Postoperative Shoulder

Jenny T. Bencardino, MD, NYU Hospital for Joint Diseases, New York, NY

General Aspects

MR Technique:
- Remove selective fat suppression
- Use STIR for fat saturation
- Avoid the use of gradient echo (GRE)
- Increase the bandwidth
- Lower the TE
- Swap phase encoding direction to move the artifact out of the pertinent anatomy

Outline

1) Subacromial Decompression
   - Anterior acromioplasty
   - Mumford Procedure
2) Rotator Cuff Repair
   - Open
   - Miniopen
   - Arthroscopy
3) Biceps Tenodesis

Subacromial Impingement and Rotator Cuff Tears

Treatment Options:
- Conservative Treatment
- Subacromial Decompression/Debridement
- Open Repair
- Mini-open repair
- Arthroscopic Repair

Subacromial Impingement and Rotator Cuff Tears

- Pertinent pre-operative MR findings
  Associated pathology:
  - Biceps? Rotator Interval? Labrum?
  Characterize rotator cuff tears by
  - Size
  - Associated muscle atrophy
  - Patterns: Delaminating? Concealed footprint?
  - Tissue quality

Associated Findings

Os Occromiale
Torn/dislocated biceps
Rotator Cuff Surgery

**Indications**
- Pain
- Functional Deficits
- Failure to respond to conservative care
- Full thickness tear
- Deep PTRCT
- Functioning deltoid

**Contraindications**
- Fixed humeral head elevation
- Muscle atrophy and tendon retraction

Subacromial Decompression

- **Anterior Acromioplasty**
  - **Definition:** Debridement of anterior acromial process undersurface
  - **Radiographic findings:**
    - Undersurface defect
    - Heterotopic ossification

Subacromial Decompression

- **Anterior Acromioplasty**
  - **MR findings**
    - Discrete defect in the anterior acromial undersurface
    - Scarring due to release and reattachment of the coracoacromial ligament
    - Bursectomy

Subacromial Decompression

- **Complications**
  - Infection
  - Erosions
  - Marrow replacement
  - Abscess and/or sinus track formation

Mumford Procedure

- **Definition:** Distal clavicle resection
- **Radiographic findings**
  - Pseudo-widening of the AC joint space
  - Blunting of the distal clavicle end
  - Postoperative heterotopic ossification

Mumford Procedure

- Normal MR findings:
  - Debridement of the distal clavicle end
  - Foci of susceptibility artifact on GRE
  - Release of the acromioclavicular joint capsule

Mumford Procedure

- Complications:
  - Infection
  - Erosions
  - Marrow replacement
  - Abscess and/or sinus track formation

Rotator Cuff Repair

- Definition
  Surgical repair of full thickness or high grade partial thickness RCT tear

- Techniques
  - Open repair
  - Mini-open
  - Arthroscopic

Rotator Cuff Open Repair

- Mobilization of the deltid tendon to gain access to the subacromial space

Arthroscopic Repair

- Mobilization of the deltid tendon to gain access to the subacromial space

Arthroscopic Repair

- Advantages
  - Glenohumeral Assessment
  - Allows better access to retracted tears
  - Deltoid preservation
  - Less morbidity
  - Cosmesis
  - Outpatient procedure

- Disadvantages
  - Difficult to mobilize retracted tear
  - Suture placement difficult
  - Requires advanced arthroscopic skills
  - Quality of repair?
  - Footprint approximation
  - Better implants
  - Double row fixation

Rotator Cuff Repair

- Bioabsorbable surgical Anchors
  - MR findings
    - Surgical anchor track
    - Anchor visible or dissolved
    - Position of the anchor
    - Inflammatory reaction
      - Acute
      - Granulomatous
      - Cystic

- Complications
  - Recurrent tear
  - Loosening
  - Inflammatory response
  - Infection

Rotator Cuff Repair

- Double row sutures
  - Complications
    - Recurrent tear
    - Suture breakdown
    - Inflammatory response

Rotator Cuff Repair

- Complications
  - Recurrent tear
  - Inflammation
  - Infection

Biceps tenodesis

- Definition
  Attachment of the biceps tendon to the humerus using screws, sutures or anchors.
- Radiographic findings
  - Focal lucency
  - Radiolucent anchors
  - Radiopaque hardware

Biceps tenodesis

- MR Findings
  - Empty biceps groove
  - Focal cortical defect
  - Surgical anchor

Biceps tenotomy

- Definition
  - Resection of the intra-articular portion in the setting of severe tendinosis/partial tear
- Radiographic findings
  - Heterotopic ossification at the supraglenoid tubercle

Biceps tenotomy

- MR Findings
  - Non visualization of intra-articular biceps
  - Fixation devices only when coupled with biceps tenodesis
  - Productive changes at the supraglenoid tubercle

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