Management of Rotator Cuff Injuries

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Disclosures

- Committee Member: AAOS, ASES
- Consultant: Arthrex, Inc.
- Consultant: Exactech, Inc.
- Research Support: Exactech, Inc.

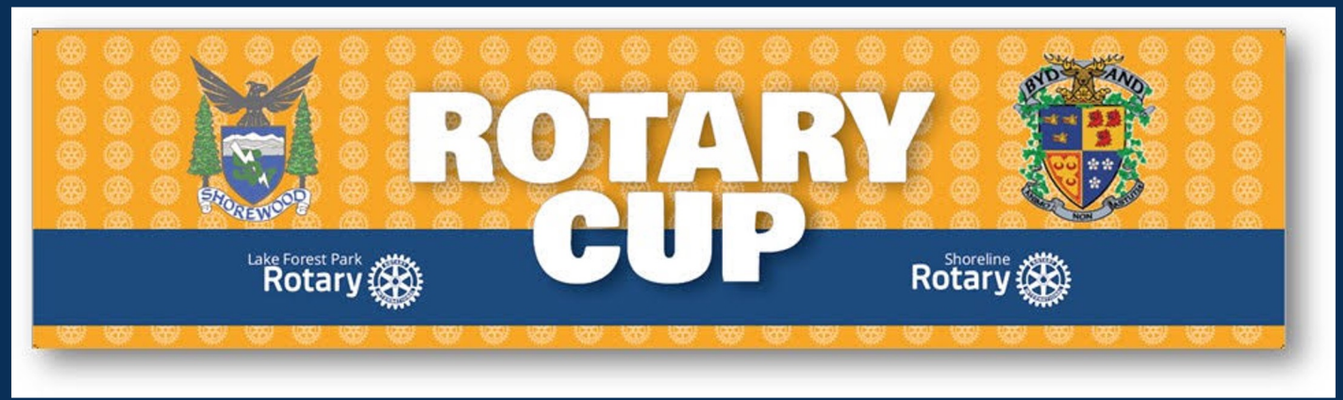
Objectives

Anatomy

Function

Examination

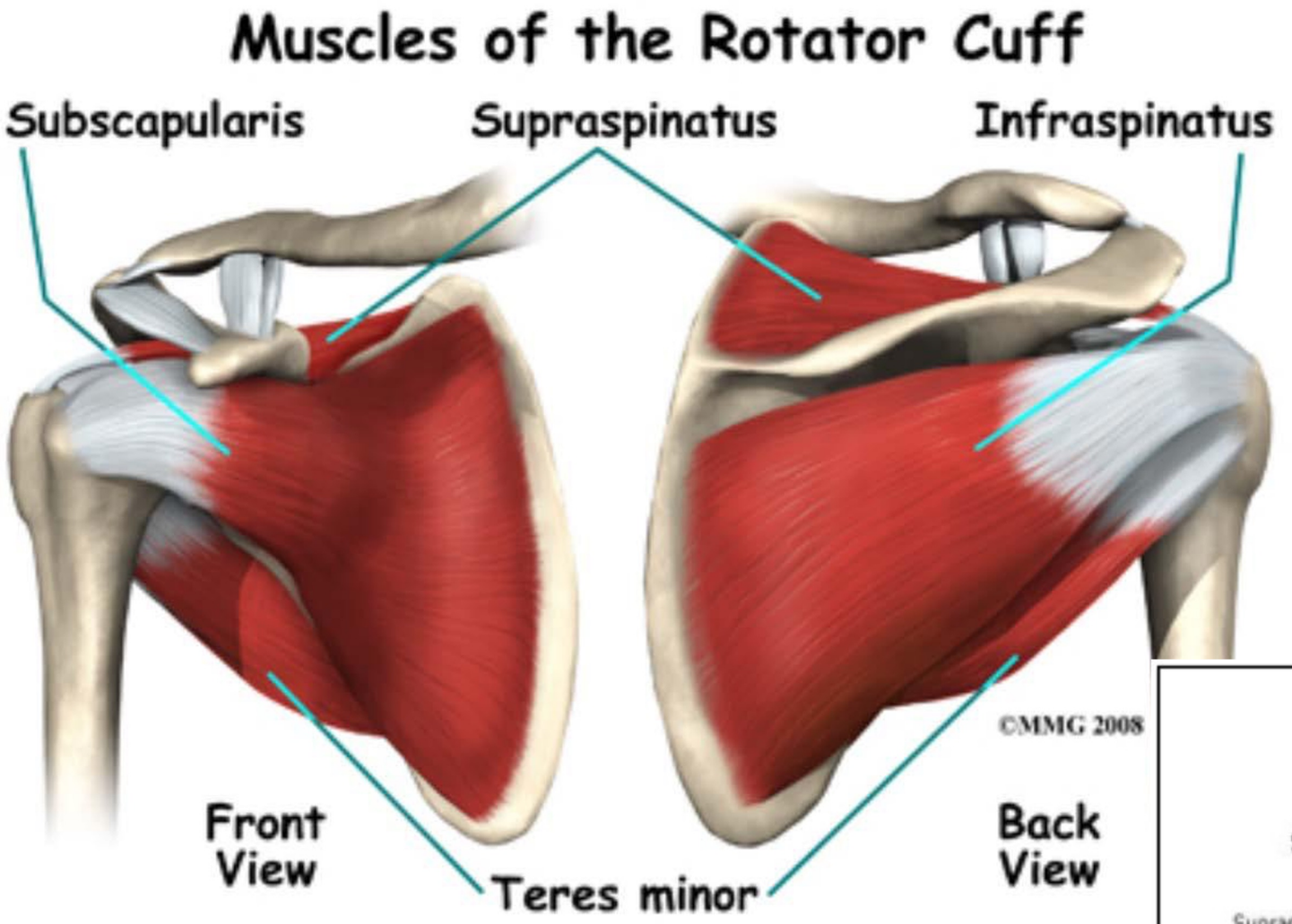
Imaging

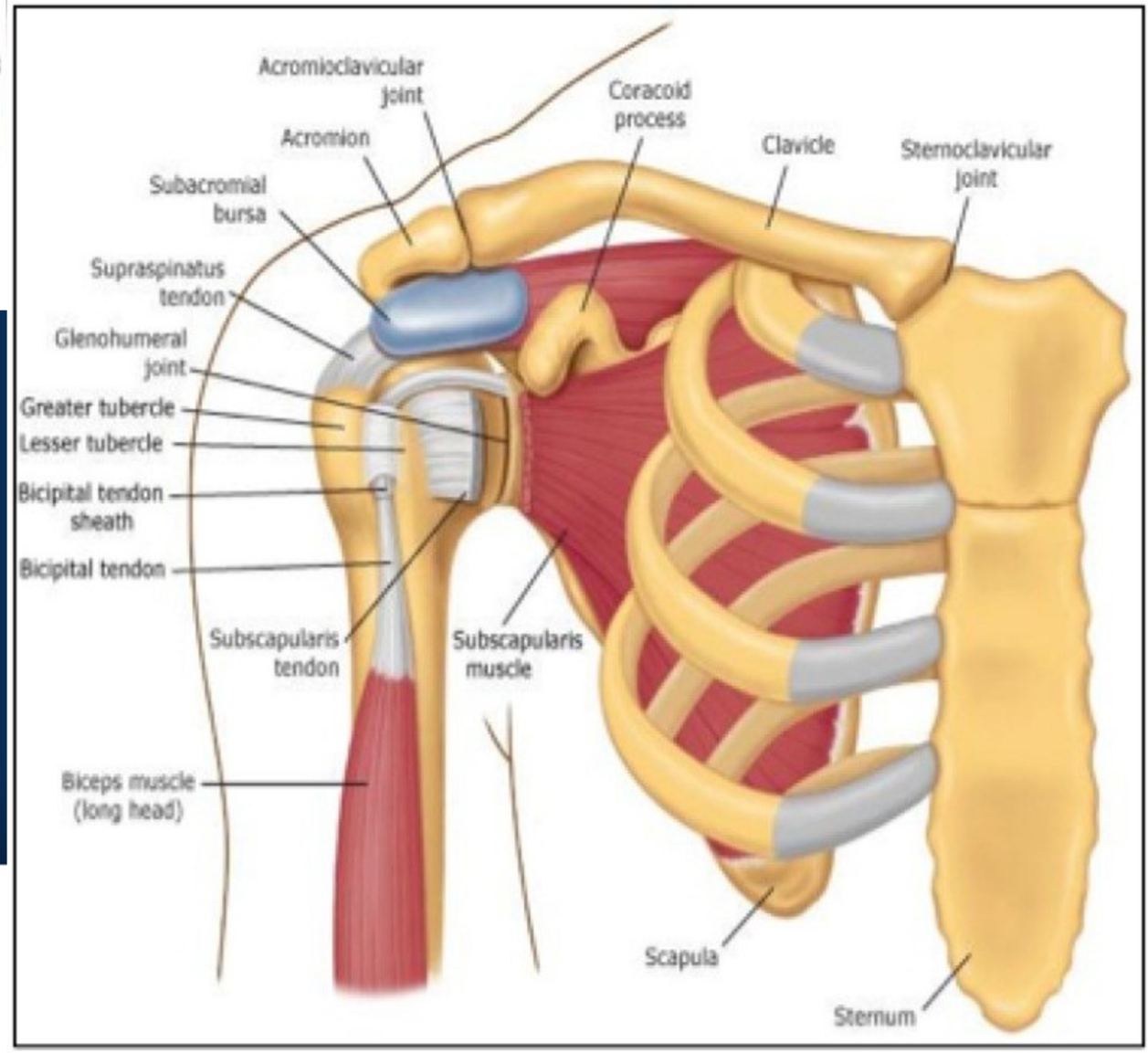


Anatomy

Like everything, we can’t understand the pathology until we know the anatomy

We’ve all seen the same pictures in Netter, but what is it really?





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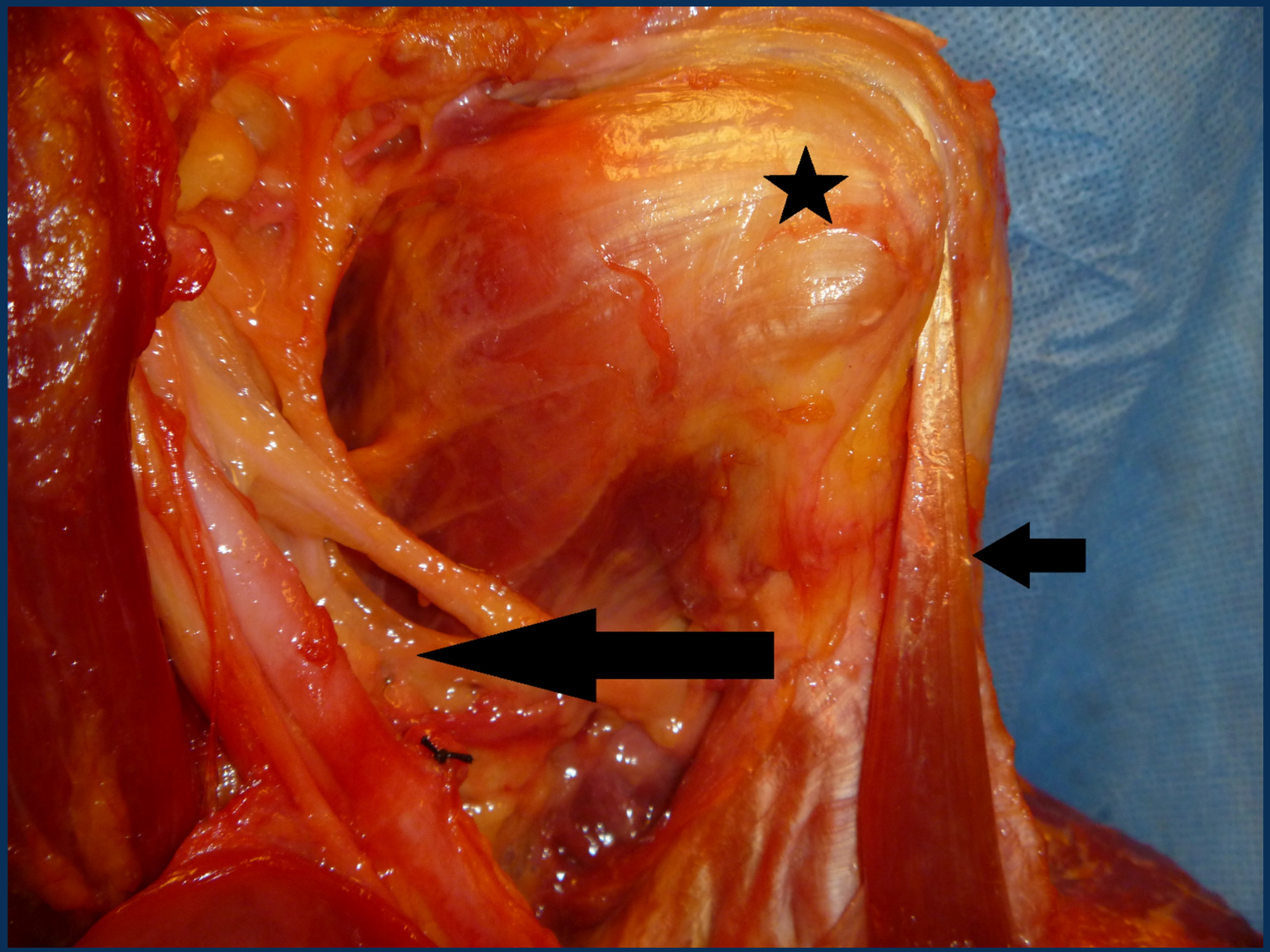
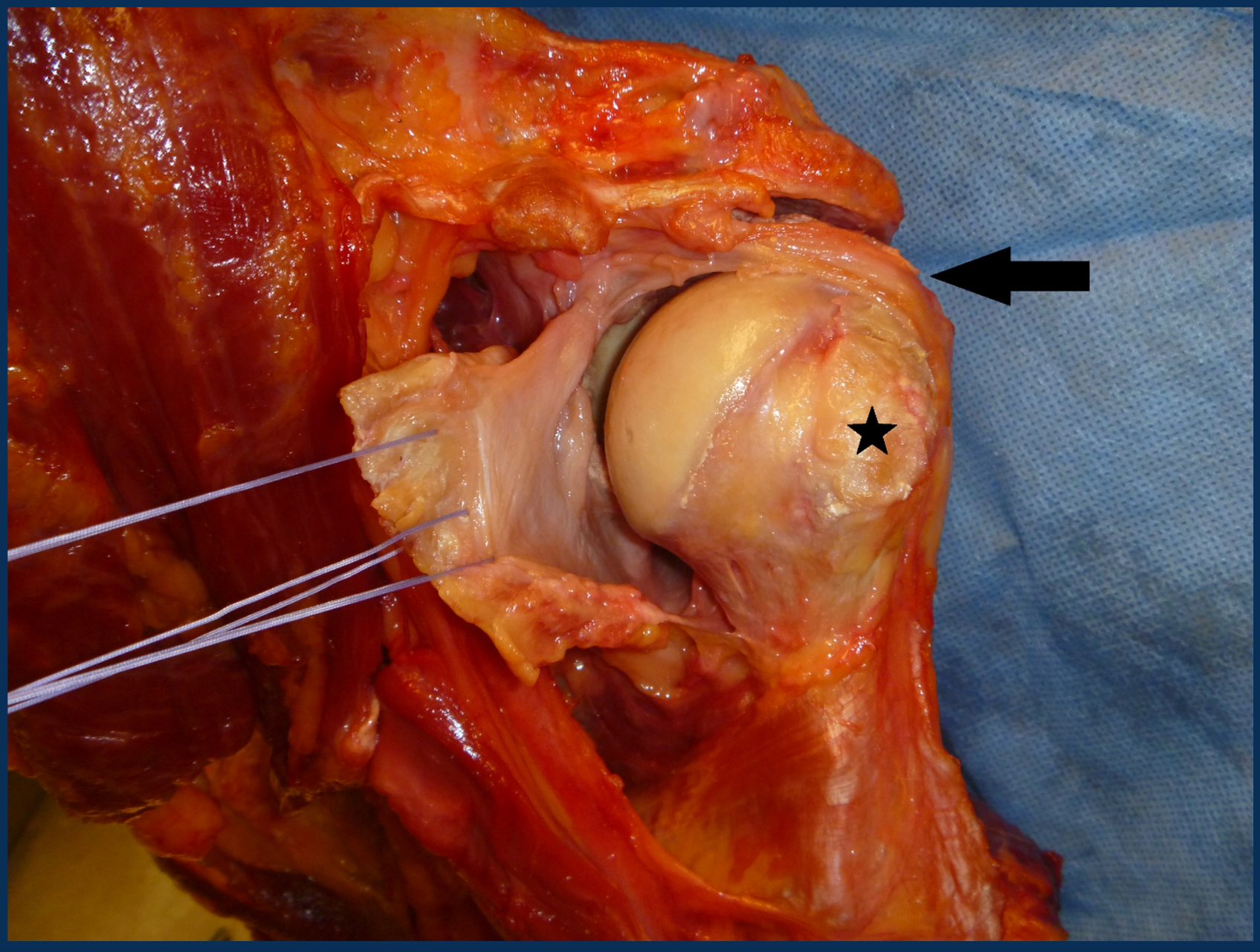
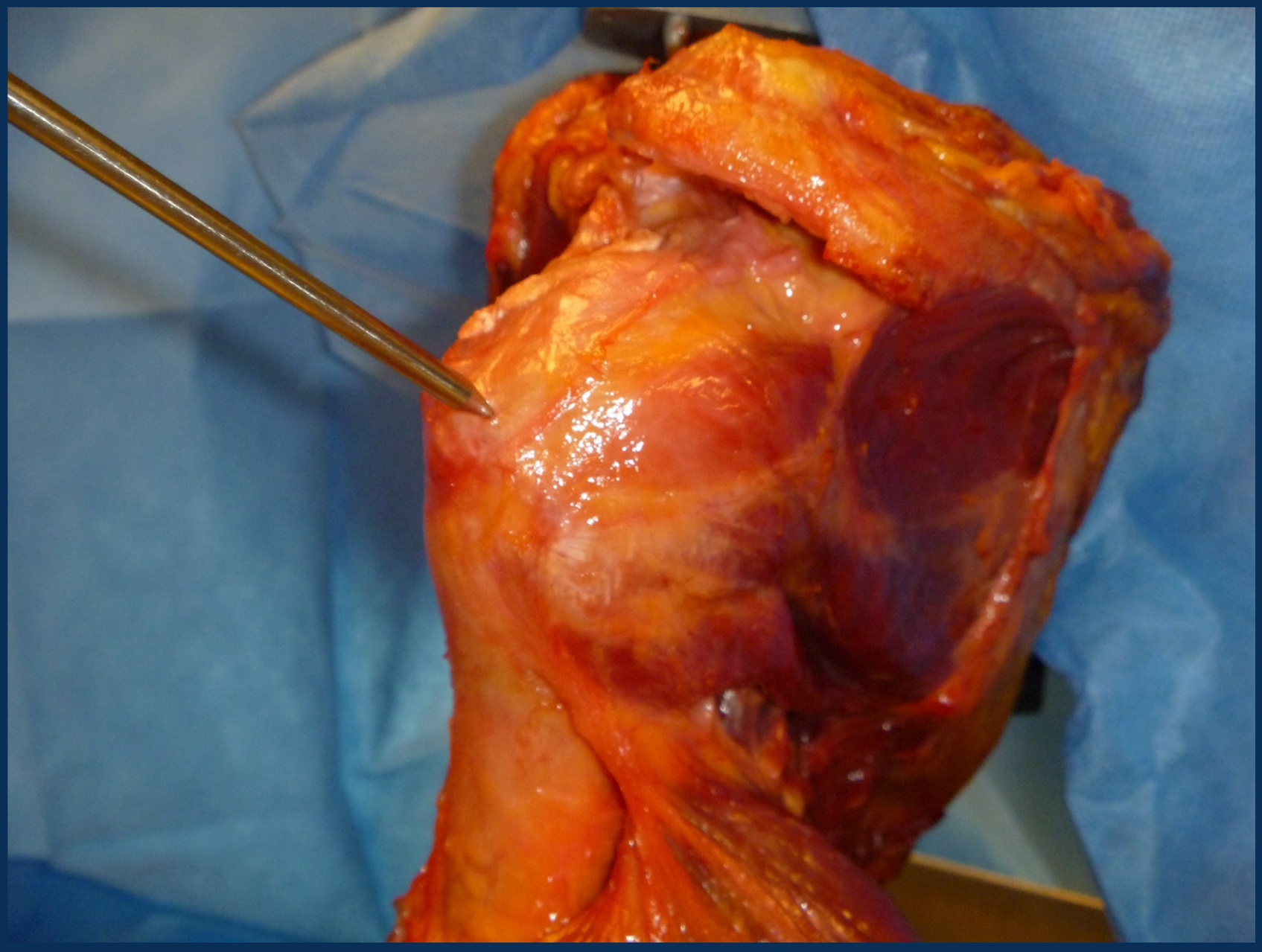
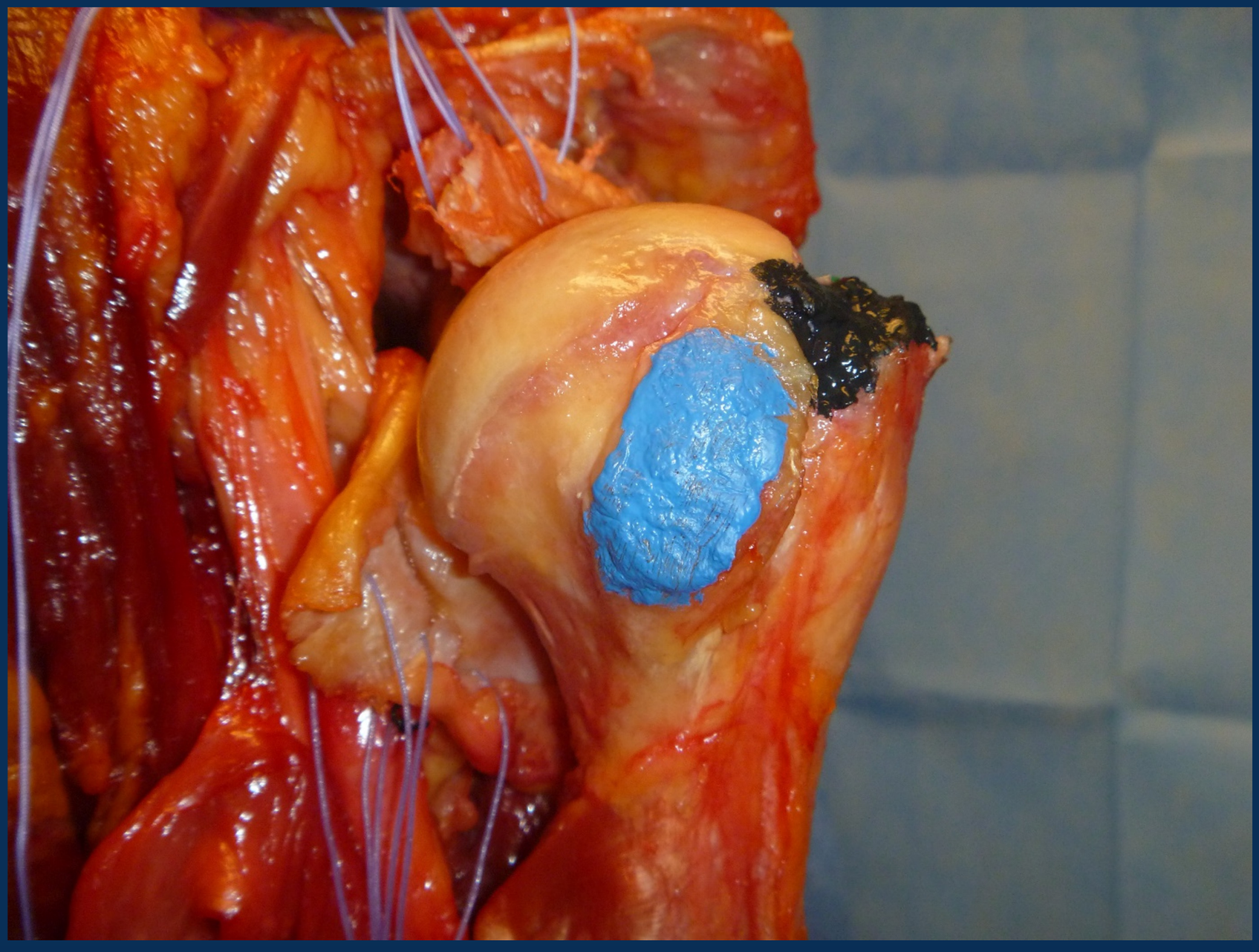
Introduction









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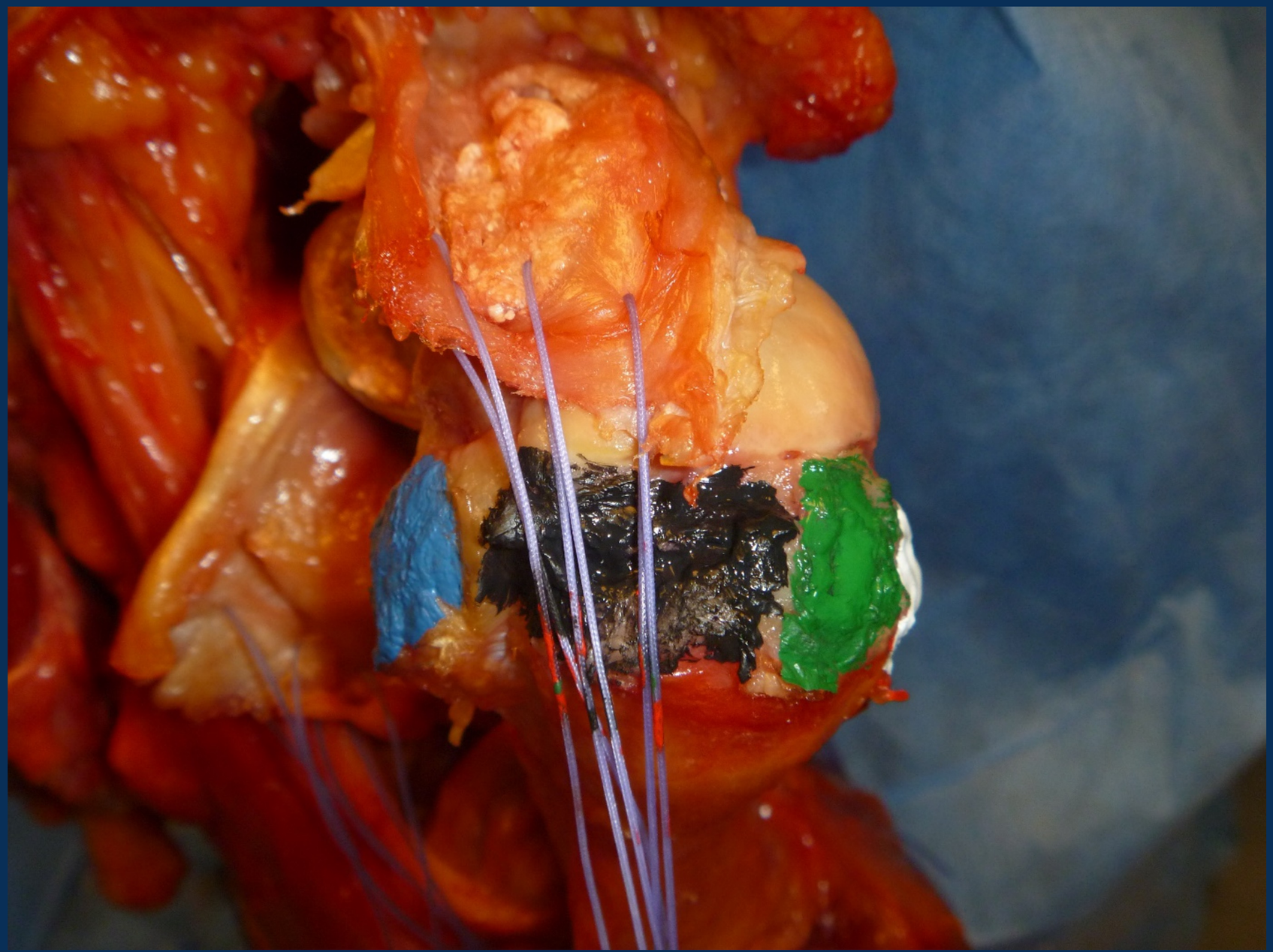
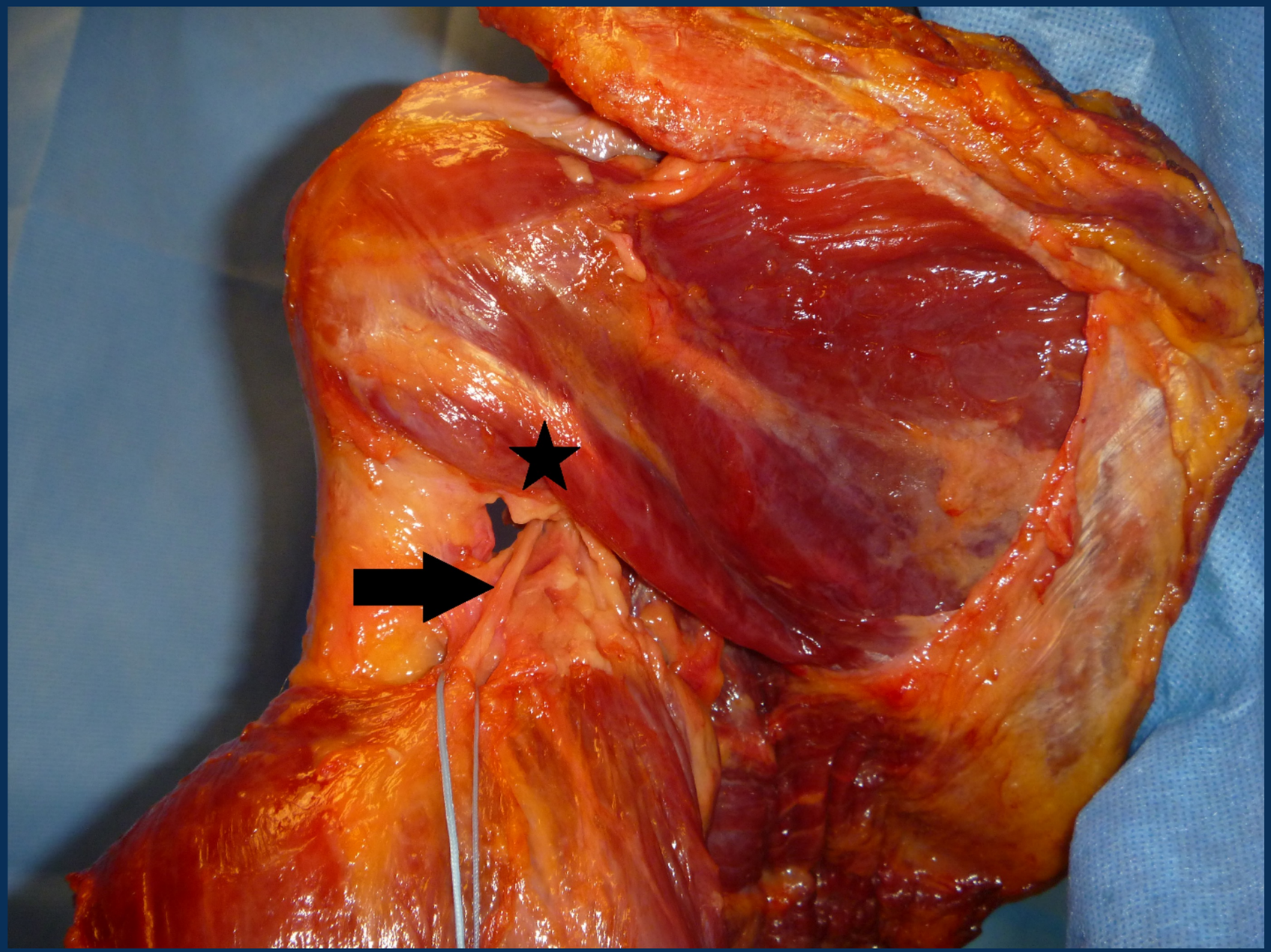
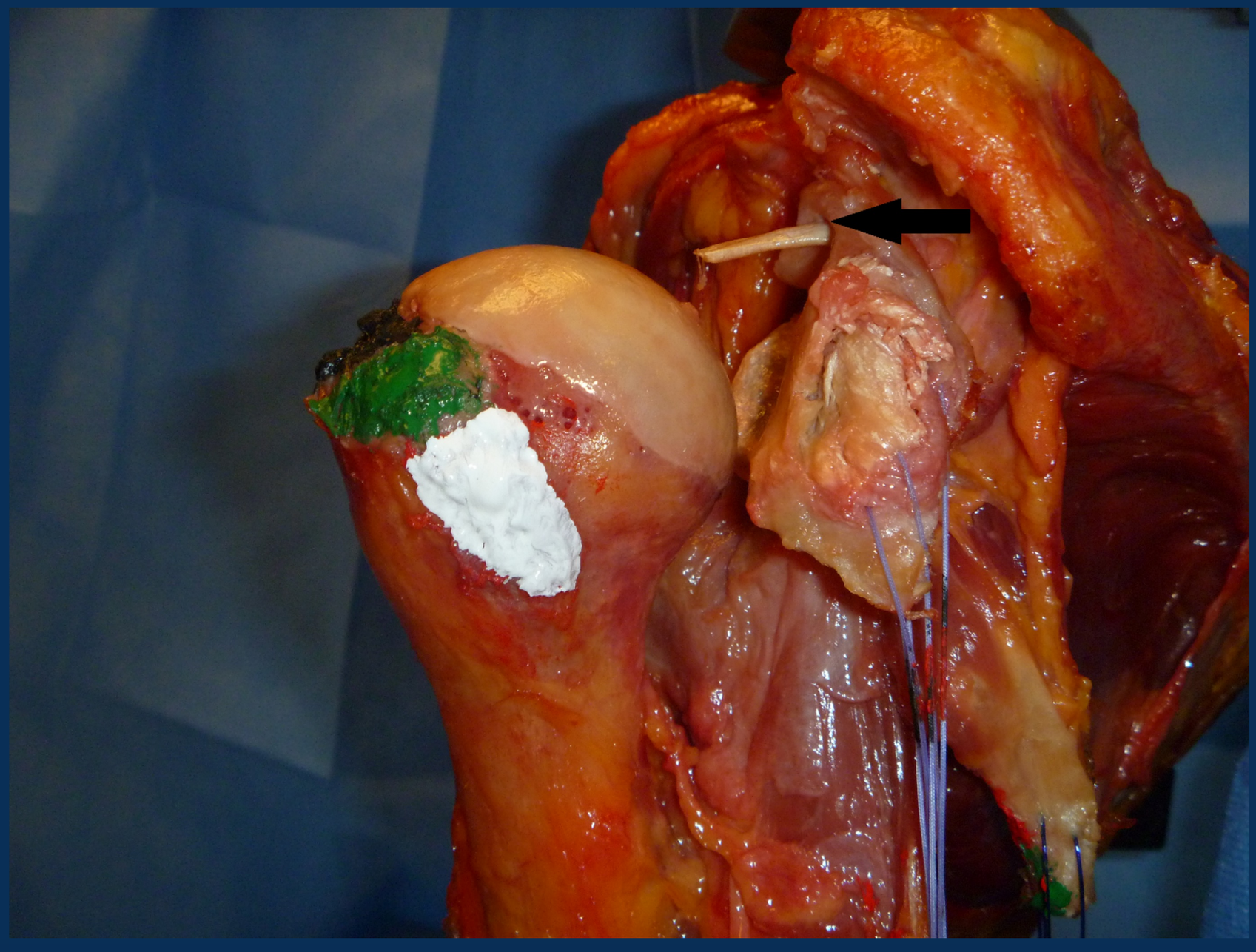






Function of the Cuff

What does the Rotator Cuff do?

- Provides motion about the shoulder
- Keeps the “ball centered on the socket”

What is “motion about the shoulder”?

Complex

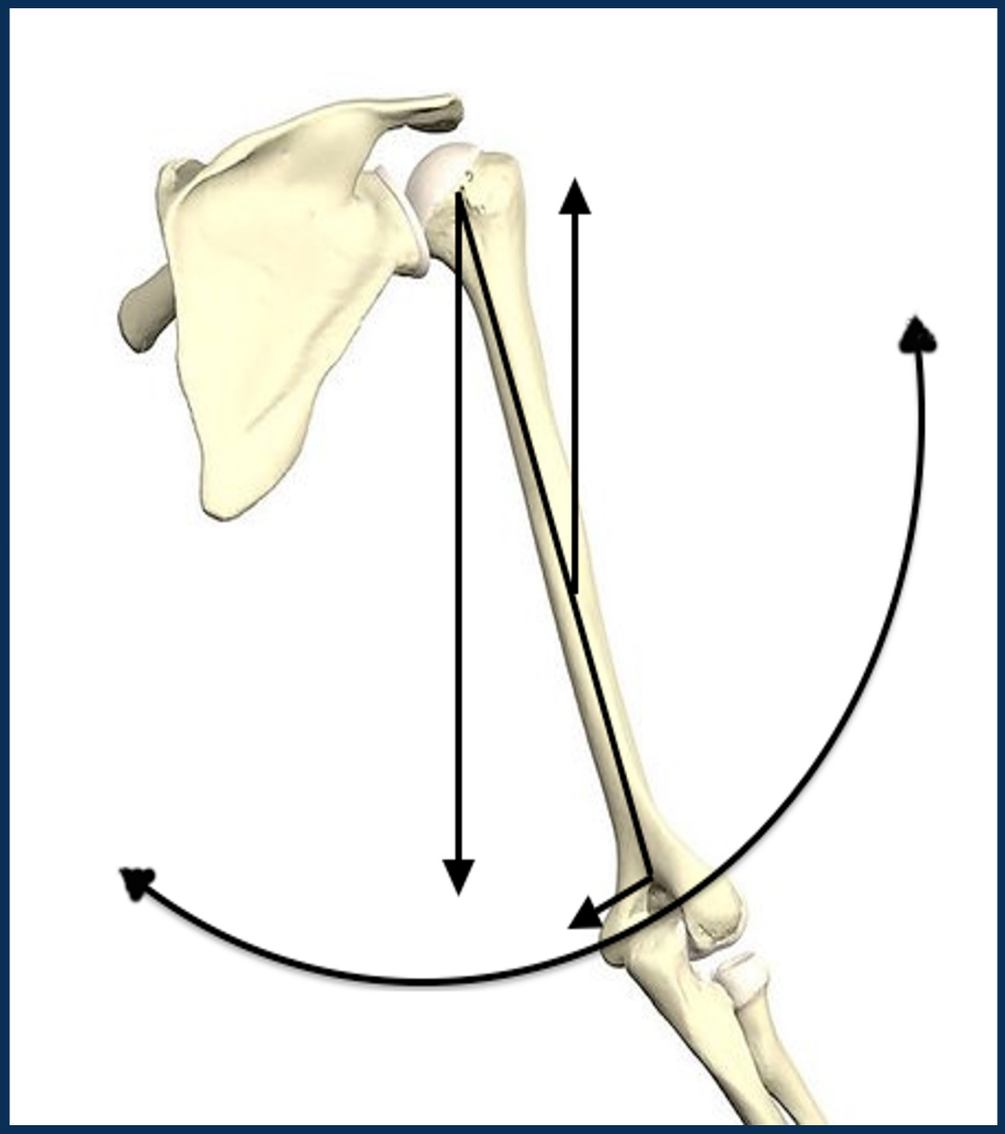
Takes into account:

- Motion between AC and SC joints
- Glenohumeral joint
- Scapulothoracic articulation

Motion

When discussing the Rotator Cuff, we refer to the motion at the glenohumeral joint in 3 axes

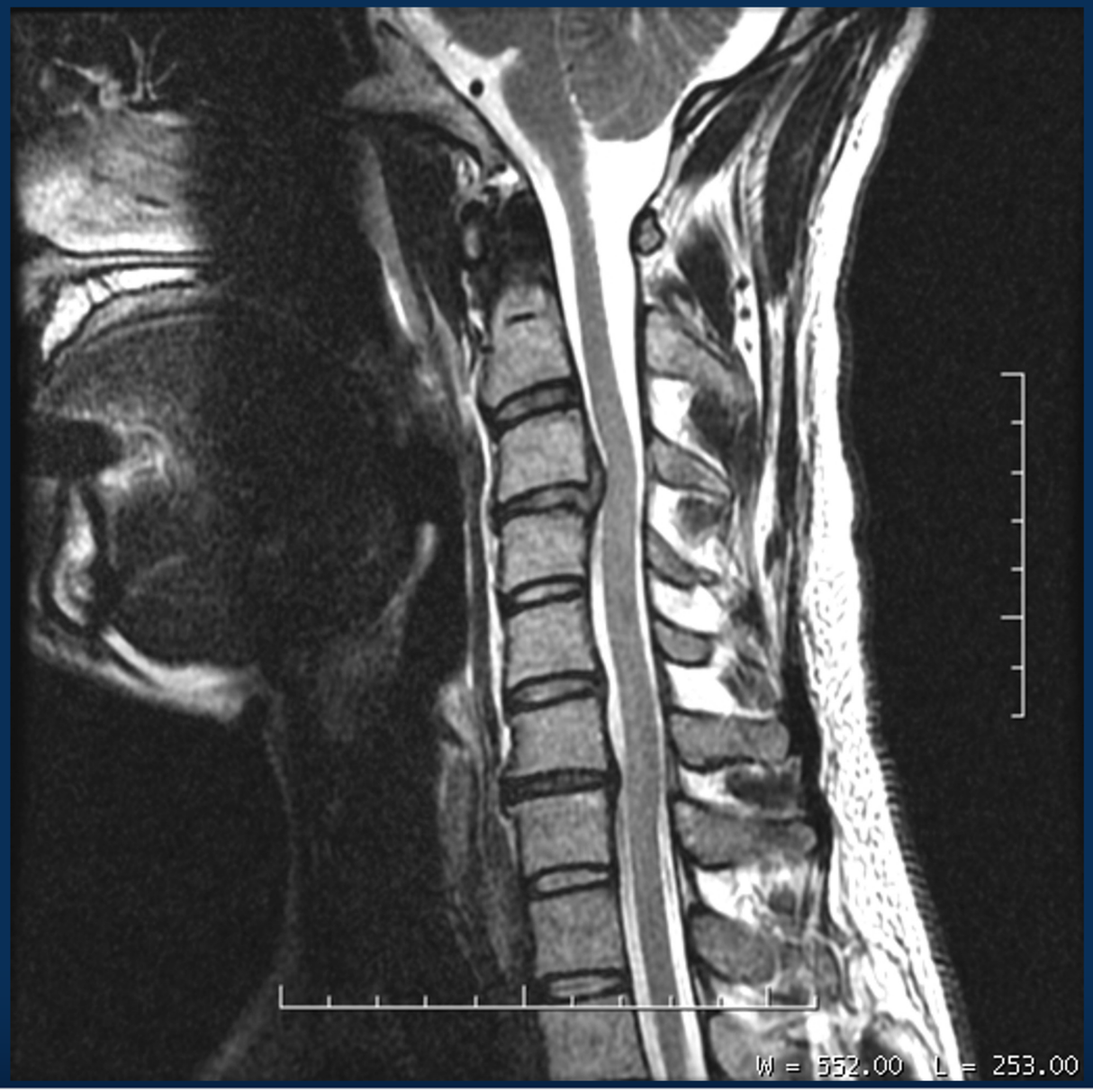
- Forward elevation
- Elevation in the plane of the scapula (abduction)
- Humeral rotation



Exam

Cognizant of crossover from neck pathology

Neck exam always warranted during shoulder exam



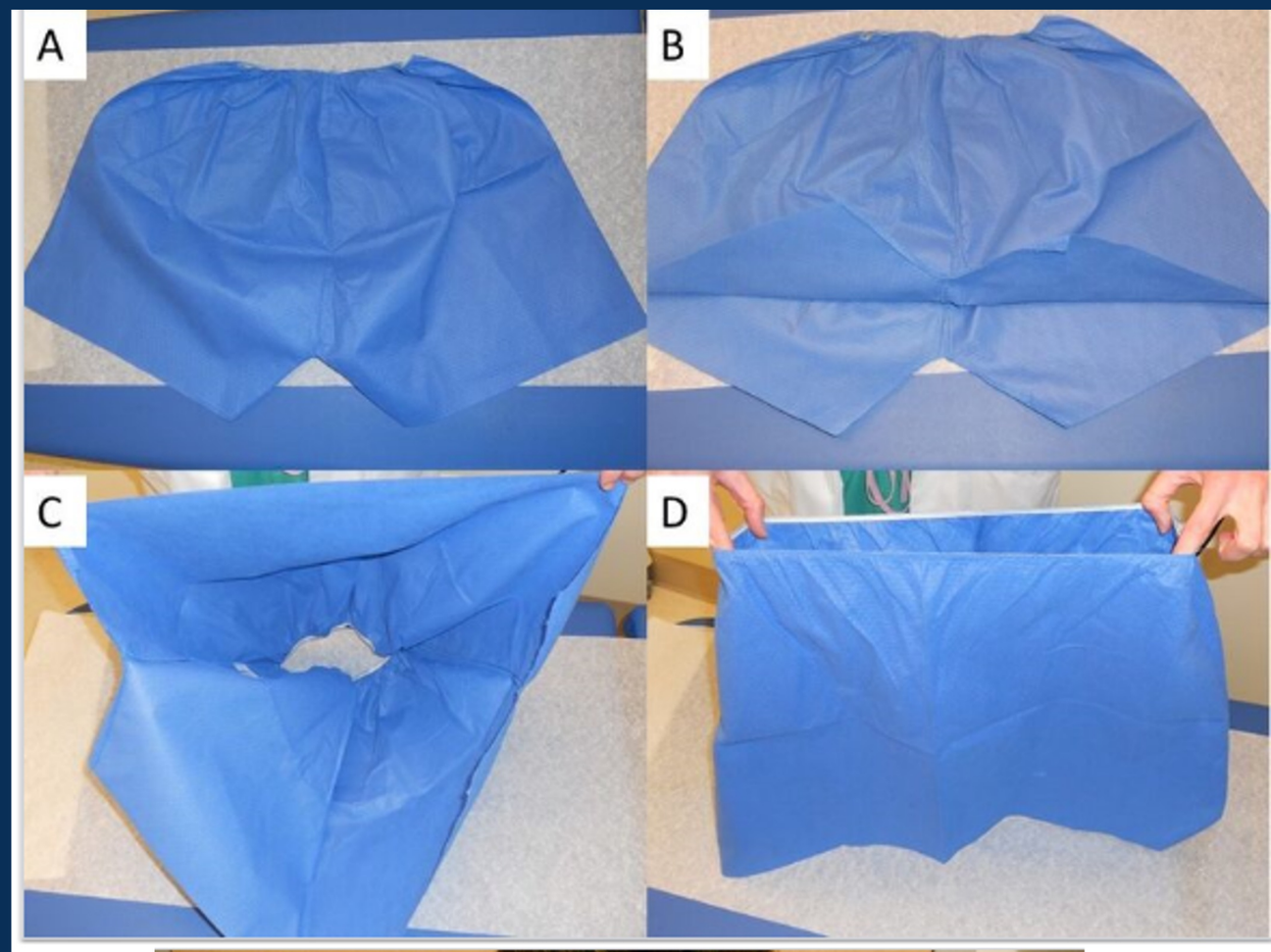
Exam - Inspection

<u>You must see the skin</u>

In females this means a tank-top or gown with the neck tied under the axilla

Can’t peek under a shirt sleeve

Study of patients referred to orthopaedics revealed over 50% had never had a doctor visualize the skin of the joint in question



Exam - Inspection

Atrophy

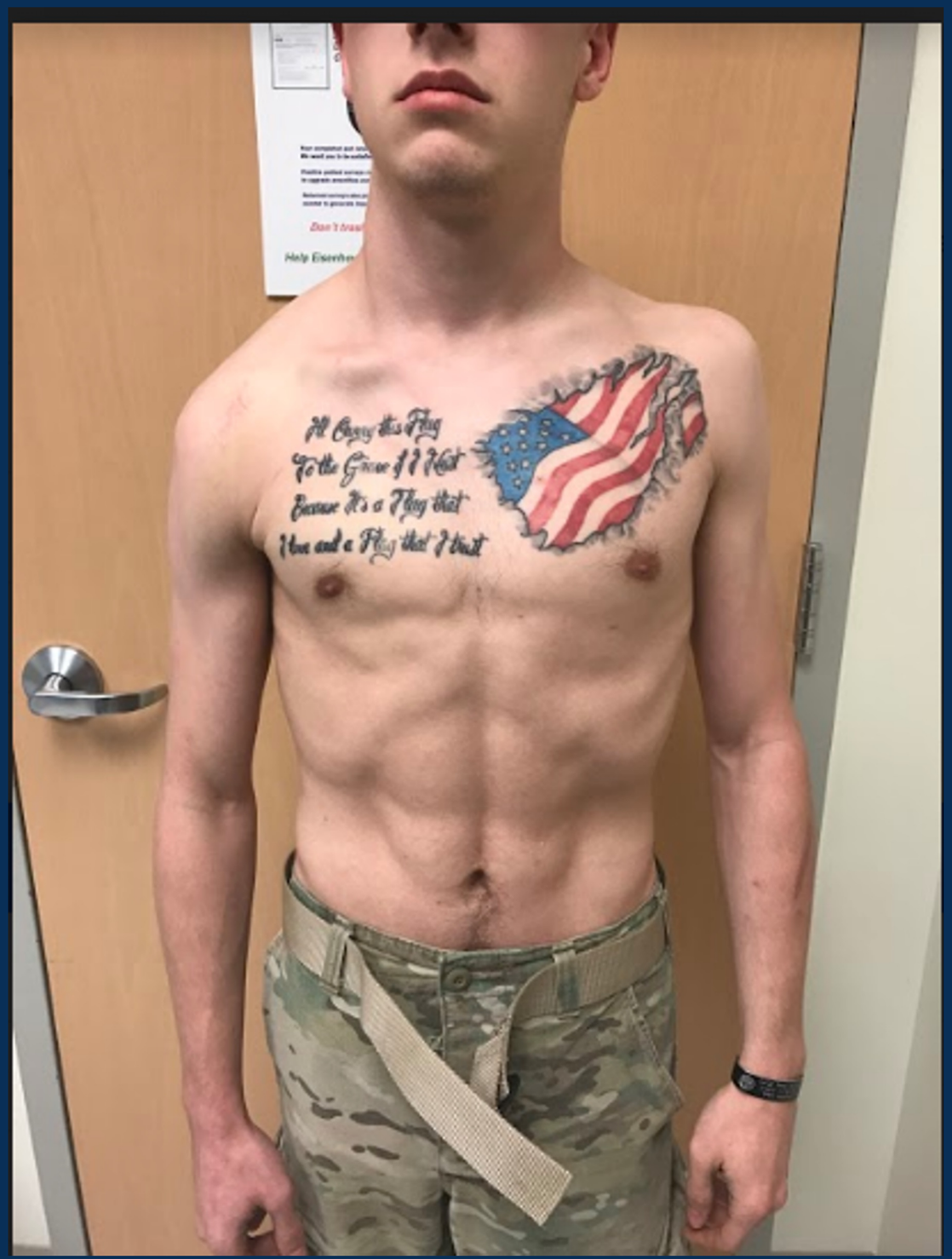
- Supraspinatus fossa
- Infraspinatus fossa

Scars

- Previous surgery (shoulder, soft tissue, neck)

Position of the scapula

What is the dx? ⟶



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Palpation

Look for associated pathology,

(really this means)

AC joint/distal clavicle pain

Biceps tendon / groove pain

Observation of Motion

"Motion" refers to the total arc of motion about the shoulder, but should be specific to the glenohumeral joint when discussing the rotator cuff

Patients will compensate with truncal and scapulothoracic motion

Have patients stand with feet/knees together, it will limit their ability to compensate

Use your hand to hold the scapula to isolate GH motion


Technique and Preliminary Results for an All-arthroscopic Latarjet Procedure:
an analysis of this procedure in 15 patients
Introduction
Materials and Methods
Surgical Technique
FIRST STEP, JOINT ASSESEMENT AND PREPARATION; scope through posterior A portal and instrumentation through E portal.
THIRD STEP, CORACOID OSTEOTOMY, scope in E portal, instrument in H portal.
FOURTH STEP, CROSSING OF THE BONE GRAFT THROUGH THE SUBSCAPULARIS TENDON;scope in E portal, instrument in I portal
Arthroscopic Suprase
A Study
Introduction
Surgical Technique
PUMA

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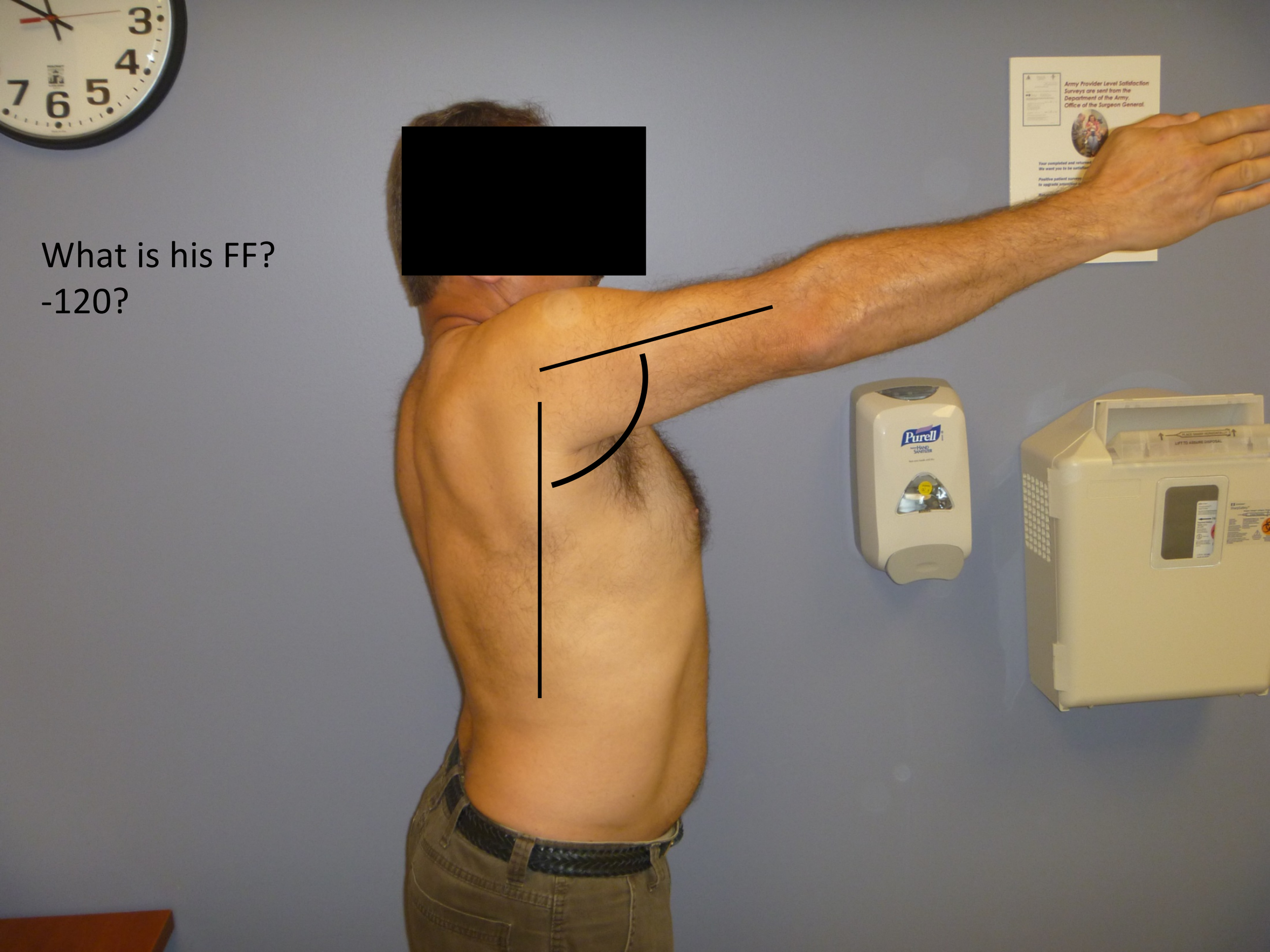
What is his FF?
-120?



What is his FF?

- 120?
- <90?


Army Provider Level Satisfaction Surveys are sent from the Department of the Army, Office of the Surgeon General.
Your completed and returned survey is important. We want you to be satisfied with your health care.
Positive patient surveys returned = $$$$ for Eisenhower to upgrade amenities and expand services.
Returned surveys also provide important feedback needed to generate improvements.
Don't trash it
Help Eisenhower CASH IT!
Purell
HAND SANITIZER


Purell
HAND SANITIZER

Active Internal Rotation

T4:Superior angle of scapula

T7:Inferior angle of scapula

L4:Iliac crest

Exam - Motion

Important to differentiate “**passive**” from “**active**” range of motion

It is common to see patients for “weakness” with an MRI finding of a rotator cuff tear that actually have a frozen shoulder and no one has documented passive range of motion or worse – they have and stated “FROM”

Subscapularis Testing

Belly Press

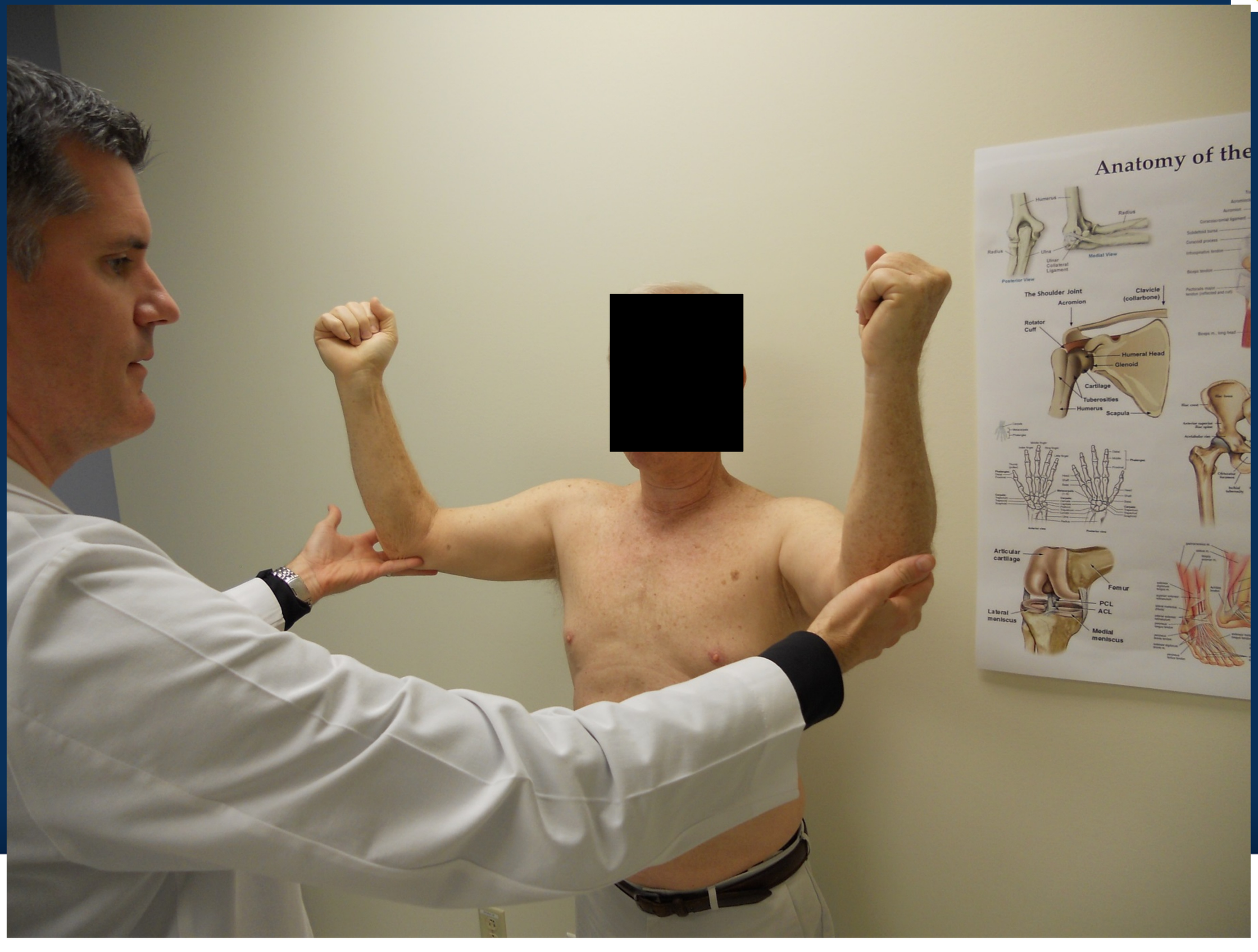
Lift-off

Supraspinatus Testing

Supraspinatus Testing

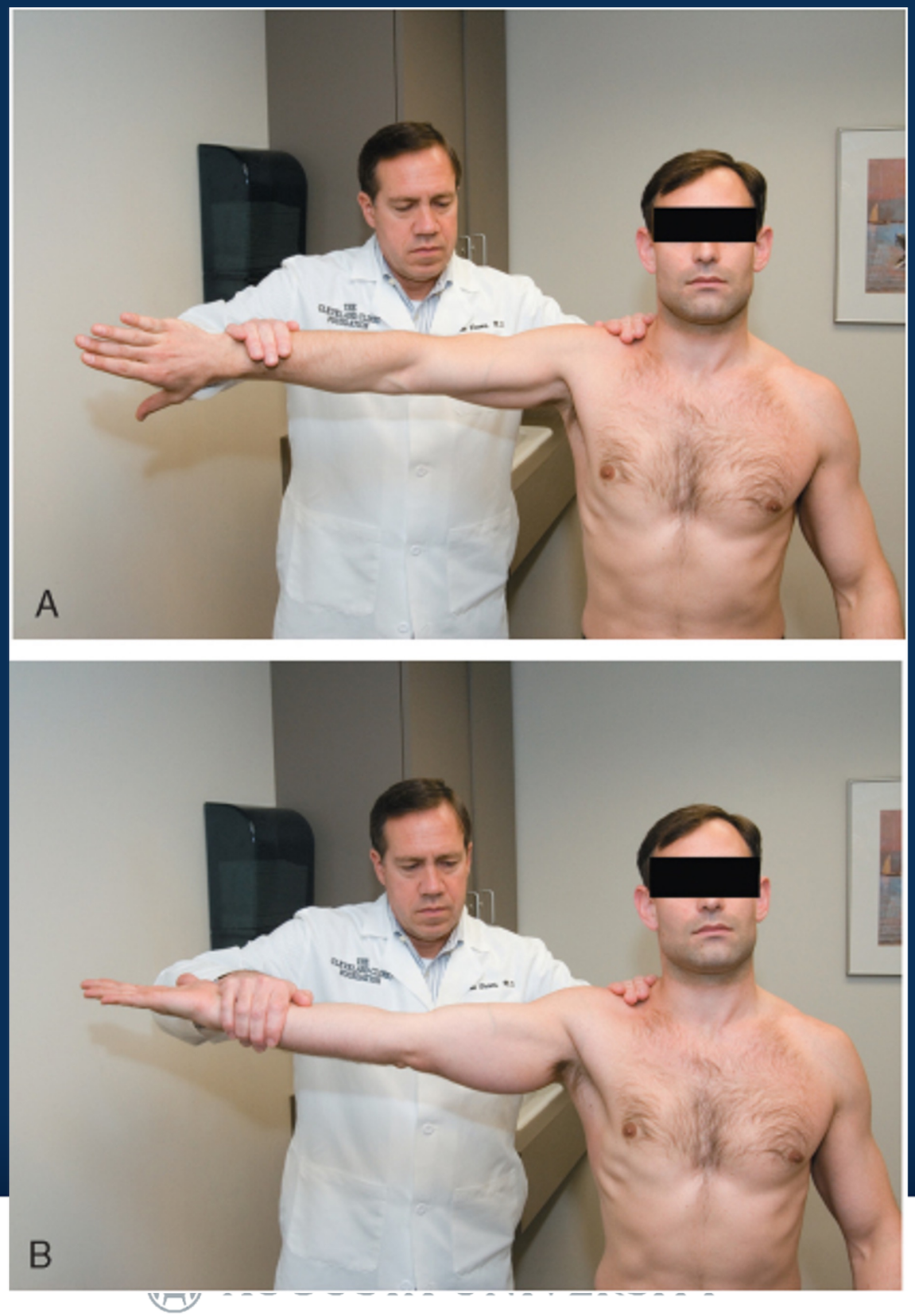
Infraspinatus / Teres Minor

Negative Hornblower



Hawkins Impingement Test

Jobe Test for SSP Tendinitis



Pain in IR that improves with supination

O’Brien Test for Biceps

Imaging – Why do I need an Xray when I have the MRI report right here?

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Which one is indicative of a RCT?

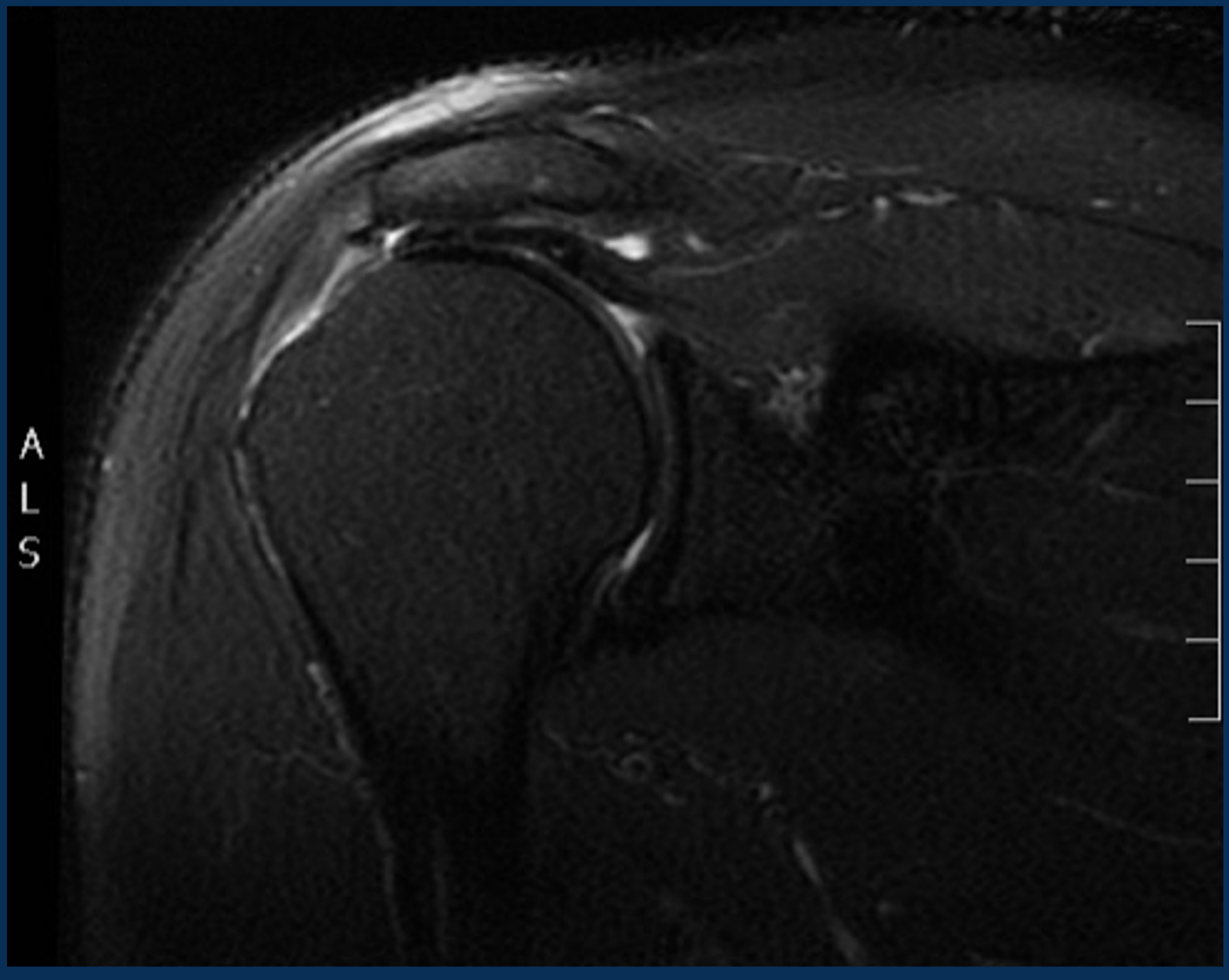
Imaging

Remember when….

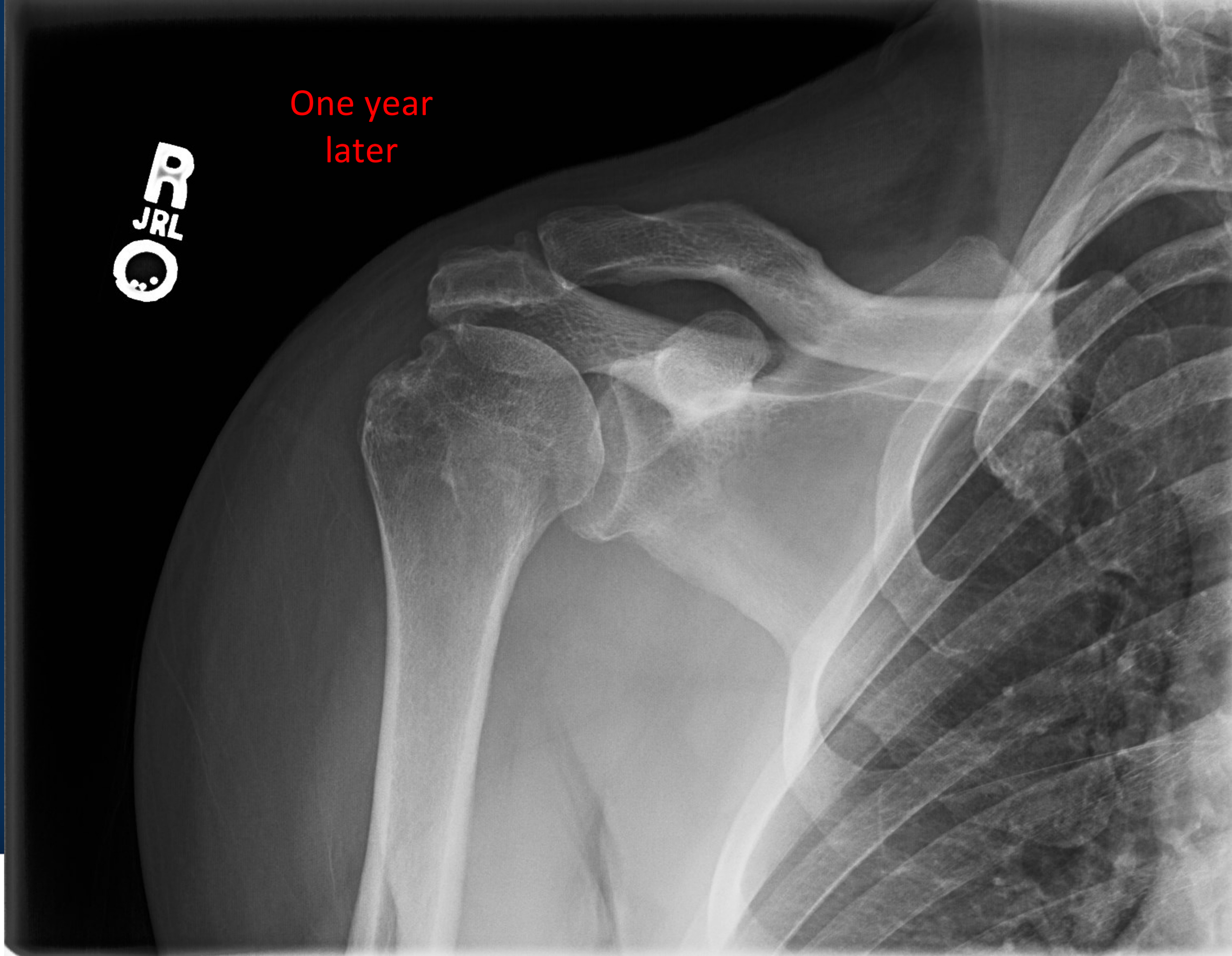
…What does the Rotator Cuff do?

Provides motion about the shoulder

Keeps the “ball centered on the socket”


A
L
S

One year
later



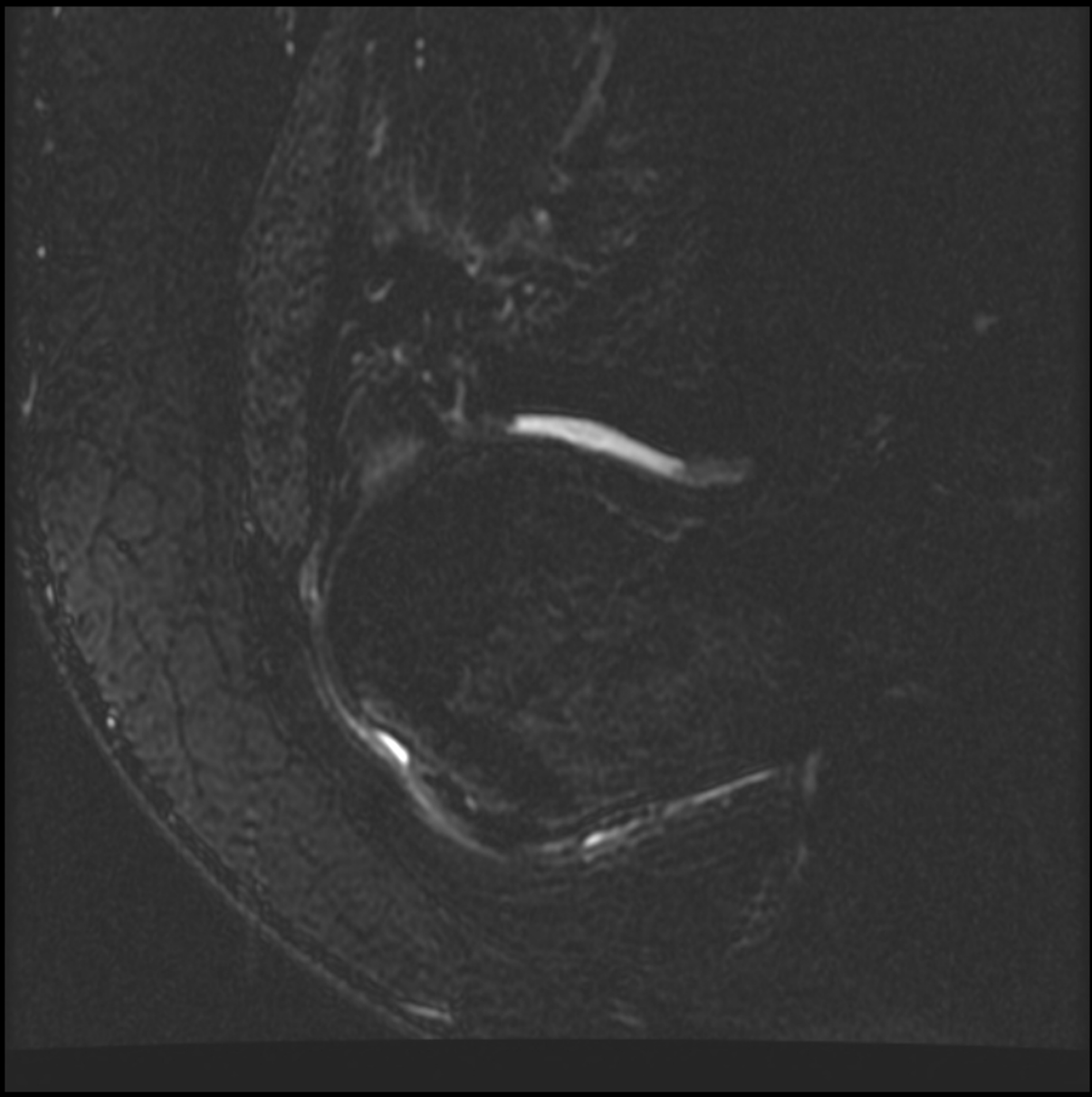
Imaging

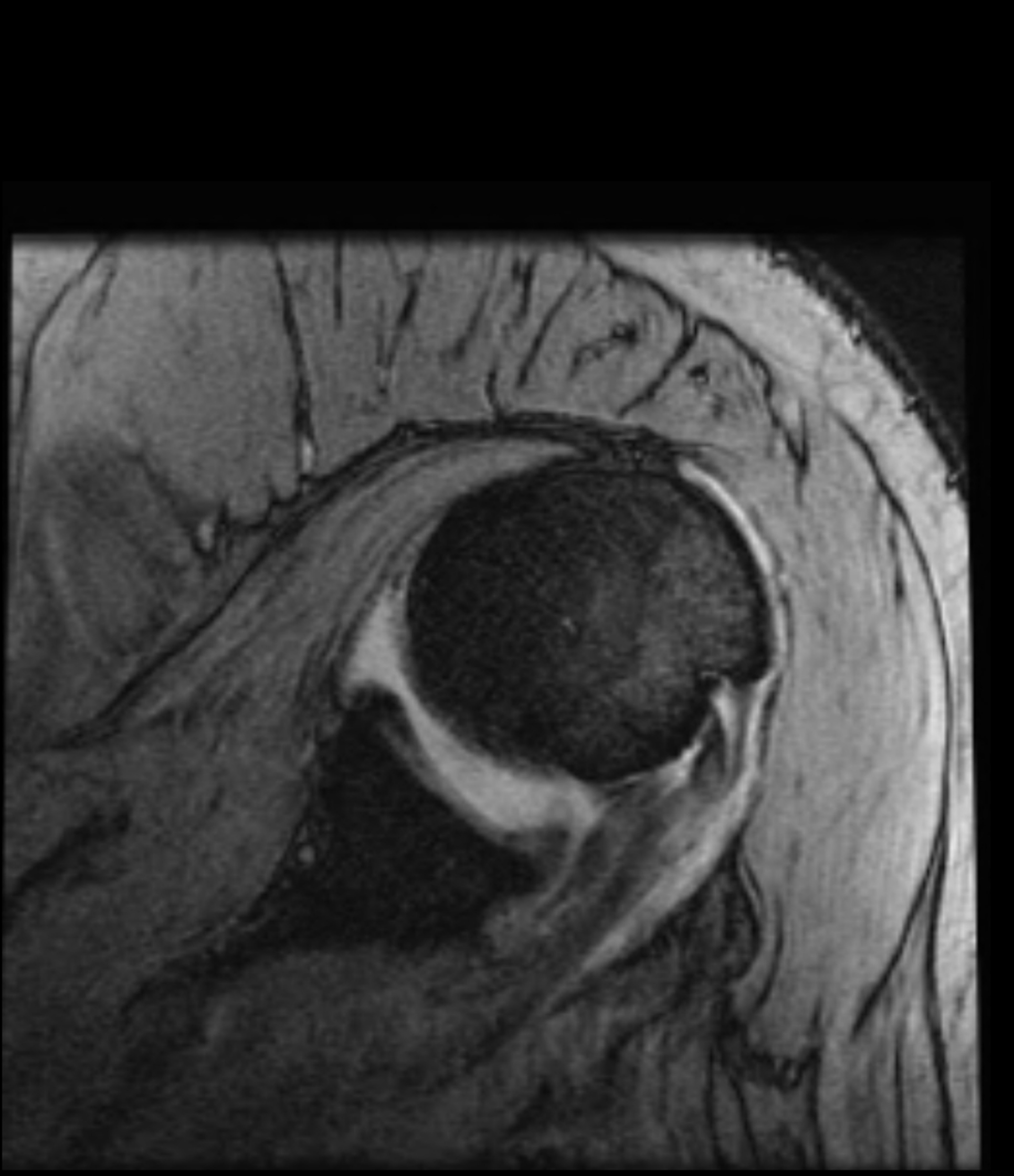
Initial w/u should consist of:

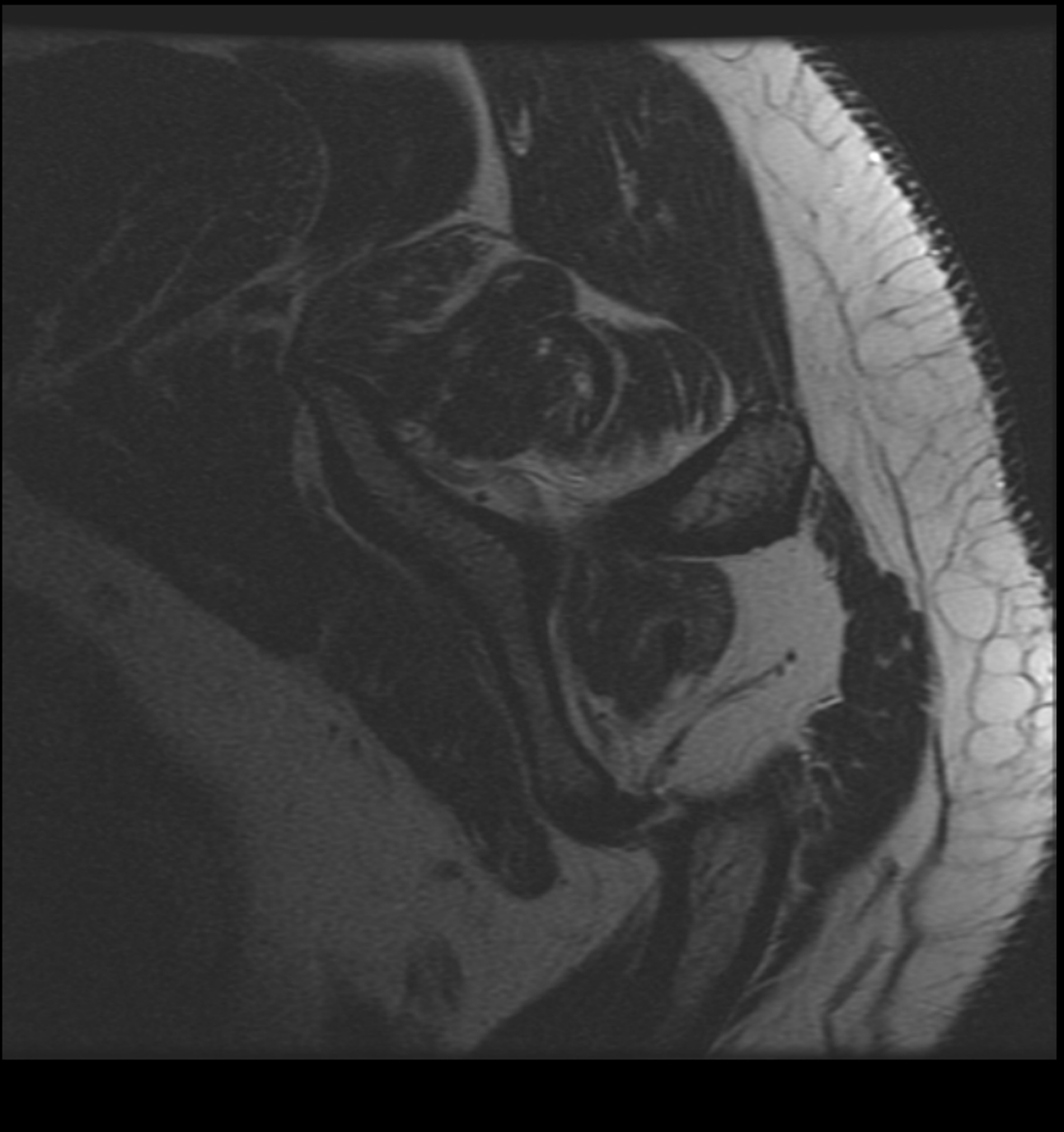
- True AP of glenohumeral joint (Grashey)
- Axillary
- *Scapular Y? – I hardly ever use*

When do I order an MRI?

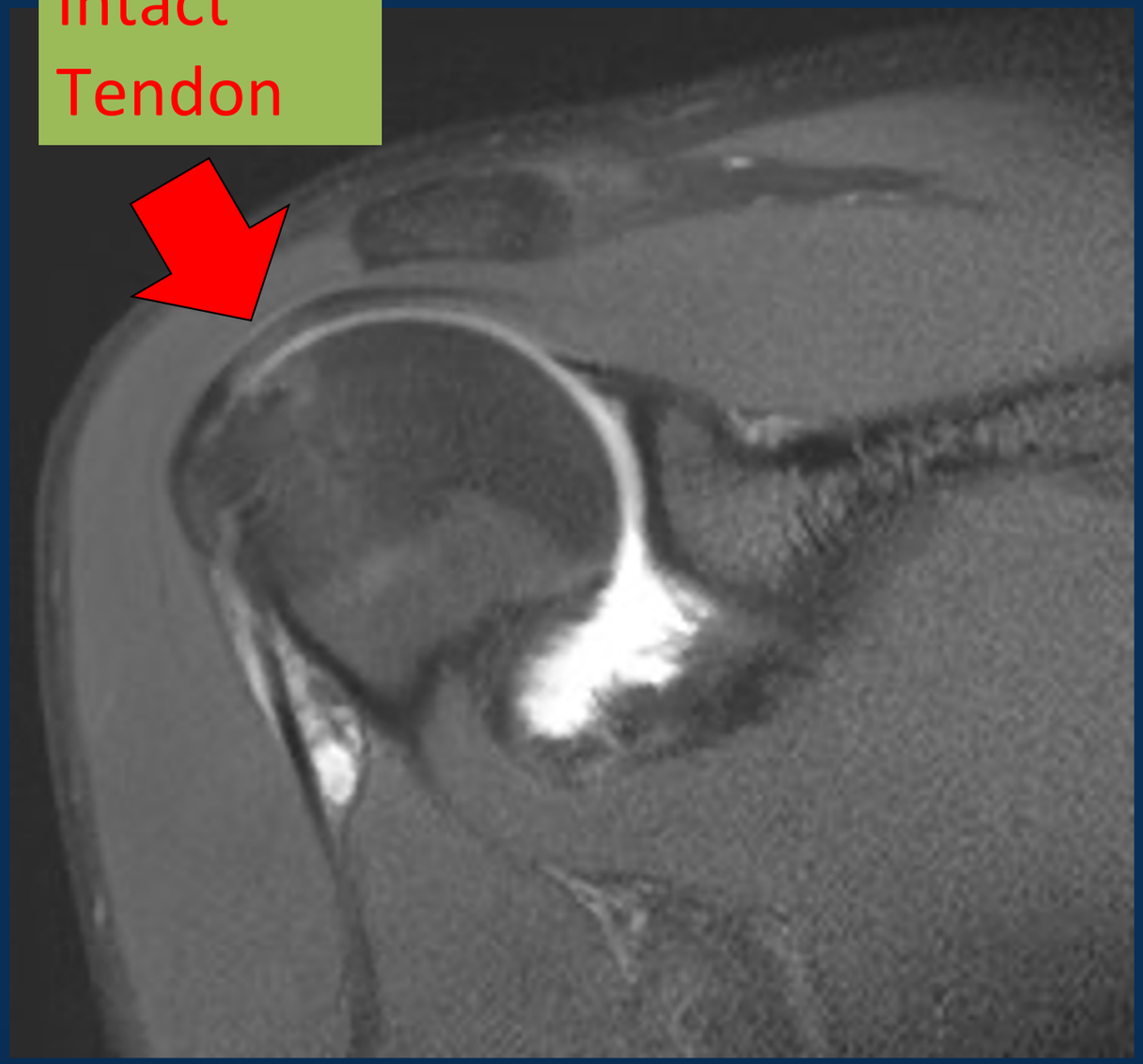
- Traumatic injury?
- Weakness/atrophy on exam?
- Instability
- Failed PT?



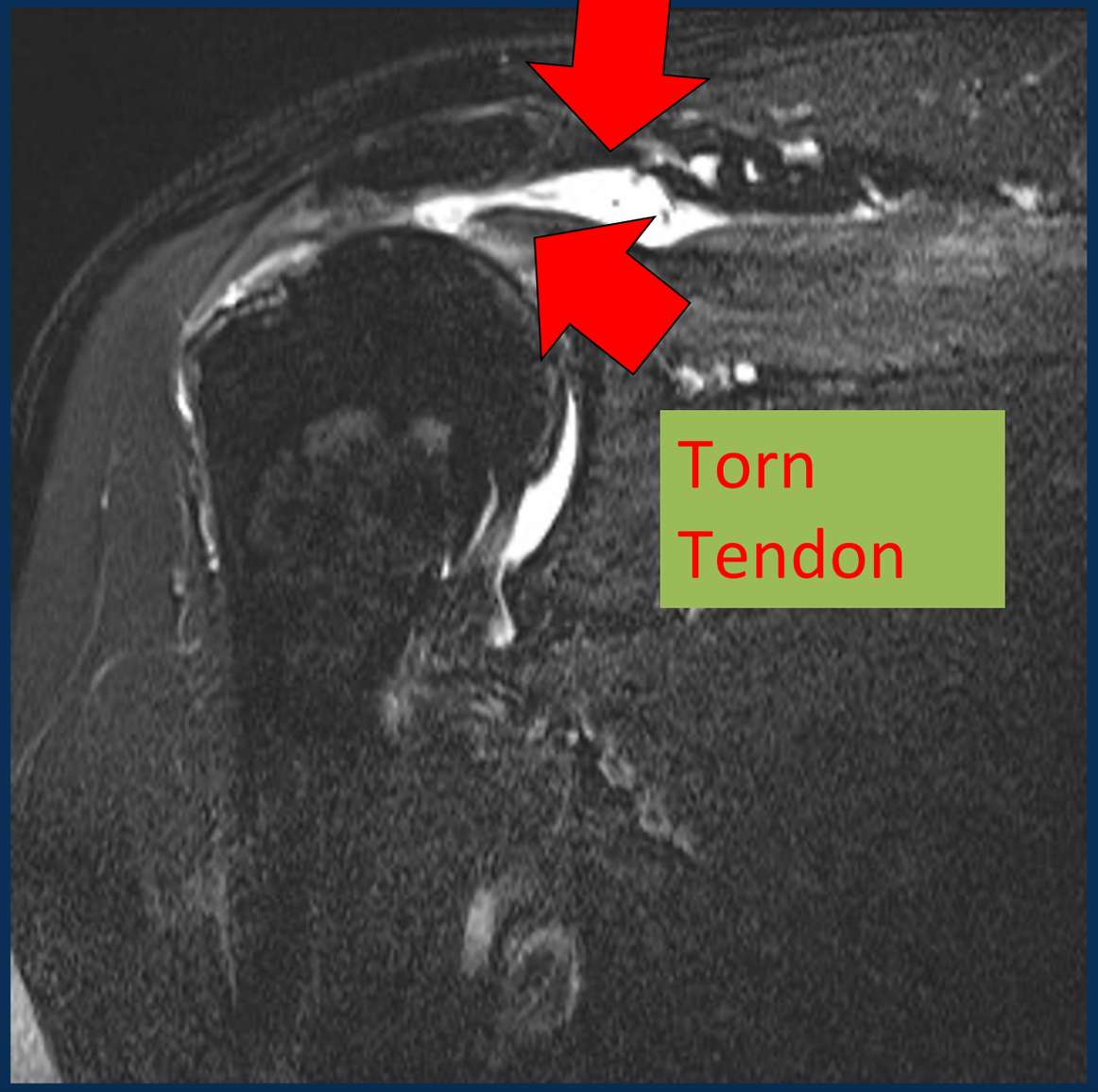




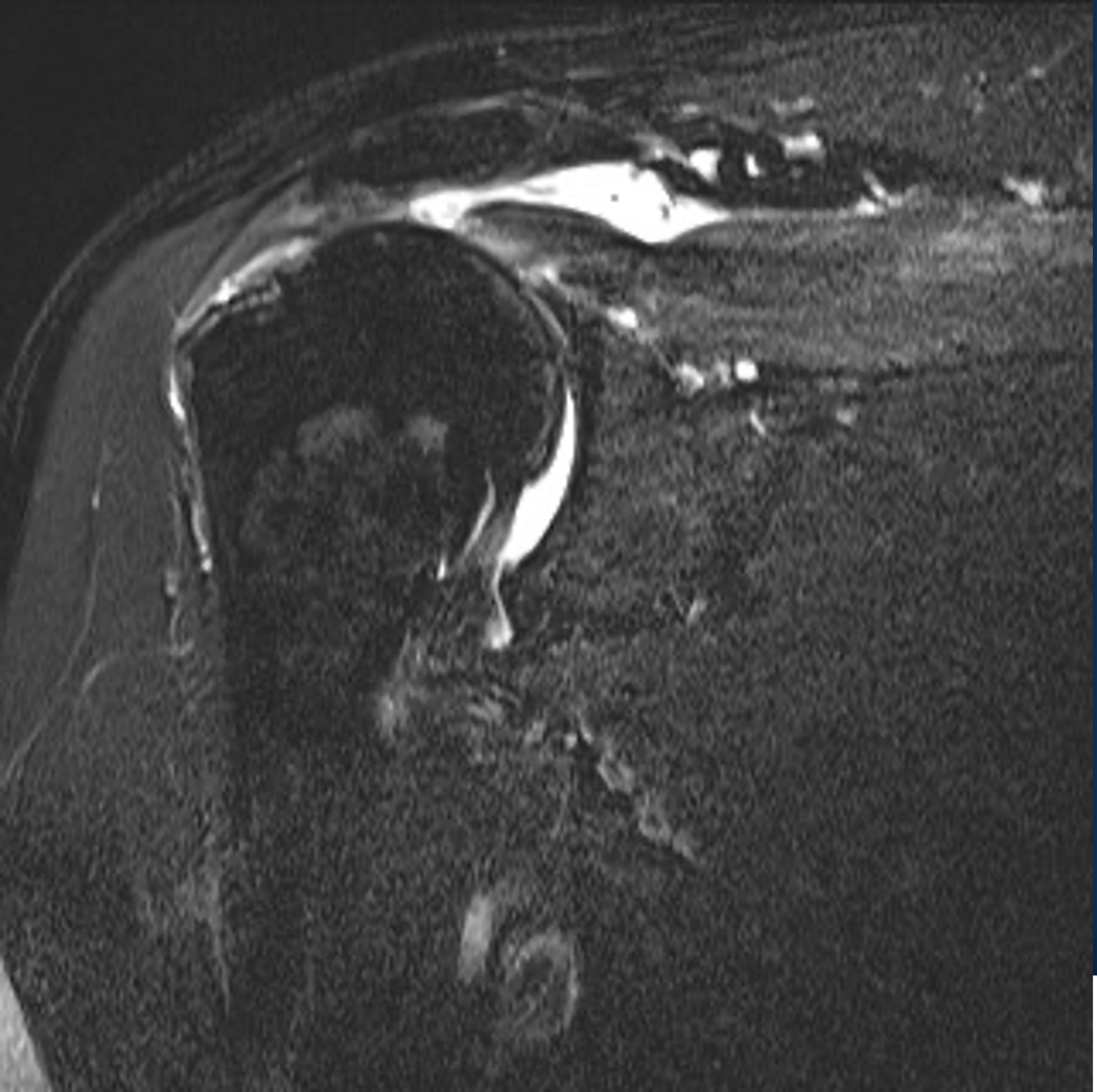
Intact
Tendon



Subacromial
Fluid



Torn
Tendon



Grading Systems for Muscle Quality

Stage 0 – completely normal muscle
Stage 1 – some fatty streaks
Stage 2 – more muscle than fat
Stage 3 – as much fat as muscle
Stage 4 – more fat than muscle

- *Study used CT, MRI tends to overestimate degree of fatty infiltratration
- Stage 2 and further considered pathologic, leads to higher incidence of re-tear following repair

Goutallier, CORR, 1994

Massive Rotator Cuff Tear

Largest dimension of tear > 5 cm

2 or more tendon involvement

-Cofield, JBJS, 1985

Always associated with weakness, and often with painful disability

Irreparable= Goutallier 3 or more, acromiohumeral distance < 7 mm

-Gerber, JSES, 2011

Prevalence of RCT in Asymptomatic Patients

Tempelhof et al, JSES, 1999

411 asymptomatic volunteers

Age 50-59: 13% Full thickness tear

60-69: 20%

70-79: 31%

80+:51%

Initial Treatment

Effectiveness of physical therapy in treating atraumatic full-thickness rotator cuff tears: a multicenter prospective cohort study, JSES, 2013

450 patients with full-thickness, atraumatic RCTs began PT and could then chose surgery if they wished

< 25% patients chose to undergo surgery

At 2 years – 75% of patients had successful non-operative treatment

TAKE HOME: All patients with atraumatic tears should try PT first as it is 75% successful

When is Surgery the Right Choice?

Acute, full-thickness tear

Chronic tear that has failed physical therapy treatment

AAOS Clinical Practice Guideline Summary

Optimizing the Management of Rotator Cuff Problems

Abstract

Of the 31 recommendations made by the work group, 19 were determined to be inconclusive because of the absence of definitive evidence. Of the remaining recommendations, four were classified as moderate grade, six as weak, and two as consensus statements of expert opinion. The four moderate-grade recommendations include suggestions that exercise and nonsteroidal anti-inflammatory drugs be used to manage rotator cuff symptoms in the absence of a full-thickness tear, that routine acromioplasty is not required at the time of rotator cuff repair, that non–cross-linked, porcine small intestine submucosal xenograft patches not be used to manage rotator cuff tears, and that surgeons can advise patients that workers' compensation status correlates with less favorable outcomes after rotator cuff surgery.

My Practice

Most patients do not have an x-ray

Most patients have not seen physical therapy

Many patients do not have a full-thickness tear

Some patients actually have a frozen shoulder or biceps pathology that is responsible for their pain

I try to arrive at correct diagnosis and initiate physical therapy

If I think they will ultimately be non-op, I offer a subacromial corticosteroid injection

I don’t want to bathe tendon in corticosteroids if I think I am going to ultimately attempt repair

My Practice

If it is an acute tear or they have failed PT, then I perform an arthroscopic rotator cuff repair and address other pathology based on preoperative work-up, not intra-operative findings (biceps tendonitis, SLAP tears, AC joint arthrosis, acromial impingement, suprascapular nerve entrapment)

Summary

Complex anatomy and physiology needs careful exam

Imaging should start with plain x-rays

Patients with atraumatic tears should be treated with PT

Surgery can be beneficial for patients with traumatic tears and those patients with chronic, atraumatic tears that have failed to improve with PT

Thank You

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