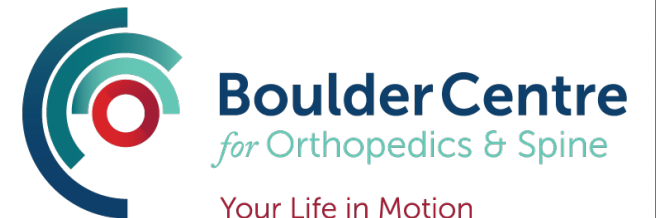


Relieving Shoulder Pain: *Treatment Innovations for Rotator Cuff Injuries*

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- **Common causes of degenerative shoulder pain**

- Rotator Cuff Tendinosis/Impingement
- Rotator Cuff Tear
- Irreparable Rotator Cuff Tear
- Rotator Cuff Arthropathy

- **Evaluation and Initial Management**

- **Surgical options**

- Rotator Cuff Debridement/Repair
- Superior Capsular Reconstruction
- Interpositional Balloon Implant
- Reverse Total Shoulder Arthroplasty

- **Recovery**

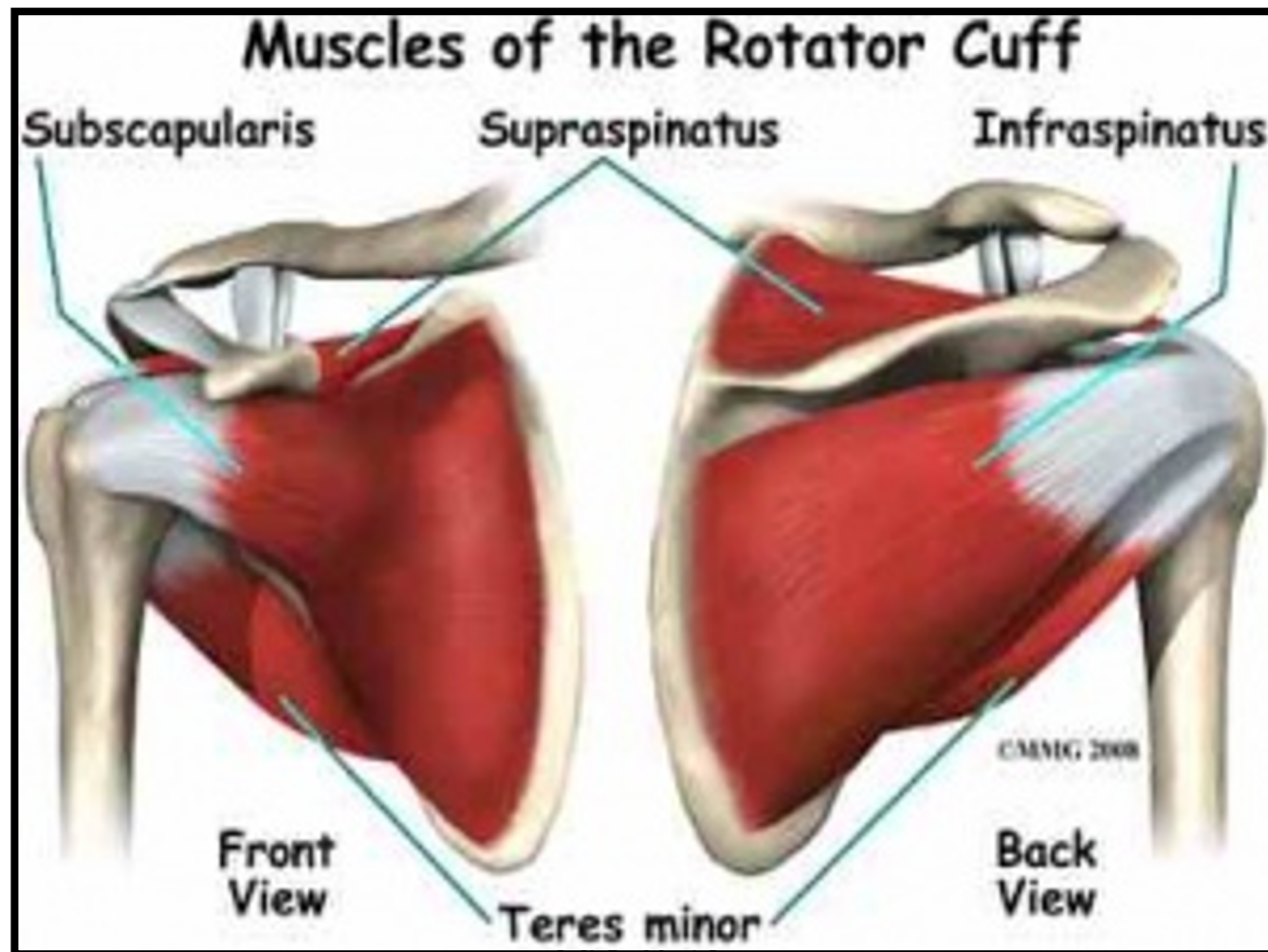
Rotator Cuff Anatomy

Supraspinatus

Infraspinatus

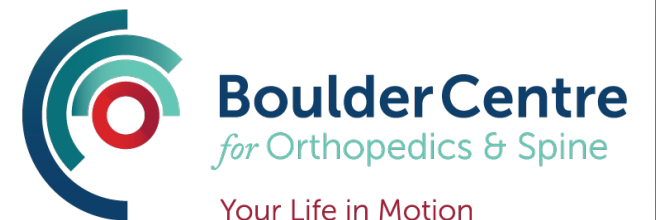
Teres Minor

Subscapularis



Part I

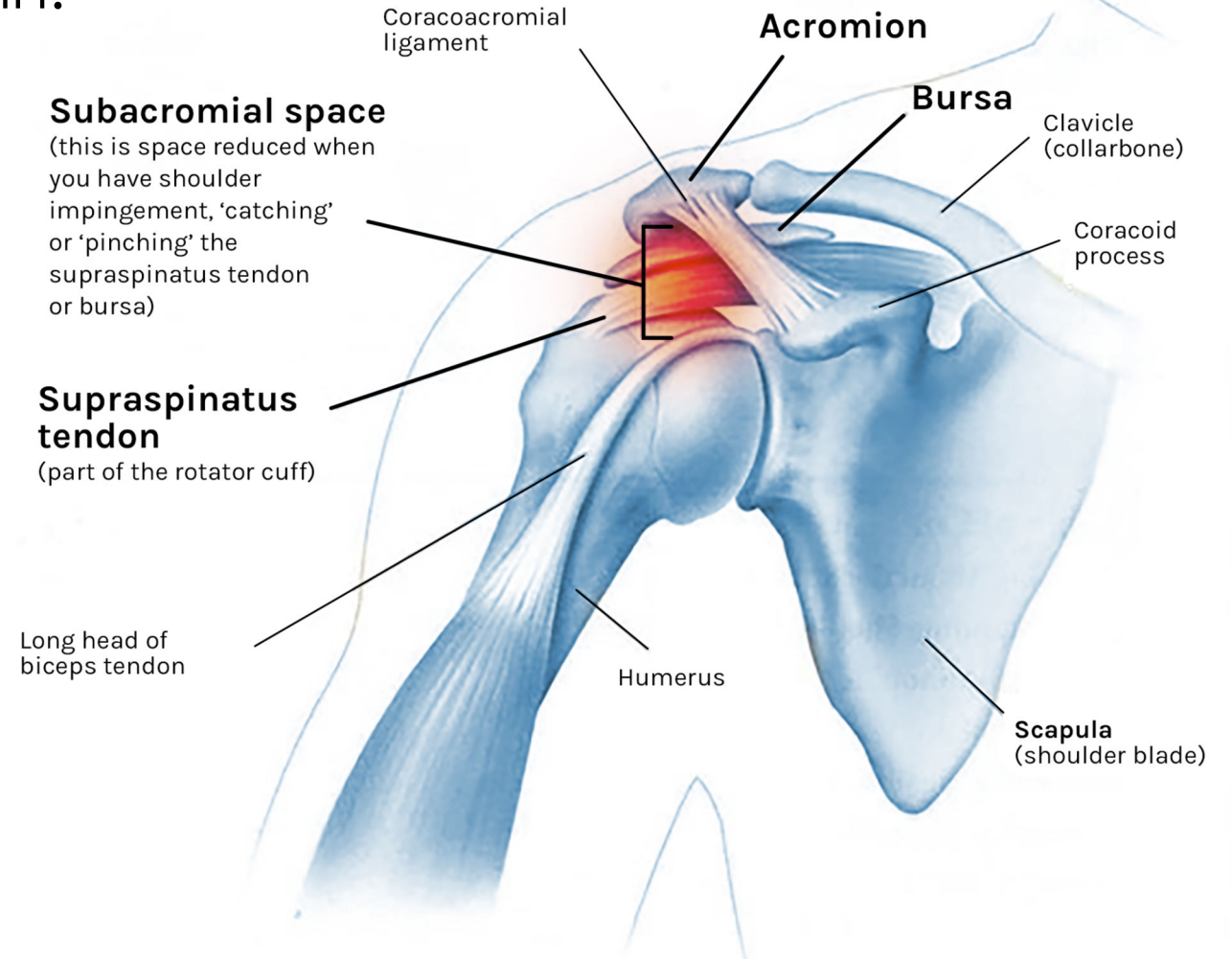
Rotator Cuff Tendinosis/Impingement



Rotator Cuff Tendinosis/Impingement

Most common cause of shoulder pain:

→ External
compression
on RC/Bursa



History of Symptoms:

- Shoulder pain on the front and side
- Difficulty w/ overhead activities and reaching
- Should not have weakness
- Slow onset or from overuse
- Waxes & Wanes

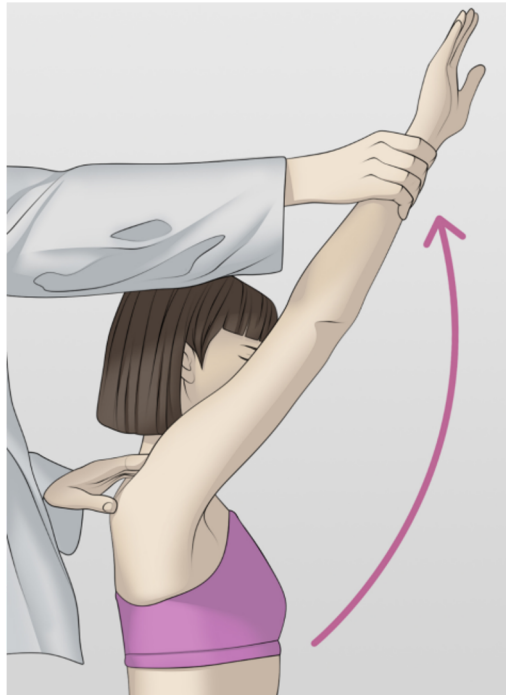
Imaging:

- X-rays are often normal, but can show a “hook”



Physical Exam:

- Pain with forward elevation of the shoulder
- Pain with shoulder abducted (out to the side) and internally rotated (turned down)



Initial Conservative Treatment

- Non-operative!
 - NSAIDs
 - PT
 - Activity Modifications
 - Steroid injection

“When Do I Need Surgery?”

- *An option for pain > 3 months without improvement from conservative therapy*
- Shoulder Arthroscopy: Debridement of bone spurs and inflammatory tissue
 - Short recovery and minimal restrictions

Part II

Rotator Cuff Tear



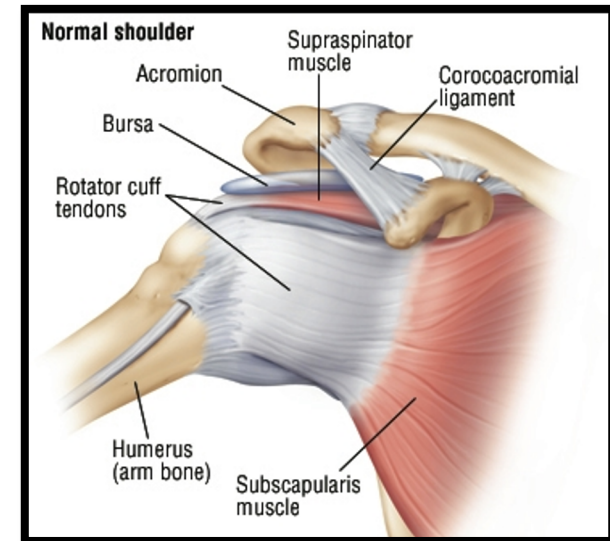
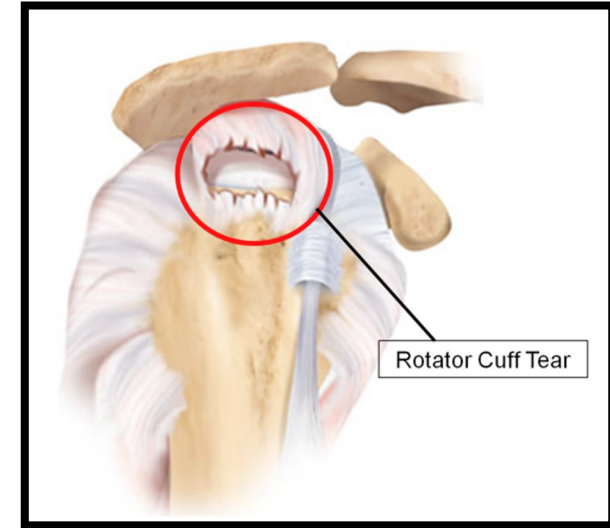
Rotator Cuff Tear

Affect about 17 million in U.S.

4.5 million physician visits per year

Between 200,000 – 300,000
surgically repaired each year

Reported complication rate 10 – 14 %



History of Symptoms:

1. Traumatic injury
 - a. Examples: fall on outstretched arm, lifting heavy object overhead
 - b. Can hear a “pop”
 - c. Loss of active shoulder motion
2. Chronic rotator tearing
 - a. Slow onset of pain *with loss of strength*
 - b. Pain at night
 - c. Difficulty with daily activities
3. Risk Factors: Age > 60, use of tobacco, diabetes

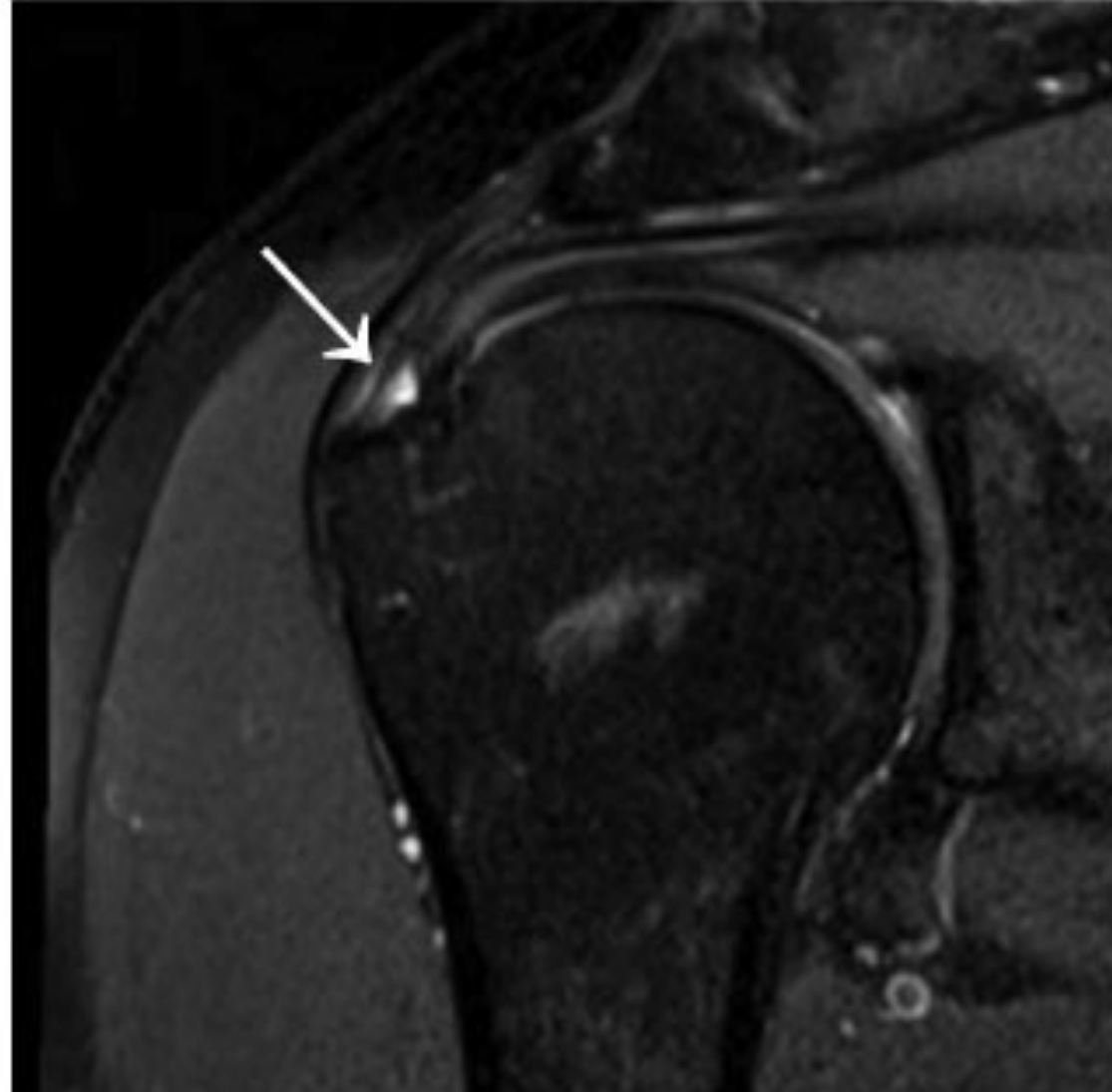
Imaging:

- X-rays are often normal!
- MRI

Rotator Cuff Tear: Partial Tear Imaging

MRI:

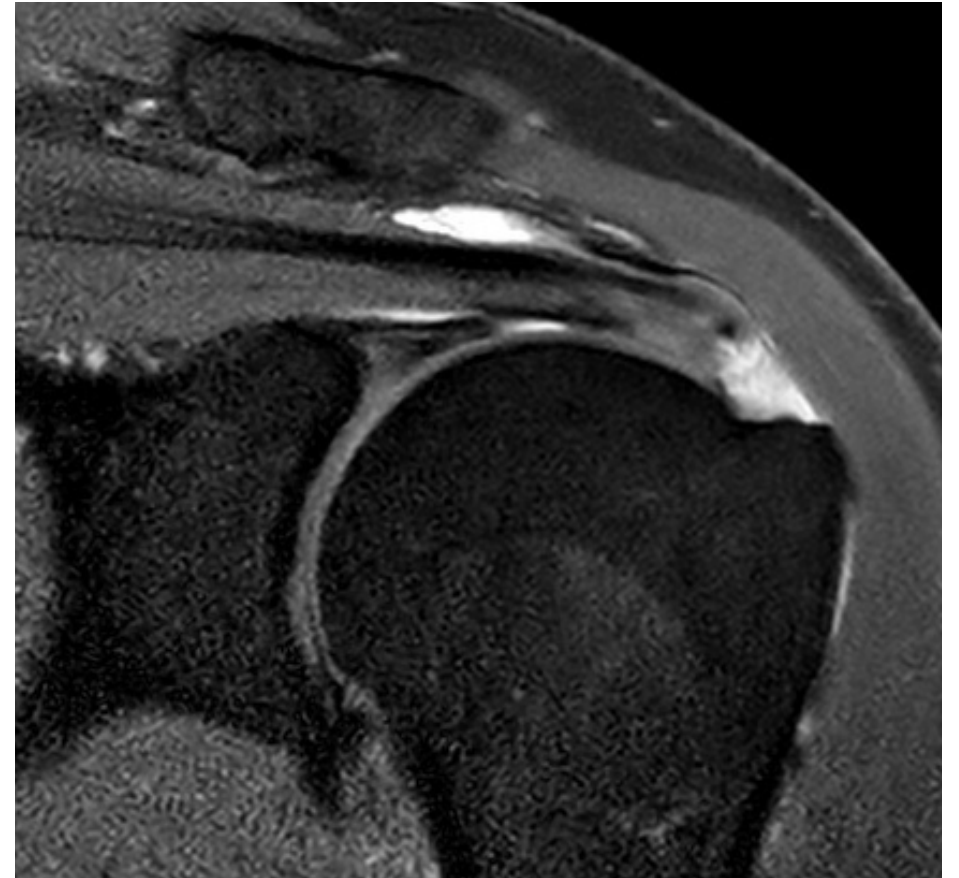
- Small and incomplete discontinuity in a rotator cuff tendon



Rotator Cuff Tear: Complete Tear Imaging

MRI:

- Focal but complete discontinuity in a rotator cuff tendon



Rotator Cuff Tear

Physical Exam:

- Loss of ability to raise arm overhead
- "Drop arm"
- Weakness: with resisted arm elevation, external rotation, "lift off" strength



Rotator Cuff Tear

Traumatic Injuries Should Be Evaluated by an Orthopaedic Surgeon

- MRI without contrast: evaluates soft tissue structures of the shoulder

Initial Conservative Treatment

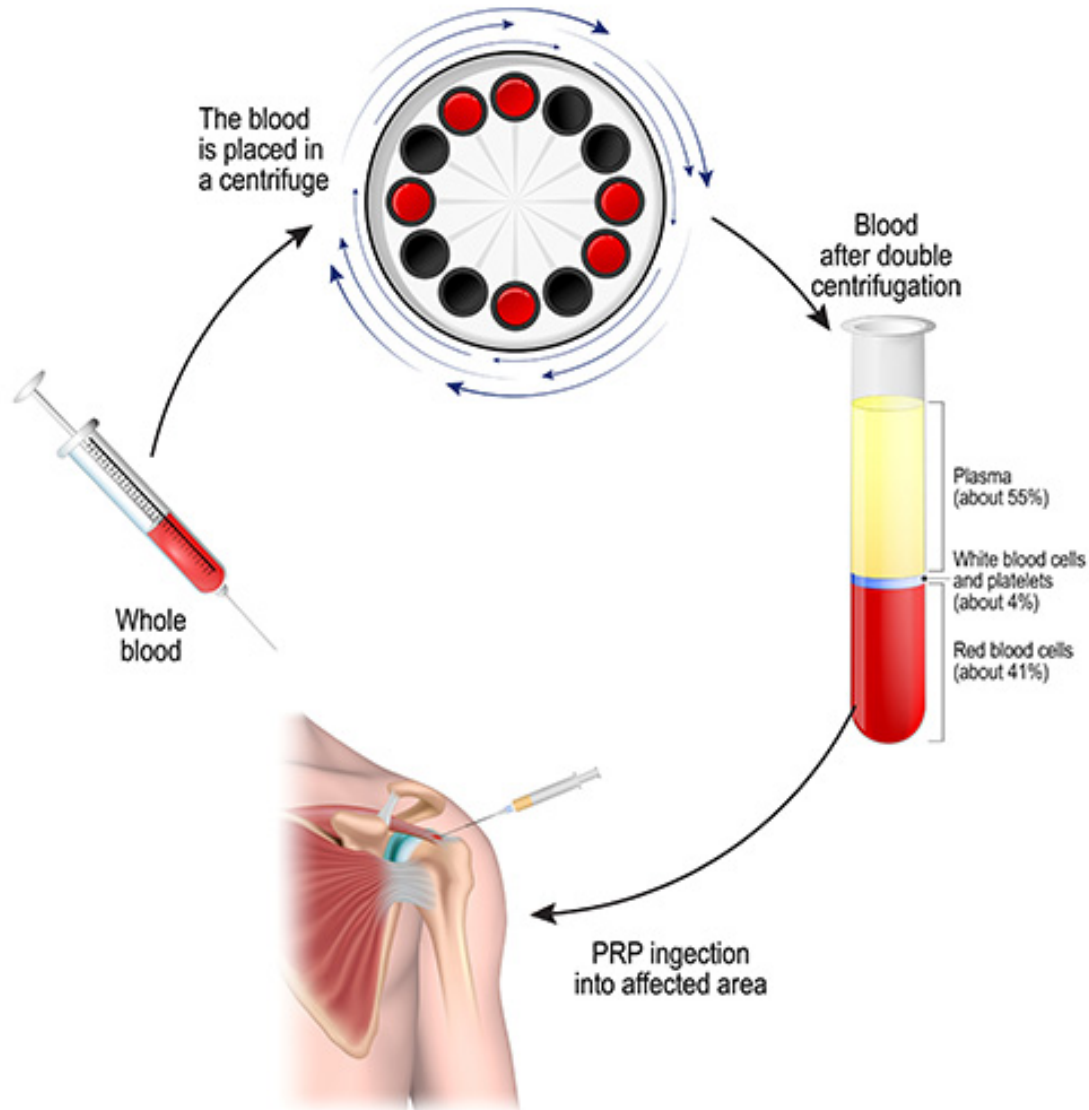
- Appropriate for partial and some chronic tears
 - NSAIDs
 - PT
 - Activity Mod
 - Steroid injection

“When Do I Need Surgery?”

- Traumatic, complete tears
- Significant weakness
- Pain despite conservative treatment



Rotator Cuff Tear: Biologic Treatment



***Safe, but mixed benefits in research-based outcomes**

When Could I Try This?

- Small, partial thickness tears
- Unable to have surgery

When Will This Likely NOT Work?

- Tears of > 50% of attachment
- Multiple tendons torn

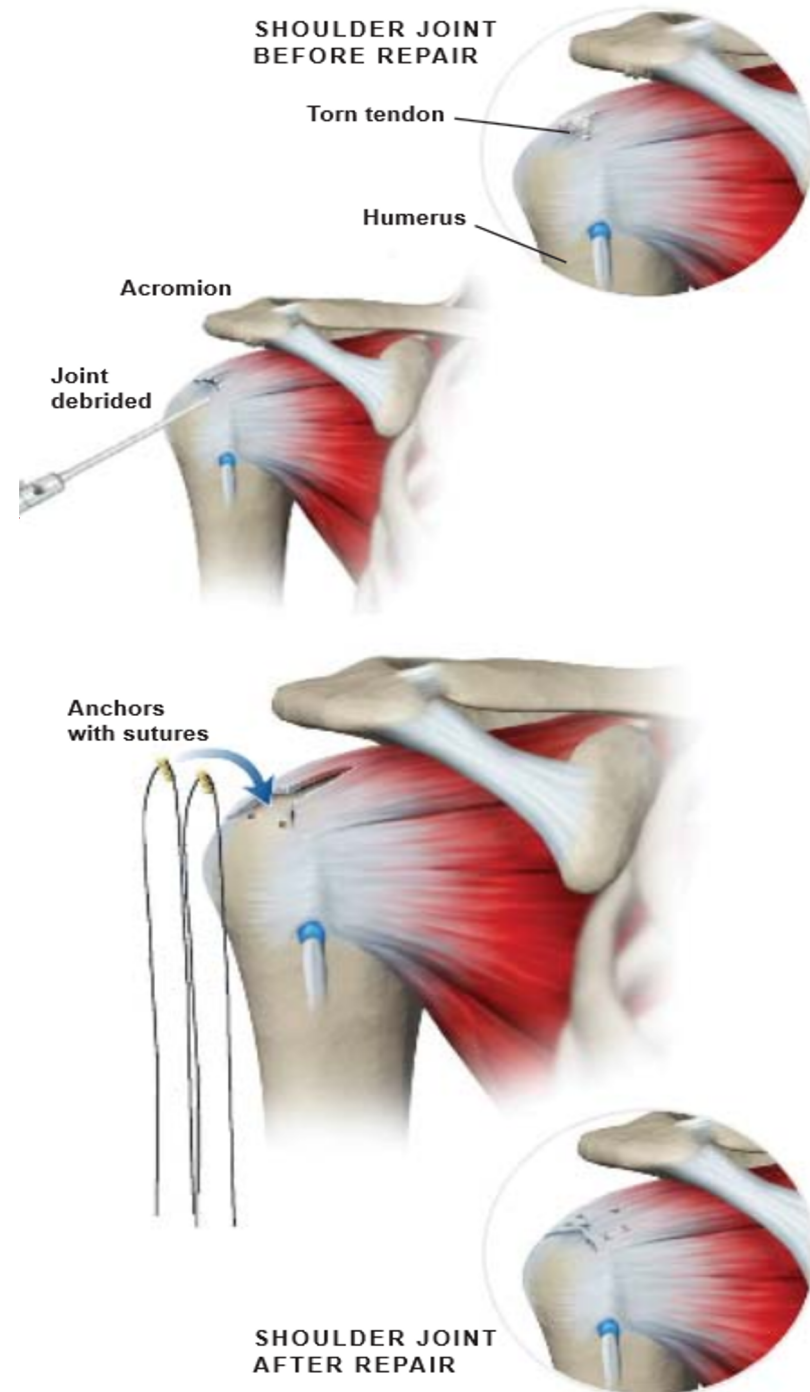
Rotator Cuff Tear

Traumatic tear:

- Arthroscopic surgery for repair

Chronic tear:

- Arthroscopic surgery for repair
- Advanced reconstruction



Rotator Cuff Repair: Do I Need Extra Biology?

Risk Factors for Poor Tissue Quality

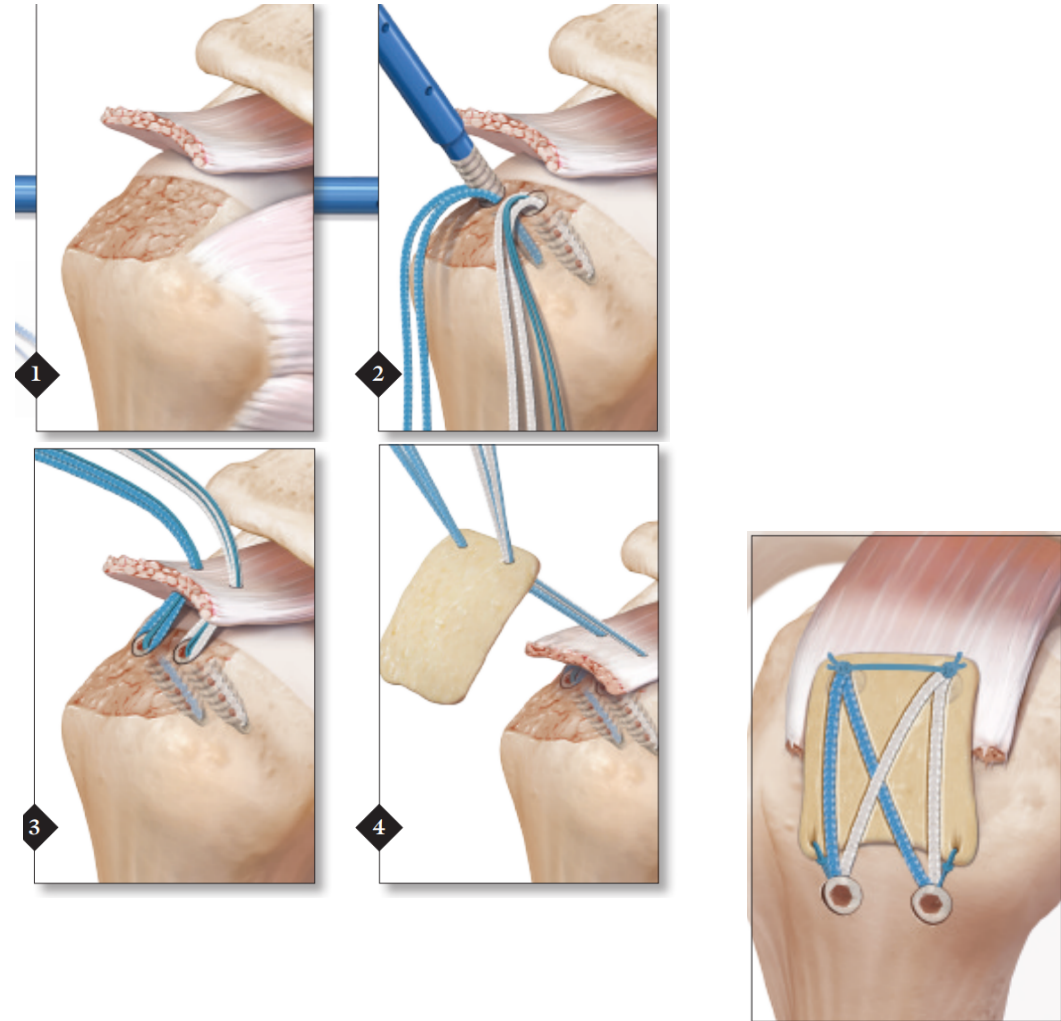
- Failed prior repair
- Radiation therapy to chest/ shoulder
- Certain chemotherapies
- Inherited connective tissue disease
 - i.e., Ehlers Danlos
- Medicines for autoimmune diseases
 - i.e., rheumatoid arthritis, lupus, psoriasis



Rotator Cuff Tear Augmentation

Added function:

- Layer of both biologic scaffold and structural support to allow for native rotator cuff tissue to heal



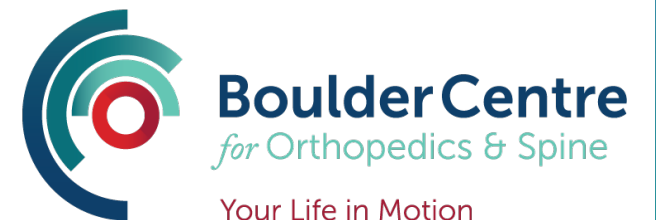
Post-operative course:

- Sling with pillow 4-6 weeks
- No lifting for 12 weeks
- Full recovery ~ 6 months

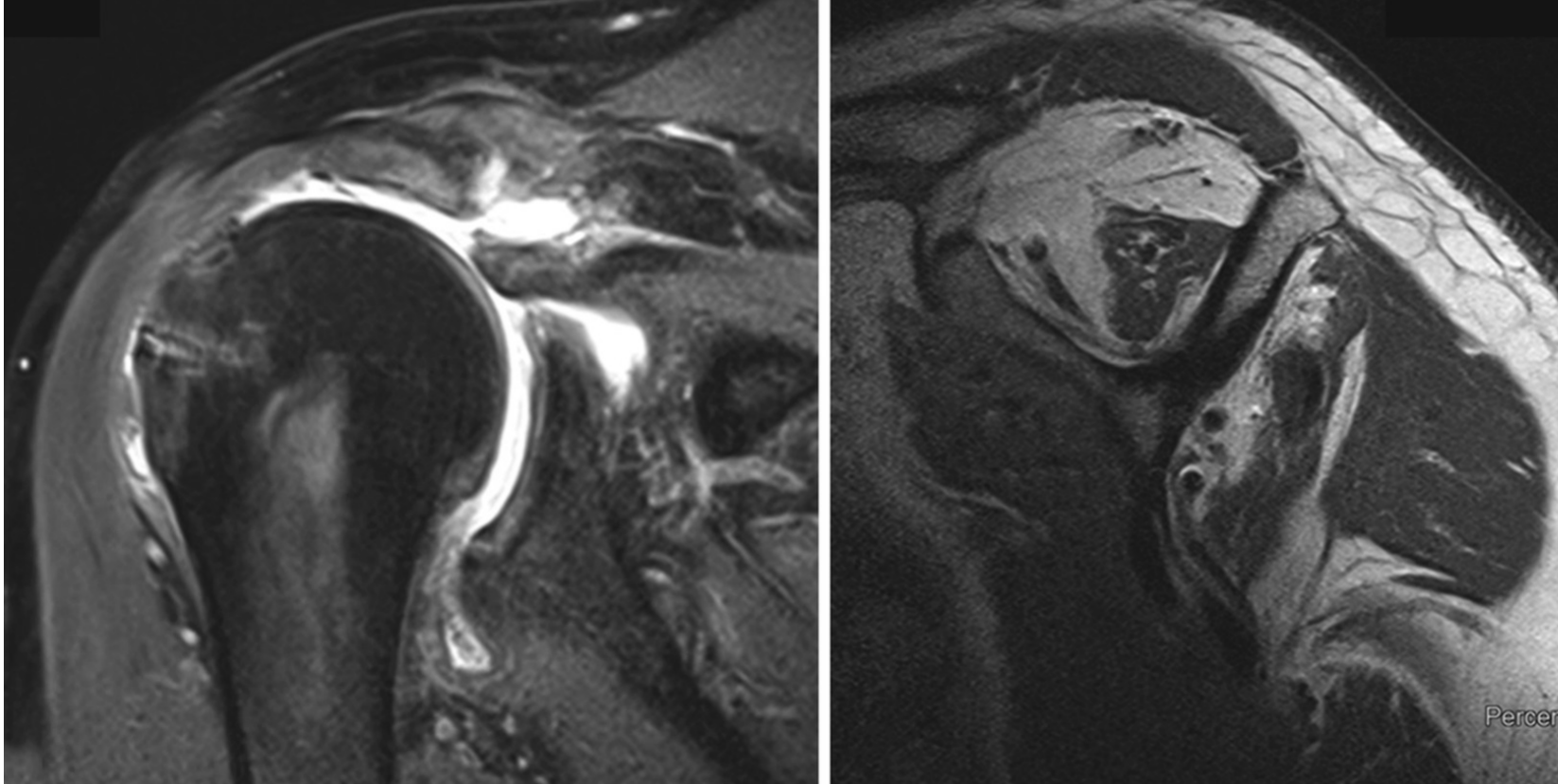


Part III

Irreparable Rotator Cuff Tears



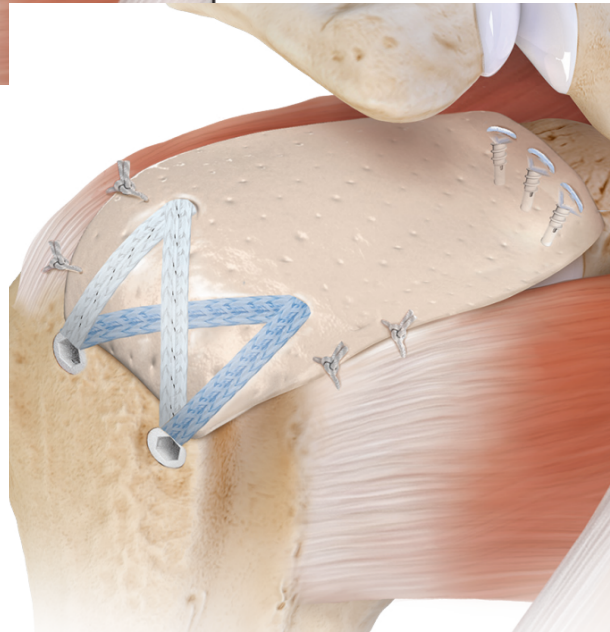
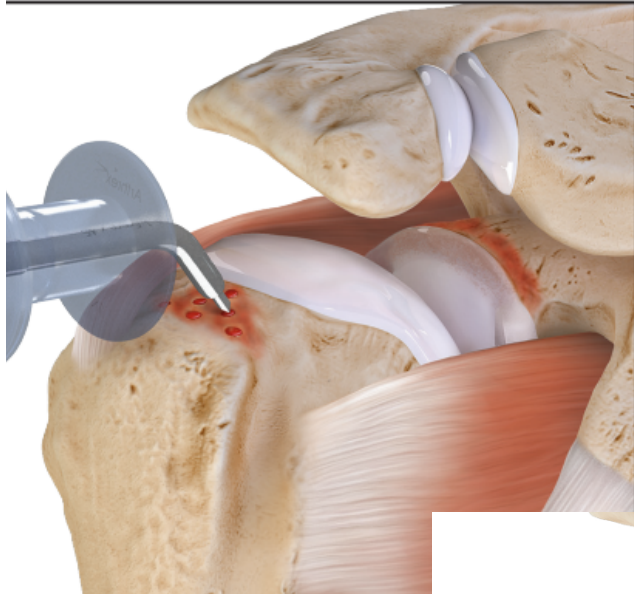
Irreparable Rotator Cuff Tear



Three MRI findings

Massive tear + retracted + muscle degeneration

Irreparable Rotator Cuff Tear: Superior Capsular Reconstruction



Reconstruction of rotator cuff tissue

- Graft replaces native rotator cuff
- Native tissue cannot be repaired

Who needs this surgery?

- Age <60
- Poor shoulder function
- Manual laborer
- Opposed to joint replacement

Why shouldn't I do this?

- Prolonged recovery (12 months)
- Injury to adjacent muscle

Irreparable Rotator Cuff Tear: Interpositional Balloon Implant

New and evolving concept

How does this work?

- Slowly biodegradable spacer that sits where rotator cuff tissue has been resorbed

Who should try this?

- Age > 65
- Those who cannot follow postoperative restrictions (i.e., walker use)

Best advantage

- Minimal recovery time/restrictions!



Part IV

Rotator Cuff Arthropathy



History:

- Long history of known rotator cuff tear
- Complete loss of shoulder function
- History of minor injury that made shoulder function significantly worse

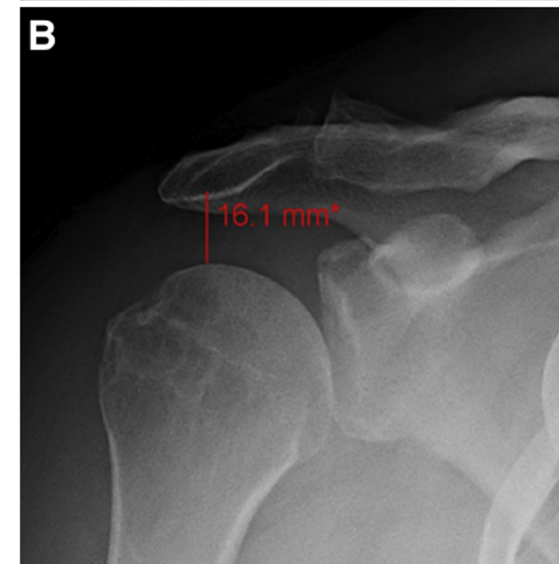
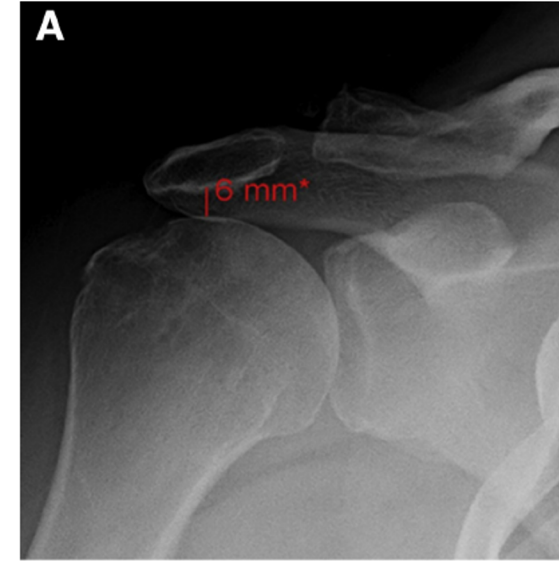
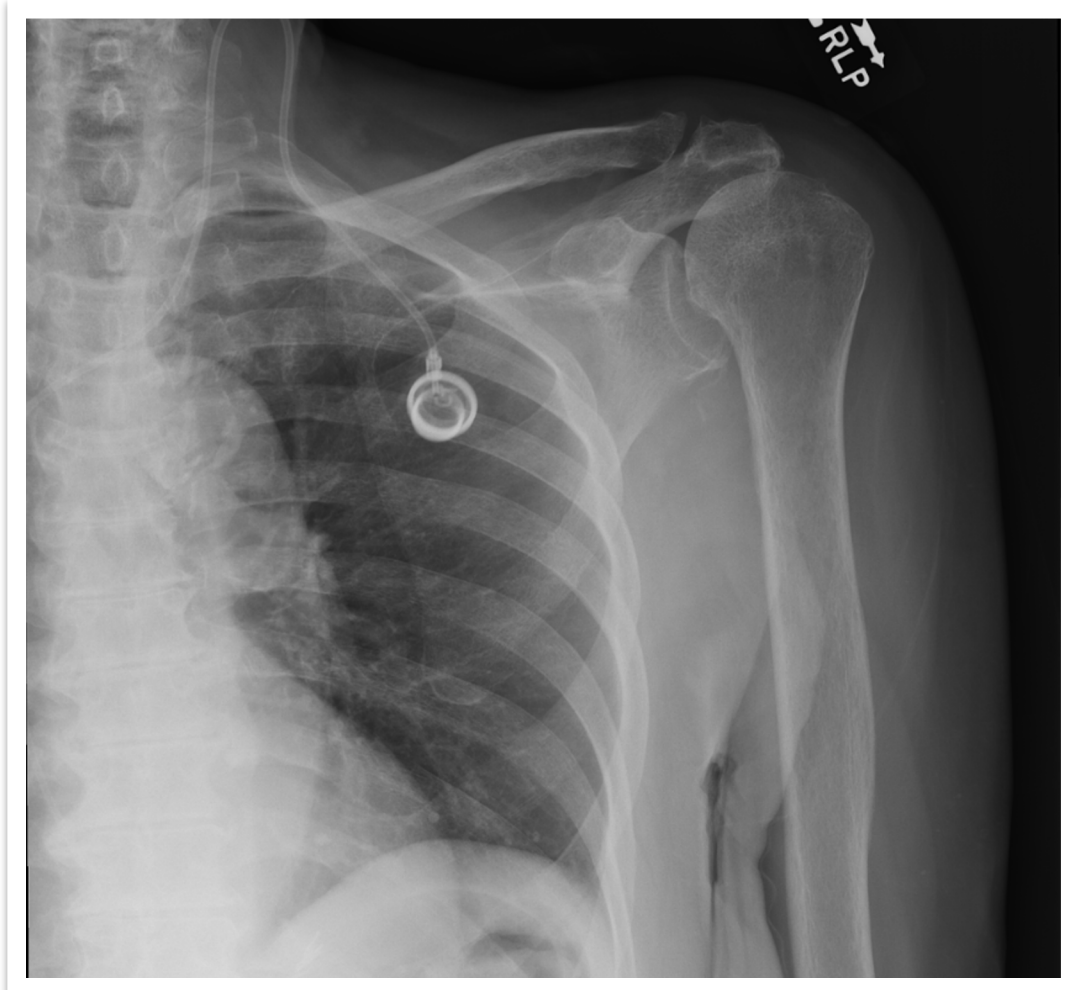
Risk Factors:

- Age over 70
- Females
- Rheumatologic disease

Imaging:

- Multiple upright X-ray views
 - helps determine degree of changed bony anatomy
 - progresses with time
 - often followed by MRI and/or CT scan

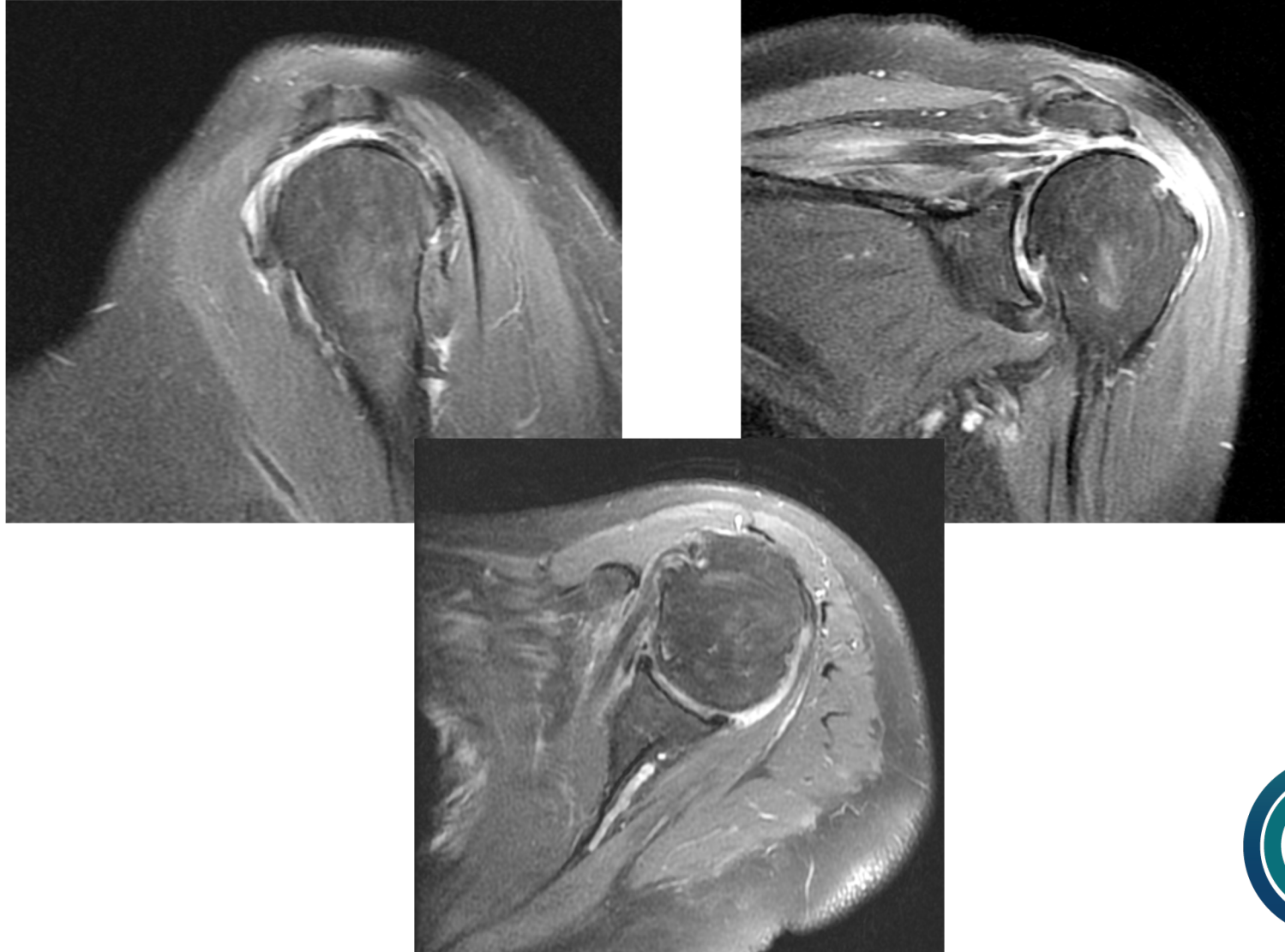
Plain X-rays:



Plain X-rays:



MRI Without Contrast



Rotator Cuff Arthropathy

Exam:

- Motion limited in all directions
→ Can be true inability to move arm
- Muscular wasting of the back of the shoulder
- Bony prominence in front of shoulder



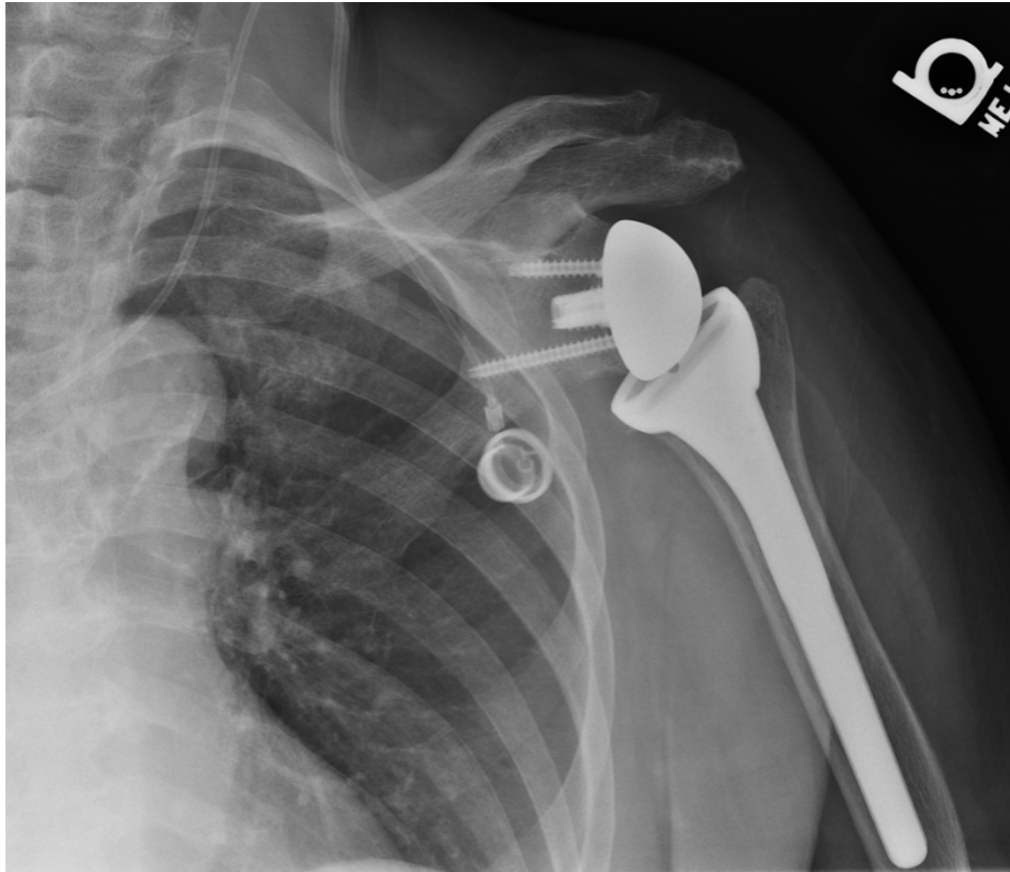
Initial Conservative Treatment:

- Steroid Injections
- NSAIDS
- PT for mild/moderate

“When Do I Need Surgery?”

- Pain despite conservative treatment
- Progressive or severe loss of motion

Reverse Total Shoulder Arthroplasty



Reverse Total Shoulder Arthroplasty

Post-operative course:

- Same day or inpatient surgery
- Sling with pillow for 6 weeks
- Progressive physical therapy for 12 weeks
- Recovery 6 months

No repetitive heavy lifting > 15 pounds indefinitely!

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- **Surgical options**

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- Reverse Total Shoulder Arthroplasty

- **Recovery**

A family of four is captured on a ski lift, all smiling and looking towards the camera. The mother, on the left, wears a bright yellow Helly Hansen jacket and a white Smith helmet with reflective goggles. The father, on the right, is in an orange Arc'teryx jacket and a white Zeal helmet with large reflective goggles. Between them are two young children in dark blue ski suits. The child on the left wears a white helmet with a black checkered pattern and a 'bern' logo, along with teal goggles. The child on the right wears a black helmet and black goggles. They are all secured with blue safety harnesses. The background shows a snowy mountain landscape with evergreen trees under a clear blue sky. The text 'Thank You!' is superimposed in a large, white, sans-serif font across the center of the image.

Thank You!

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