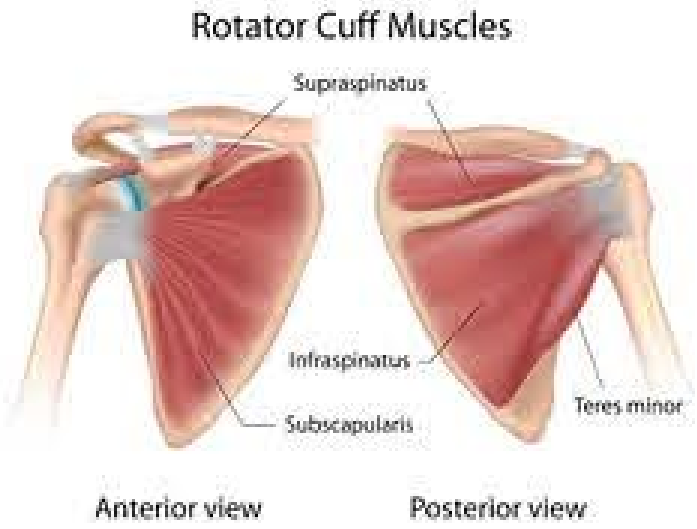
Ep 28- Rotator Cuff Tears w/ Dr. Choate Notes-

History/Physical

- Older patients often have no history of trauma
- Younger patients often have a hx of high energy injury
- Night pain, pain with overhead activities, and reaching behind back
- Inspection - Symmetry, shoulder position (protracted, neutral, retracted), atrophy
- Palpation - Greater tuberosity, Condmans point (shoulder extended + IR), AC joint, bicipital groove (+/- ER), Coracoid process
- ROM- PROM/AROM: Esp PROM in ER in athlete at 90 degree abduction
- Strength Testing -
    - Supraspinatous, Resisted empty can, Whipple,
    - Infraspinatus- ER w/ arm adducted, ER lag sign
    - Teres Minor- Hornblowers
    - Subscapularis- Lift off, Belly press (wrist must be in neutral), Bear Hugger
- Impingement tests
    - Neer (painful arc between 60-120 FF)
    - Hawkins (pain on forcible IR of 90degree FF arm)
- Biceps
    - Speeds - Resisted FF of humerus
    - Yergason- Resisted supination w/ elbow flexed and pronated

  SLAP- O'Briens

Anatomy



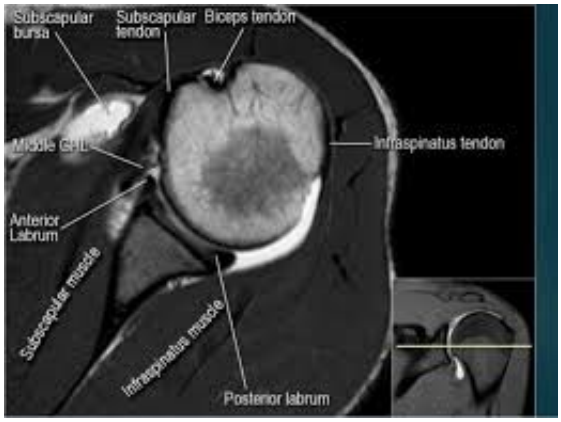
- SITS
- Cuff envelops and blends w/ GH capsule
- Biceps (intra-articular, through rotator interval)
- Rotator interval (Supraspinatus, Subscap, CH ligament/SGHL ligament)
    - Suspensory structure for HH
- Extrinsic vs Intrinsic etiology for RTC tears- continuing debate

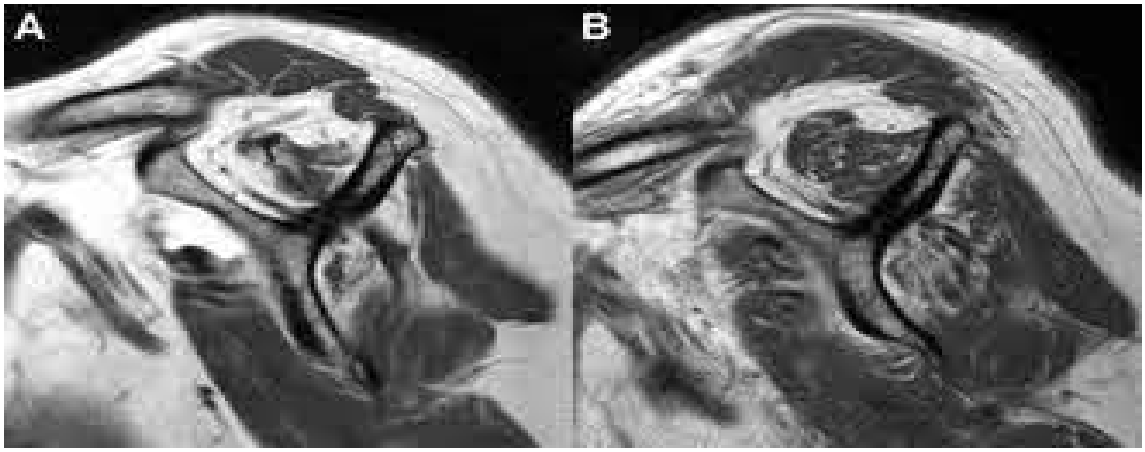
Imaging

- AP View of shoulder
- AP view in ER and IR
- Axillary view - Joint space, Glenohumeral joint morphology

- MRI - Gold standard to assess RC tears
    - T2 - weight images are best for viewing RC tears
    - On T1- look for fatty infiltration.
    - Also reveals muscle retraction and muscle atrophy

- Ultrasound- can be useful, depends on operator experience





Classification

- Prevalence of full thickness rotator cuff tears is 7% - 40% in cadaveric studies
- Partial thickness tears more frequent
- Incidence and prevalence increases with age
- Acute <3mo, Chronic >3mo, Acute on Chronic

Ellman (Partial thickness tears), Goutallier (cuff atrophy), Cuff tear shape (crescent, U, L, massive)

Can also be classified by size, or as full thickness vs partial thickness tears

Partial thickness tear MC classified by location (articular or bursal sided)

Small	<1cm
Medium	1-3cm
Large	3-5cm
Massive	5cm+

Goutallier Stage	Findings in Computed Tomography
Stage 0	Normal muscle without fat
Stage I	Few fatty streaks within the muscle
Stage II	Less fat than muscle within the muscle
Stage III	Same amount of fat and muscle within the muscle
Stage IV	More fat than muscle within the muscle

Treatment

Preventative

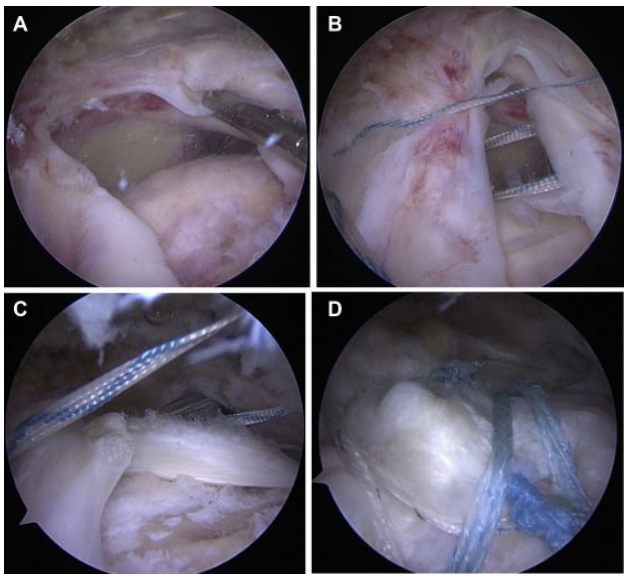
- Focus on body conditioning, technique, flexibility. Correla

Non-operative

- Activity Modification
- Local + systemic methods- Ice, NSAIDS, Electrical stimulation, PRP, steroids (tendon atrophy, infection, dec tendon quality for repair), stem cells, scaffolds
- PT (Stretching, Rotator cuff and periscapular stabilizer strengthening)

Surgical management

- full thickness and partial thickness rotator cuff tears that fail non-op mngt
- All acute traumatic tears in young patients <60yrs
- Acute loss of strength or motion
- Good quality muscle on MRI w.o fatty infiltration
- Minimal arthritis



Arthroscopic

- Full thickness tears- repair due to high rate of tear progression.
- Ask post op protocol and wrap it up then
- Partial thickness tears
    - Debridement + SAD if <50% of cuff based on medial-lateral dimensions of footprint
    - Repair + SAD for tears >50%
    - Transtendinous OR complete tear
- Biceps
    - If degenerative or + biceps maneuvers - tenotomy or tenodesis
- Portals
    - Most view through a high PL portal. A/L portals are working
    - In general, <1cm tear in AP extension- tx w/ single row technique
    - 1-3cm in AP dimensions- double row transosseous equivalent sutures or knotless double row
    - >3cm tear w/ limited mobility- advance to medial RTC footprint w/ single row technique & margin convergence as needed
- Subscap
    - If torn w/ supra tear- repair subscap first.
    - View through posterior portal (see articular side)
    - Comma sign (as superior tendon attachment disrupted, medial subscap retracts and displaces ligamentous structures w/o rotator interval)
    - Exclamation point sign?
    - Bursal sided repair

Open Rotator cuff repair

- Deltopec approach. Full thickness flaps.
- Open subscap repair- deltopec approach- usually biceps tenodesed. (nerves at risk)

Massive rotator cuff tears vs partial rotator cuff tears

Tendon Repairs

- Irreparable poster or cuff tears - transfers latissimus dorsi and/or teres major to the greater tuberosity. Requires intact subscap
- Irreparable subscapularis tear - transfer the pectoralis major to the lesser tuberosity or the anteromedial greater tuberosity

- Nailed It Ortho podcast episode

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References:

Mathiasen R, Hogrefe C. Evaluation and Management of Rotator Cuff Tears: a Primary Care Perspective. *Curr Rev Musculoskelet Med*. 2018;11(1):72-76. doi:10.1007/s12178-018-9471-6