# ELBOW & SHOULDER

Vanessa JS Smith, PA-C

# THE **ELBOW**, THE **SHOULDER**, AND **PERIPHERAL COMPRESSIVE NEUROPATHIES**: UNTANGLING THE WEB OF UPPER EXTREMITY COMPLAINTS

# ELBOW & SHOULDER

Vanessa JS Smith, PA-C

# OBJECTIVES

At the conclusion of this session, participants will be able to:

1. **Identify** key historical features that help distinguish musculoskeletal pathology from peripheral compressive neuropathies in patients with upper extremity pain and paresthesia.
2. **Perform** a focused physical examination of the elbow and shoulder to evaluate common traumatic and overuse conditions.
3. **Differentiate** musculoskeletal causes of arm pain from peripheral nerve compression using high-yield examination findings.
4. **Initiate** appropriate first-line management and determine when specialty referral or further testing is indicated.



CHIEF COMPLAINT

# HAND/WRIST/ARM PAIN, NUMBNESS, TINGLING, "PINS & NEEDLES"

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## CC: HAND/WRIST PAIN, N/T, P/N

# DIFFERENTIAL DIAGNOSES:

- Carpal Tunnel Syndrome
- Cubital Tunnel Syndrome
- Radial Tunnel Syndrome
- Wartenberg Syndrome
- Cervical Radiculopathy
- Brachial Plexopathy
- Peripheral Neuropathy



# PERIPHERAL NERVE COMPRESSIVE NEUROPATHY ALGORITHM




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# HPI CLUES + KEY QUESTIONS

## CARPAL TUNNEL SYNDROME

? N/T thumb, index, long, ring fingers or "whole hand"

? INCREASED symptoms w/driving, phone, vibratory tools

? Night symptoms (pain, N/T)

? Hand feels swollen & tight

? Finger stiffness

? Allodynia

## CUBITAL TUNNEL SYNDROME

? Weakness with pinch & grip

? N/T primarily Ring & Small fingers

? INCREASED symptoms w/ resting on elbow, overhead work

## RADIAL TUNNEL SYNDROME

? Pain in the dorsal forearm / lateral elbow

? Pain described as burning or shooting

? No injury, gradual onset

? INCREASED symptoms with lifting/pushing/ pulling

# HIGH YIELD PHYSICAL EXAM

## LOOK

Observation. Atrophy?

## MOVE

Active motion of a muscle group implies the corresponding nerve is working.

## FEEL

SILT in the nerve distributions that correlate w/ HPI?

## STRESS/TEST

Special tests that pinch the nerves can exacerbate symptoms.

# CC: HAND/WRIST PAIN, N/T, P/N




https://stanfordmedicine25.stanford.edu/the25/carpaltunnel.html

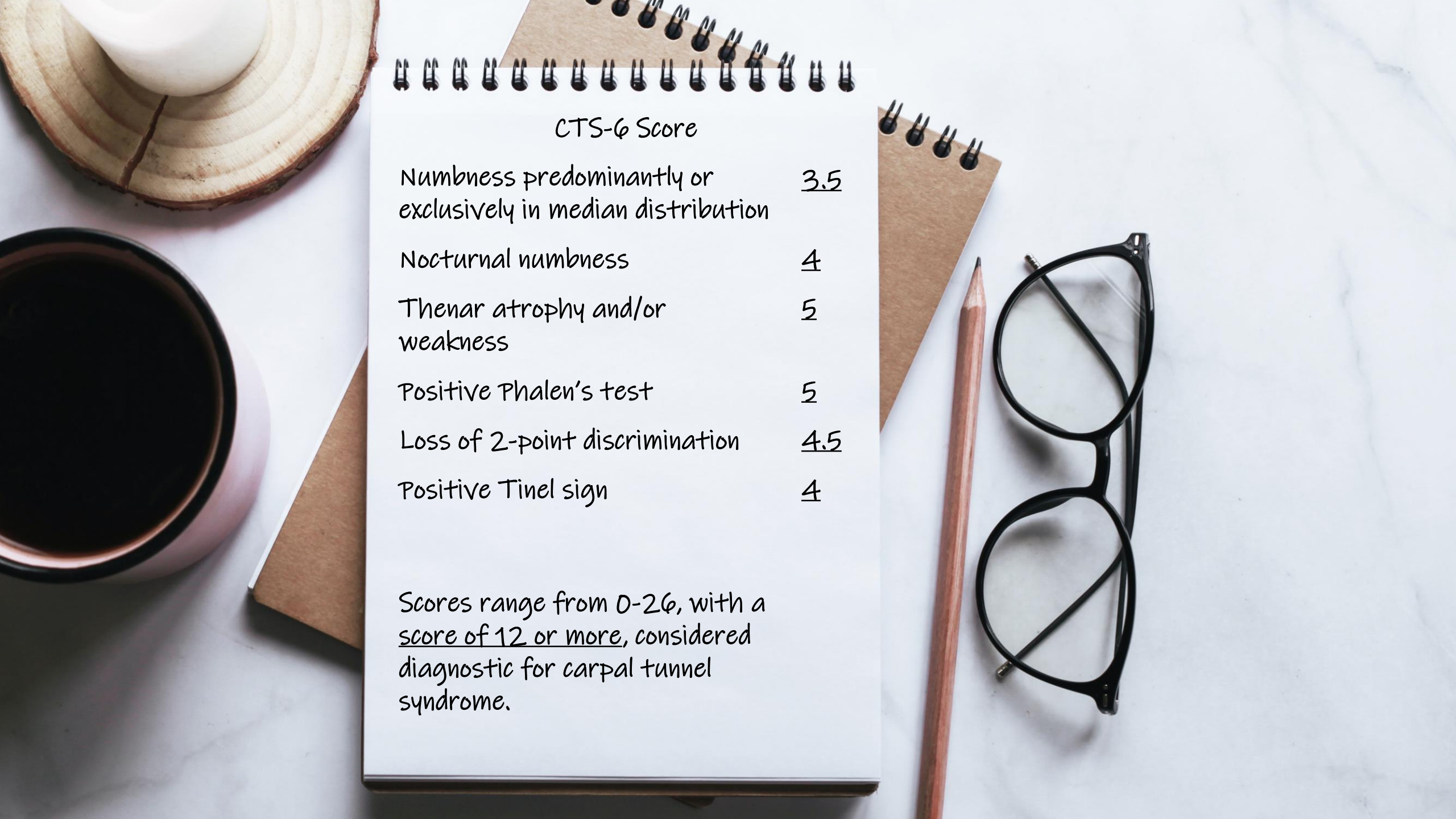
# CC: HAND/WRIST PAIN, N/T, P/N

| ISSUE | Test |
|---|---|
| **Median Nerve Compression @ Wrist** | Tinel's sign (wrist) |
| | Median Nerve Compression Test/Durkan's |
| | Phalen's sign |
| | Thenar (APB) weakness |
| | Thenar (APB) atrophy |
| **Median Nerve Compression @ Anterior Elbow** | FPL weakness |
| **(Lacertus Syndrome)** | Index FDP weakness |
| | FCR weakness |
| | Tenderness at Lacertus Fibrosus |
| | Scratch Collapse Test |
| **Ulnar Nerve Compression @ Eblow** | Tinel's sign (elbow) |
| | Elbow Flexion Test |
| | Ring and Small finger FDP weakness |
| | Intrinsic weakness |
| | intrinsic wasting/atrophy |
| | Froment's sign |
| | Wartenberg's sign |
| **Radial Nerve Compression @ proximal forearm** | Tenderness at radial tunnel |
| | ECU weakness (resisted ulnar deviation) |
| | Pain w/ Resisted long finger extension |

# CC: HAND/WRIST PAIN, N/T, P/N




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CTS-6 Score
Numbness predominantly or exclusively in median distribution 3.5
Nocturnal numbness 4
Thenar atrophy and/or weakness 5
Positive Phalen's test 5
Loss of 2-point discrimination 4.5
Positive Tinel sign 4
Scores range from 0-26, with a score of 12 or more, considered diagnostic for carpal tunnel syndrome.

# CC: HAND/WRIST PAIN, N/T, P/N

## HPI

- Symptoms start hours-days following an inciting event (traumatic or atraumatic)
- N/T primarily Thumb, Index, Long fingers, COULD FEEL LIKE THE WHOLE HAND
- Pain is out of proportion to exam/injury

## Exam

*Median Nerve:*

Tinels @ Carpal Tunnel

Phalens

Durkans

~~Thenar weakness~~

~~Thenar atrophy~~

Decreased sensation in Median Nerve distribution

## Diagnosis

**Acute** Carpal Tunnel Syndrome

## Treatment

EMERGENT referral to Hand Surgery

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Table 1. Traumatic and Atraumatic Causes of ACTS

| | |
|---|---|
| Traumatic causes | Colle's fracture, burns, ulnar non-union, minor trauma on anticoagulants, injury caused by wrist motion (hyperextension, twisting), MRI-related electrical burn, carpals dislocation, snake bites, cat bites, stonefish envenomation, hemophilia A with trauma, iatrogenic, penetrating wrist trauma, blunt wrist trauma |
| Atraumatic causes | Infection, spontaneous hemorrhage on anticoagulation, peritendinitis calcarea, autoimmune diseases (rheumatoid arthritis), hyperthyroidism, tophaceous gout, pseudogout, post–upper respiratory tract infection, Rubella immunization, decompression illness, aneurysm of the superficial palmar arch, thrombosis persistent median artery, tumescent fluid with lipodystrophy, post-transplantation, secondary to medications, idiopathic, periarticular calcifications, atypical hand muscles, diabetic myonecrosis, myxofibrosarcoma, malignancy |

# Treatment

EMERGENT referral to Hand Surgery

# Diagnosis

**Acute** Carpal Tunnel Syndrome

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# CONSERVATIVE TREATMENT OPTIONS

## CARPAL TUNNEL SYNDROME

Wrist brace for sleeping

OT

NSAID

Alternative Medicine

## CUBITAL TUNNEL SYNDROME

Night elbow extension splinting/wrapping

OT

## RADIAL TUNNEL SYNDROME

OT and/or steroid injection

Rarely needs surgery

If symptoms worsen or fail to improve after 4-6 weeks of above treatments, refer to Orthopedics/Hand Surgery to discuss next steps.

CC: HAND/WRIST PAIN, N/T, P/N

# Exam

*Radial Nerve:*

Point tender over Radial Tunnel in proximal dorsal forearm (~ 5cm distal from lateral epicondyle)

ECU weakness

Resisted long finger extension reproduces forearm pain

NO PAIN with RROM wrist extension!




**Lateral epicondylitis**

CC: ELBOW PAIN

## Diagnosis

Lateral or Medial Epicondylitis

## HPI

- Common in 4th-6th decades of life
- H/o repetitive lifting or gripping, no specific injury
- Pain is minimal at rest but SHARP PAIN w/activities involving l/p/p or gripping/grasping
- Lateral and/or medial elbow pain, radiates to forearm
- INCREASED symptoms w/gripping, lifting, twisting activities

CC: ELBOW PAIN

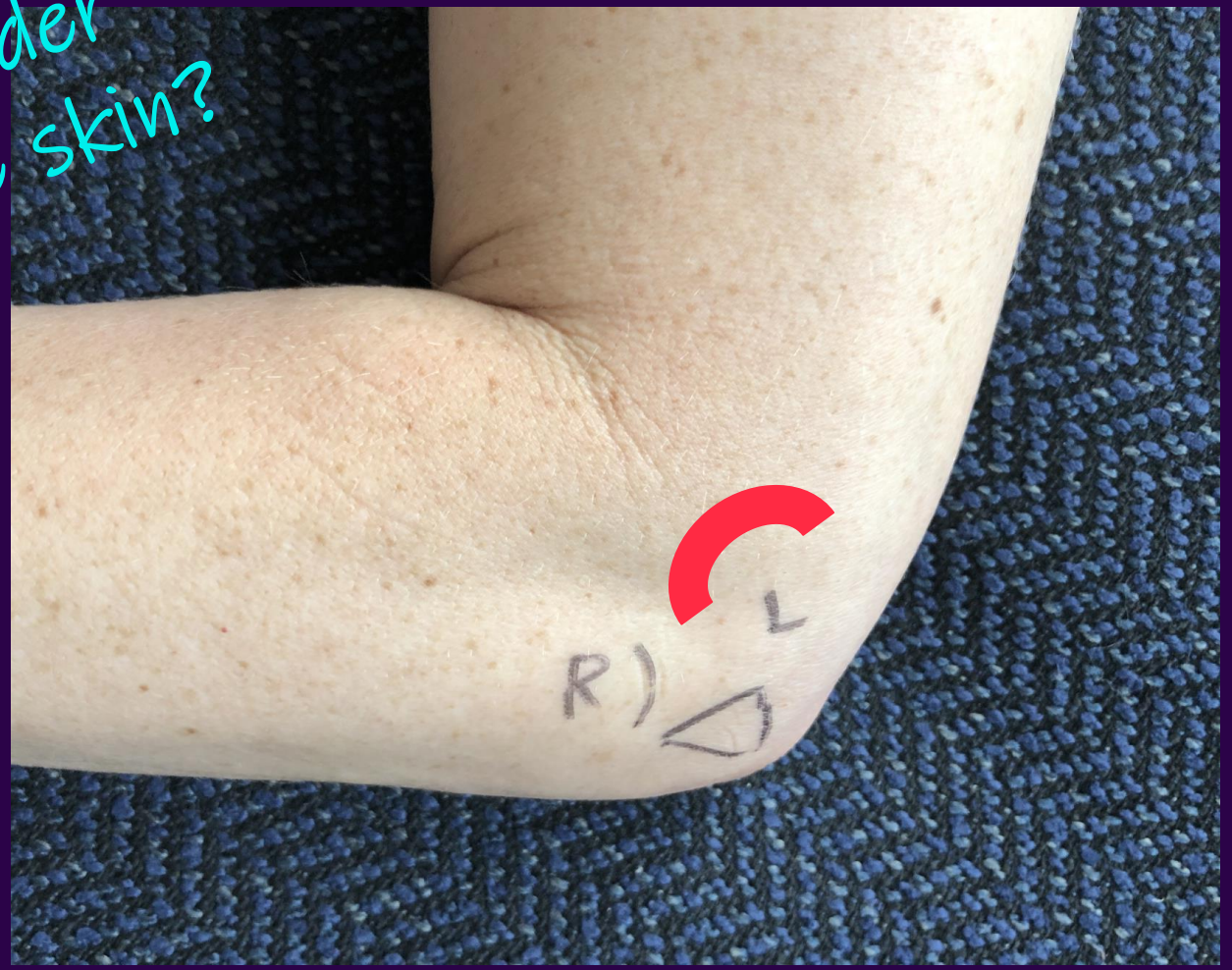
# Diagnosis

Lateral Epicondylitis

## Exam

- Elbow AROM is usually full, +/- pain
- RROM wrist EXTENSION INCREASES PAIN at LATERAL EPICONDYLE
- Point tender at Lateral epicondyle
- No TTP at posterior joint line

what's under the skin?



CC: ELBOW PAIN

# Diagnosis

Medial Epicondylitis

## Exam

- Elbow AROM is usually full, +/- pain
- RROM wrist FLEXION INCREASES PAIN at the MEDIAL EPICONDYLE
- Point tender at MEDIAL EPICONDYLE
- No TTP at posterior joint line

What's under the skin?

CC: ELBOW PAIN

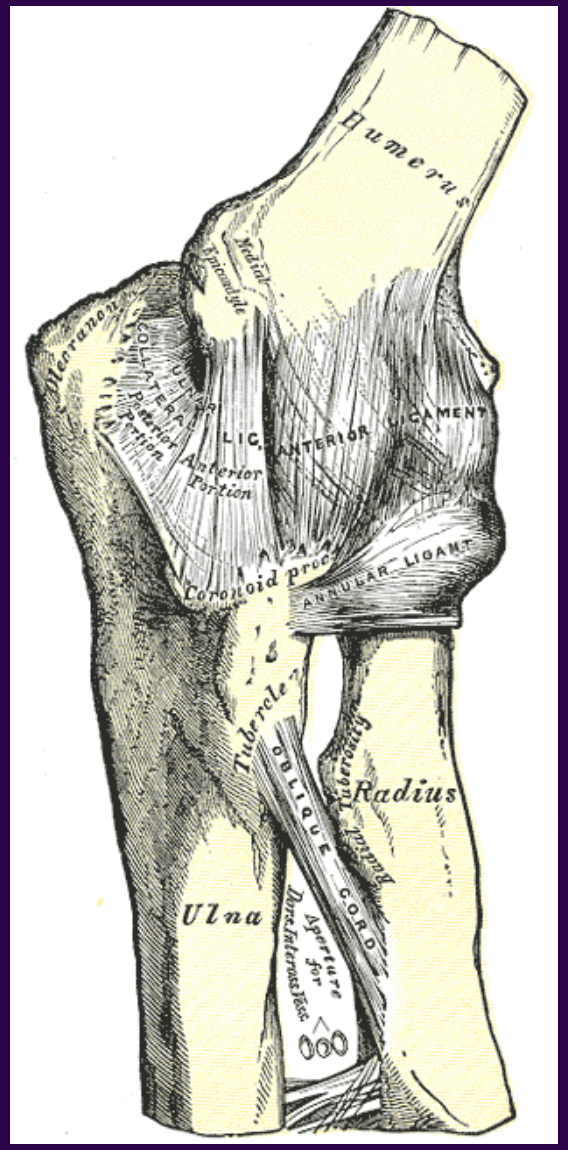
## Diagnosis

Lateral or Medial Epicondylitis

## Treatment

Tennis Elbow Strap/Counterforce Strap
Wrist cock-up brace
Ice → Styrofoam cup trick!
OT/PT
NSAID
CSI ???
PRP ???

# ANATOMY & DIRECTIONAL TERMINOLOGY




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CHIEF COMPLAINT

# ELBOW PAIN – CHRONIC VS. ACUTE INJURY

# CONDITIONS



## ACUTE ELBOW INJURIES:

- Distal biceps rupture
- Dislocation
- Radial head fracture
- Everything else...

## SUBACUTE/CHRONIC ELBOW CONDITIONS:

- Lateral epicondylitis
- Medical epicondylitis
- Radial tunnel syndrome
- Cubital tunnel syndrome

# ELBOW ALGORITHM




INJURY? THEN YES!

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* If patient unable to take NSAID consistently, consider topical diclofenac (Voltaren gel) applied 3 times a day and/or oral acetaminophen (Tylenol Arthritis 650 mg) every 8 hours as needed for pain.

Elbow Injury/Pain

X-rays

No Fracture or Dislocation

Effusion?

NO

YES

1 – Sling for comfort but okay to take off for AROM.
2 – Temporary activity modifications
3 – Follow up in 10-14 days for repeat x-rays.

Arthritis

NO

YES

Document

EXAM
Where's the pain?
Lateral? Medial?
Anterior? Posterior?

1 – NSAID consistently for a short period of time*
2 – Heat modalities
3 – Activity modifications
4 – Temporary work/sports restrictions.
5 – After pursuing above treatments for at least 4-6 weeks and still painful, refer to Ortho to discuss next steps.

Distal Biceps Tendon INTACT?

NO

YES

Distal Biceps Tendon Rupture

1 – Sling
2 – URGENT Elbow MRI without contrast
3 – Activity: no l/p/p with that hand.
4 – Refer to Orthopedics
**TIME DEPENDENT.**

Concern for ligament injury or acute tendon strain?

YES

NO

1 – Rest from activity + gentle AROM
2 – PT – formal therapy for guided motion and strengthening exercises
3 – NSAID
4 – Refer to Orthopedics

NSAID consistently for short period of time*
PT
Activity modifications ***plus the following…***
*DDX:*
*Olecranon bursitis* → Compressive elbow sleeve
*Lat/Med epicondylitis* → Counterforce Elbow Strap vs. wrist splint, ice/cold pack
*Radial tunnel syndrome* → OT/PT, ice/cold pack
After pursuing above treatments for at least 6 weeks and still symptomatic, refer to Ortho to discuss next steps.

Fracture or Dislocation

Dislocation

1 – Attempt reduction.
2 – Repeat xrays after reduction.
3 – Long Arm Splint
4 – EMERGENT Referral to Orthopedics!

Fracture

Radial Head Fracture?

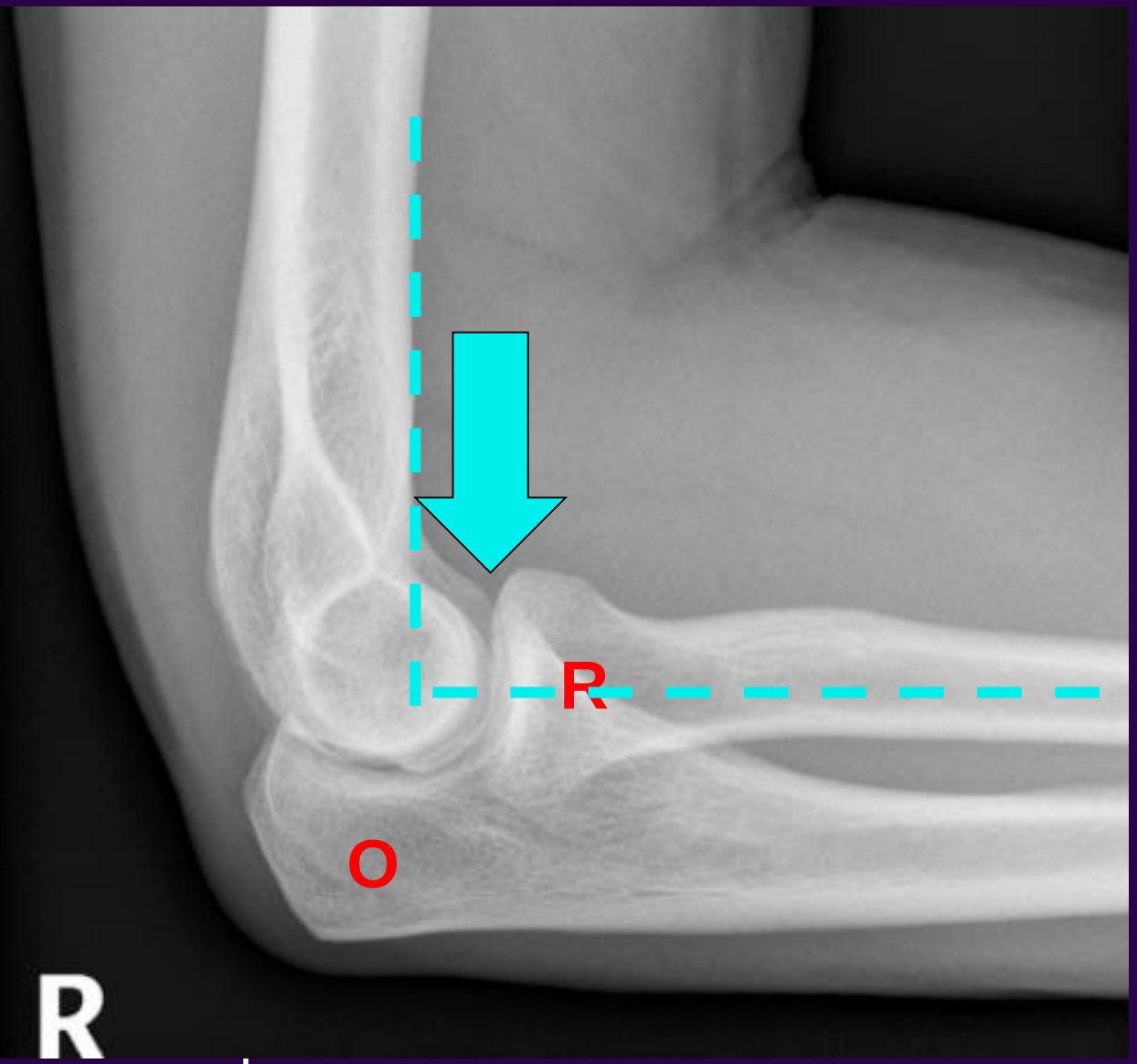
NO

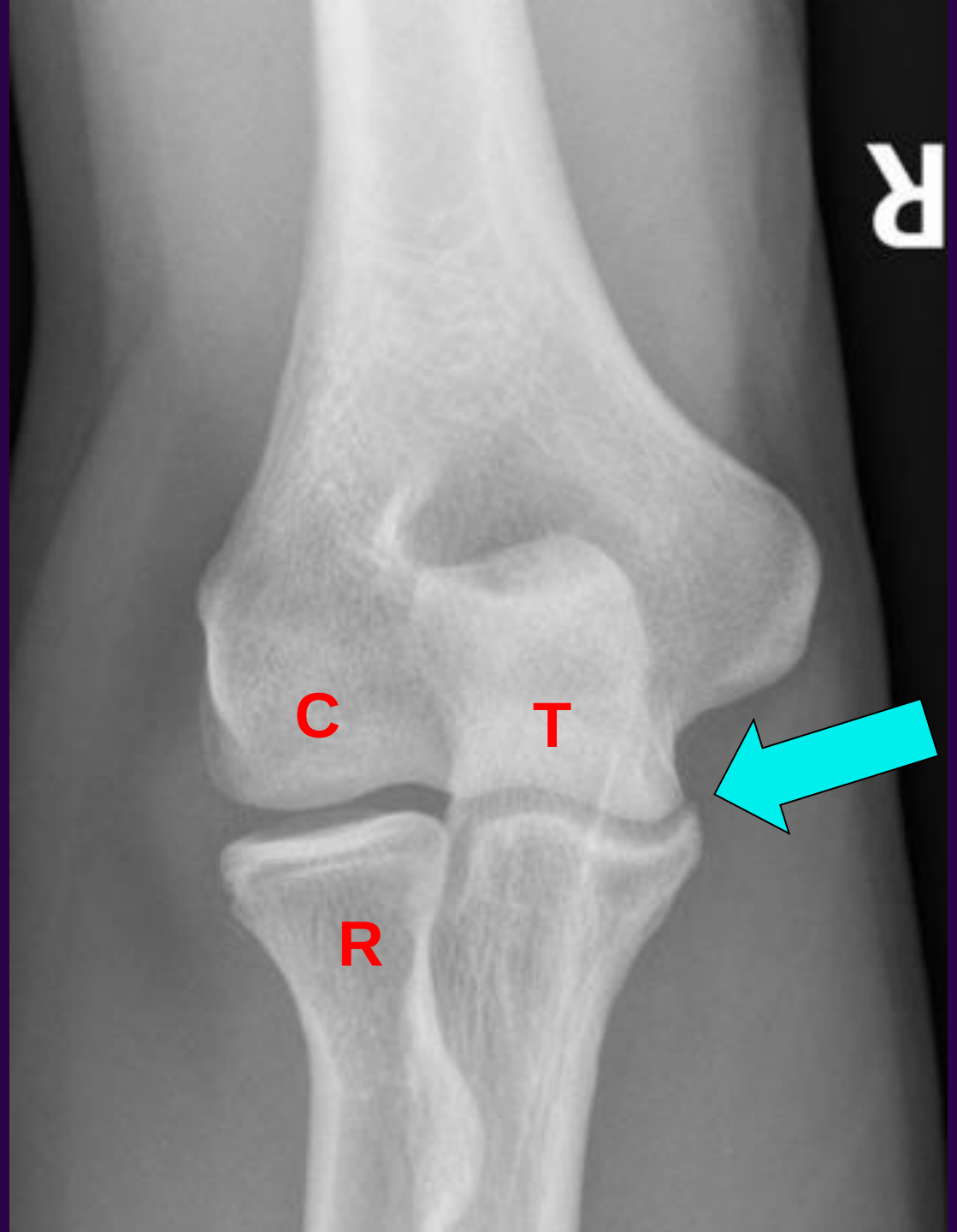
YES

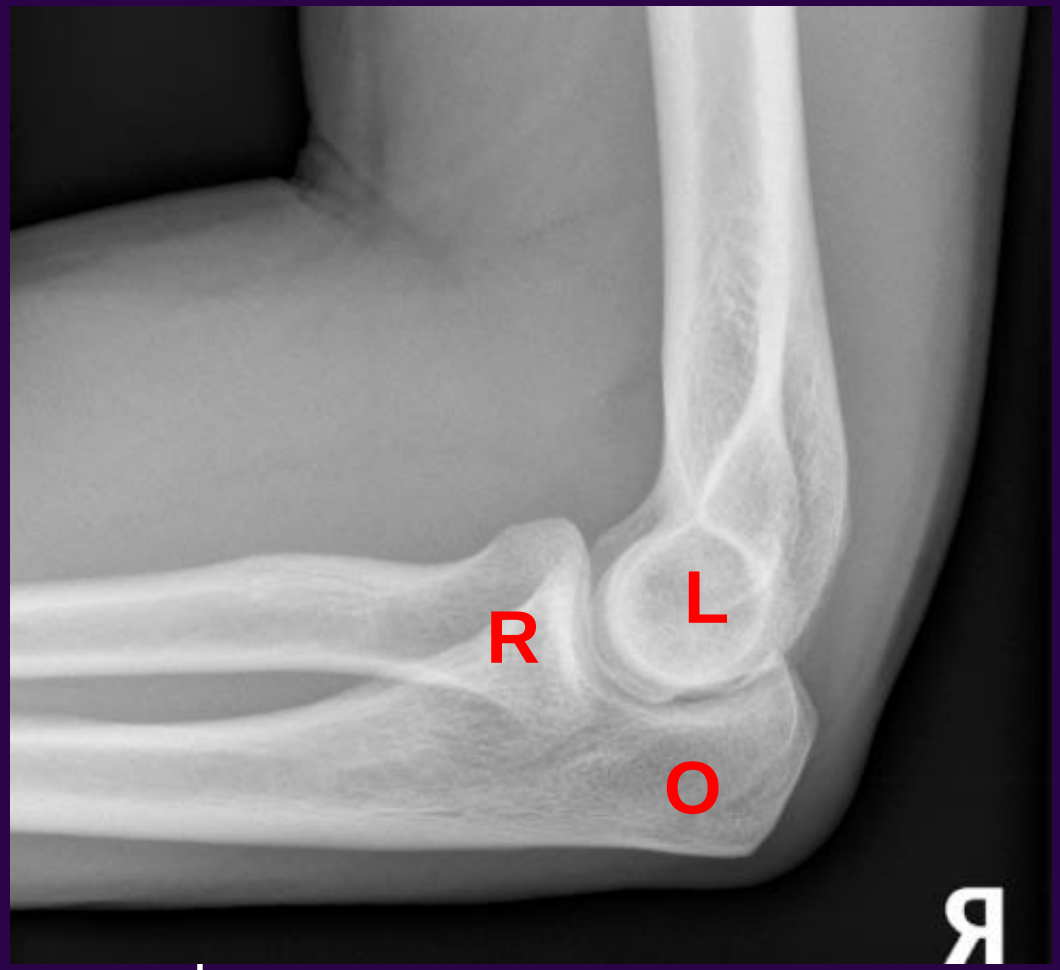
1 – Long Arm Splint!
2 – Sling to support arm when walking, otherwise, out of sling and rest arm on several pillows to elevate.
3 – Move the fingers but do not use them.
4 – Ice/cold pack in the armpit 20 min at a time, repeat every 1-2 hrs for pain.
5 – Work/sports note w/ restrictions.
6 – Pain Medicine: OTC meds for daytime pain, Rx opioid for sleeping (your discretion on quantity)
7 – CONSULT Orthopedics to review fracture pattern and urgency of referral!

1 – Sling
2 – If non-displaced or minimally displaced, okay for gentle AROM!
2 - Work/sports note w/temporary restrictions.
3 – Activity: no l/p/p with that hand.
4 – Refer to Orthopedics

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# CC: ELBOW PAIN

## HPI

- FOOSH or similar force
- INCREASED symptoms w/gripping, lifting, twisting activities

## Exam

- Moderate elbow swelling
- Elbow AROM and PROM is LIMITED AND PAINFUL
- (+) TTP at Radiocapitellar joint / Radial Head
- No TTP at lateral or medial epicondyle, distal biceps tendon or posterior joint line

## Diagnosis

Radial Head Fracture

*Elbow injury? Get Xrays FIRST!*




Kastenberger T, Kaiser P, Spicher A, et al. Clinical and radiological outcome of Mason-Johnston types III and IV radial head fractures treated by an on-table reconstruction. *J Orthop Surg Res.* 2022;17:503. doi:10.1186/s13018-022-03394-w



https://www.radiologymasterclass.co.uk/gallery/trauma/x-ray_arm_1/fractures_9

# Diagnosis

**Radial Head Fracture**

# Treatment

Minimally displaced → Sling for comfort + early motion

- ✓ Check at one week to r/o other injuries, make certain no mechanical block to motion (+/- local)
- ✓ CT Scan if uncertain of bony injury, MRI if suspect ligamentous injury

Comminuted or displaced → Sling + Urgent referral to Orthopedics
For ORIF or radial head replacement

Beware of additional injuries
→ Terrible triad

# DISTAL BICEPS RUPTURE

## HPI

- Males age 40-60 years
- Often carrying or lifting an object and feel a "pop"
- INCREASED symptoms w/gripping, lifting, twisting activities

## Exam

- Bruising in antecubital fossa
- Elbow AROM is LIMITED AND PAINFUL
- Weakness of supination (more so than flexion)
- (+) Hook Test
- (+/-) swelling
- No TTP at lateral or medial epicondyle or posterior joint line

Practice!



# DISTAL BICEPS RUPTURE

## Treatment

→ Nonsurgical treatment associated with some lasting loss of supination strength

→ Surgical repair easiest within 3 weeks of injury

- Possible complications include
  - Synostosis
  - Nerve injury (PIN)
  - Lateral antebrachial cutaneous nerve paresthesias
  - Rerupture



# DISTAL BICEPS TENDINOSIS

- Can be a prodrome to rupture
- Pain with supination AND with pronation
- Tender at distal biceps insertion
- MRI will show tendinopathy but fibers in continuity

## Treatment

- Rest
- Activity modification
- Surgical repair?



CC: ELBOW PAIN

# Diagnosis

Ulnar Collateral Ligament (a.k.a. medial collateral ligament) Sprain/Injury

## HPI

- Overhead athlete with repetitive throwing motion
- ONSET: can be gradual OR sudden, sometimes report hearing and audible "pop"
- Pain is localized over MEDIAL ELBOW, loss of velocity and control
- INCREASED symptoms w/ throwing

## Exam

PAIN, APPREHENSION OR GUARDING

- Elbow AROM is LIMITED AND PAINFUL
- Test for instability with Varus and Valgus stress testing at 30 flexion
- (+) Moving Valgus Stress Test
- No TTP at lateral or medial epicondyle, distal Biceps, or posterior joint line
- ? How is Ulnar Nerve doing?

CC: ELBOW PAIN

# Diagnosis

Ulnar Collateral Ligament (a.k.a. medial collateral ligament) Sprain/Injury

# Treatment

1 – Rest from activity (+/-) night time splinting
2 – PT – formal therapy for guided motion and strengthening exercises
3 - NSAID
4 – Progressive throwing program after 6 weeks of rest
5 – Refer to Orthopedics

CC: ELBOW PAIN

# Diagnosis

Osteochondritis Dissecans a.k.a. "Little Leaguer's elbow"

# HPI

- Acute injury (FOOSH) OR chronic repetitive stress (throwers, gymnasts)
- C/o elbow pain with activity, swelling, stiffness, decreased performance
- (+/-) Mechanical symptoms of locking or catching

# Exam

- TTP at lateral elbow
- Crepitus over the Radiocapitellar joint
- Loss of terminal extension 15-20 flexion contracture (earliest finding)
- Swelling is common

CC: ELBOW PAIN

# Diagnosis

Osteochondritis Dissecans a.k.a. "Little Leaguer's elbow"

# Imaging

- Xrays of the elbow → fragmented subchondral bone, lucencies and irregular ossifications
- Osteophytes and loose bodies seen later in disease process

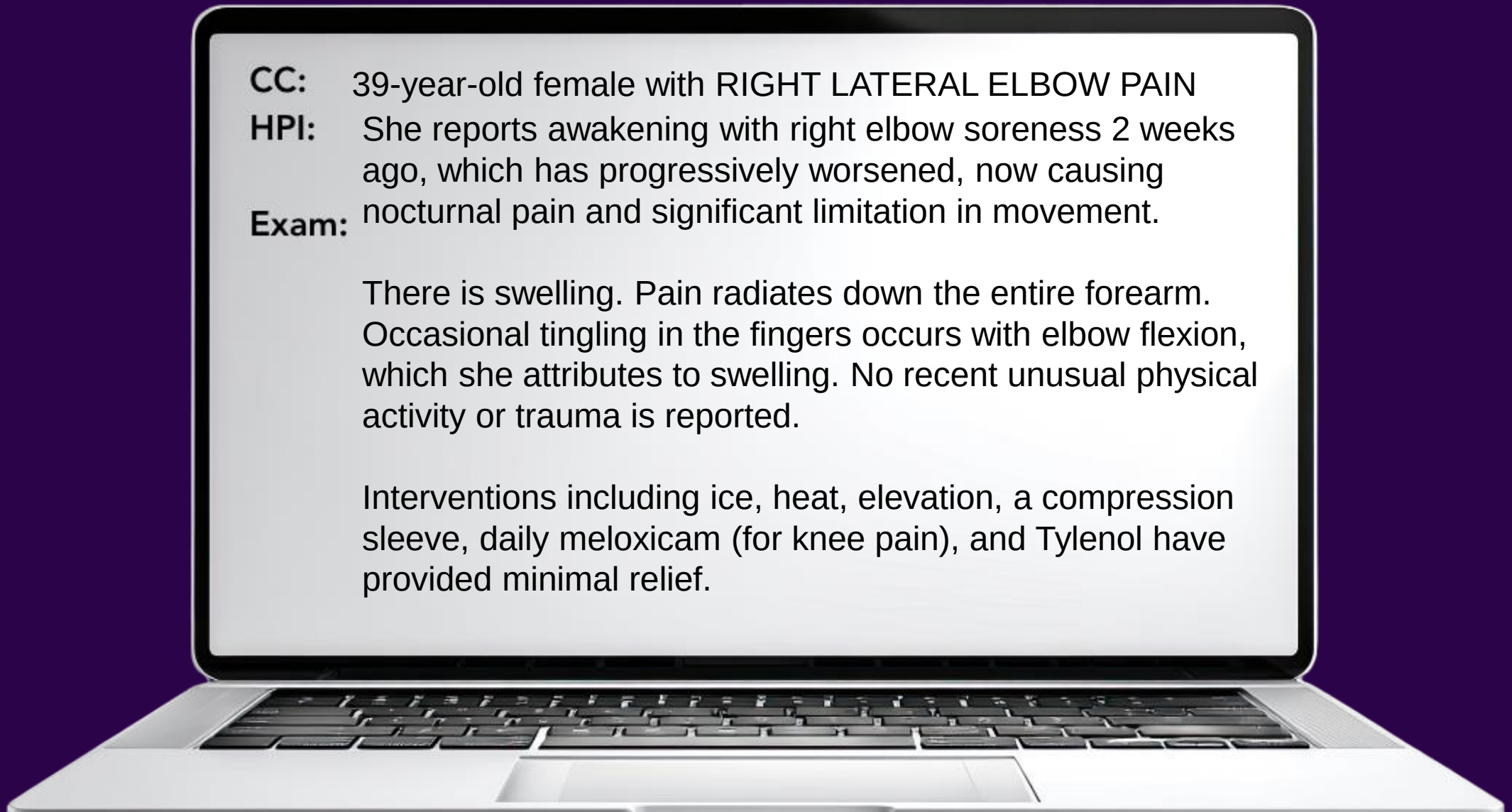
# Treatment

- Grade I or II lesions, no catching or locking → start w/ non-operative treatment (4 weeks of complete rest + PT, then progressive throwing program)
- Grade I or II lesions that continue to be symptomatic, (+) mechanical symptoms, or higher grade lesions → surgery

# CASE STUDY - ELBOW

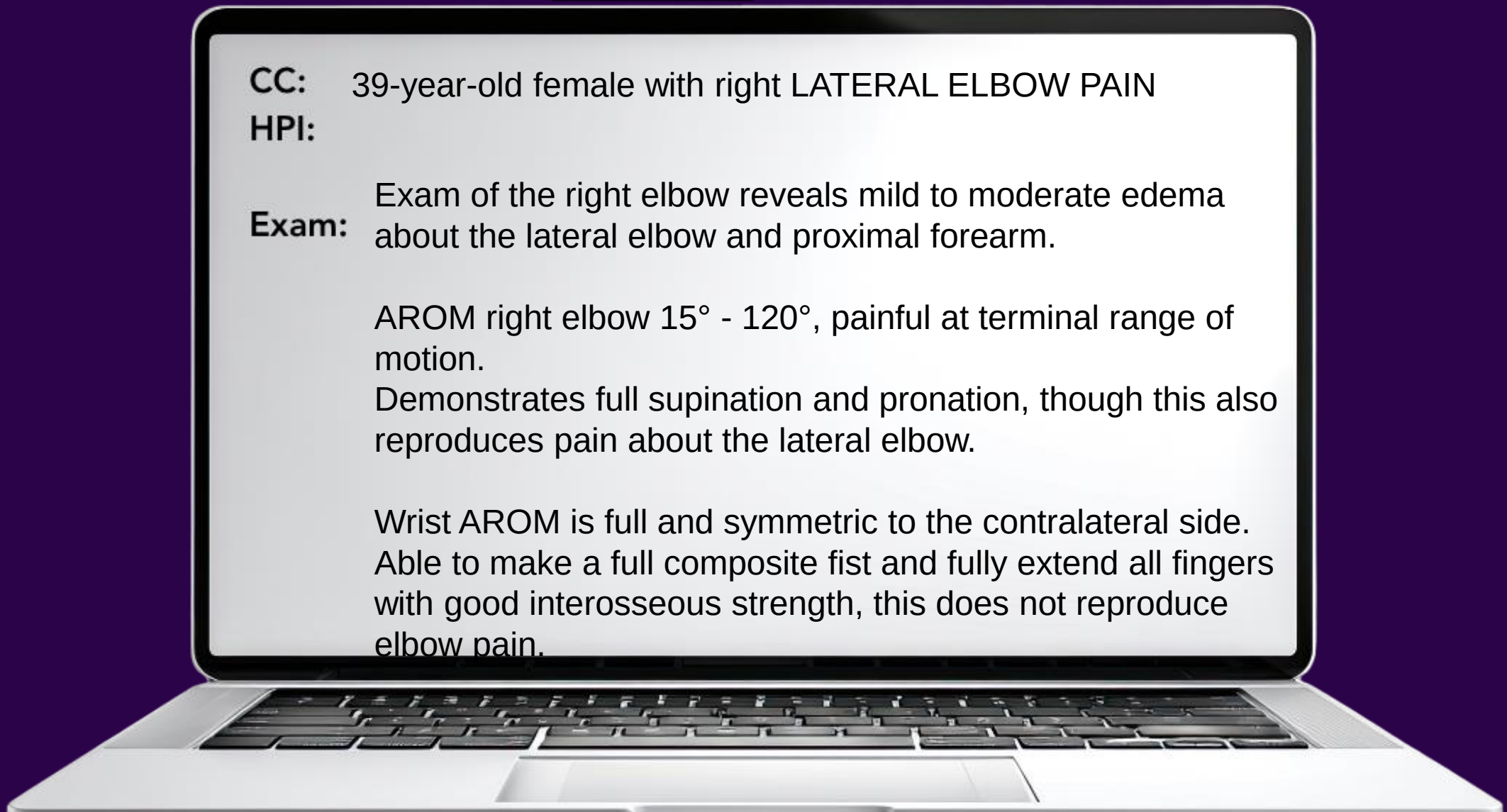


# CASE STUDY - ELBOW

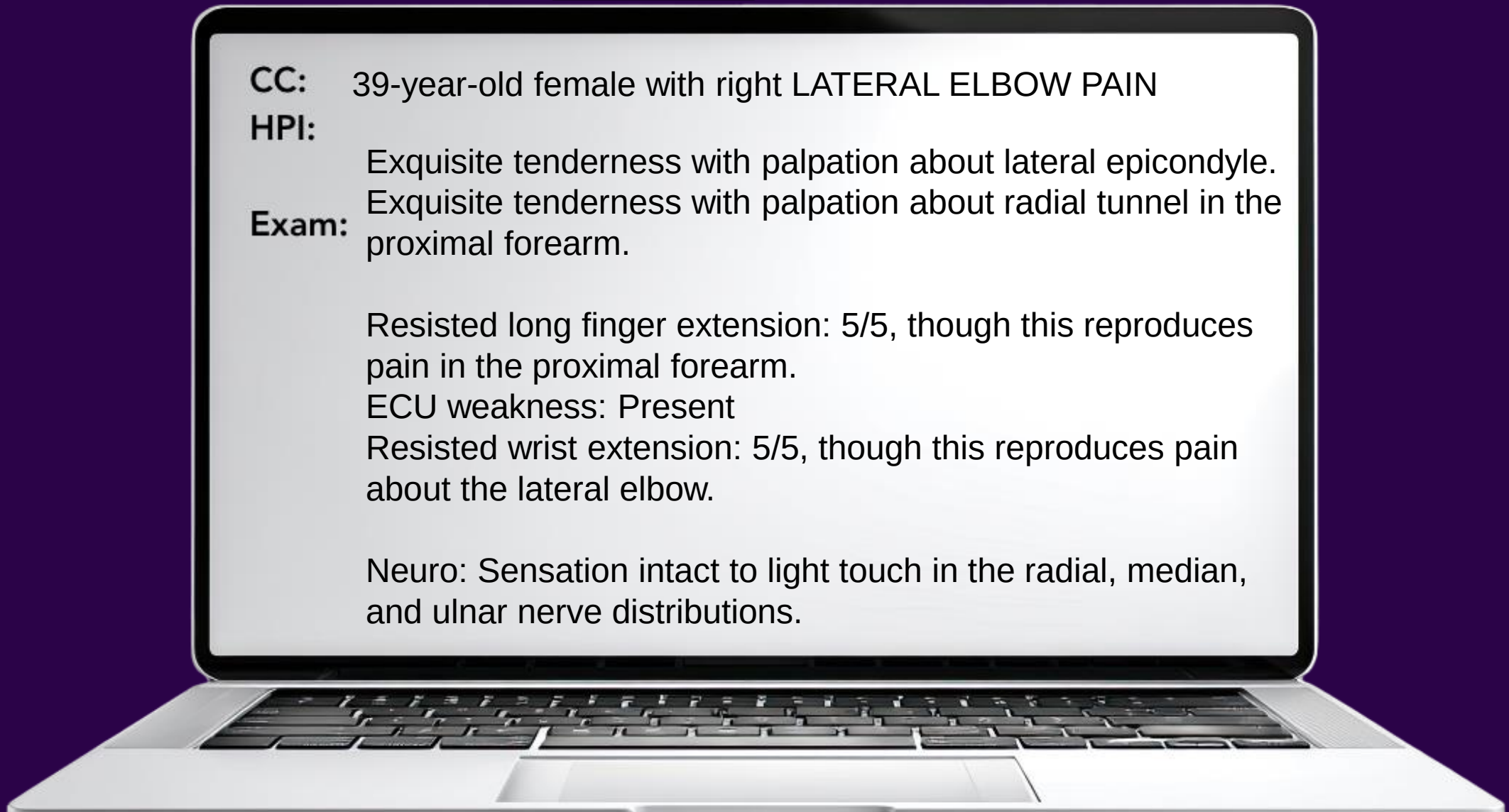



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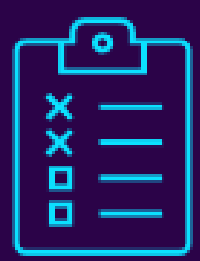
# PHYSICAL EXAM - ELBOW

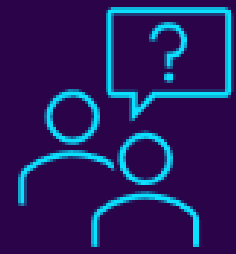


# PHYSICAL EXAM - ELBOW



# PHYSICAL EXAM - ELBOW





**IMPRESSION**

1. Right lateral epicondylitis
2. Right radial tunnel syndrome

**PLAN**

1. Patient education was performed regarding the diagnoses. Radiographs and clinical exam findings are reviewed with the patient.
2. Medrol Dosepak prescription is sent to pharmacy.
3. Pain medicine: Tylenol arthritis (8-hour Tylenol) can be used as needed for severe pain. She can continue with her chronic daily meloxicam.
4. Ice/cold pack: Discussed using a Styrofoam cup filled with water in the freezer to then ice the forearm, she can also use a polar pack. Ice for 20 minutes at a time, repeat every 1-2 hours.
5. OT for home exercise program regarding stretching, strengthening, and radial nerve glides.
6. Wrist splint: Recommend she wear a wrist splint for daily activities is much as possible to limit aggravating and stressing the lateral elbow. She has a wrist splint at home and will contact us if she needs an order for a new one.
7. Follow-up in 3 to 4 weeks with nonoperative sports medicine for recheck.

* If patient unable to take NSAID consistently, consider topical diclofenac (Voltaren gel) applied 3 times a day and/or oral acetaminophen (Tylenol Arthritis 650 mg) every 8 hours as needed for pain.

Elbow Injury/Pain

X-rays

No Fracture or Dislocation

Effusion?

NO

YES

1 – Sling for comfort but okay to take off for AROM.
2 – Temporary activity modifications
3 – Follow up in 10-14 days for repeat x-rays.

Arthritis

NO

YES

Document

EXAM
Where's the pain?
Lateral? Medial?
Anterior? Posterior?

1 – NSAID consistently for a short period of time*
2 – Heat modalities
3 – Activity modifications
4 – Temporary work/sports restrictions.
5 – After pursuing above treatments for at least 4-6 weeks and still painful, refer to Ortho to discuss next steps.

Distal Biceps Tendon INTACT?

NO

YES

Distal Biceps Tendon Rupture

1 – Sling
2 – URGENT Elbow MRI without contrast
3 – Activity: no l/p/p with that hand.
4 – Refer to Orthopedics
**TIME DEPENDENT.**

Concern for ligament injury or acute tendon strain?

YES

NO

1 – Rest from activity + gentle AROM
2 – PT – formal therapy for guided motion and strengthening exercises
3 – NSAID
4 – Refer to Orthopedics

NSAID consistently for short period of time*
PT
Activity modifications ***plus the following…***
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After pursuing above treatments for at least 6 weeks and still symptomatic, refer to Ortho to discuss next steps.

Fracture or Dislocation

Dislocation

1 – Attempt reduction.
2 – Repeat xrays after reduction.
3 – Long Arm Splint
4 – EMERGENT Referral to Orthopedics!

Fracture

Radial Head Fracture?

NO

YES

1 – Long Arm Splint!
2 – Sling to support arm when walking, otherwise, out of sling and rest arm on several pillows to elevate.
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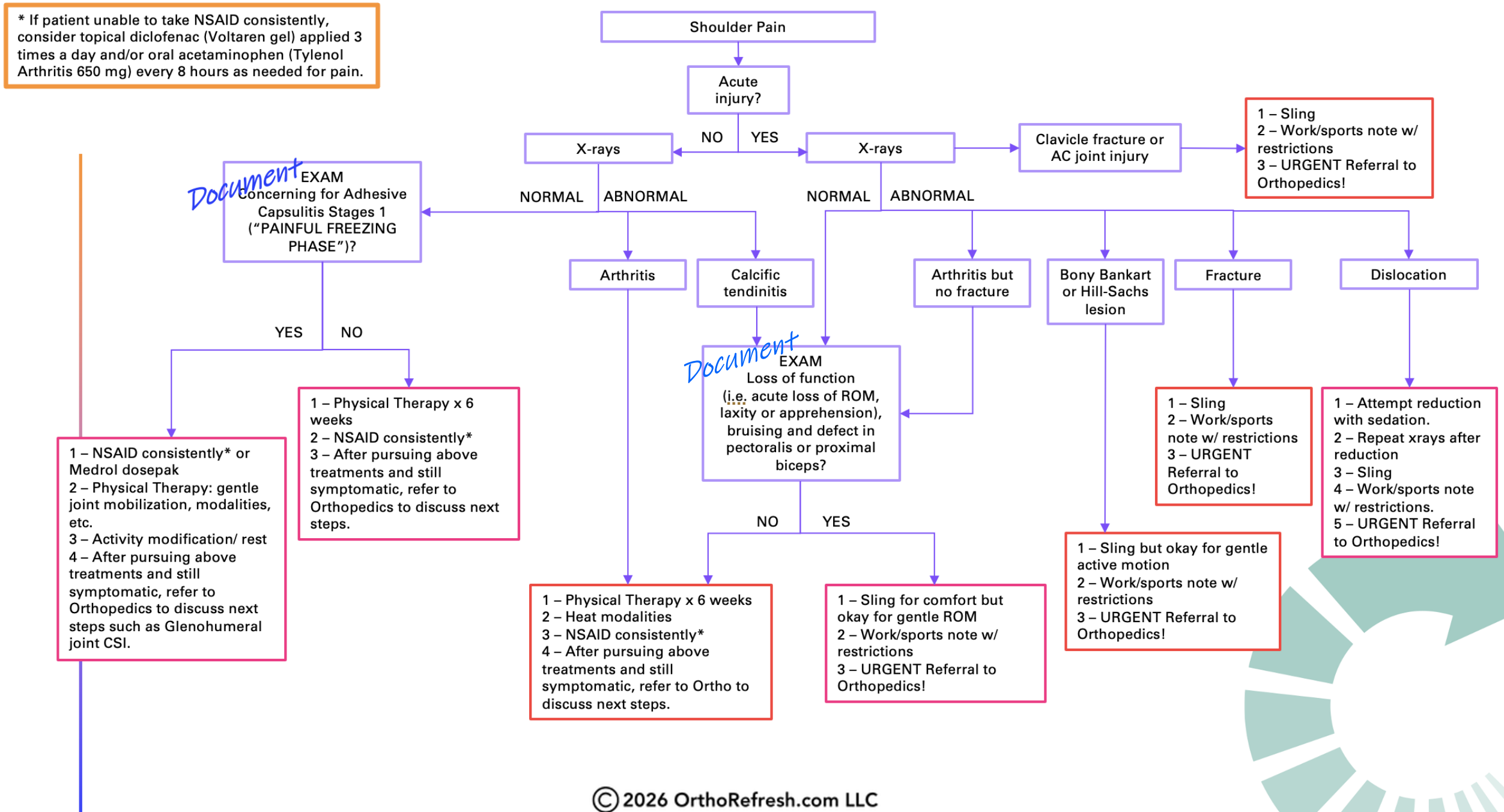
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# SHOULDER ALGORITHM




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# HPI CLUES + KEY QUESTIONS

? Where is the pain

- Lateral shoulder
- Anterior shoulder
- Radiates from shoulder to forearm/hand

? Acute injury

? Laxity, the shoulder 'pops out'

? Weakness

? Stiffness, decreased ROM



# SHOULDER CONDITIONS

## SUBACUTE/CHRONIC

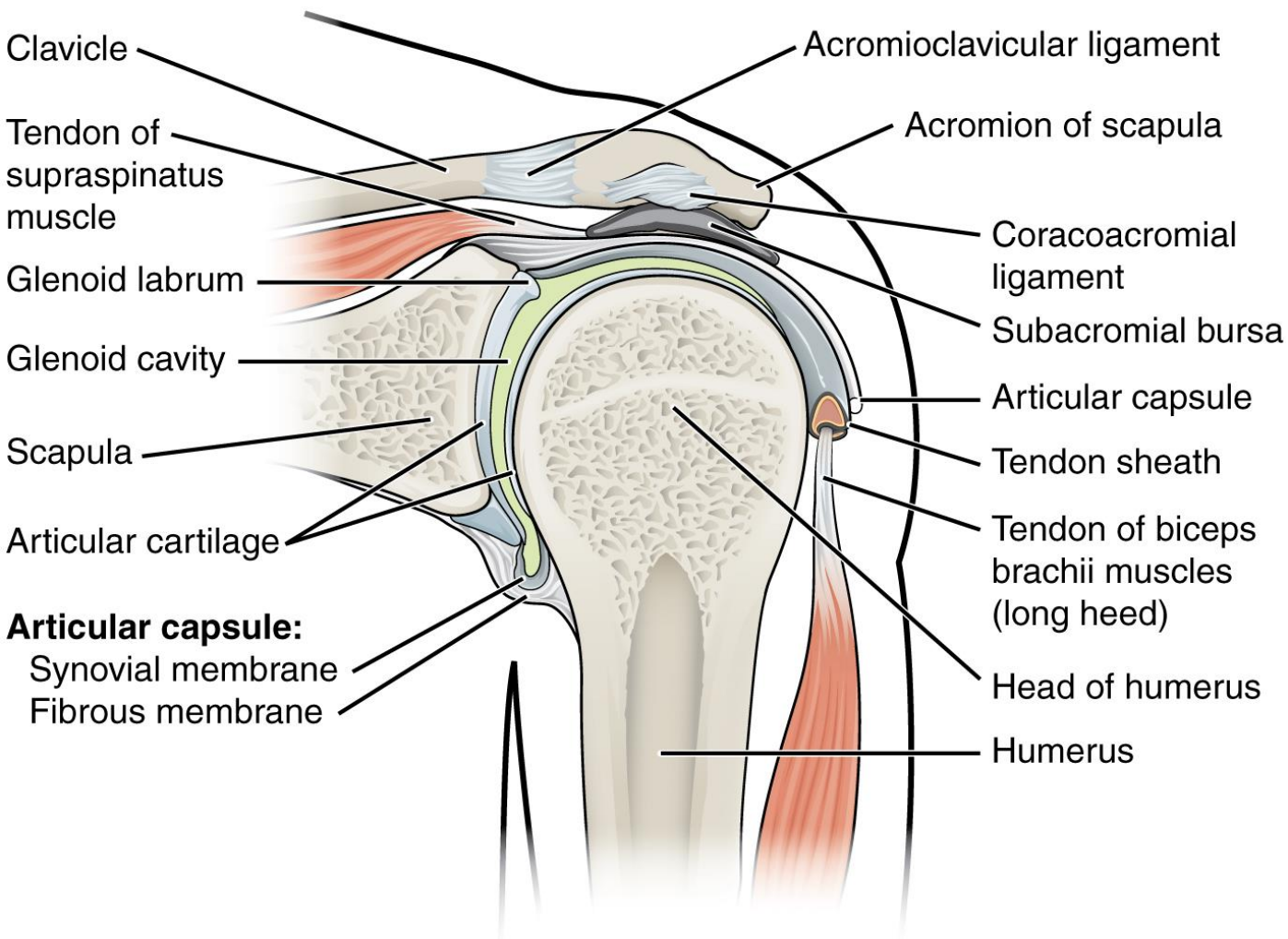
- Rotator Cuff problems
  - Tendinitis
  - Cuff tears
- Adhesive capsulitis
- Arthritis (GH joint, RCA)
- Calcific Tendinitis

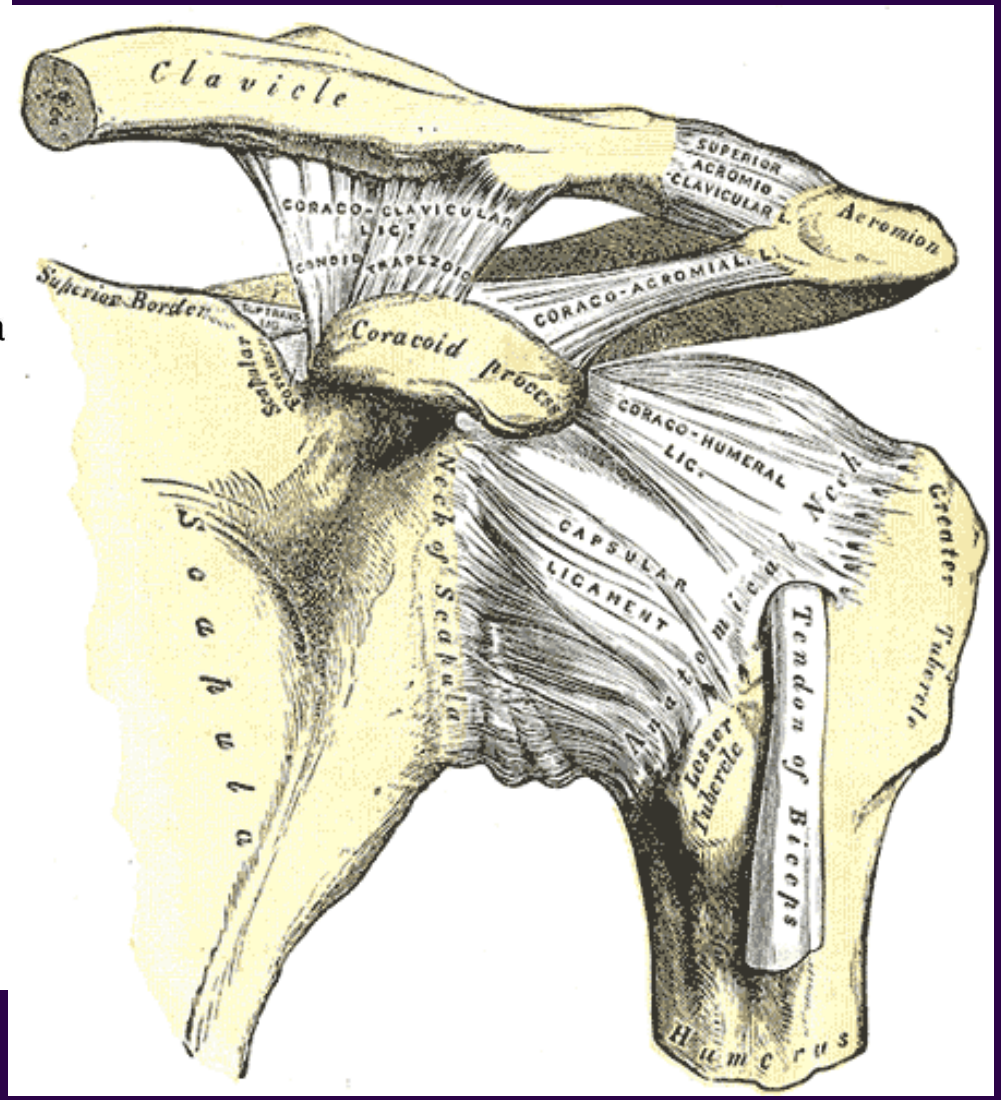
## ACUTE

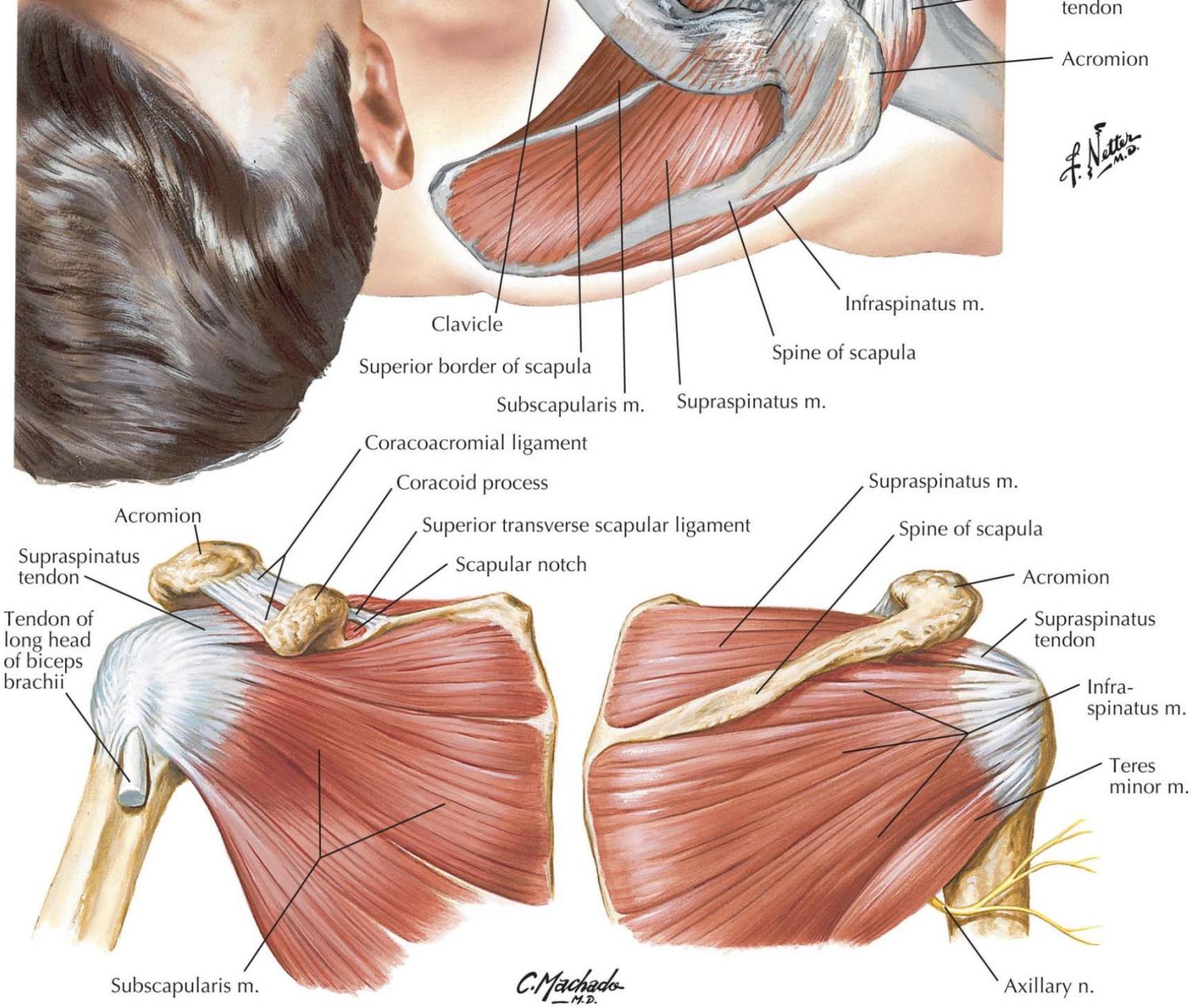
- Fracture
- Dislocation
- AC joint separation
- Tendon rupture

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# ANATOMY & DIRECTIONAL TERMINOLOGY



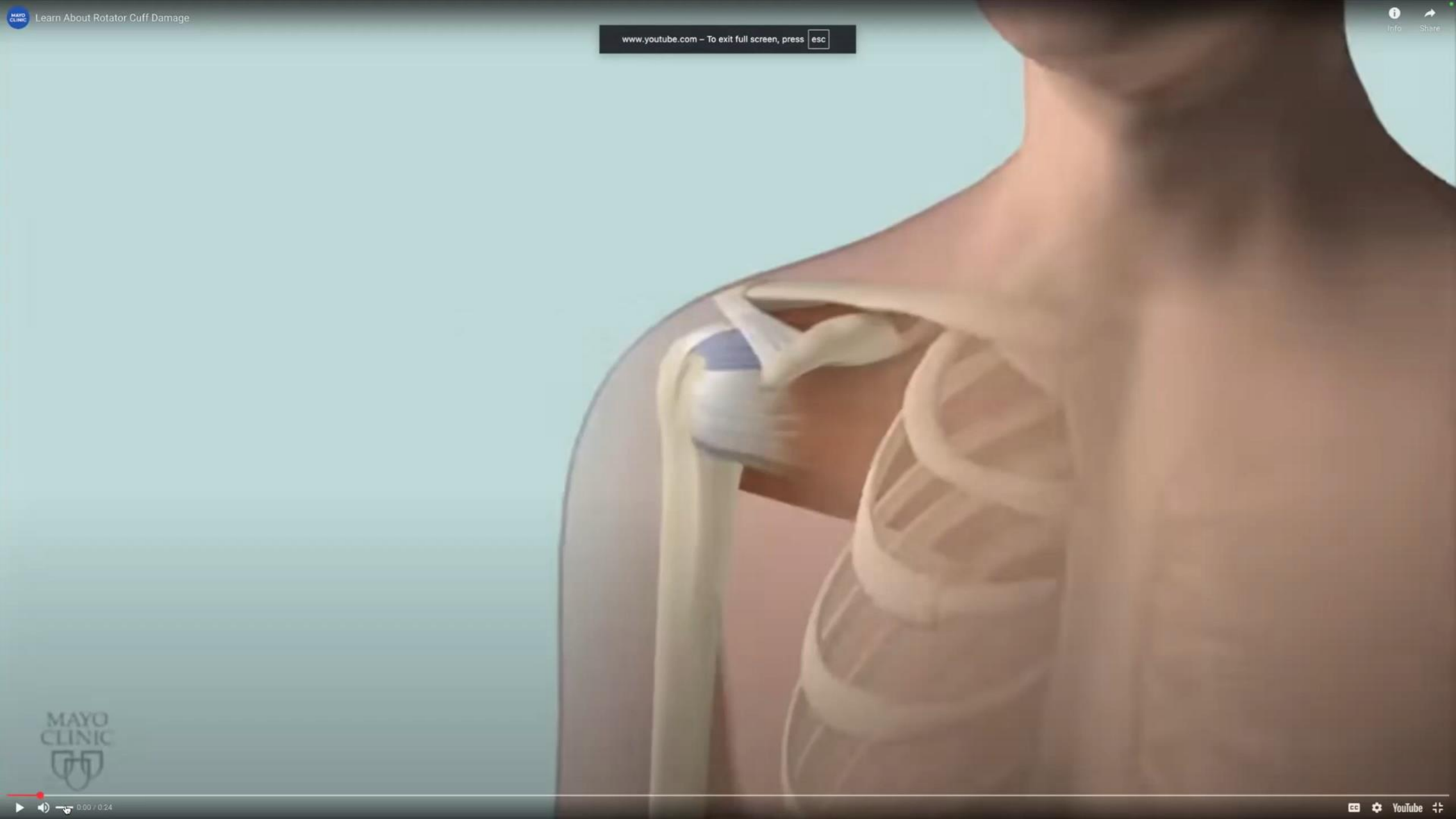






# ROTATOR CUFF

- **S** Supraspinatous
- **I** Infraspinatous
- **T** Teres Minor
- **S** Subscarpularis

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Learn About Rotator Cuff Damage
www.youtube.com – To exit full screen, press esc
Info
Share
MAYO CLINIC
0:00 / 0:24
YouTube

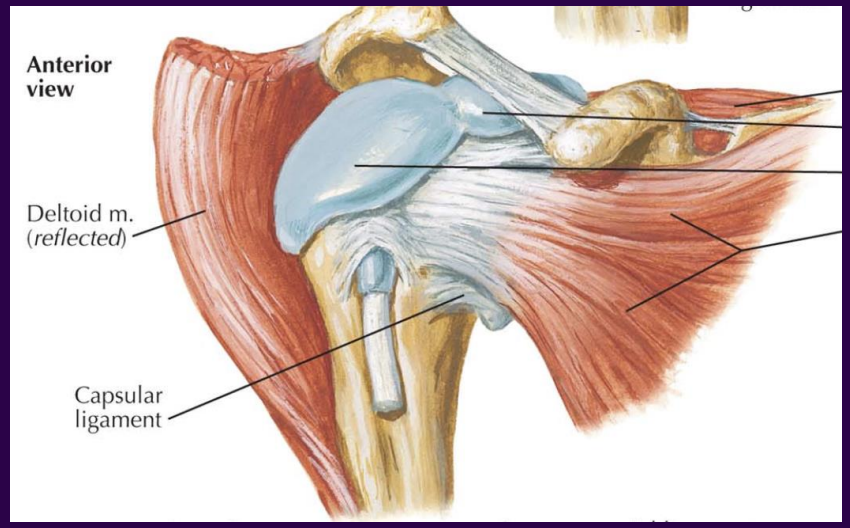
# ROTATOR CUFF

Tendinitis and Impingement

Partial to full cuff tear

Massive tear

Rotator cuff arthropathy






# Impingement syndrome
# Neer test

Impingement Syndrome - Neer Test

# ROTATOR CUFF

## NON-OP TREATMENT FOR ATRAUMATIC FULL-THICKNESS TEARS

Published in final edited form as:
*J Shoulder Elbow Surg*. 2013 October ; 22(10): 1371–1379. doi:10.1016/j.jse.2013.01.026.

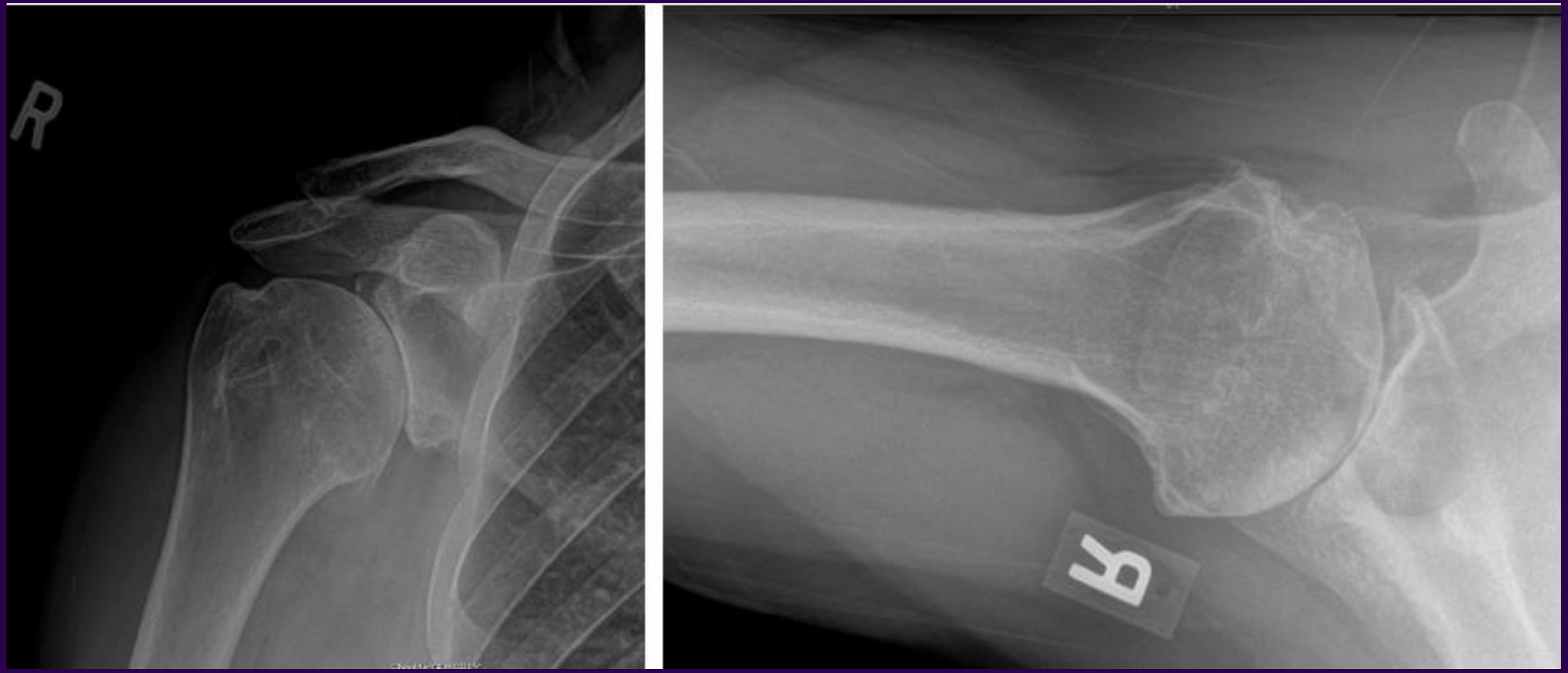
**Effectiveness of Physical Therapy in Treating Atraumatic Full Thickness Rotator Cuff Tears. A Multicenter Prospective Cohort Study**

**The Moon Shoulder Group, John E. Kuhn, MD, MS, Warren R. Dunn, MD, MPH, Rosemary Sanders, BA, Qi An, MS, Keith M. Baumgarten, MD, Julie Y. Bishop, MD, Robert H. Brophy, MD, James L. Carey, MD, MPH, Brian G. Holloway, MD, Grant L. Jones, MD, C. Benjamin Ma, MD, Robert G. Marx, MD, MS, Eric C. McCarty, MD, Sourav K. Poddar, MD, Matthew V. Smith, MD, Edwin E. Spencer, MD, Armando F. Vidal, MD, Brian R. Wolf, MD, MS**, and **Rick W. Wright, MD**

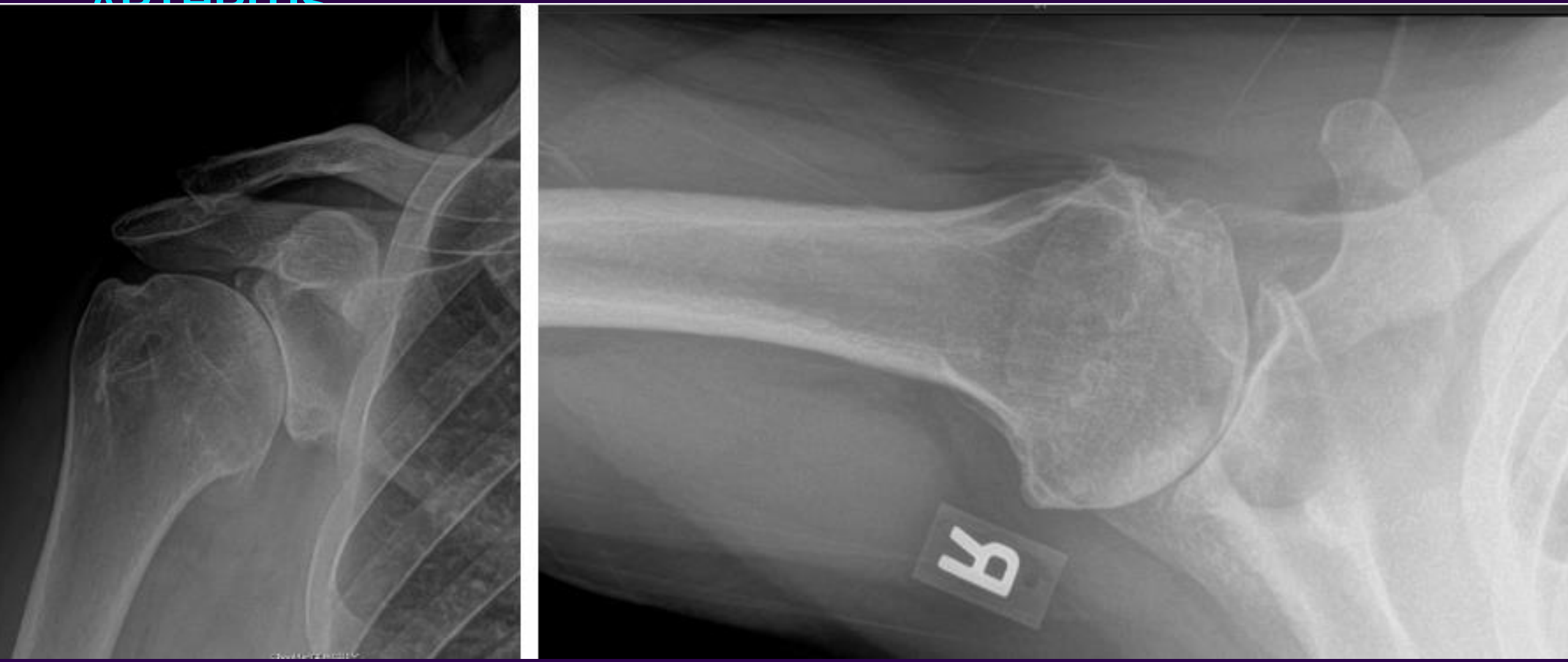
**Results**—The cohort consists of 452 patients. Patient reported outcomes improved significantly at 6 and 12 weeks. Patients elected to undergo surgery less than 25% of the time. Patients who decided to have surgery generally did so between 6 and 12 weeks, and few had surgery between 3 and 24 months.

**Conclusion**—Non-operative treatment using this physical therapy protocol is effective for treating atraumatic full thickness rotator cuff tears in approximately 75% of patients followed for two years.

# SHOULDER GLENOHUMERAL ARTHRITIS



# SHOULDER GLENOHUMERAL ARTHRITIS



# SHOULDER – ROTATOR CUFF ARTHROPATHY

## CHARACTERISTICS

- End stage cuff pathology
- Humeral head migration
- CPPD

## EXAM

- Loss of external rotation
- "Hornblowers" sign

***HORNBLOWER'S (PATTE TEST)***

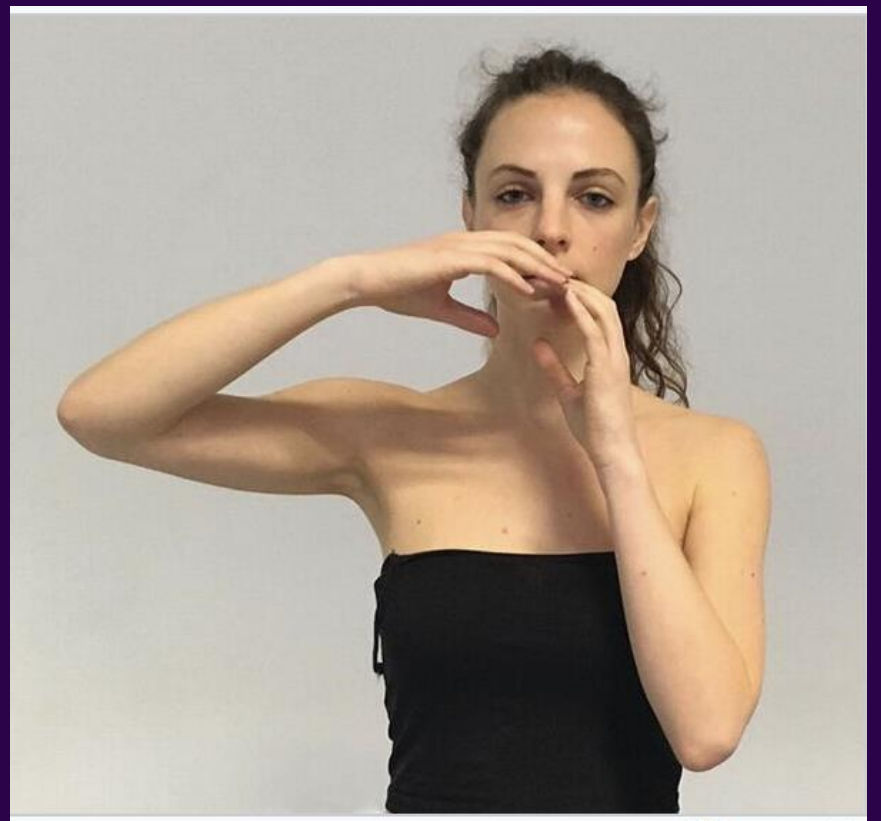
Purpose: Test teres minor muscle

Position: Seated

Technique: Shoulder in 90° abd & elbow flexed so that the hand comes to the mouth (blowing a horn)

Interpretation: + test = reproduction of pain &/or inability to maintain UE in ER





Demonstration of normal hornblower's sign[1]

Would we suspect RCA in someone this age?

# HIGH YIELD PHYSICAL EXAM

## LOOK

Observation. Atrophy? Position of shoulders and scapulae.

## MOVE

Active AND PASSIVE range of motion. Is it symmetric? Where is the pain?

## FEEL

Palpation. “What’s under the skin?”

## STRESS

Special tests. “If this causes pain, what could be the reason?”

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# PHYSICAL EXAM – SHOULDER

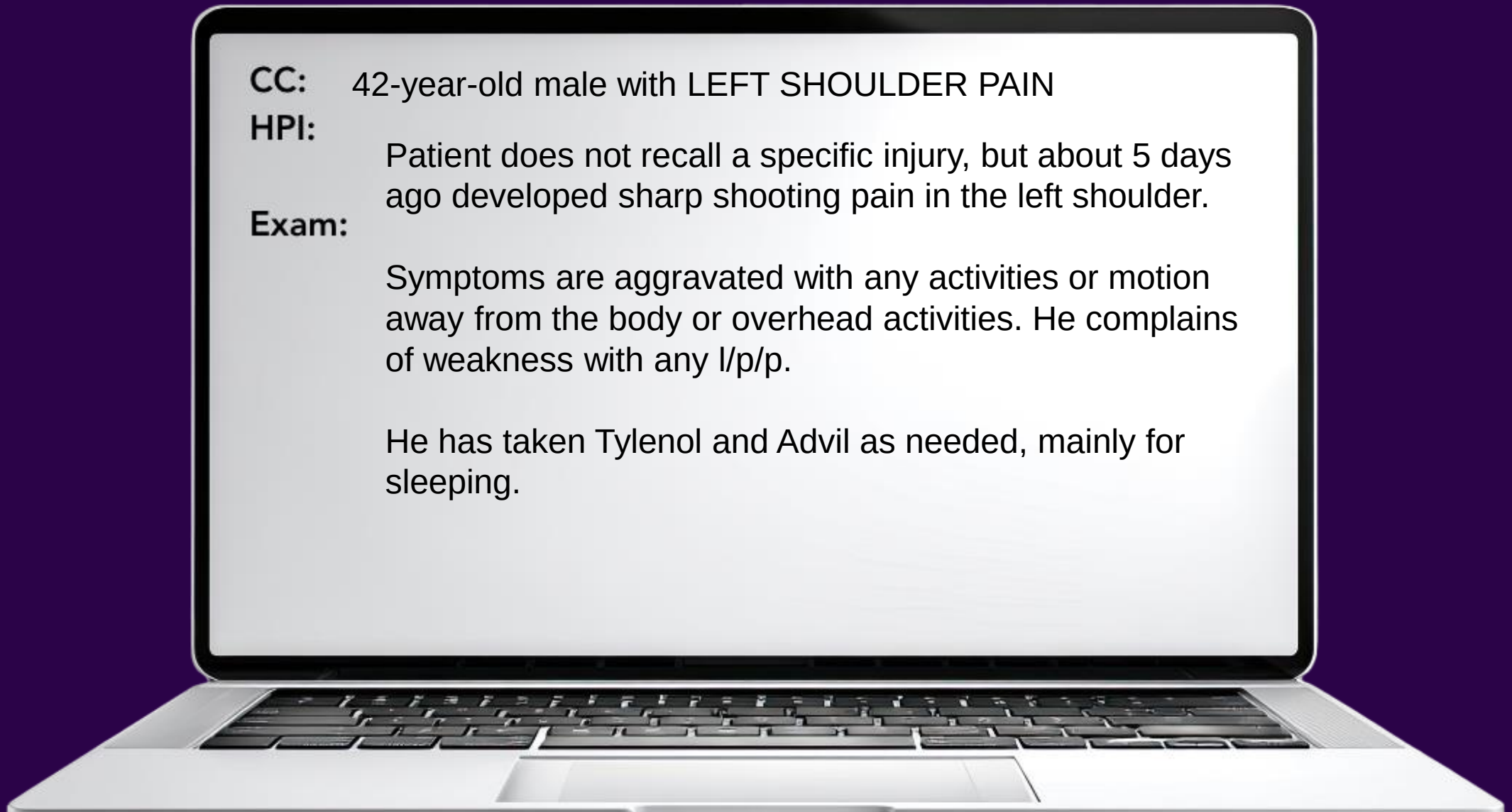
- ❑ Observe for atrophy
- ❑ AROM of shoulder evaluation: forward flexion, external rotation (0 and 90 degrees), internal rotation
- ❑ Neck AROM
- ❑ Muscle strength: rotator cuff, deltoid, biceps triceps
- ❑ Surface palpation: clavicle, AC joint, greater tuberosity of humerus, long head of biceps tendon, deltoid insertion, scapula & parascapular musculature
- ❑ Special tests: Neer Sign + Kennedy-Hawkins (RC impingement), Hornblower's sign (RC arthropathy), Speeds Test (biceps tendinitis)

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# SHOULDER – RED FLAGS

- Acute loss of function/loss of ROM
- Notable laxity or apprehension
- Bruising in anterior shoulder
- Deformity of pectoralis or proximal biceps

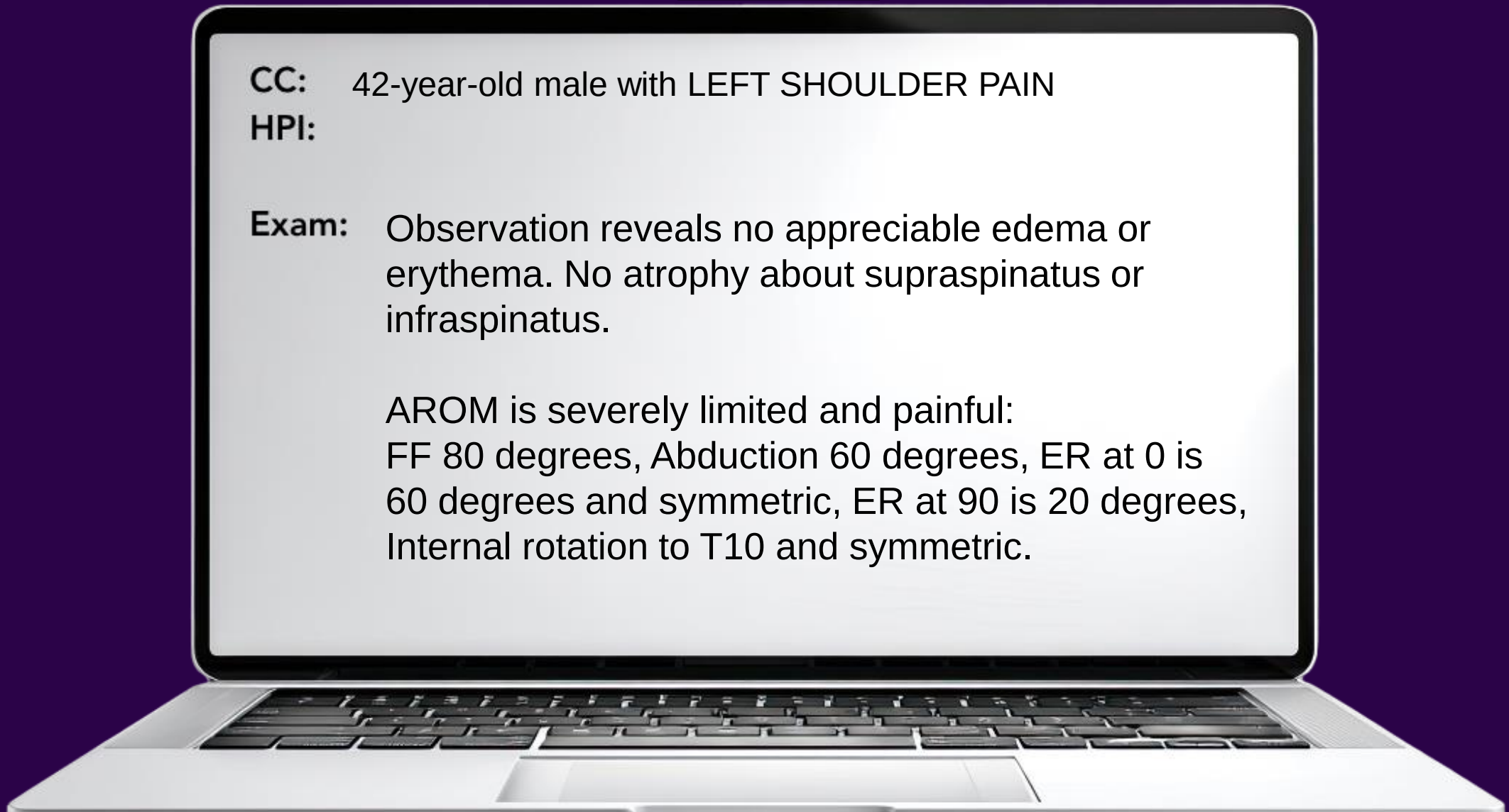
# CASE STUDY - SHOULDER



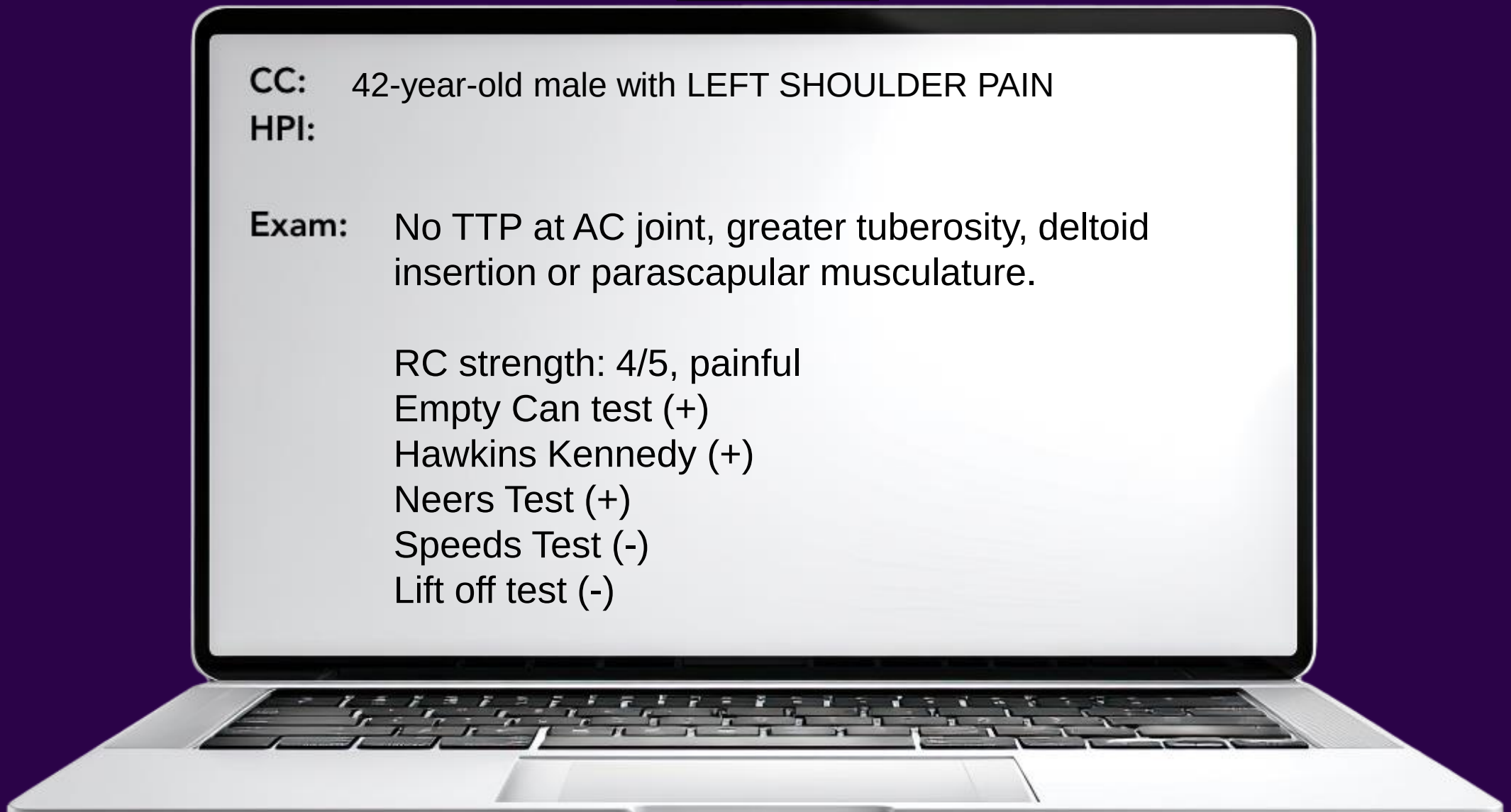
# CASE STUDY - SHOULDER



# PHYSICAL EXAM - SHOULDER



# PHYSICAL EXAM - SHOULDER



# CALCIFIC TENDINITIS

## Incidence

- Common
- 2.7%-20%
- Ages 30-60
- Women > Men
- Supraspinatus tendon

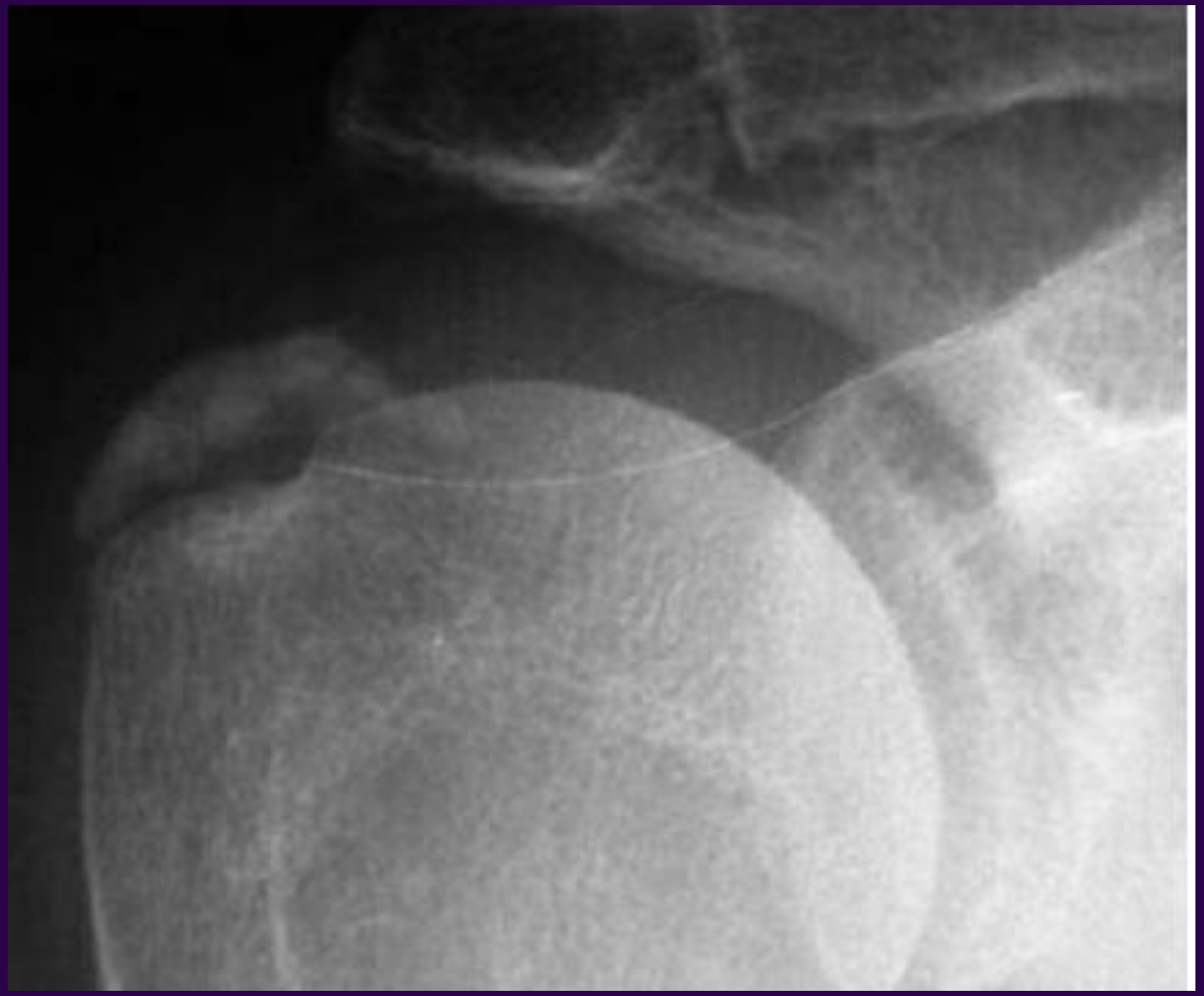


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# CALCIFIC TENDINITIS

## Etiology

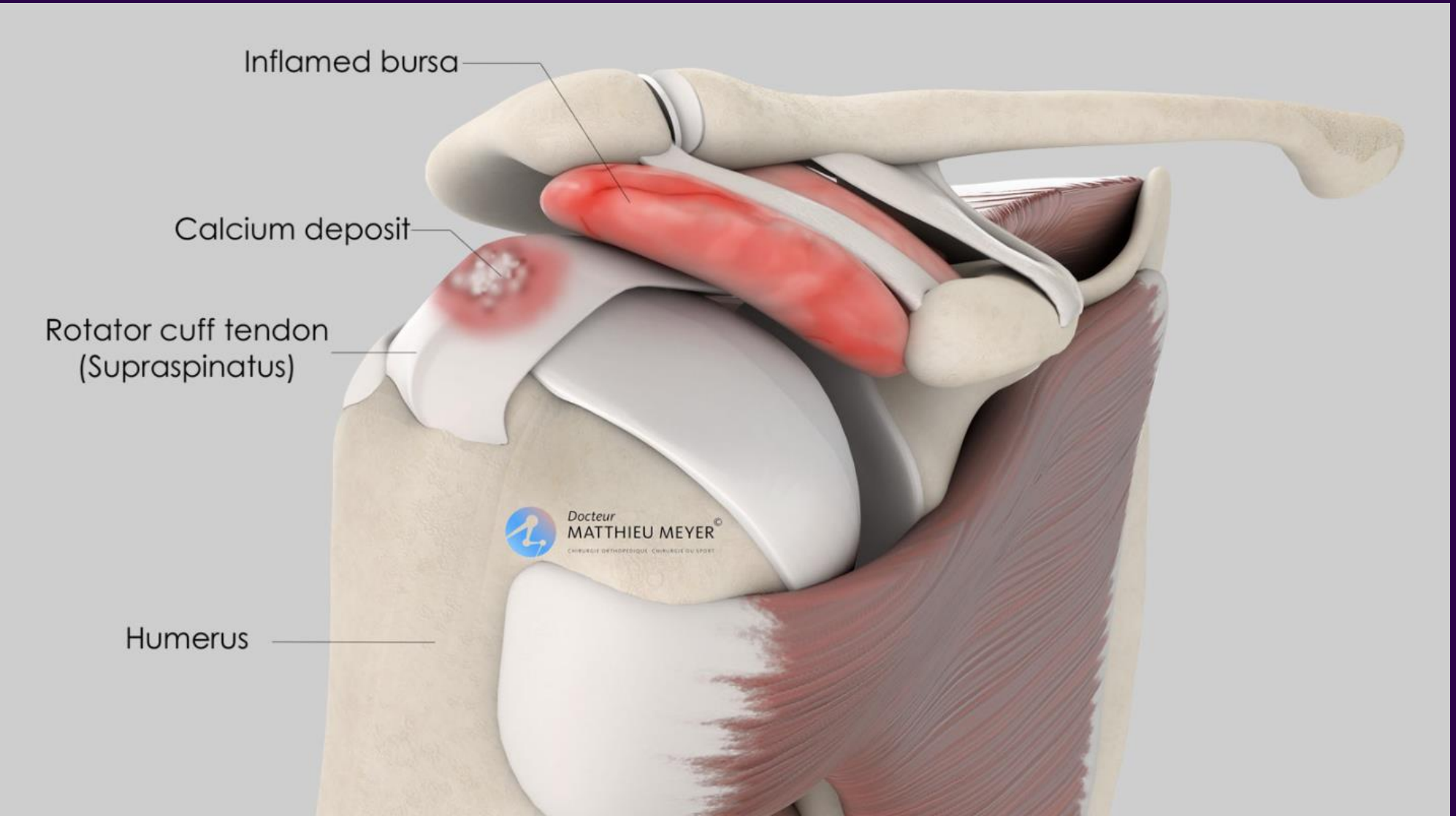
- More common with hypothyroidism
- Endocrine abnormalities
  - Young age
  - Longer duration of symptoms
  - Higher rate of surgery



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# CALCIFIC TENDINITIS

## Pathogenesis



# CALCIFIC TENDINITIS

## Pathogenesis

**Figure 1**

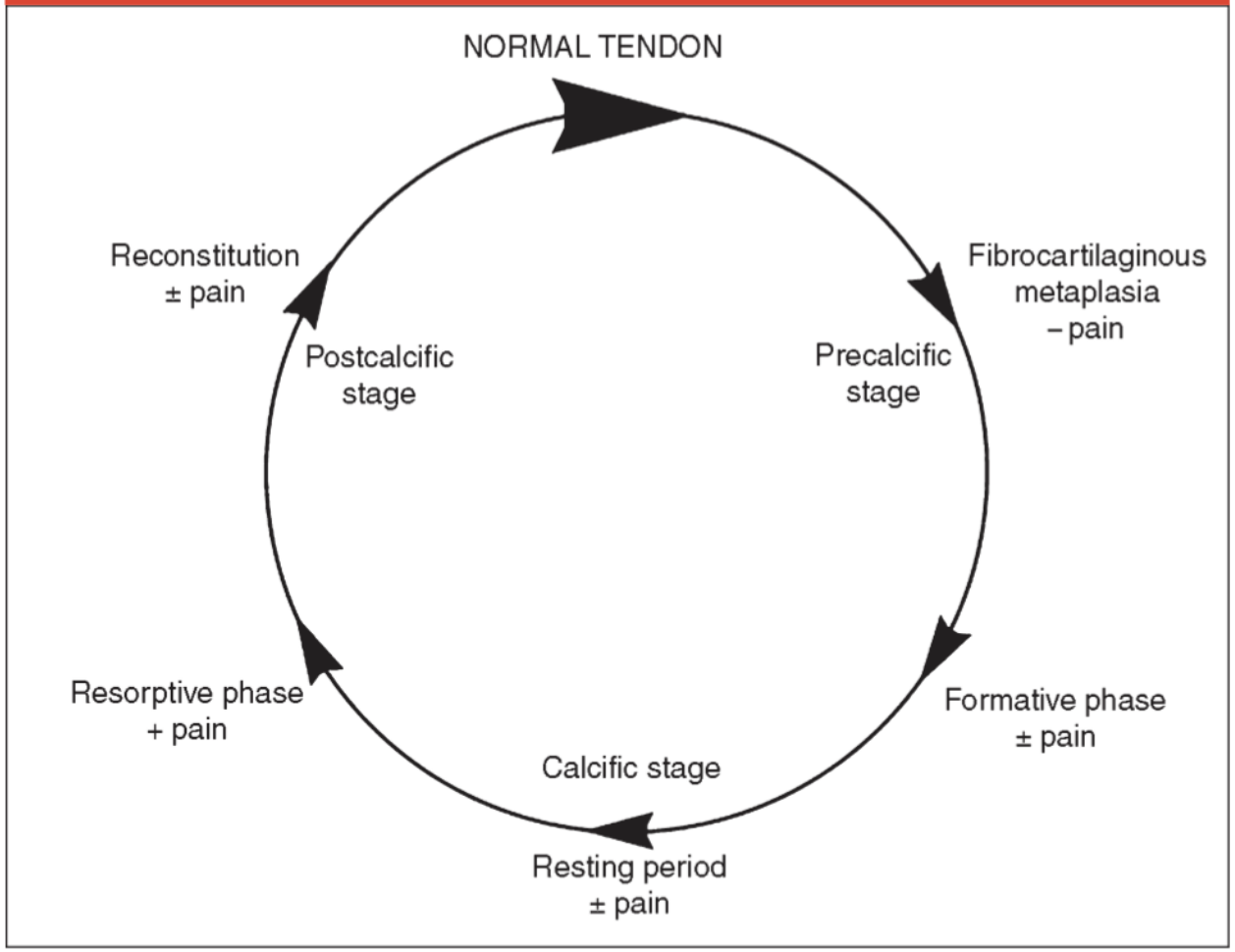



Diagram representing the progressive stages of calcific tendinitis.

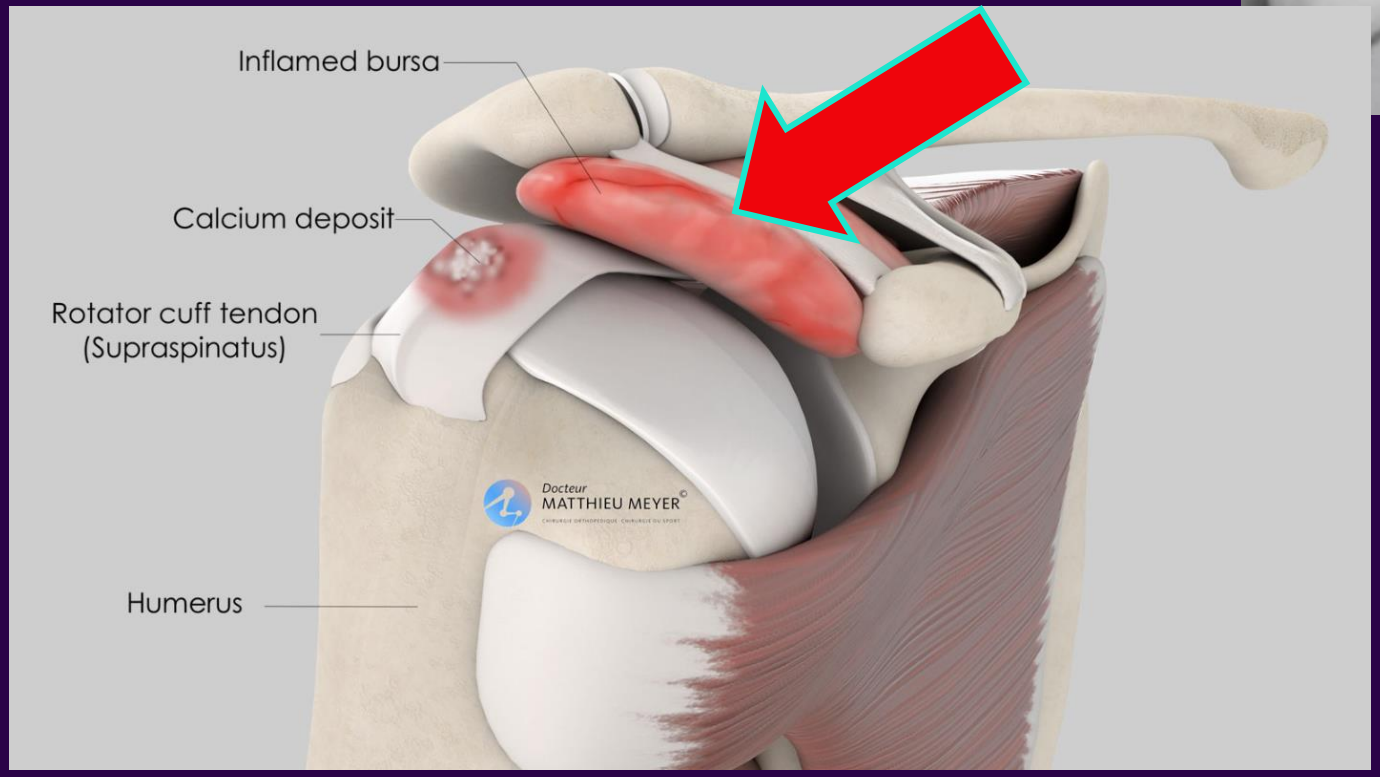
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# CALCIFIC TENDINITIS

## Exam

- Painful ROM
- Much like rotator cuff tendinitis





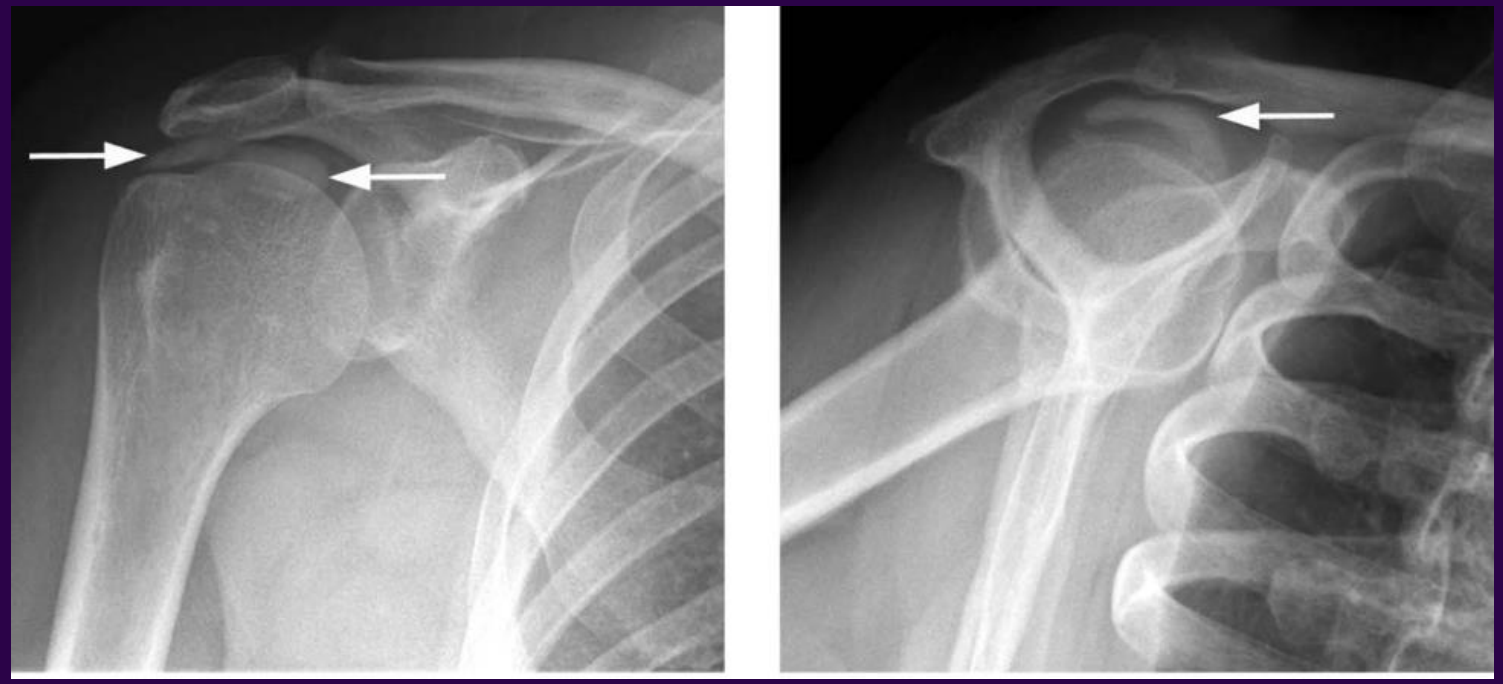
# CALCIFIC TENDINITIS

## Imaging

Plain films

Ultrasound

MRI





# CALCIFIC TENDINITIS

CONSERVATIVE TREATMENT

PT

NSAID

CORTISONE INJECTION

72% GOOD OR EXCELLENT RESULTS

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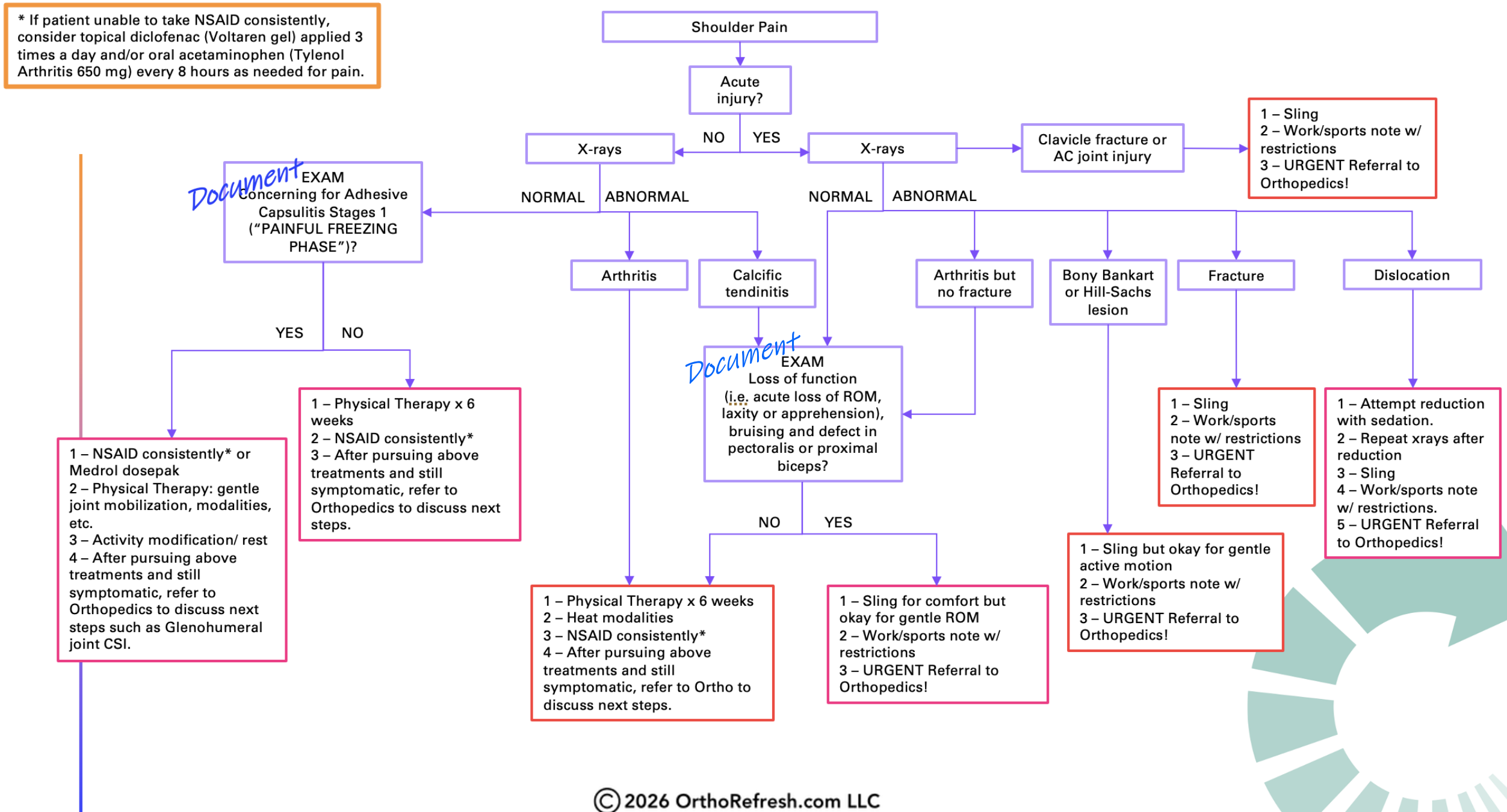
# CALCIFIC TENDINITIS

## CONSERVATIVE TREATMENT

Extracorporeal Shock Wave Therapy (ESWT)

Ultrasound-guided needle lavage






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# REFERENCES


Miller MD, Hart JA, MacKnight JM. *Essential Orthopaedics.* 2nd ed. Elsevier; 2020.

Starkey C, Ryan J. *Orthopedic and Athletic Injury Evaluation Handbook.* Philadelphia, PA: F. A. Davis Company; 2003.

# FINAL TIPS & TAKEAWAYS

Do not ignore hand numbness. If not better with conservative treatment after a couple months, refer.

What's under the skin?

Majority of shoulder & elbow pain improves with non-op treatment!

Use the Ortho MDM Accelerator™ to determine initial treatment!

# THANK YOU

Vanessa JS Smith, PA-C

info@OrthoRefresh.com

I want to hear from you!

