC joint injuries
  - Type I, II, III
- Classification of patients:
  - TUBS: Traumatic, Unidirectional instability, Bankart lesion, Surgery
  - AMBRI: Atraumatic, Multidirectional instability, Bilateral, Rehabiliation, Inferior capsular shift

5 Misc.

- Never do more than three cortisone injections: damages tendons
- GH joint: socket dislocation
- AC joint: shoulder separation
- Issues for pitchers:
  - Large external range of motion, internal ROM is decreased
  - Care about total range of motion on both sides
  - Curveball not as much force, fastball more force
  - Pitch counts matter