Case Vignettes and Clinical Pearls

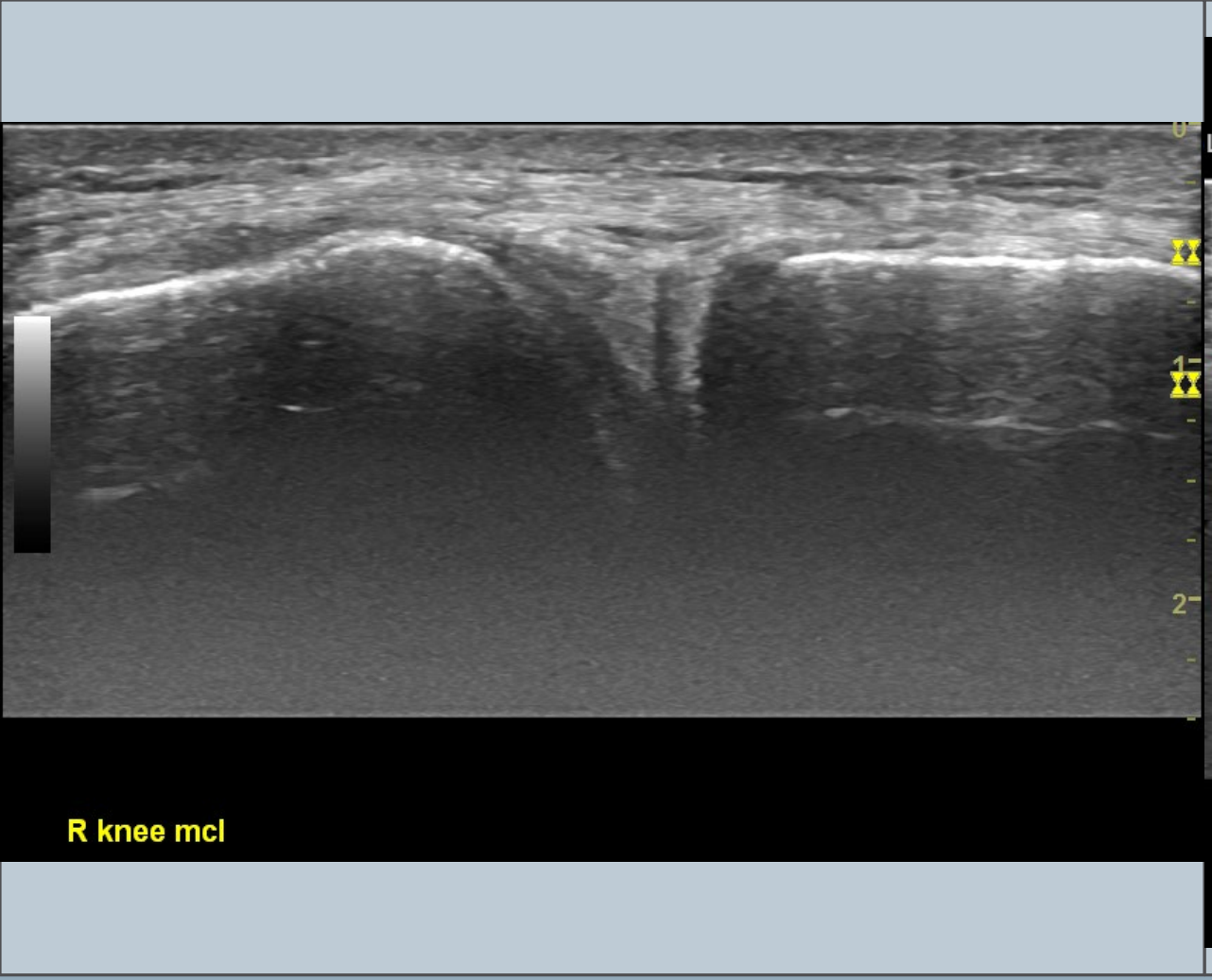
Case #1: 22 y/o male with mild hemophilia B with Right knee pain

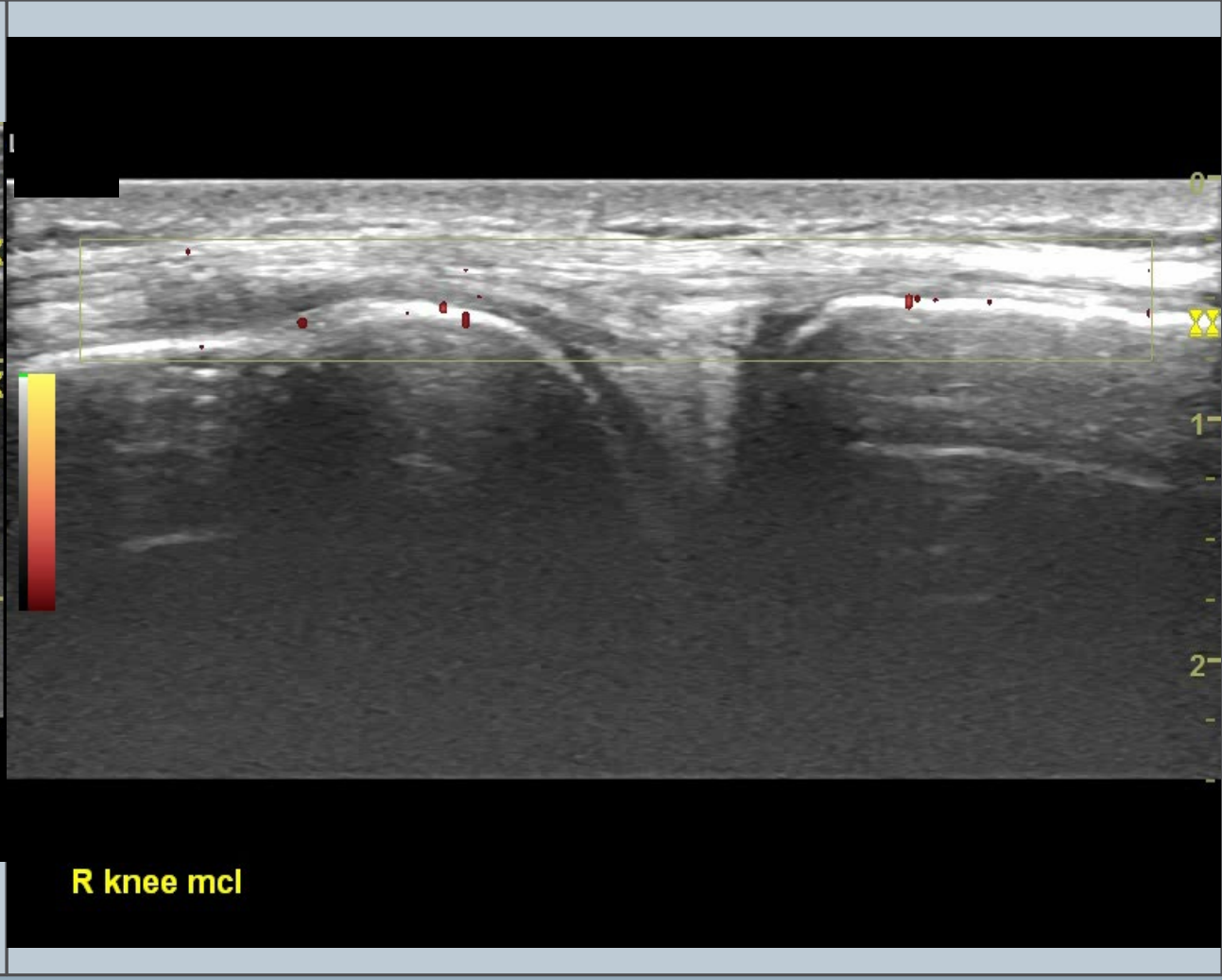
Patient History/Subjective

1. Professional mountain bike racer that has fallen off his bike many times. Most recent 6 months ago when he hurt his right knee.
2. Has been trying to rehab on his own with his personal trainer. Knee has been getting better but still “pops and locks.”
3. No pain at rest or with single leg squats but is able to pin point pain at the medial joint line

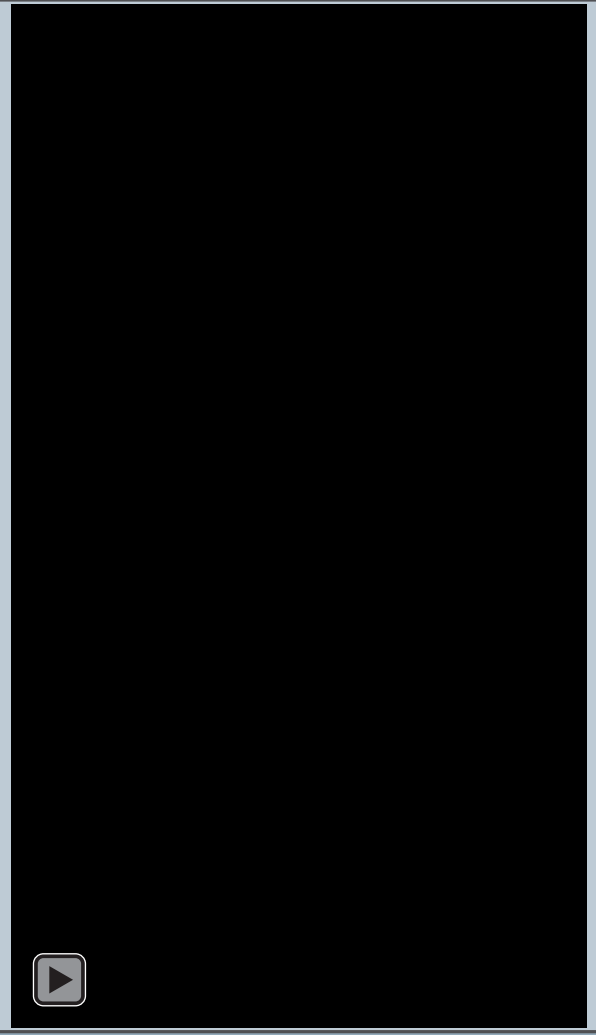
Patient Presentation

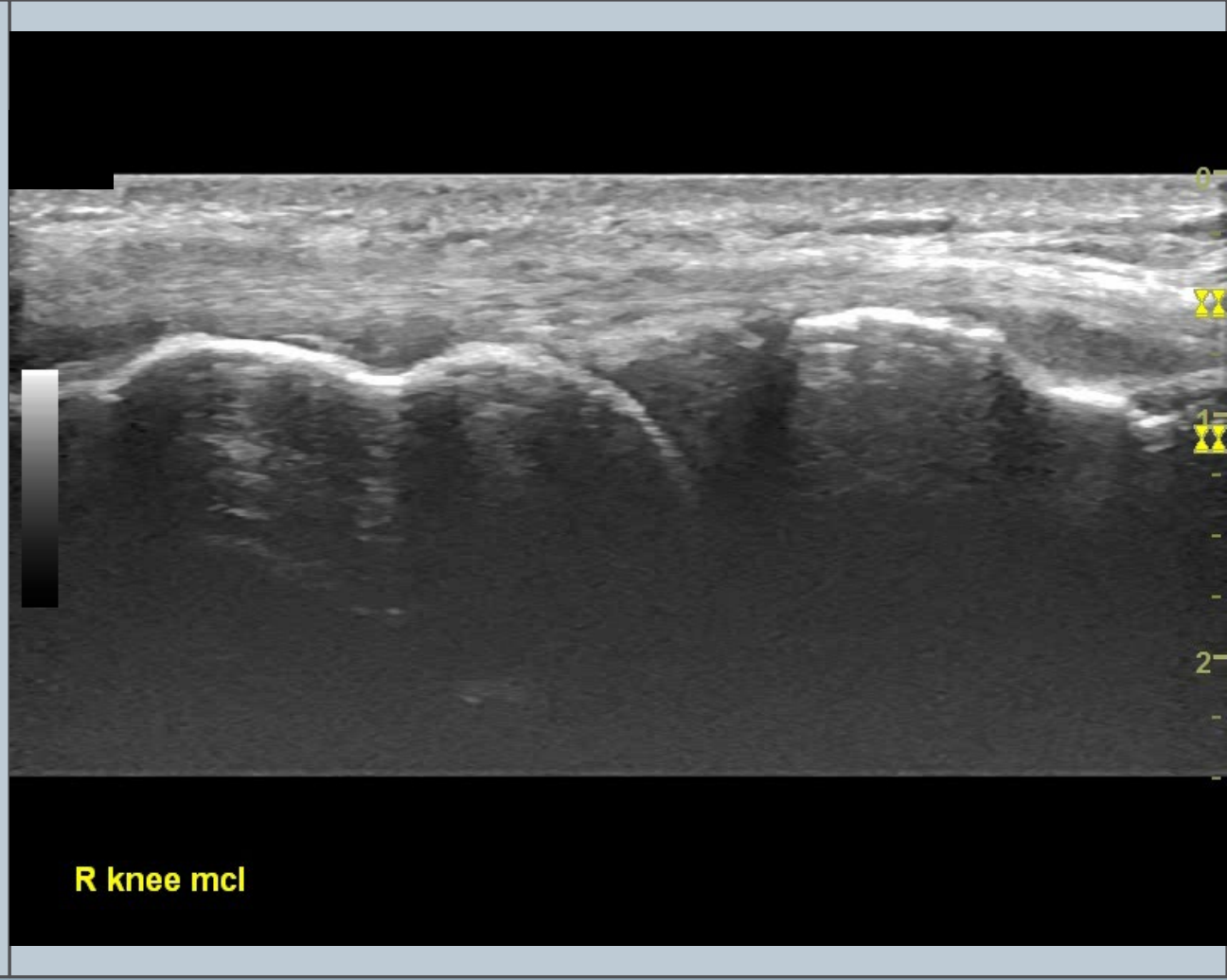
1. ROM: WNL
2. Swelling: None noted
3. Gait: unremarkable
4. Palpation: TTP to medial joint line and long MCL
5. Special tests: + valgus stress test, negative Thessaly’s for lateral meniscus injury
6. Strength: 5/5



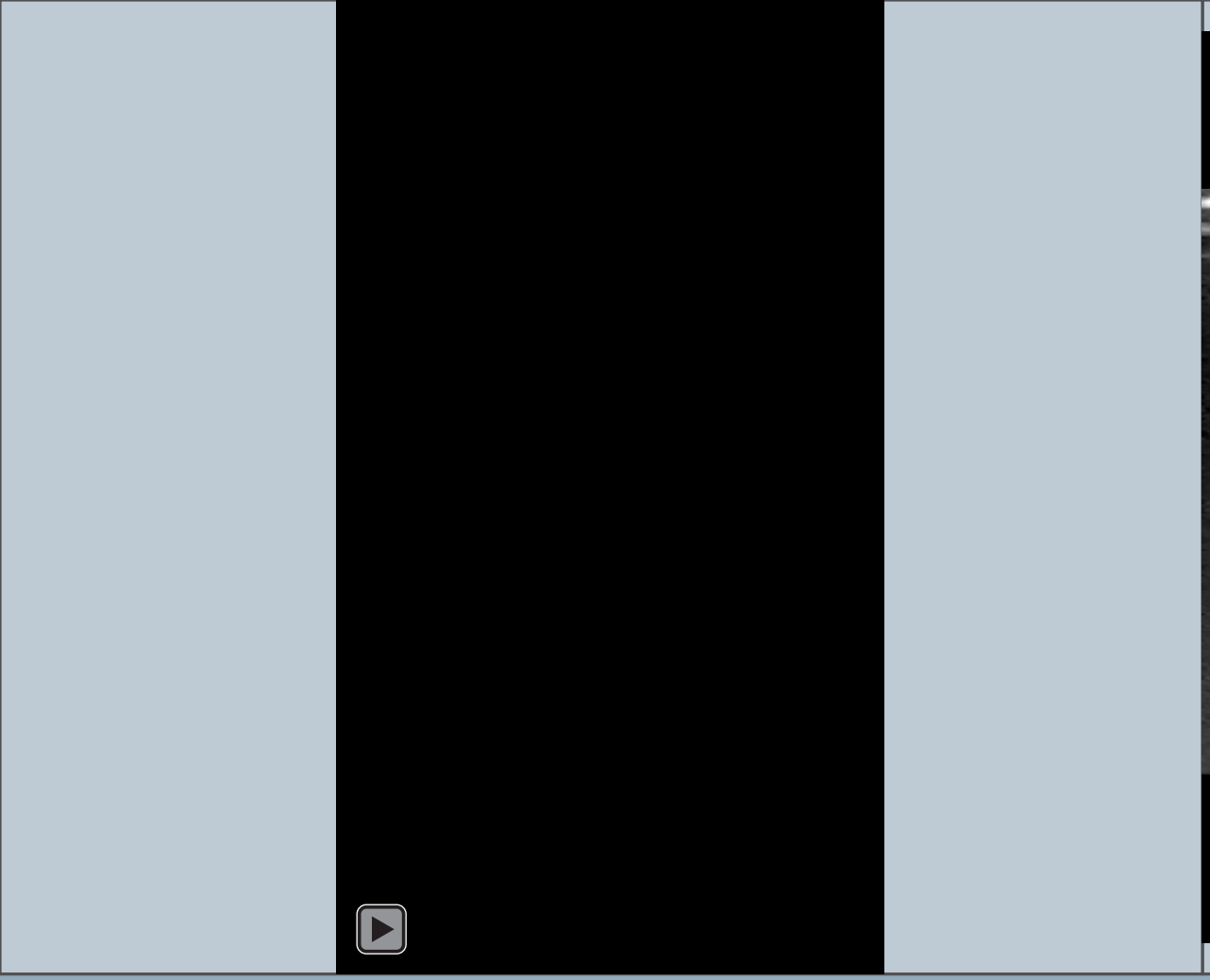


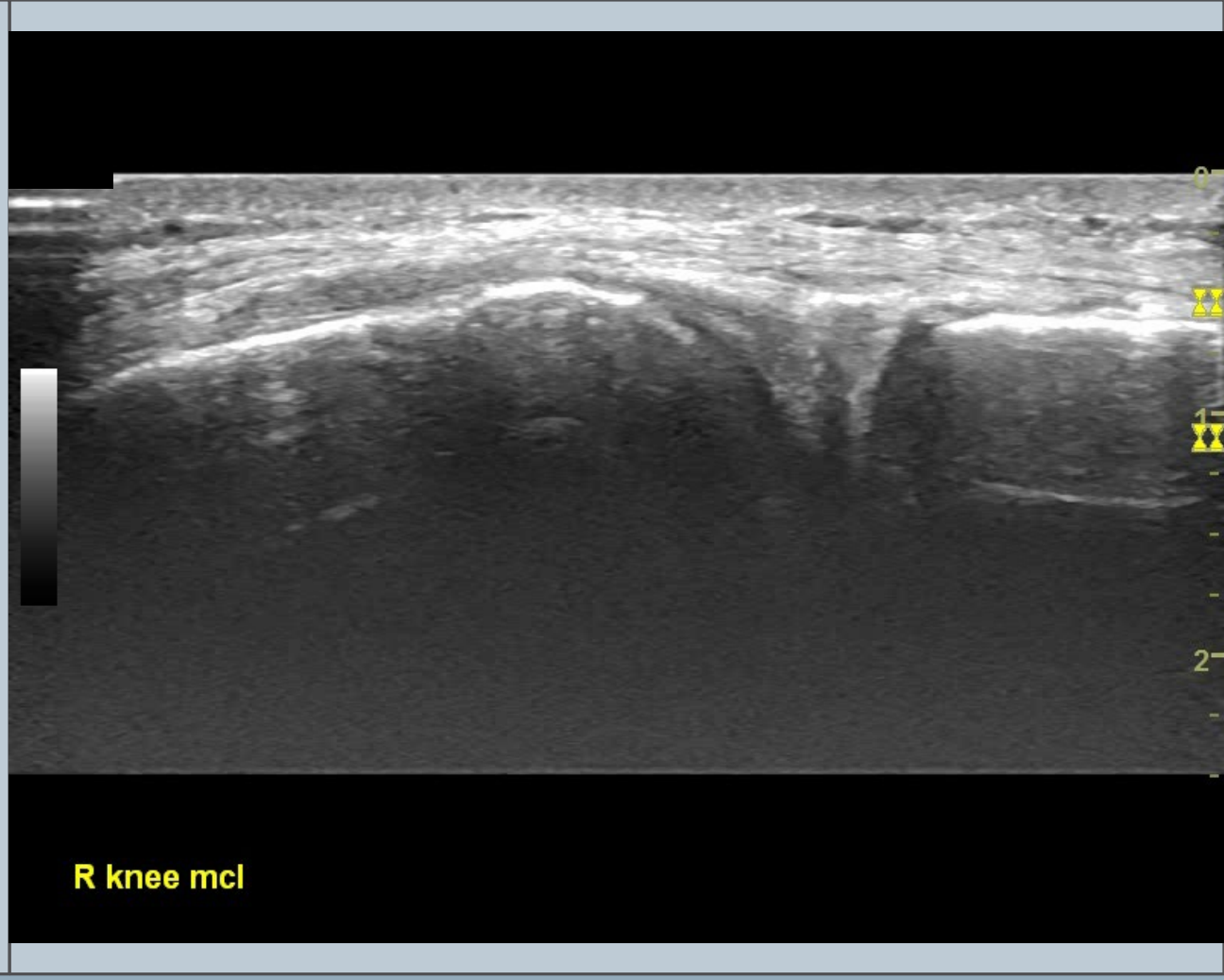
Right Medial Mensicus/MCL LAX





Right Medial Mensicus/MCL LAX (Sweep)





Right Medial Mensicus/MCL LAX (Valgus)

Results/Treatment Plan

Findings

1. Suprapatellar Bursa LAX:
2. Medial Recess SAX
3. Lateral Recess SAX

Treatment

1. Elastic Adhesive taping
2. Patient education
3. Continue rehab but with different focus

Clinical Pearls

1. If you visualize a lesion in the meniscus, it's real!
2. MSKUS can influence patient compliance with POC

Case Study

Cindy Bailey

Hemophilia Patient

- Male 70 yrs +
- Good general health
- Excellent historian and symptom reporter
- Daughter present for interpreter
- Pt having pain in back of knee that radiates into calf X almost a week

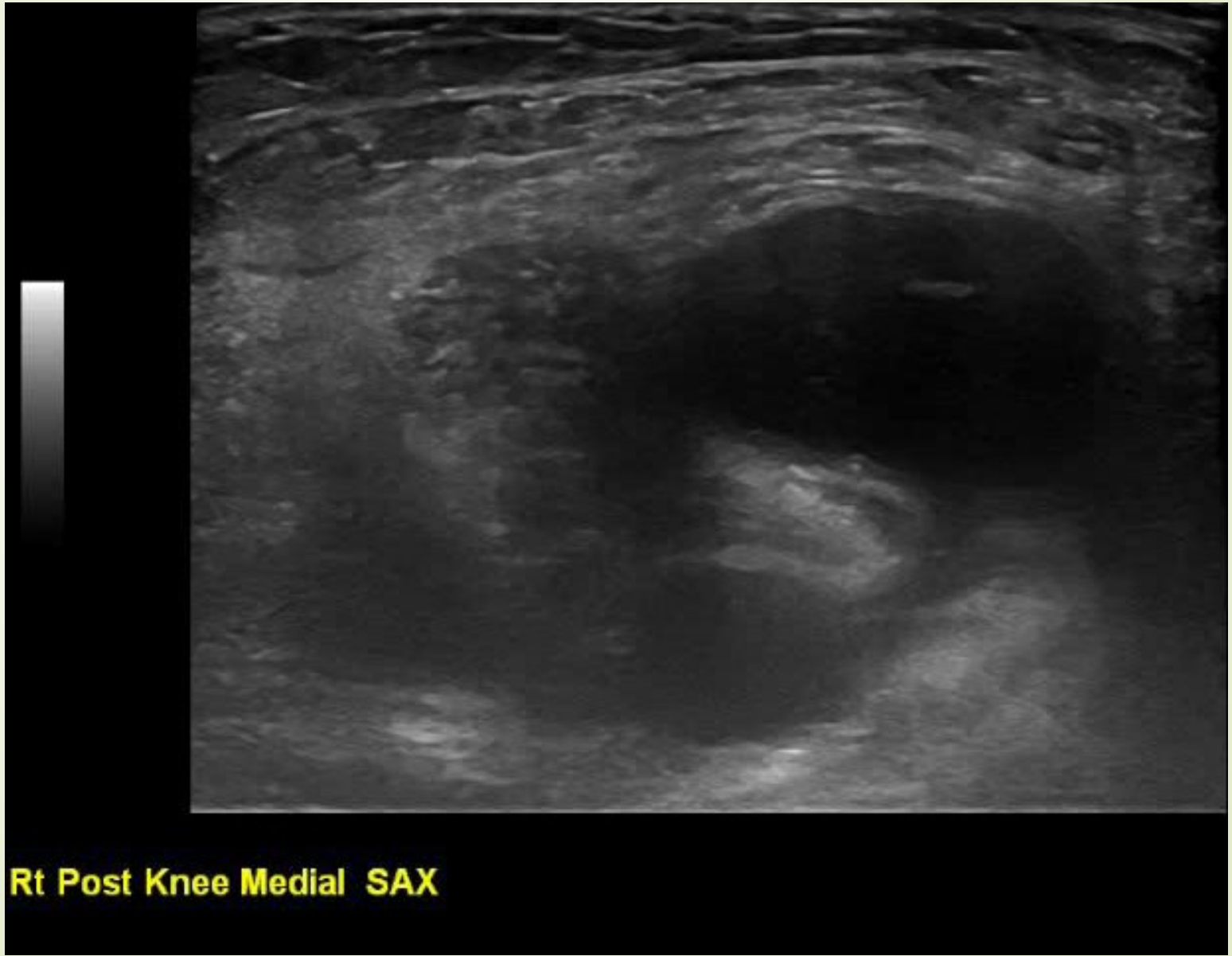
Patient feels it is a bleed in the calf.

Pt. Symptom Pain in Posterior knee and calf. Suspected Calf Bleed. Calf images WNL.

Rt. Knee Posterior Popliteal area finding of large anechoic area in the region of pain. (Compressible)

Further Investigation with US probe. Found additional anechoic compr. area deep to 1st.

Continued investigation finds a "communicating neck" between them



Continued investigation finds a "communicating neck" between them

Continued investigation finds a "communicating neck" between them

Pt. treatment changes due to scan findings.

- If having an ongoing bleed the patient would be given factor infusions each costing thousands of dollars.
- Bakers Cyst found and NO bleed. When sharing this finding with the patient he stated he had had pain from the Bakers cyst a year ago and it was drained with pain resolution.

Pt. treatment changes due to scan findings.

- Pt. Was told that this drainage is a temporary solution but one year of pain resolution is quite good. If he would like to have that intervention again that would be an appropriate treatment in his case.
- He opted to take over the counter anti inflammatories and his pain resolved
- It has been one month and no further treatment has been needed.

- **Thousands if not TENS of thousands of dollars were saved in his treatment by not infusing clotting factor.**

Knee Pain Bleed Vs. Gout

CINDY BAILEY PT, DPT, OCS, SCS, ATC

LOS ANGELES ORTHOPAEDIC HEMOPHILIA TREATMENT CENTER

Knee Pain Bleed Vs. Gout

Patient History/Subjective

-82 yr old M, Hemophilia B moderate

-Factor on demand

-Left Knee swollen moderate with Moderate + on Anterior Superior Lateral area

-Daughter and patient report he cannot remember any injury, false step or odd position.

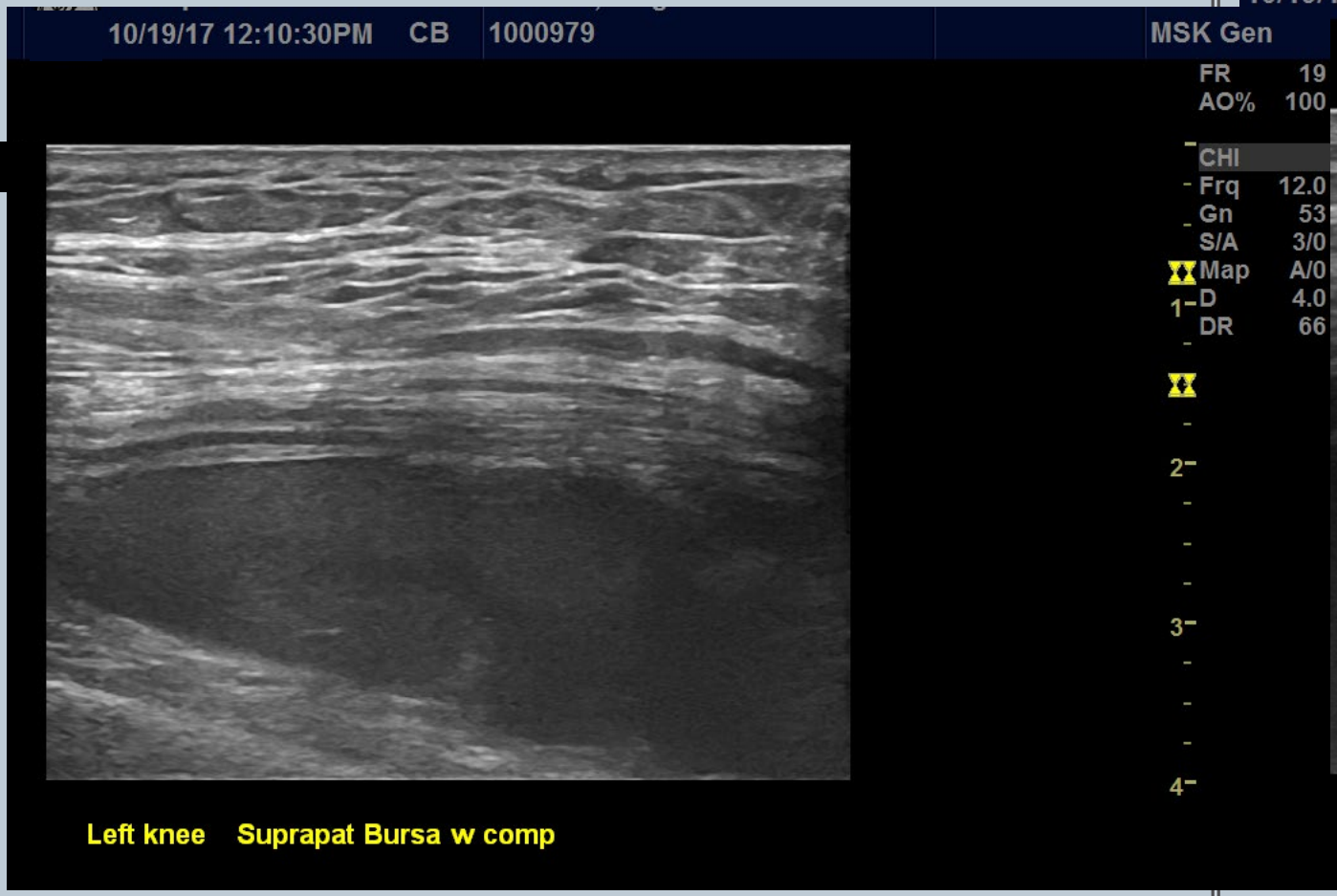
- Pts. knee pain X 3 days,
- 3 days of increased factor not decreasing pain

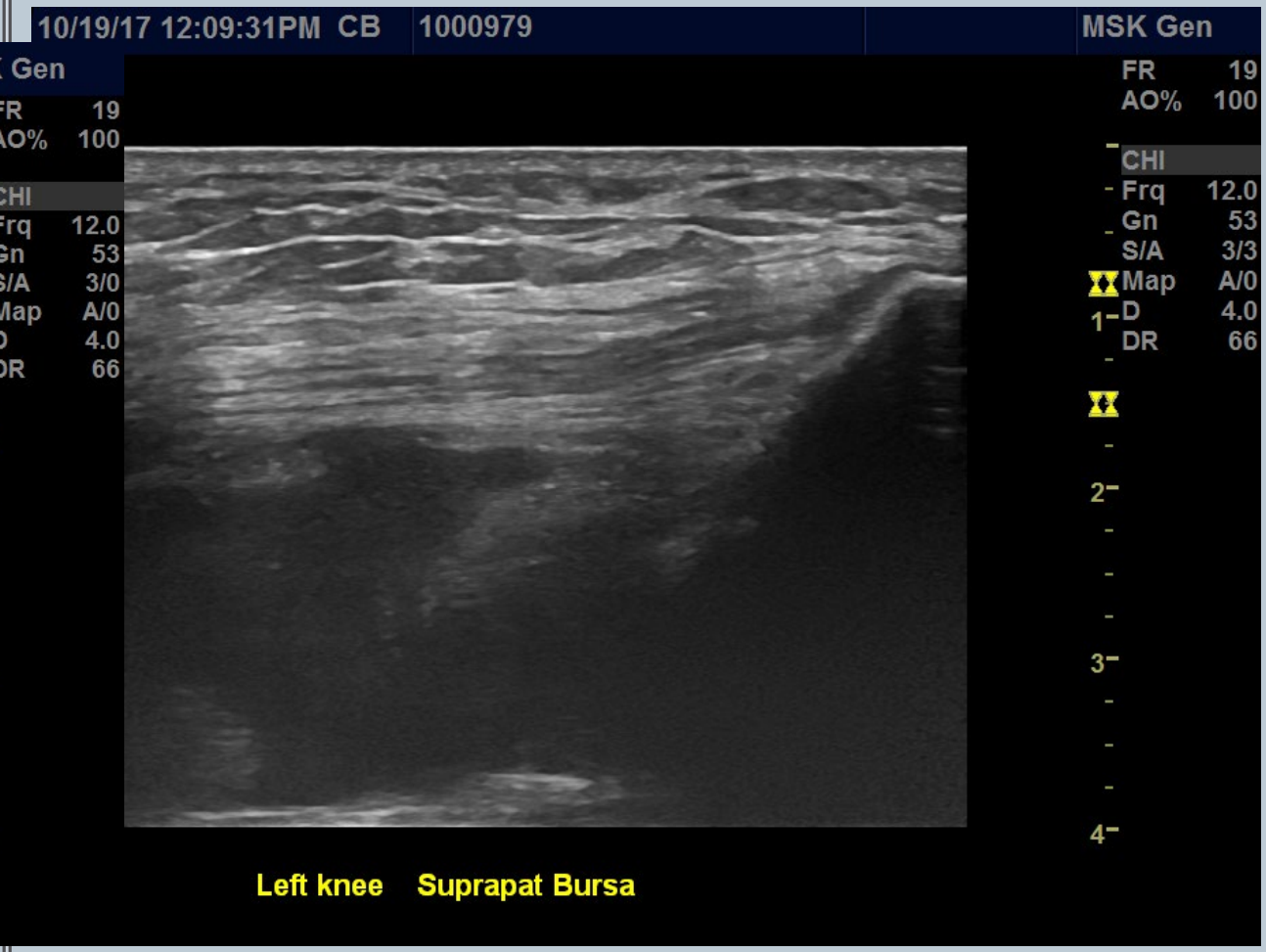
Patient Presentation

1. R.O.M. Limited Flex 60 degrees, Ext. -10
   Pts. normal is 125 to zero
2. Swelling- Patella Ballot + grade 3
3. Palpation – Min. warmth, pain with
   grade 2+ pressure
4. Tests – No Lig. / meniscus due to swelling
5. Strength – 3+to 4-/5 with pain beginning
   at that point

No redness

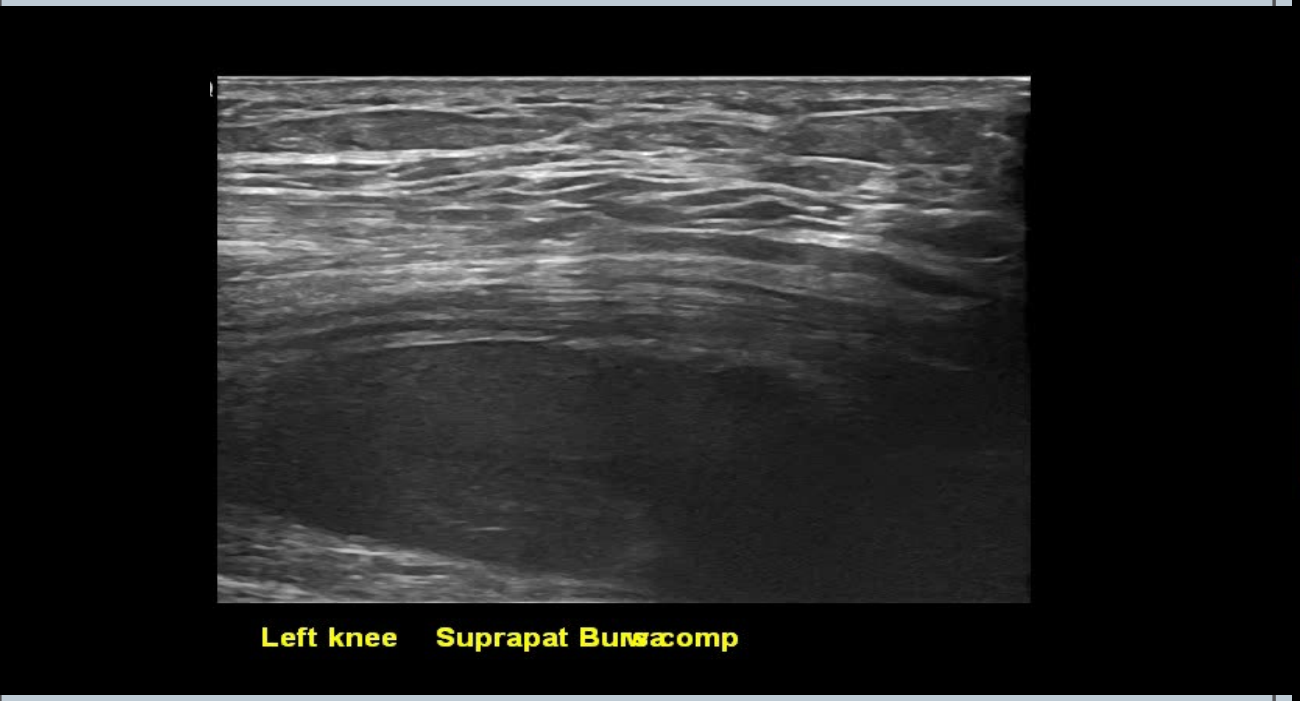
No bruising

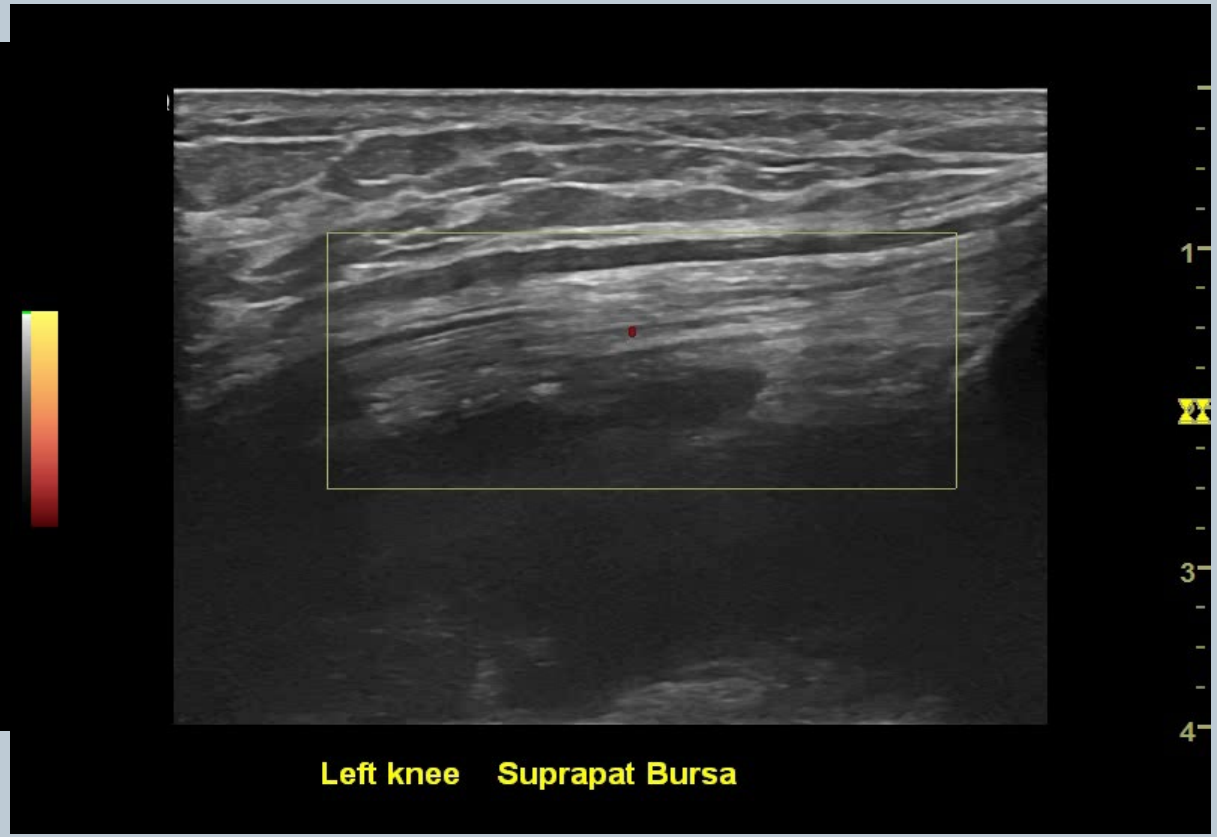




Left SupraPatellar Bursa LAX

*2 images (Suggest a still image and a compression or PD)

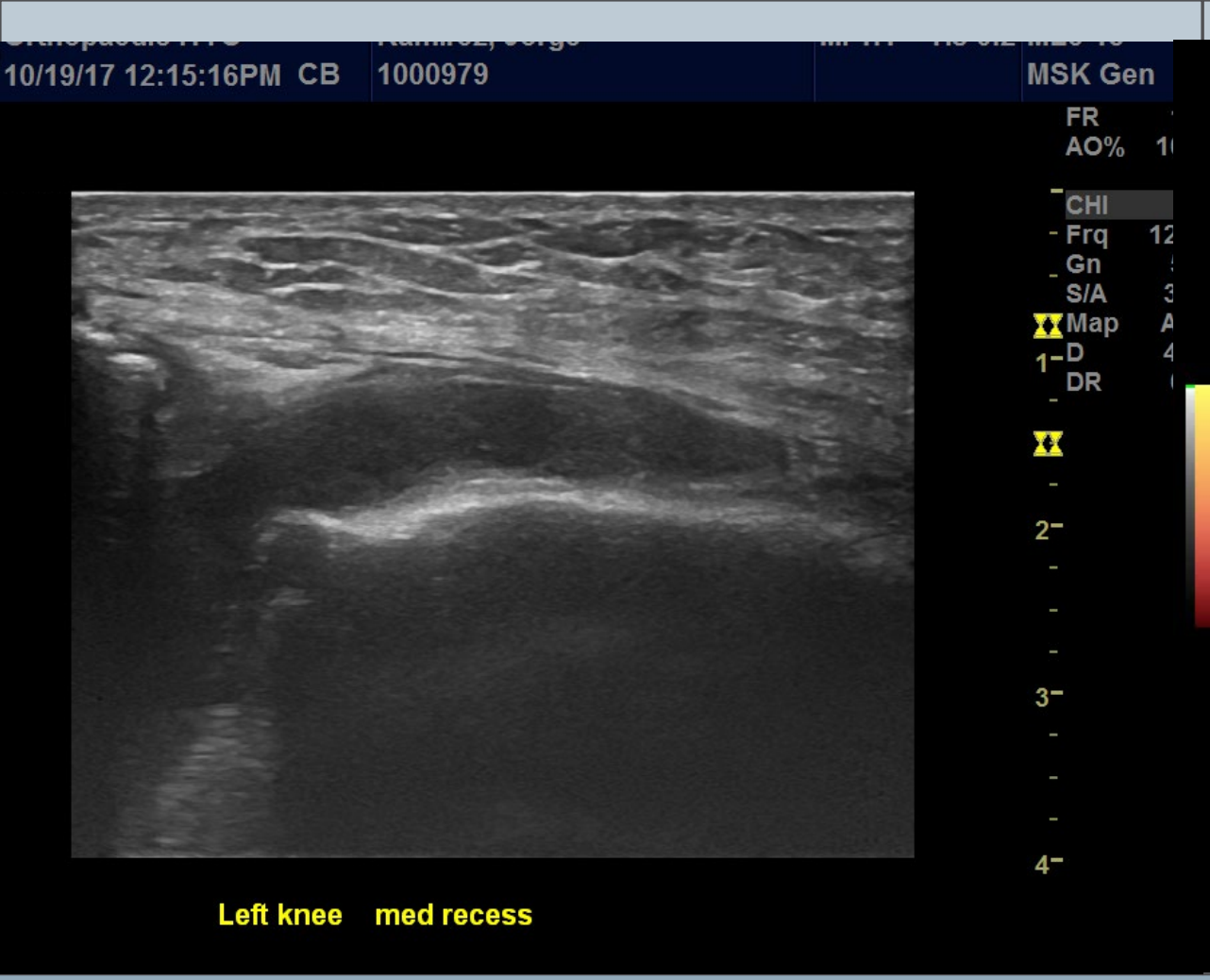


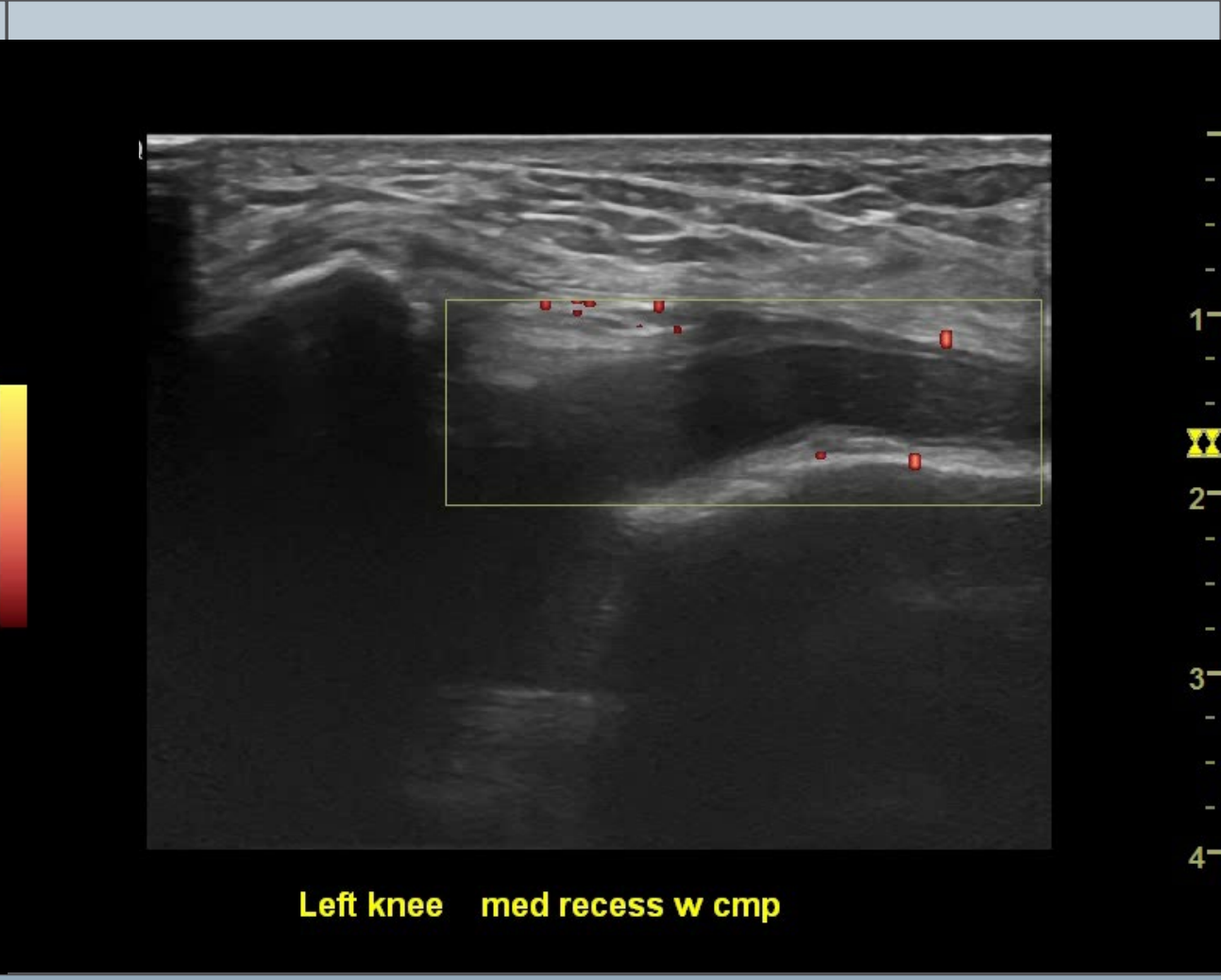


Left knee Supra LAX compr

*2 images (Suggest a still image and a compression or PD)

Power Doppler

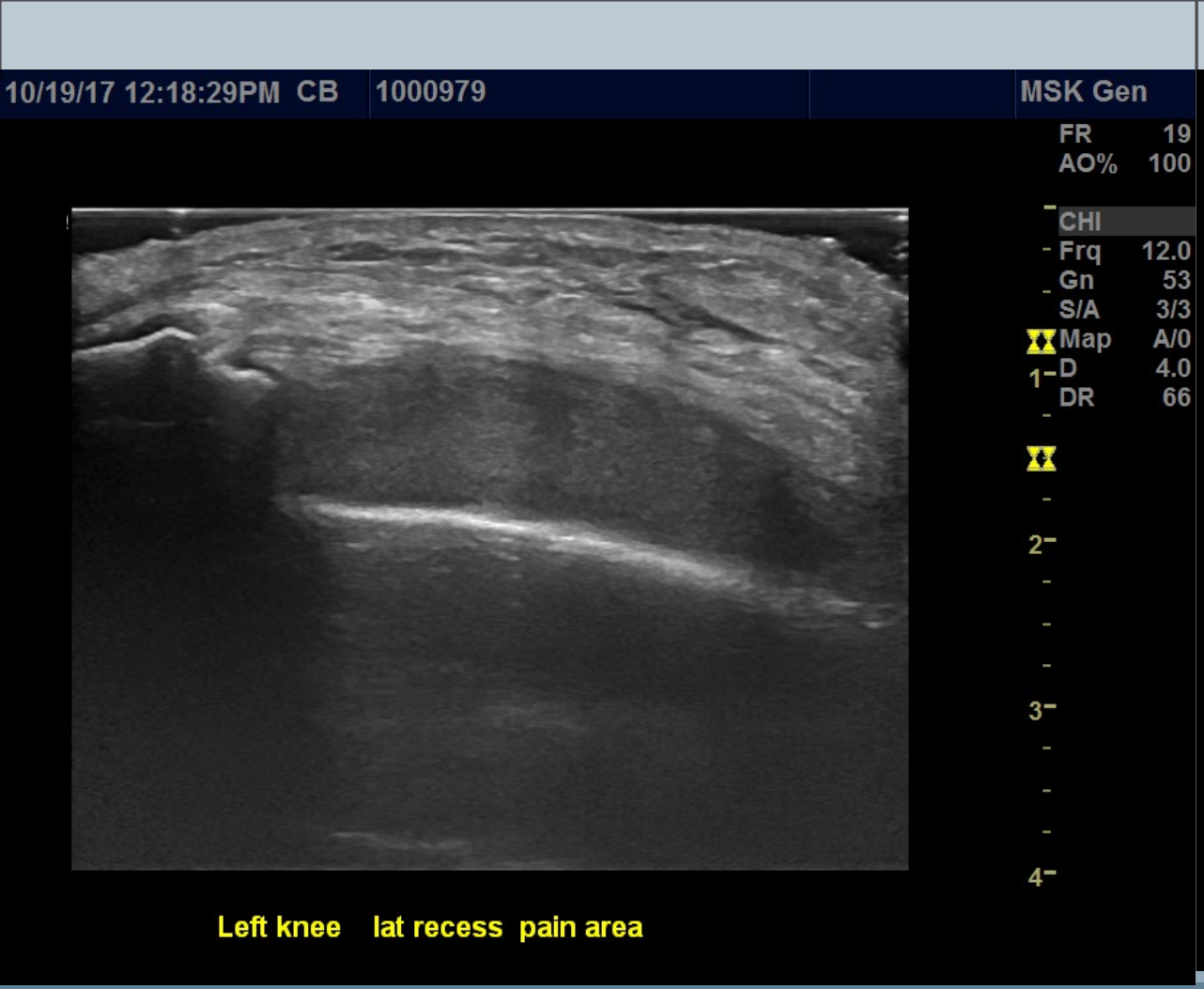


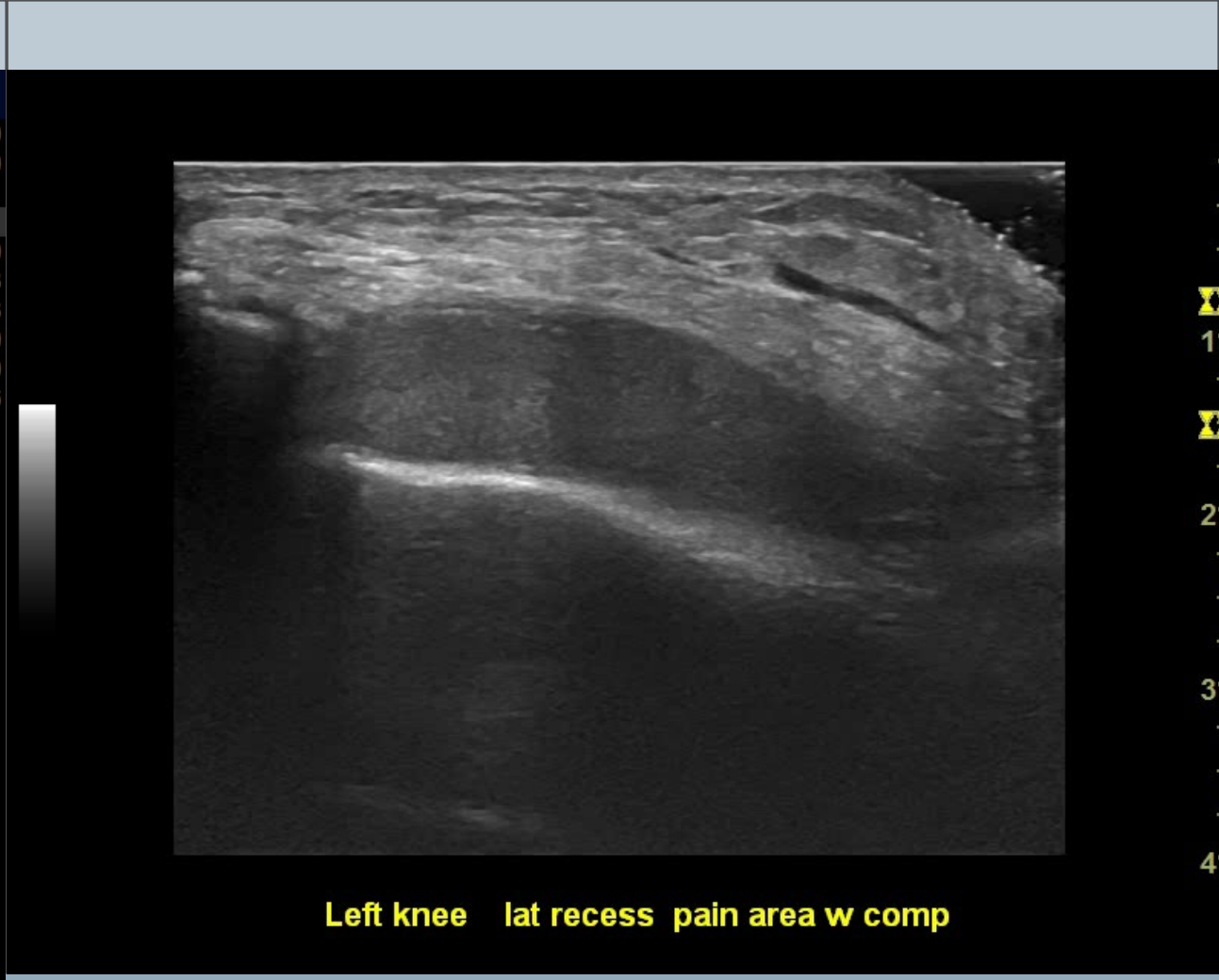


Left Knee Medial Recess LAX

*2 images (Suggest a still image and a compression or PD)

Power Doppler

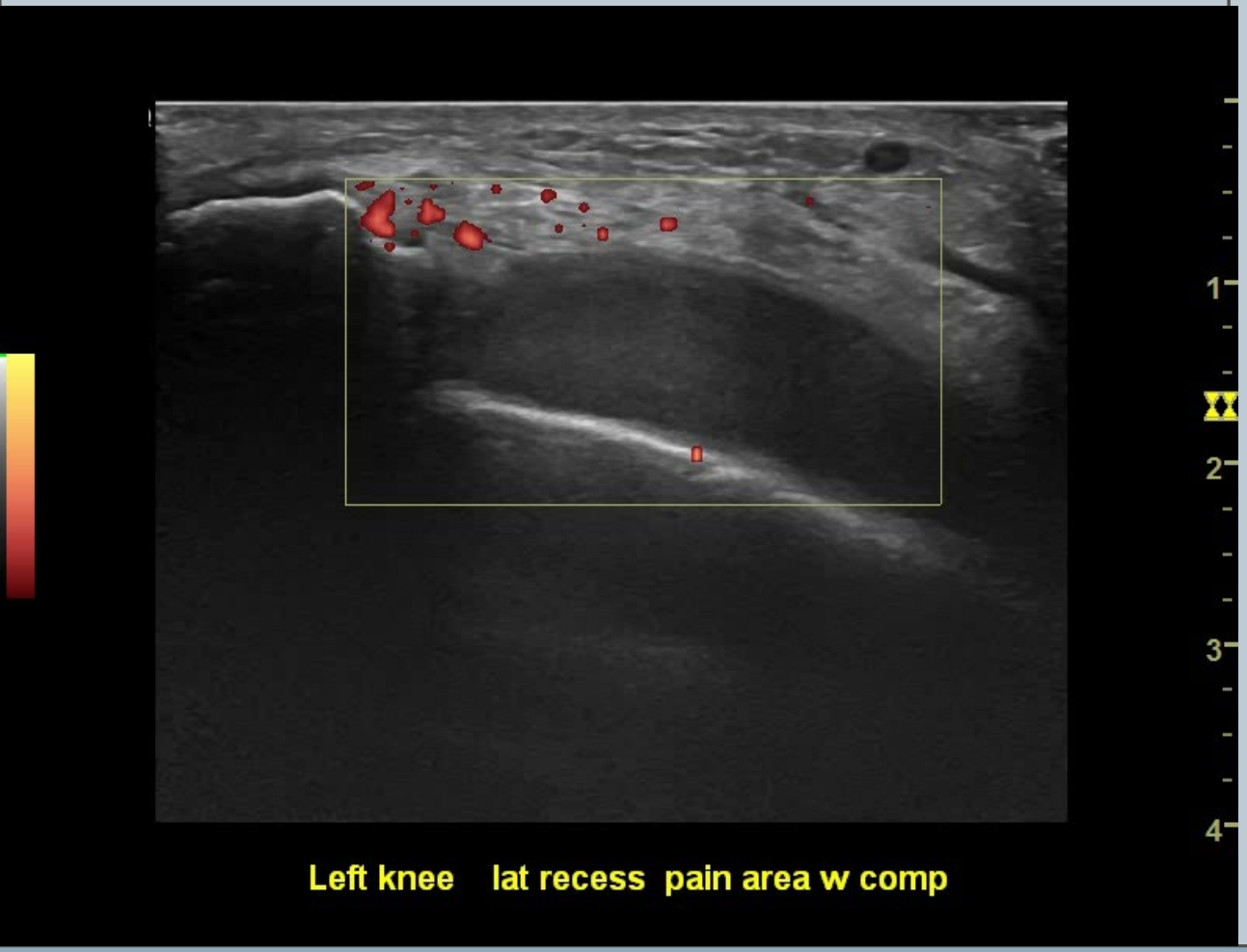




Left Knee Lateral Recess LAX

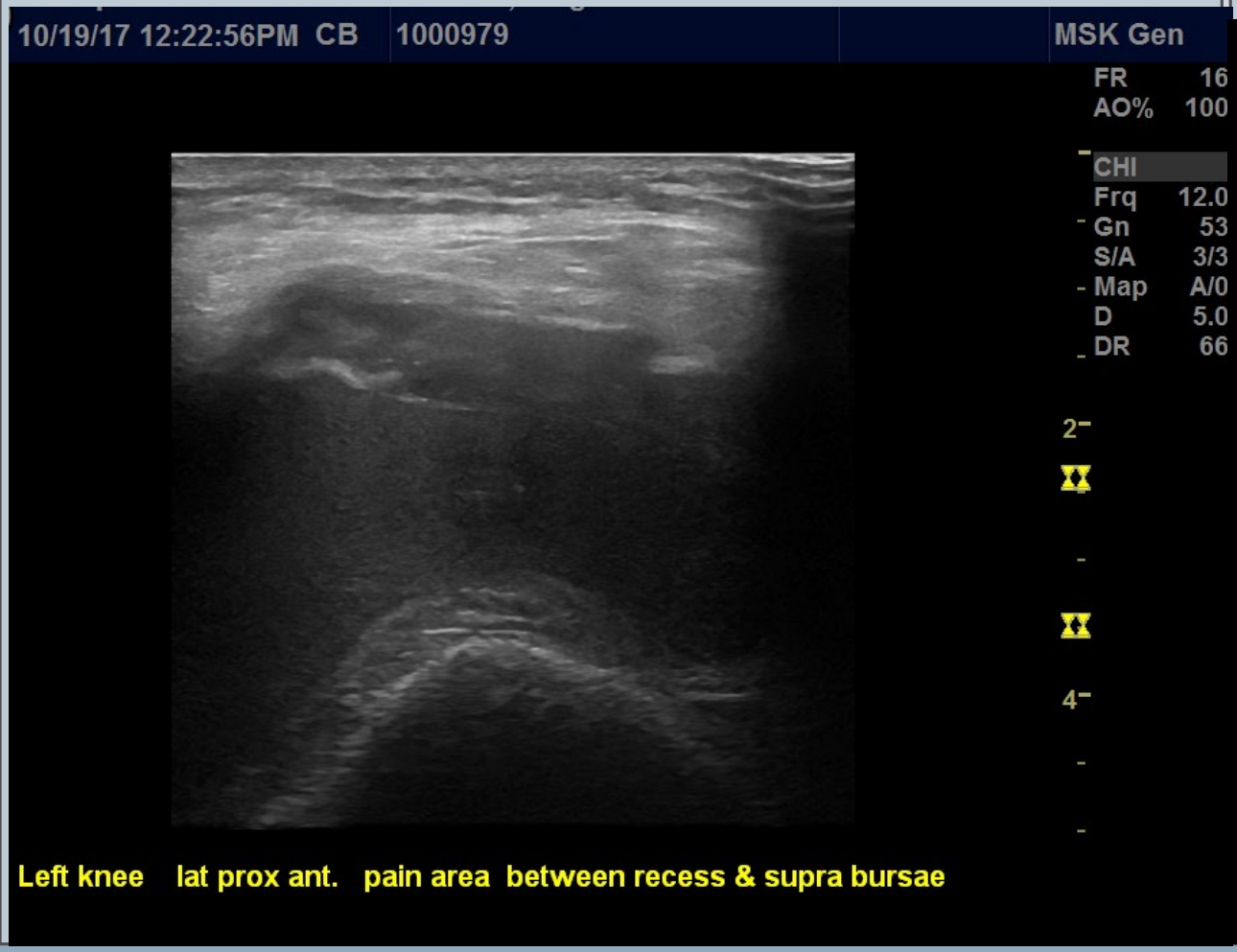
*2 images (Suggest a still image and a compression or PD)

Compression



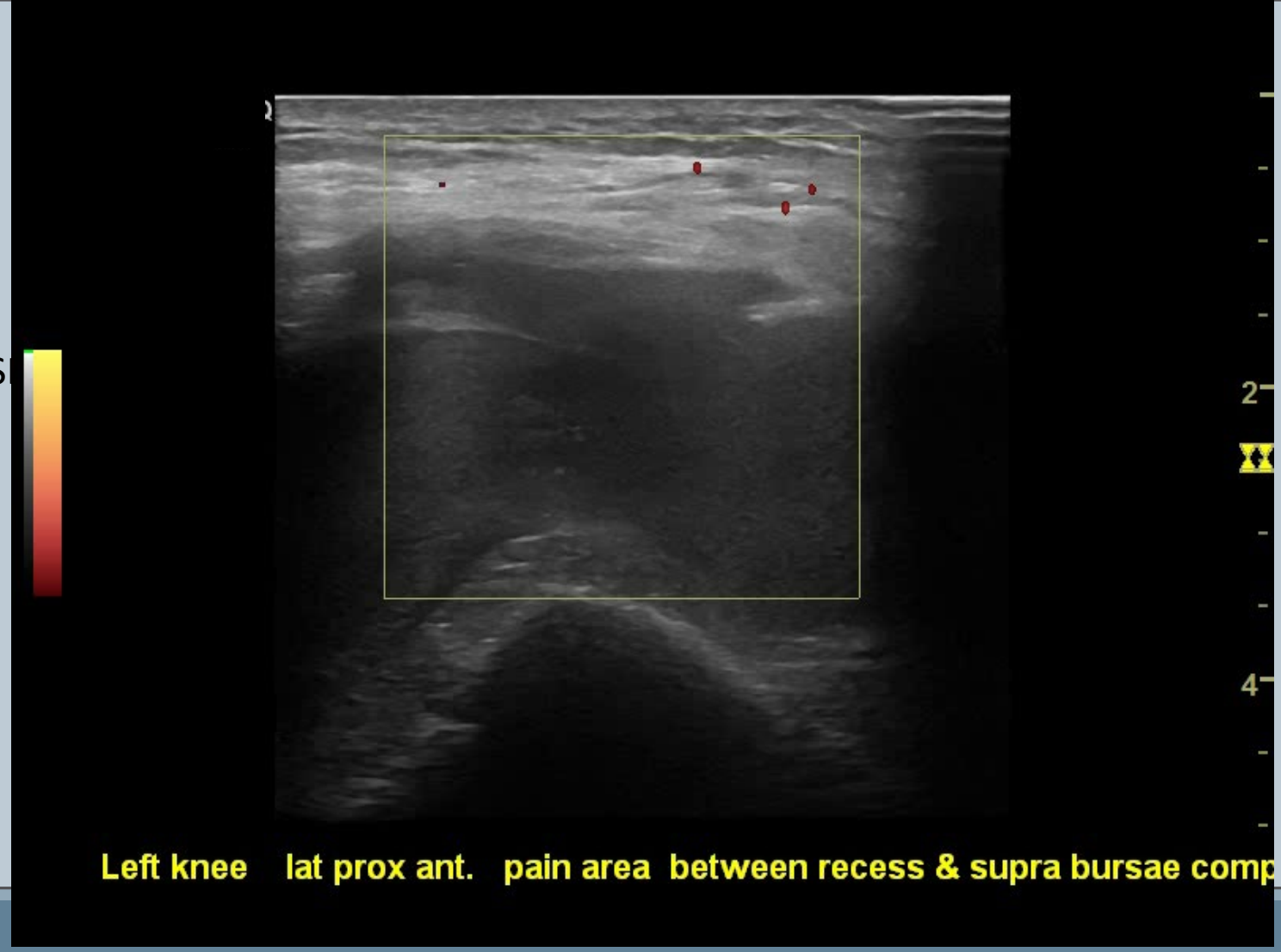
Left Knee Lateral Recess LAX

*2 images (Suggest a still image and a compression or PD)



Left Knee Pain area Lat. Between recess & Supra LAX

*2 images (Suggest a still image and a compression or PD)



Left Knee Pain area Lat. Between recess & Supra LAX

*2 images (Suggest a still image and a compression or PD)

Results/Treatment Plan

Findings: All areas: Blood present

No Crystals or double contour sign

1. Suprapatellar Bursa LAX:
2. Medial Recess SAX:
3. Lateral Recess SAX

Treatment

1. Changed Factor dose
2. PT: pt. to use assistive device for Amb.

Clinical Pearls

1. Don’t be afraid to compress
2. Work within the patient’s ROM
3. Try different patient positions for patient and the U.S. Probe
4. JADE images and pain area investigation
5. Use Real-Time imaging to find Joint line or appropriate acoustic window
6. Check contralateral limb

JL Right Great Toe

CINDY BAILEY PT, DPT, OCS, SCS, ATC

LOS ANGELES ORTHOPAEDIC HEMOPHILIA TREATMENT CENTER

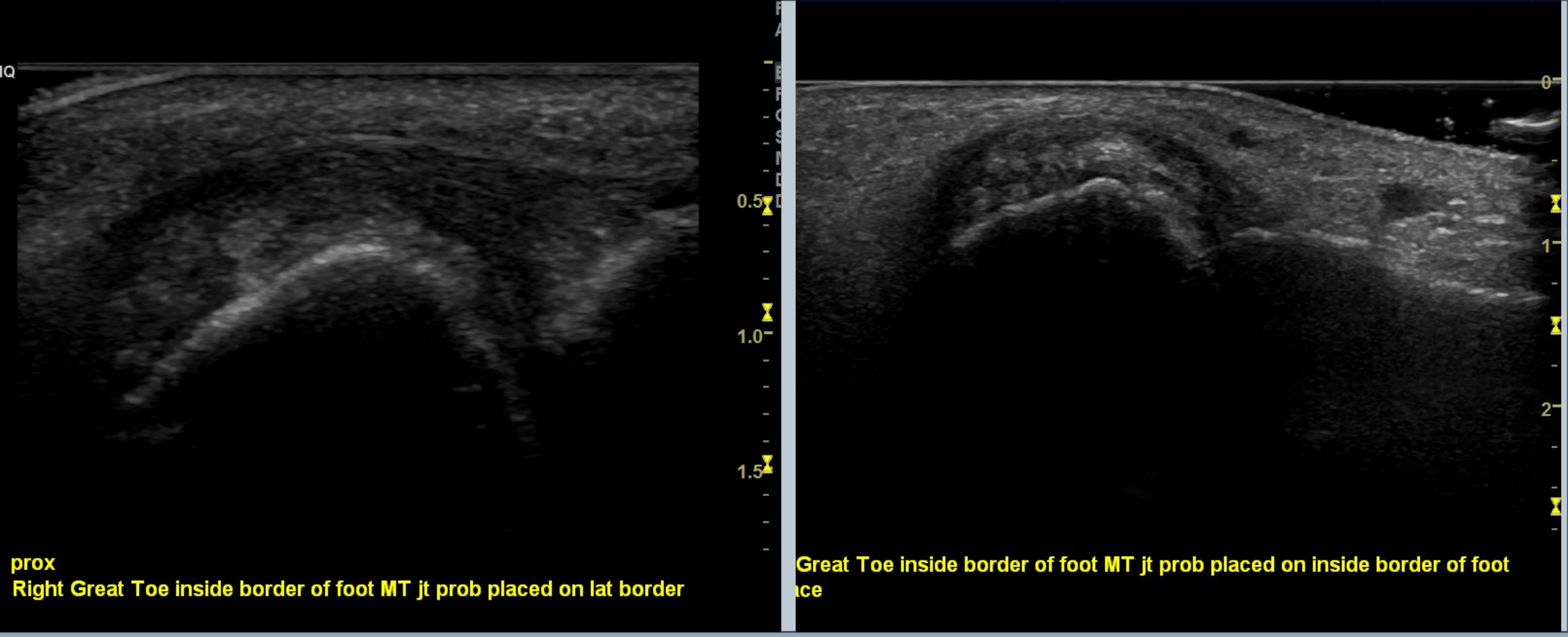
Case #: 47 yr old Male Hemophelia A Mild-Moderate

Patient History/Subjective

- **47 yr old Male**
- **No Hx of toe bleeds**
- **3 days ago woke up with some foot pain**
- **within 2 hours could not bend Great toe**
- **Only min. swelling**
- **Could not wear shoe**
- **Could not tolerate anything pushing on the inside border of Foot at the MTP joint area.**
- **Mod redness**
- **Min warmth**

Patient Presentation

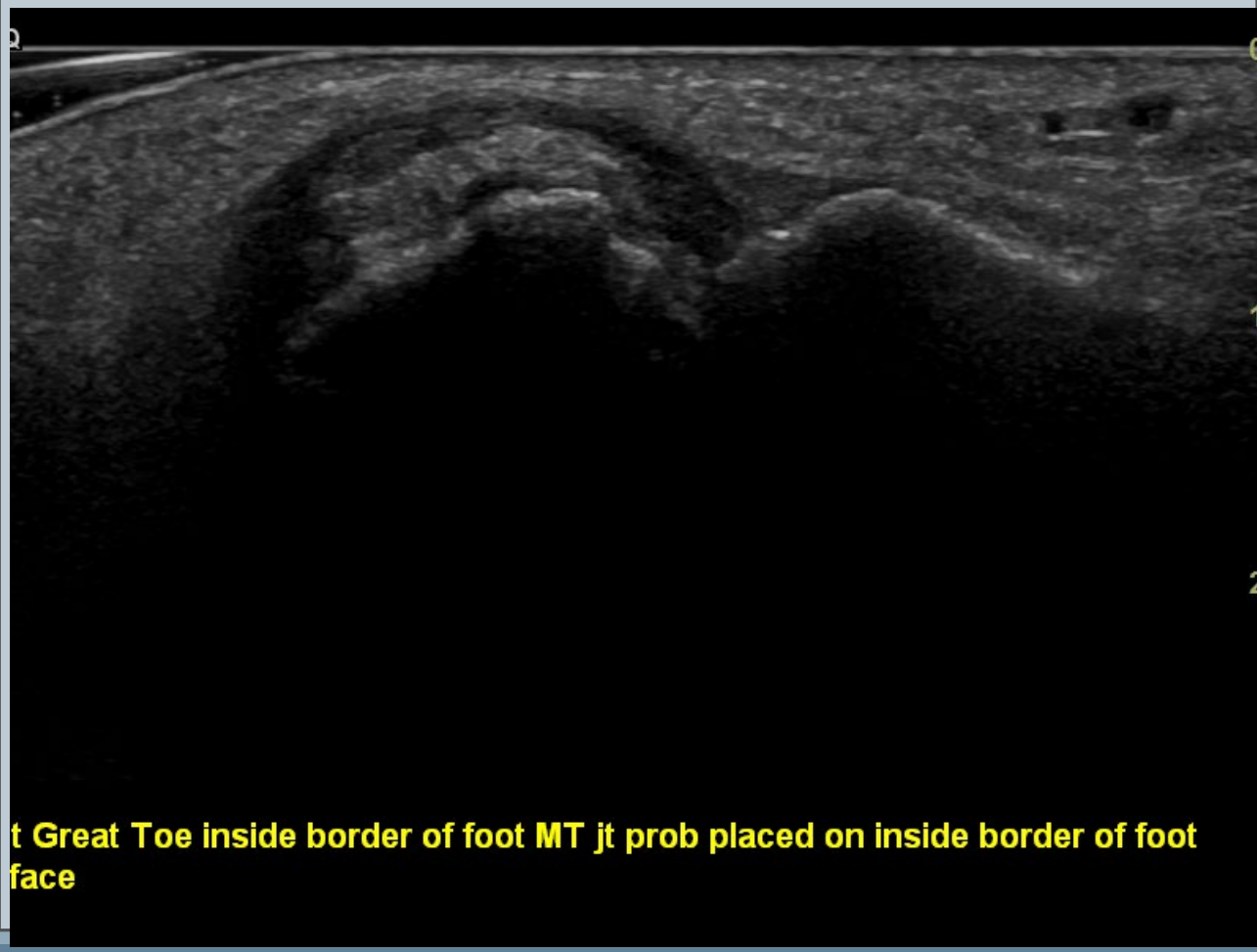
1. **ROM - at great toe MTP 0**
2. **Swelling - minimal**
3. **Gait – amb with crutches – toe touch only**
4. **Palpation – extreme tenderness**
5. **Special tests – un able due to tenderness**
6. **Strength – un able due to tenderness**



R. Great Toe MT with probe placed on inside border of foot.

(lateral border of MTP – area of a bunion although this pt. has no bunion)

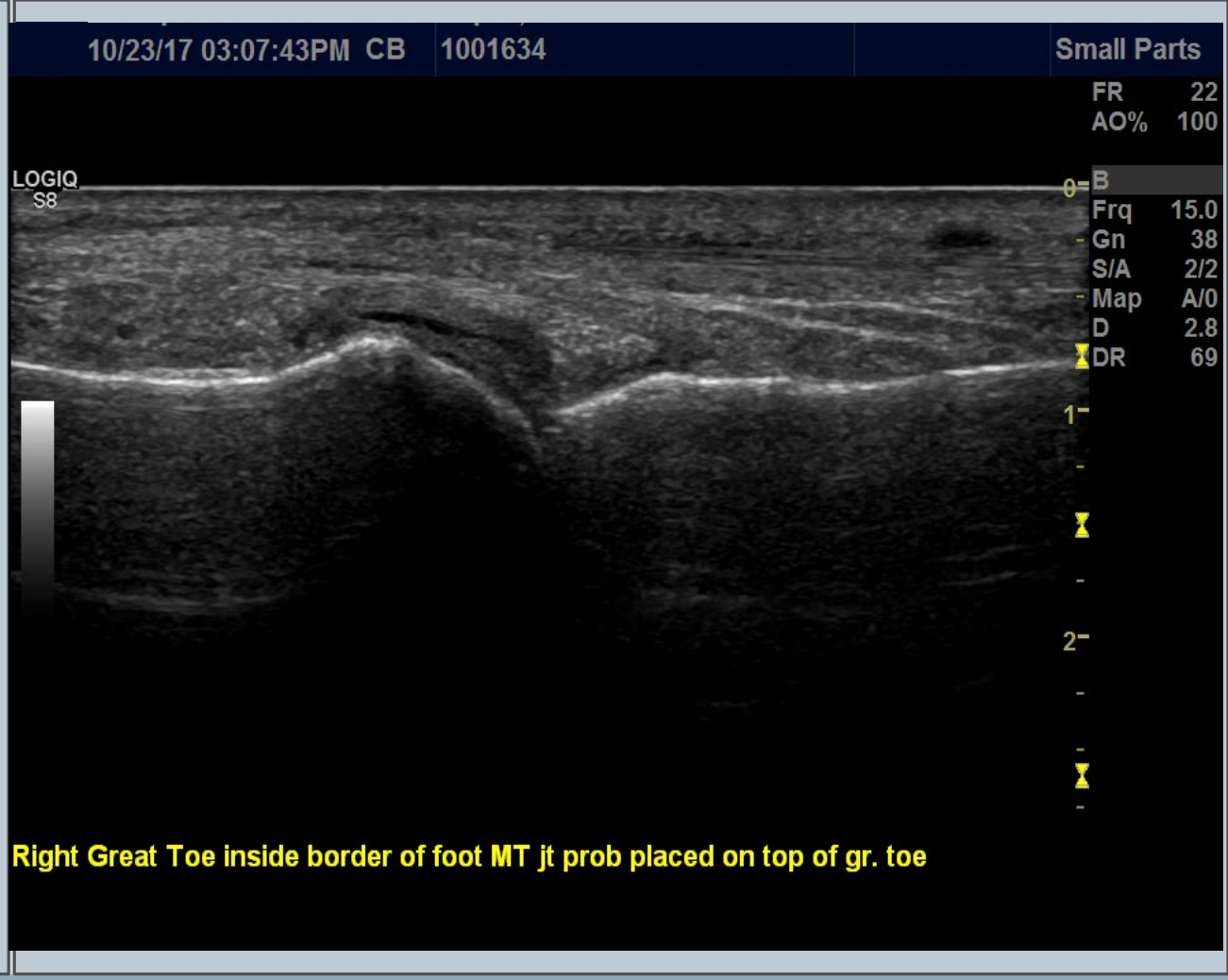
*2 images (Suggest a still image and a compression or PD)



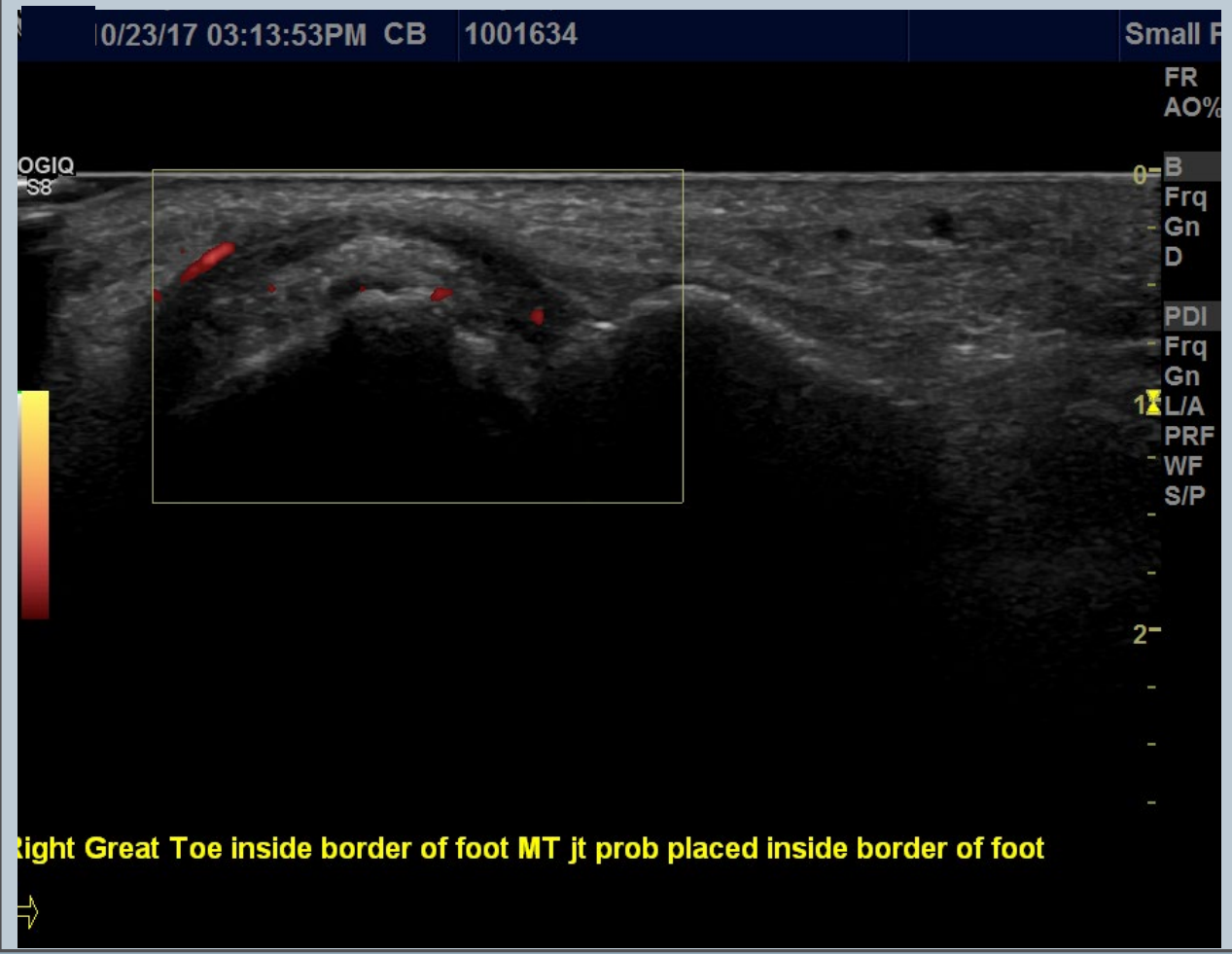
R. Great Toe MT with probe placed on inside border of foot.

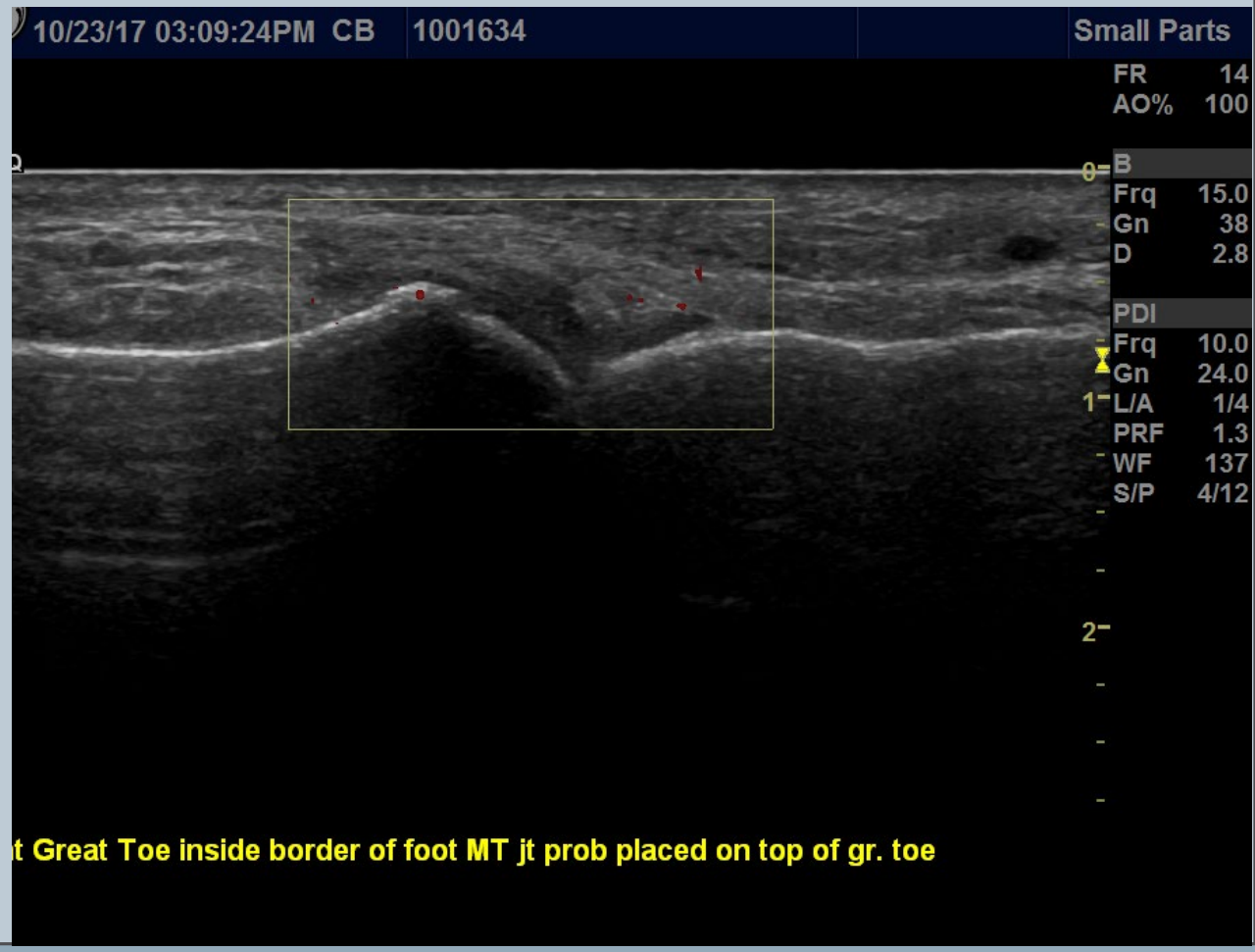
(lateral border of MTP – area of a bunion although this pt. has no bunion)

*2 images (Suggest a still image and a compression or PD)



R. Great Toe MTP inside border of foot with probe placed cephlo





R. Great Toe MTP inside border of foot with probe placed cephlo

*2 images (Suggest a still image and a compression or PD)

Results/Treatment Plan

Findings

1. Joint space soft tissue proliferation
2. Joint space with some bright speckles but not full double contour sign
3. Inflammation in area per power doppler
4. ??? Gout vs. Psuedo gout

Treatment

1. Blood draw and testing for gout
2. Began anti-inflammatories while awaiting labs.
3. Will switch meds if found to be gout.

Clinical Pearls

1. Could not compress due to pain with palpation
2. Try different patient positions of jt. &/or probe
3. Acoustic Standoff pad or Water bath
4. Use Real-Time imaging to find Joint line or appropriate acoustic window
5. Check contralateral limb

Case Vignettes and Clinical Pearls

Lateral Epicondyle Pain

TENDINOPATHY, TEARS AND AVULSIONS

Bruno U.K. Steiner, PT, DPT, LMT, RMSK
Washington Center for Bleeding Disorders, Seattle, WA
Physical Therapy and MSKUS Program Manager
Instructor, UCSD: MSKUS in Hemophilia
Clinical Instructor: UW Department of Rehabilitation Medicine

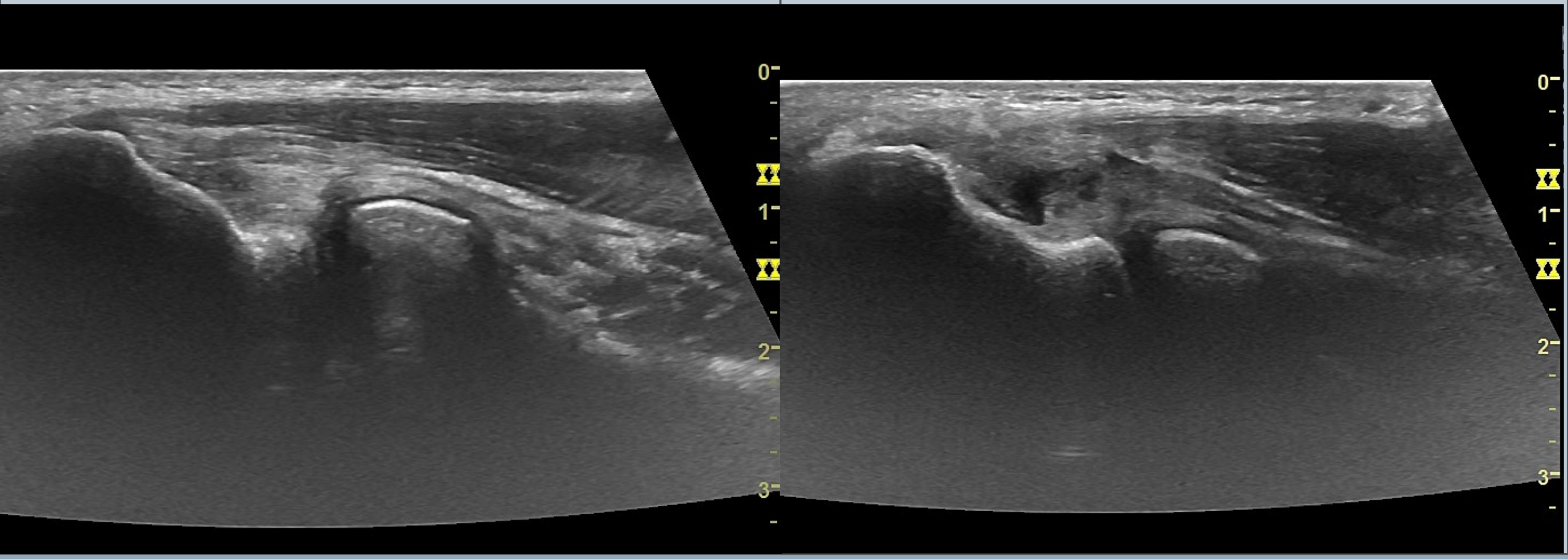
46 y/o male with severe hemophilia A with right elbow pain

Patient History/Subjective

1. Recent history of right elbow pain and is concerned with repeat hemarthrosis
2. Prior to this episode, it has not been his target joint
3. Current soreness has persisted for months and continues to be painful
4. Patient spends much time at computer due to professional demands
5. Patient notes that lifting objects and resisted effort exacerbates the pain

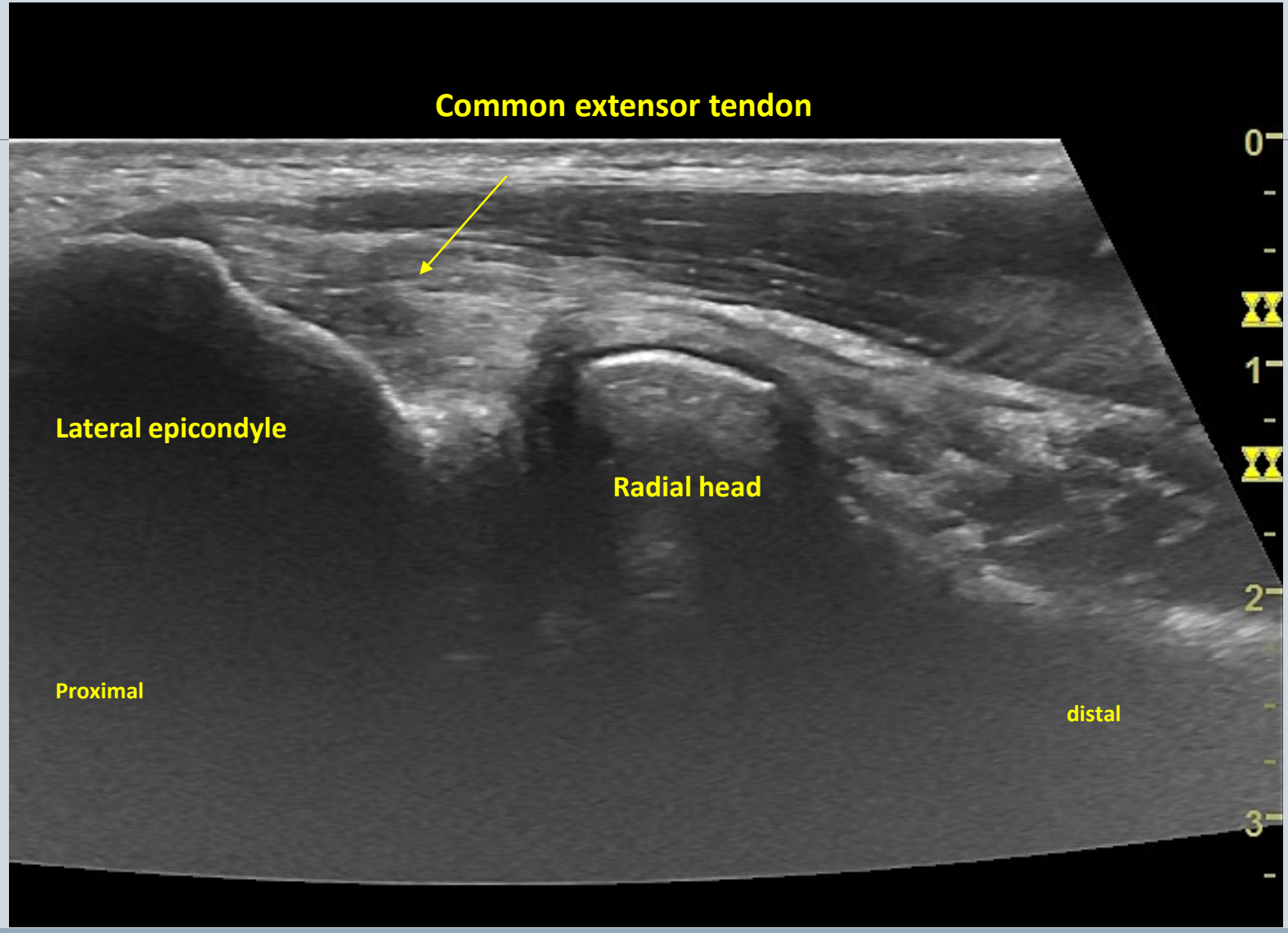
Patient Presentation

1. ROM full to elbow and wrist
2. Swelling: moderate to lateral elbow
3. Palpation: marked TTP to lateral epicondyle and common tendon origin superficial to it
4. Resisted wrist extension provokes the pain at the lateral epicondyle
5. Strength: markedly reduced due to pain

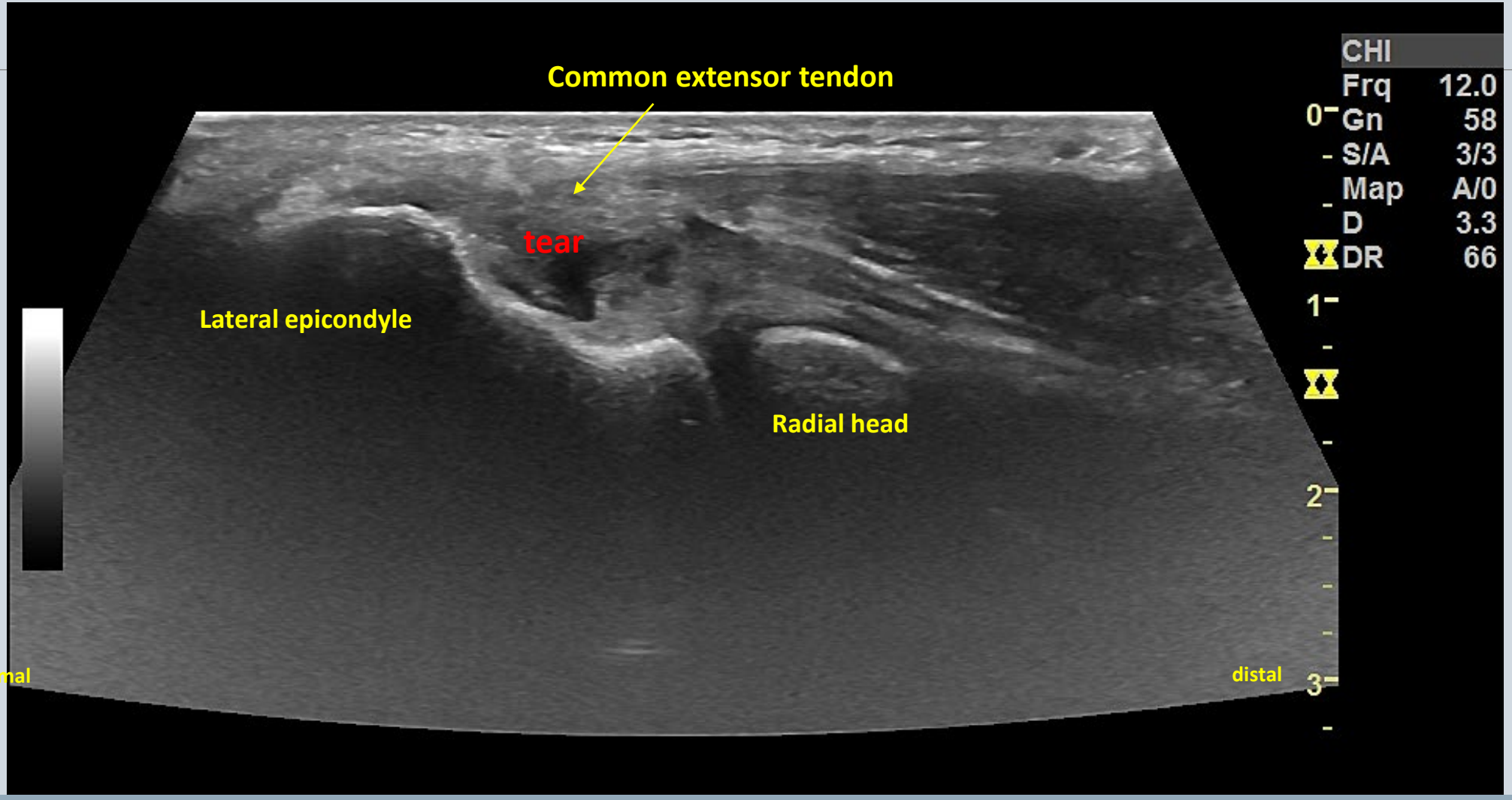


Bilateral Lateral Epicondyle Comparison LAX

Lateral Epicondyle: Normal Common Wrist Extensor Tendon LAX



Lateral Epicondyle: Normal Common Wrist Extensor Tendon LAX



Results/Treatment Plan

Findings

1. Non-visualization/interruption of fibrous echotexture of common tendon origin of wrist extensors
2. Decreased echogenicity of tendon
3. Bony irregularities at insertion
4. Confirmed tendinopathy and tear

Treatment

1. Bracing/activity modification
2. PT
3. Orthopedic referral/regenerative medicine

Clinical Pearls

1. Check contralateral side
2. Watch for thickening and decrease in echogenicity of Tendons
3. Watch for non-visualization of fibrous echotexture
4. Watch out for anisotropy
5. Educational component to curb patient's activity levels and myotendinous repetitive loading

25 y/o male with severe hemophilia A with Left elbow pain

Patient History/Subjective

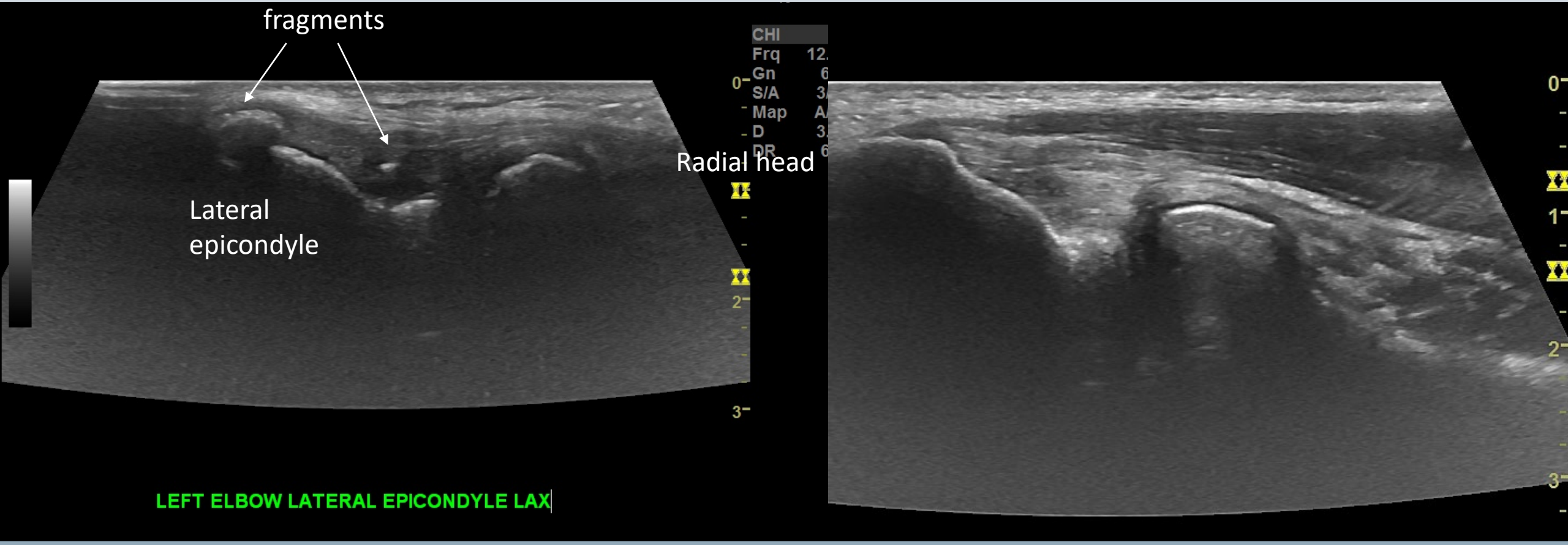
1. Suffered elbow injury during Martial arts training two months ago. No imaging performed
2. Pain persists chronically and wonders if he's going through hemarthrosis events
3. Patient has not stopped teaching and training
4. Patient never had trouble with the left elbow before his injury

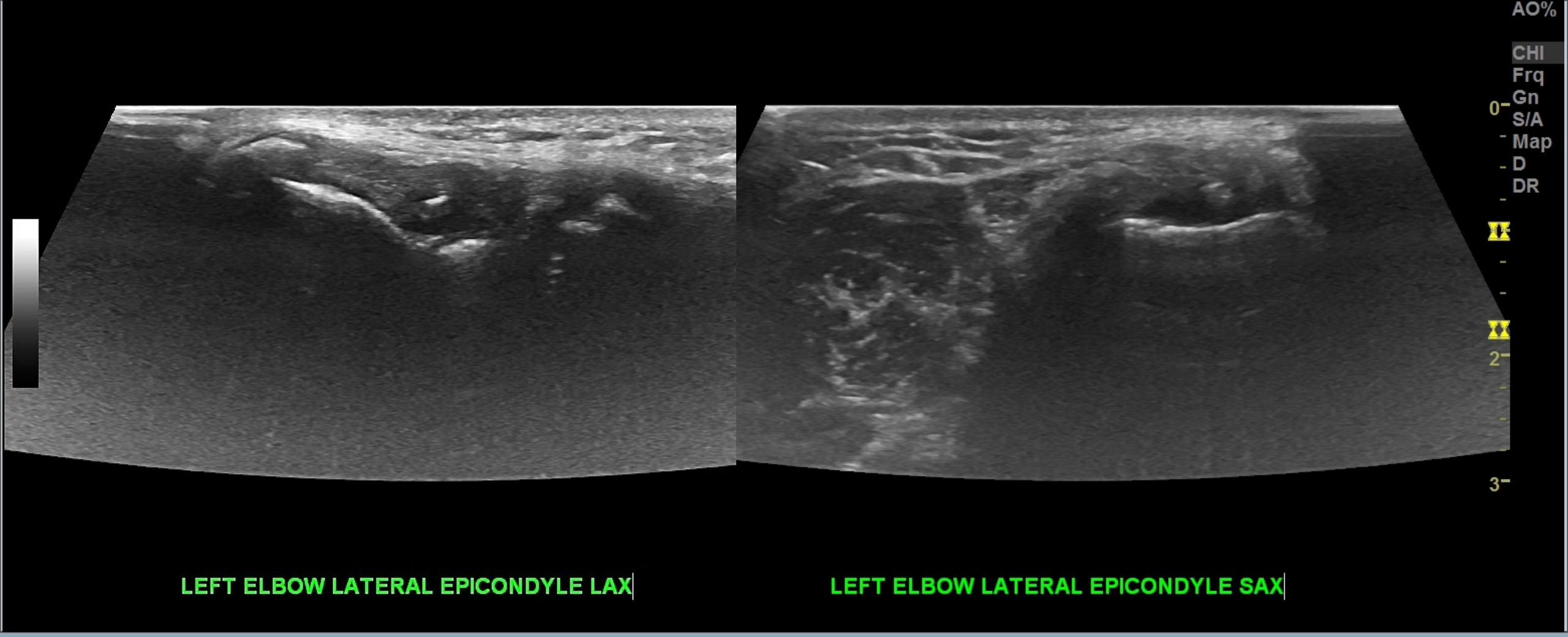
Patient Presentation

1. ROM: -ve 10 degrees elbow extension and painful end-range supination
2. Swelling: Mild proximal radio-ulnar puffiness
3. Palpation: marked TTP to lateral epicondyle and radial head
4. Pain to resisted left wrist extension
5. Strength: decreased due to pain

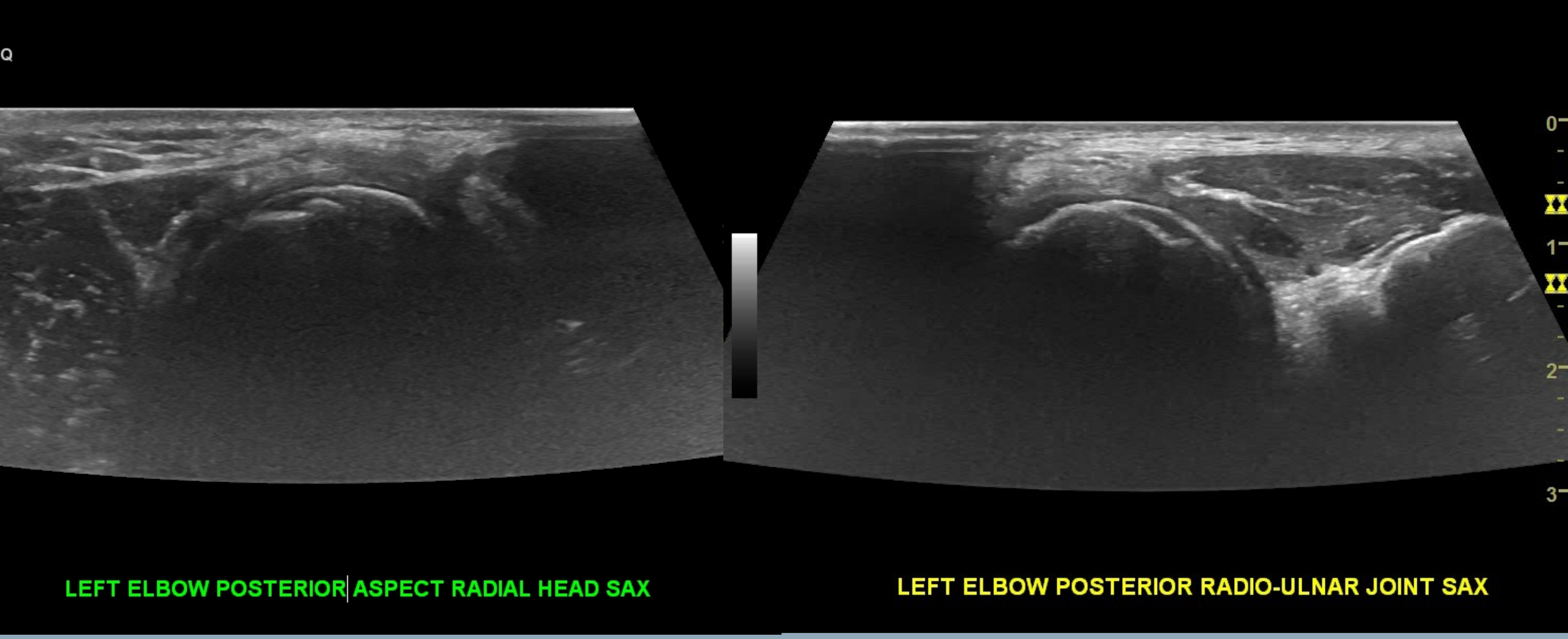
Lateral epicondyle avulsion with radial head trauma and small fracture LAX

Unaffected normal





Left Epicondyle LAX and SAX



Bilateral Posterior Radio-Ulnar Joint Comparison SAX

Results/Treatment Plan

Findings

1. Hyperechoic fragment over the lateral epicondyle with posterior acoustic shadowing
2. Hyperechoic focal point within body of common extensor origin tendon
3. Bony irregularity to radial head
4. Decreased echogenicity of deep UCL
5. Avulsion of lateral epicondyle and small fracture of radial head
6. Bony irregularities confirmed in SAX

Treatment

1. Bracing/activity modification
2. PT
3. Discontinue resisted effort to left elbow for a couple of months
4. Monitor with MSKUS

Clinical Pearls

1. Check contralateral side
2. Corroborate with SAX views
3. Sonography detects small avulsion events and osteochondral defects
4. Watch for non-visualization of fibrous echotexture
5. Educational component to curb patient's activity levels and myotendinous repetitive loading
6. Educational component/visual feedback for patient regarding activity modification

Case Vignettes and Clinical Pearls

Plantar Fascia Pain

A SPECTRUM OF SEVERITY

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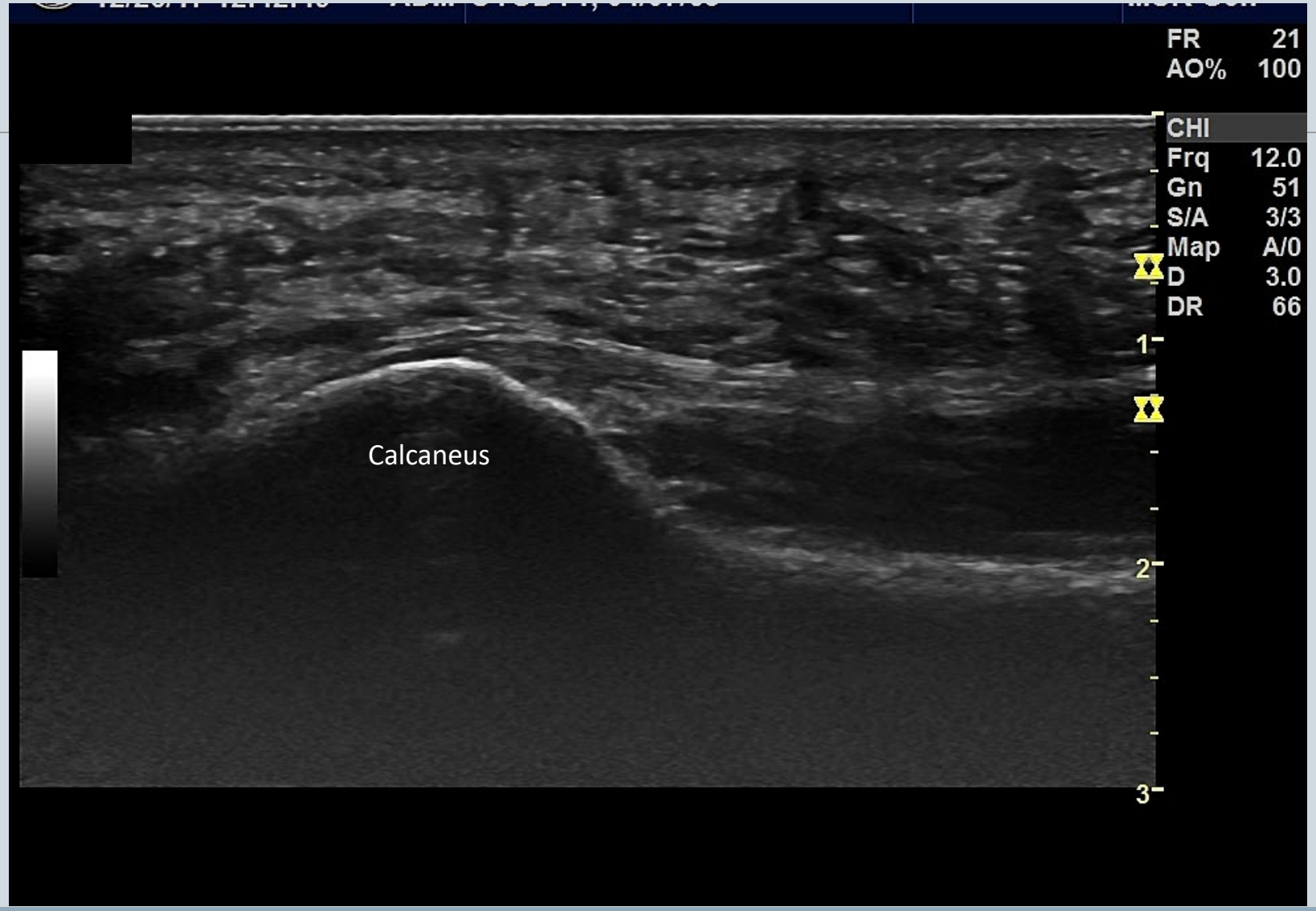
Clinical Instructor: UW Department of Rehabilitation Medicine

Asymptomatic Plantar Fascia – 55 year old



Plantar Fascia LAX

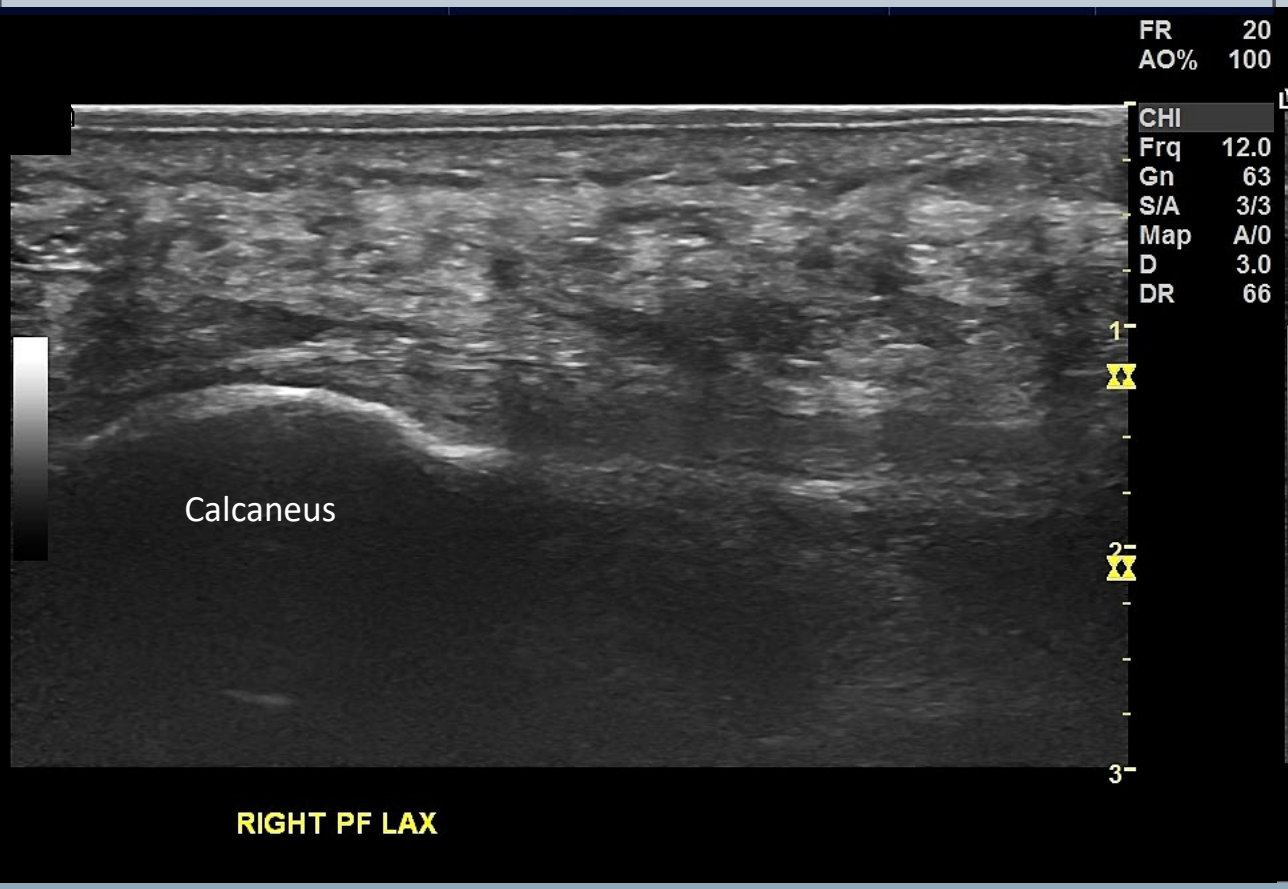
43 y/o woman with Type 1 VWD

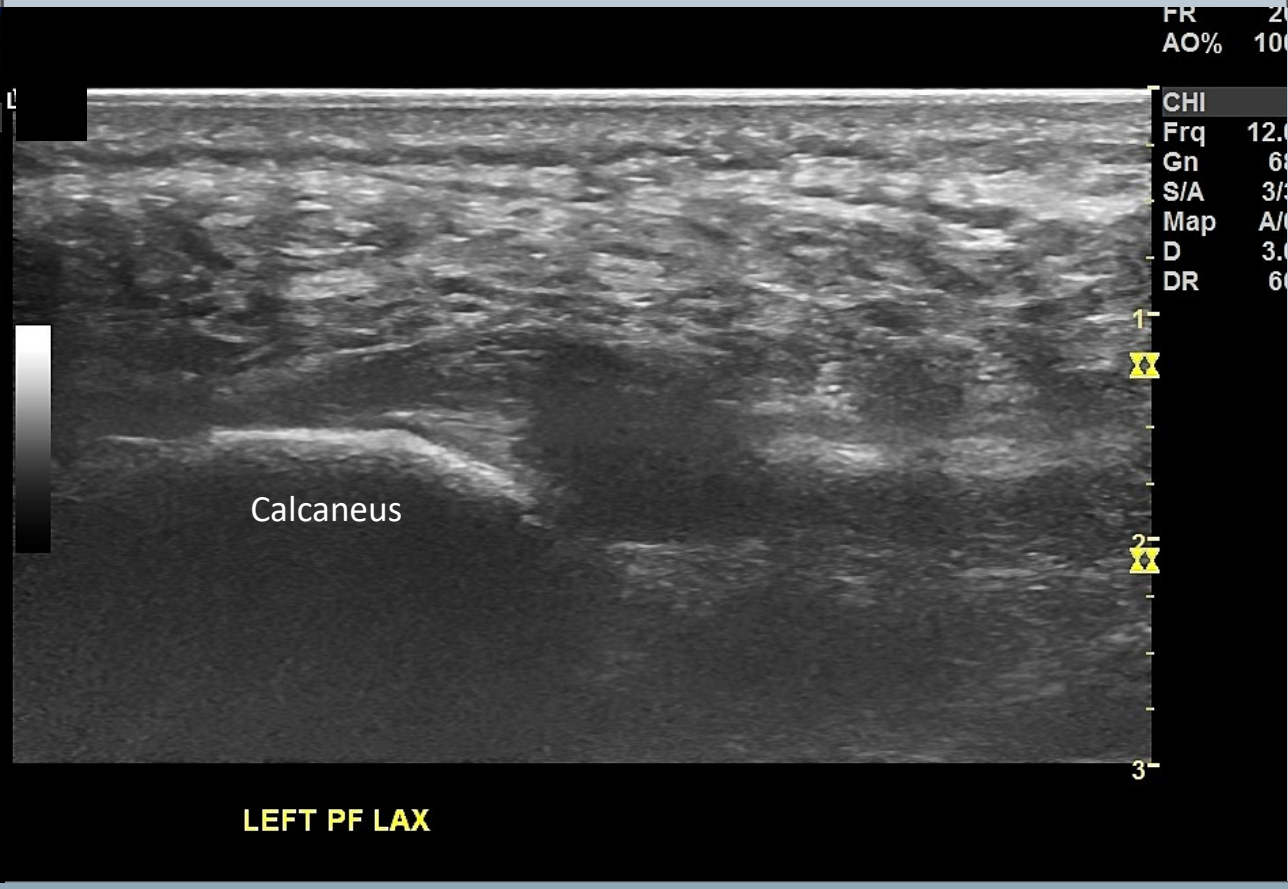
Patient History/Subjective

1. Chronic plantar pain
2. Consulting Podiatry
3. No boot prescribed
4. No activity modification suggested
5. Patient to get steroidal injection

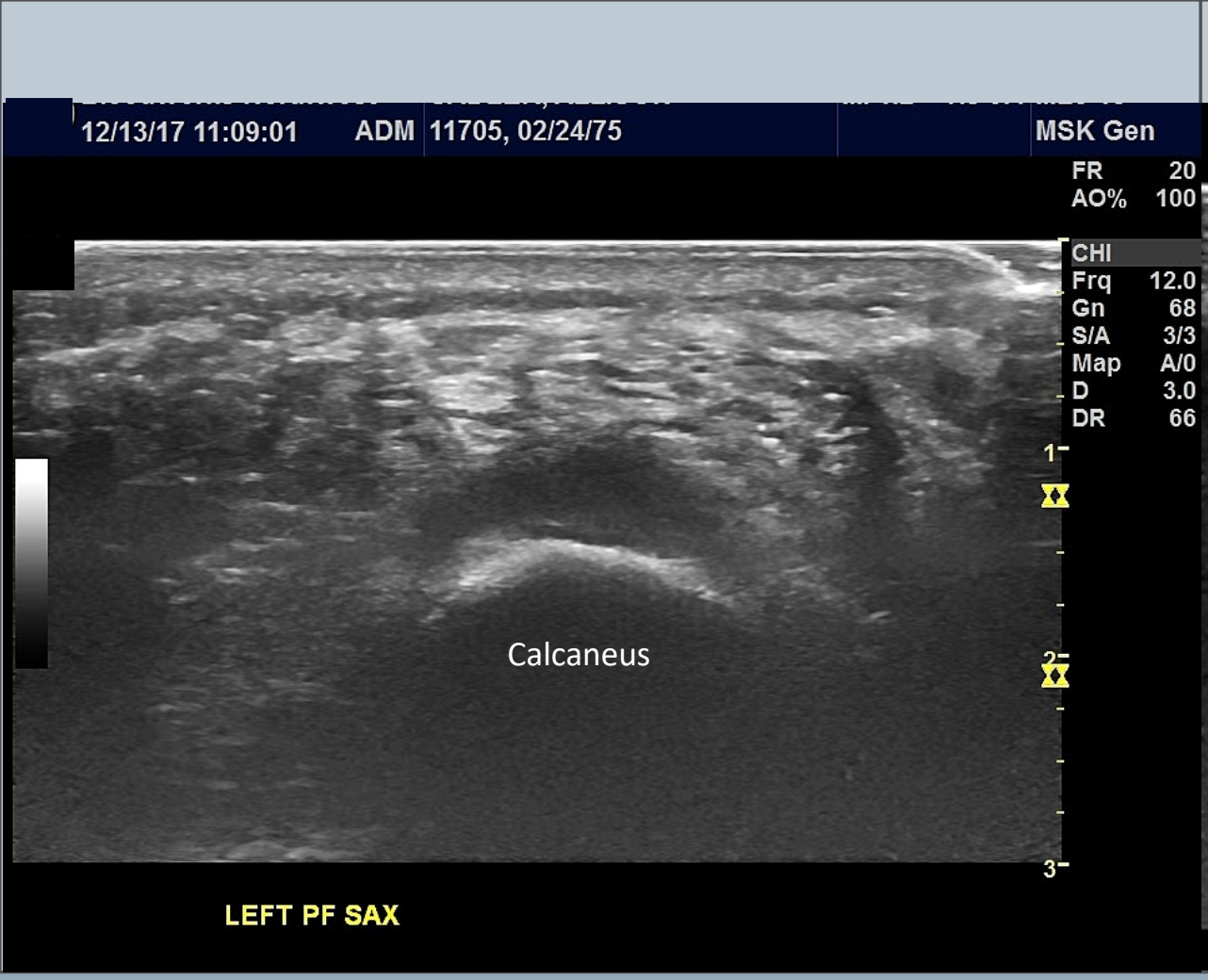
Physical Exam

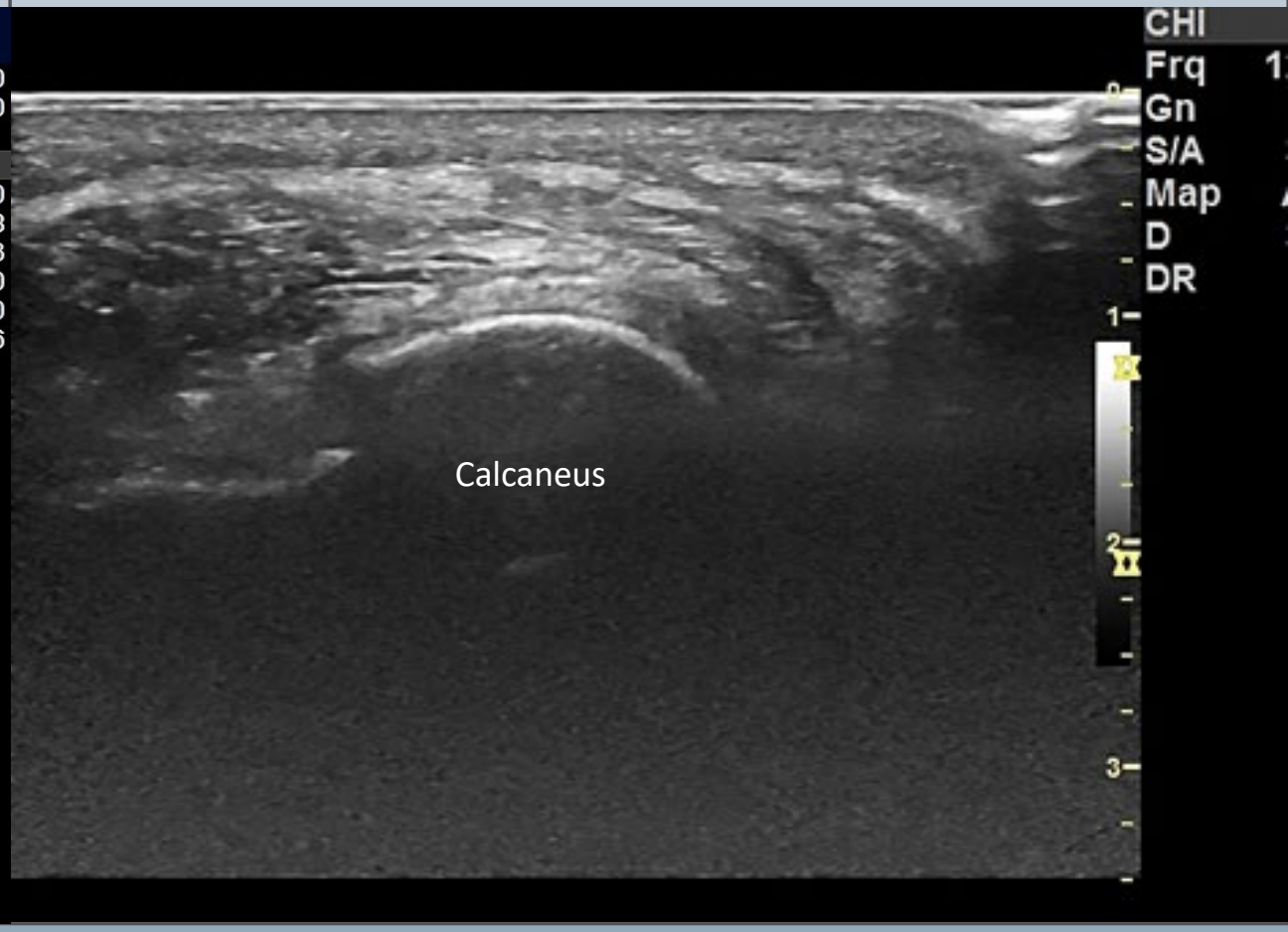
1. Swelling: mild
2. Gait: slow and antalgic
3. Palpation: exquisite TPP to calcaneus and proximal plantar fascia





Bilateral Plantar Fascia Comparison LAX





Bilateral Plantar Fascia Comparison SAX

Results/Treatment Plan

Findings

1. Severe proximal insertional Plantar fascia hypertrophy
2. Marked echogenic changes confirmed in SAX and LAX
3. Confirms plantar fasciitis

Treatment

1. Conservative
2. Boot
3. Unweighting
4. Education: no barefoot walking; proper heel cushioning
5. Patient scheduled for Steroidal injection

Clinical Pearls

1. Always corroborate LAX with SAX
2. Check contralateral side
3. Watch for thickening and decrease in echogenicity of plantar fascia
4. Educational component/visual feedback for patient regarding return to normal weight bearing load and protective cushioning.

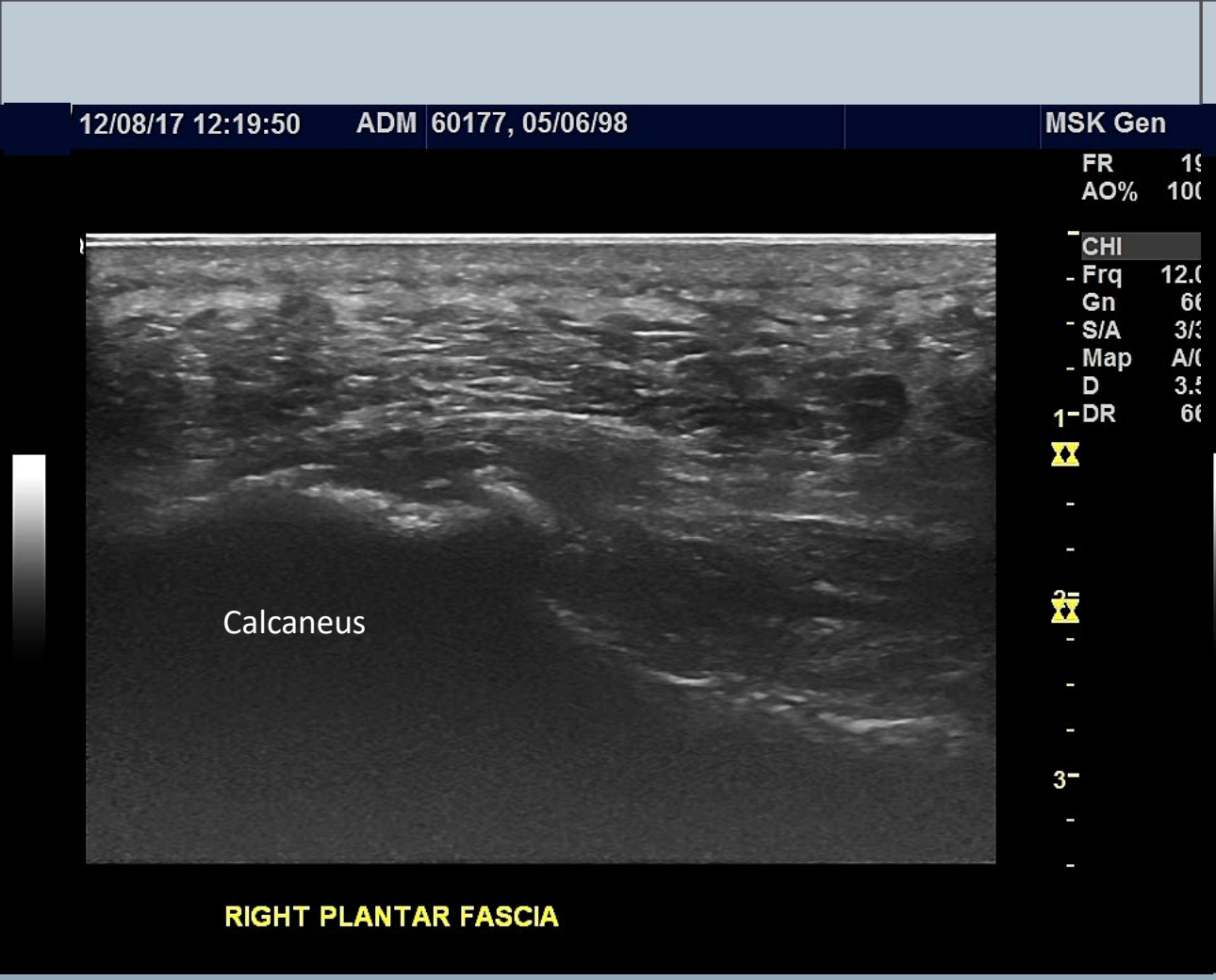
20 y/o man with Moderate Type B Hemophilia

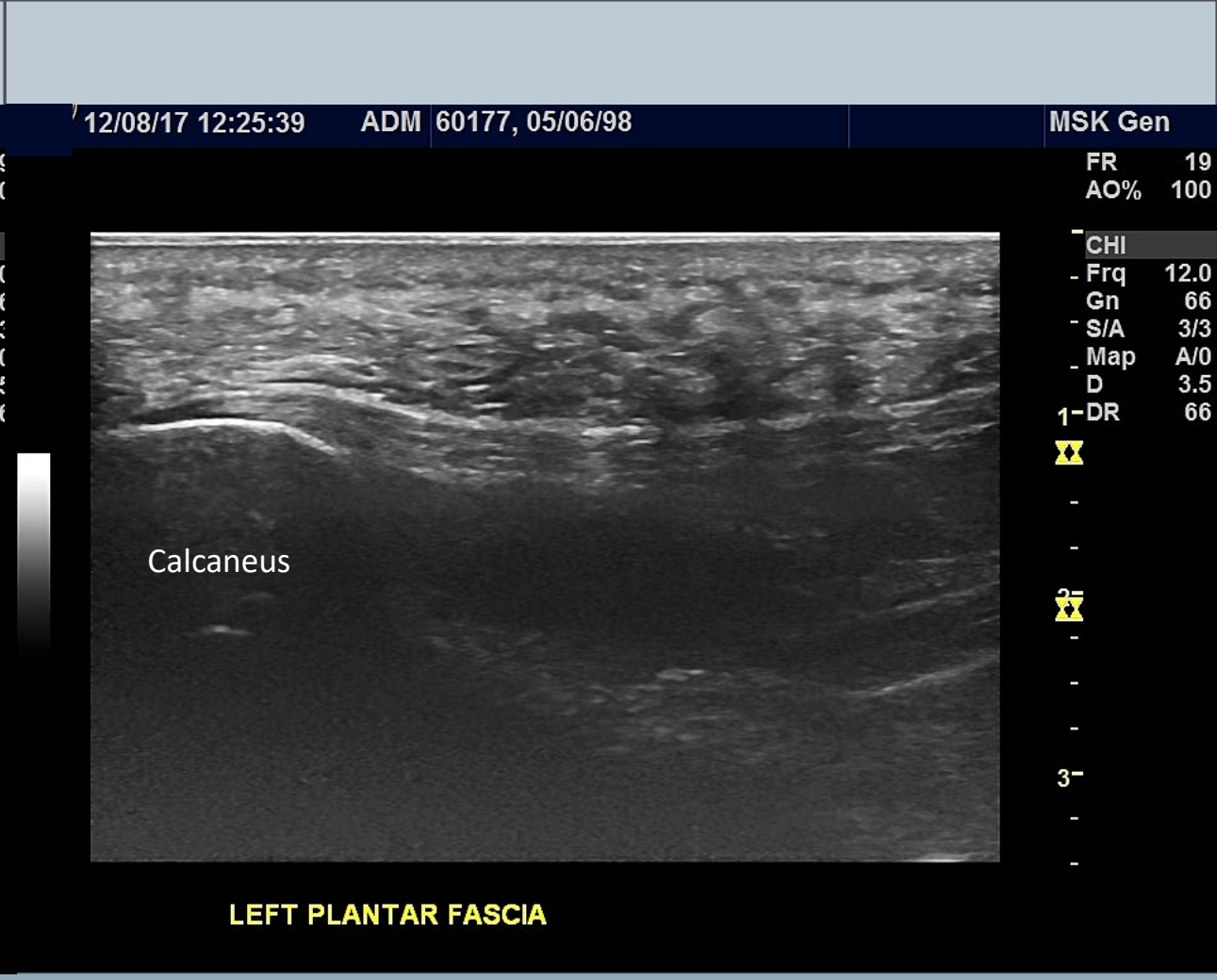
Patient History/Subjective

1. Has ADVANCED bilateral ankle hemarthropathic changes
2. Has had right heel pain off and on for the past year
3. Came in for Acute right heel pain
4. History of wearing running shoes with no support nor heel cushion

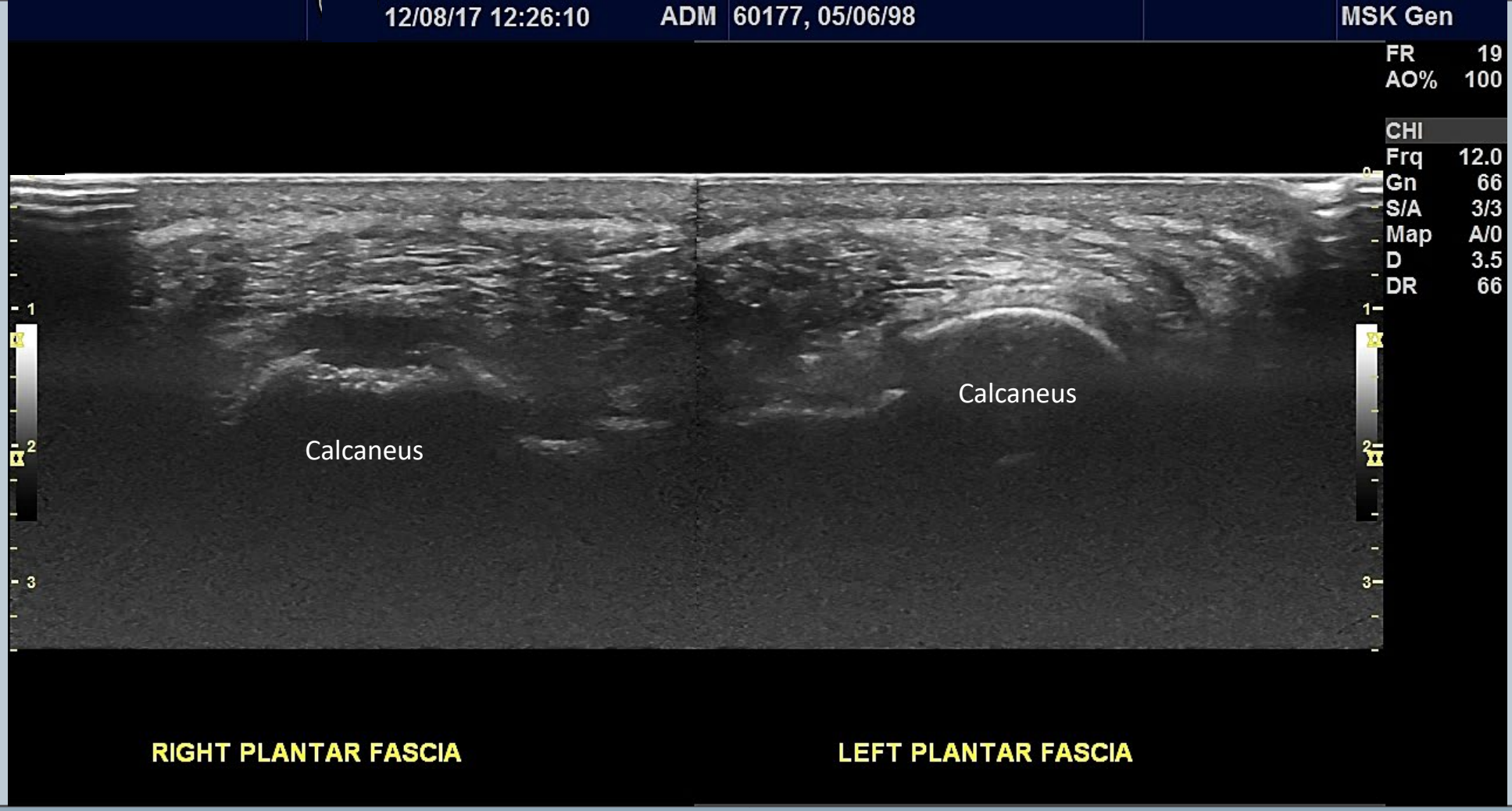
Patient Presentation

1. Swelling: considerable swelling to heel
2. Gait: slow and antalgic
3. Palpation: exquisite TPP to calcaneus and proximal plantar fascia





Plantar Fascia LAX



Plantar Fascia SAX

Results/Treatment Plan

Findings

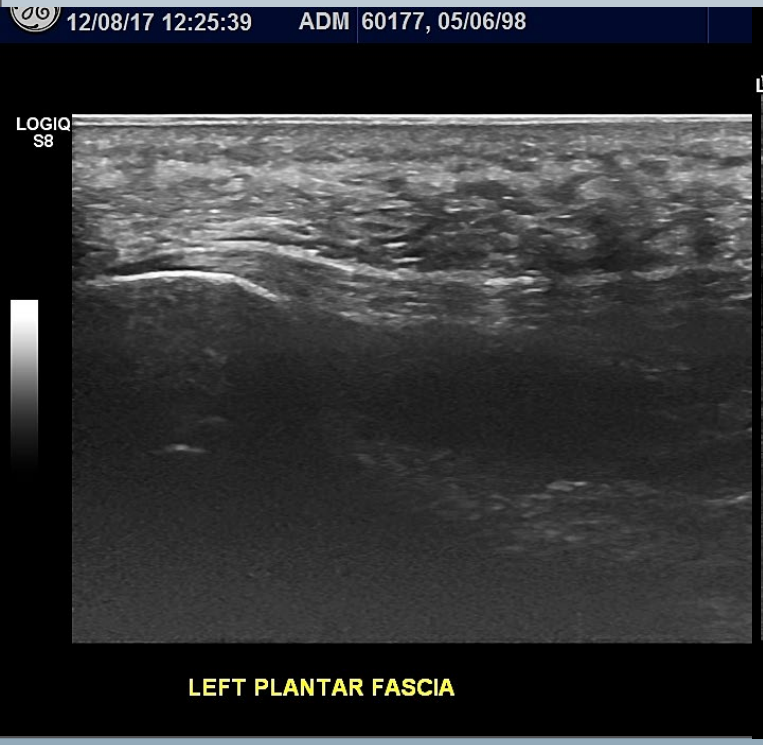
1. Severe change/loss in echogenicity of Plantar fascia origin
2. Poor/non-visualization of fibrous echotexture of PF
3. Calcaneal erosion/avulsion of PF insertion

Treatment

1. Conservative non-weight bearing
2. PT
3. Orthopedic/Podiatry referral

Clinical Pearls

1. MSKUS is highly effective at imaging erosions and bony irregularities
2. Sonographic superiority over Radiography for bony irregularities
3. Educational component
4. Longitudinal follow-up is valuable to verify healing progression to time return to increased weight bearing
5. Verify contralateral heel and PF



Spectrum of Plantar Fascia Change LAX

Case Vignettes and Clinical Pearls

LENA VOLLAND PT, DPT

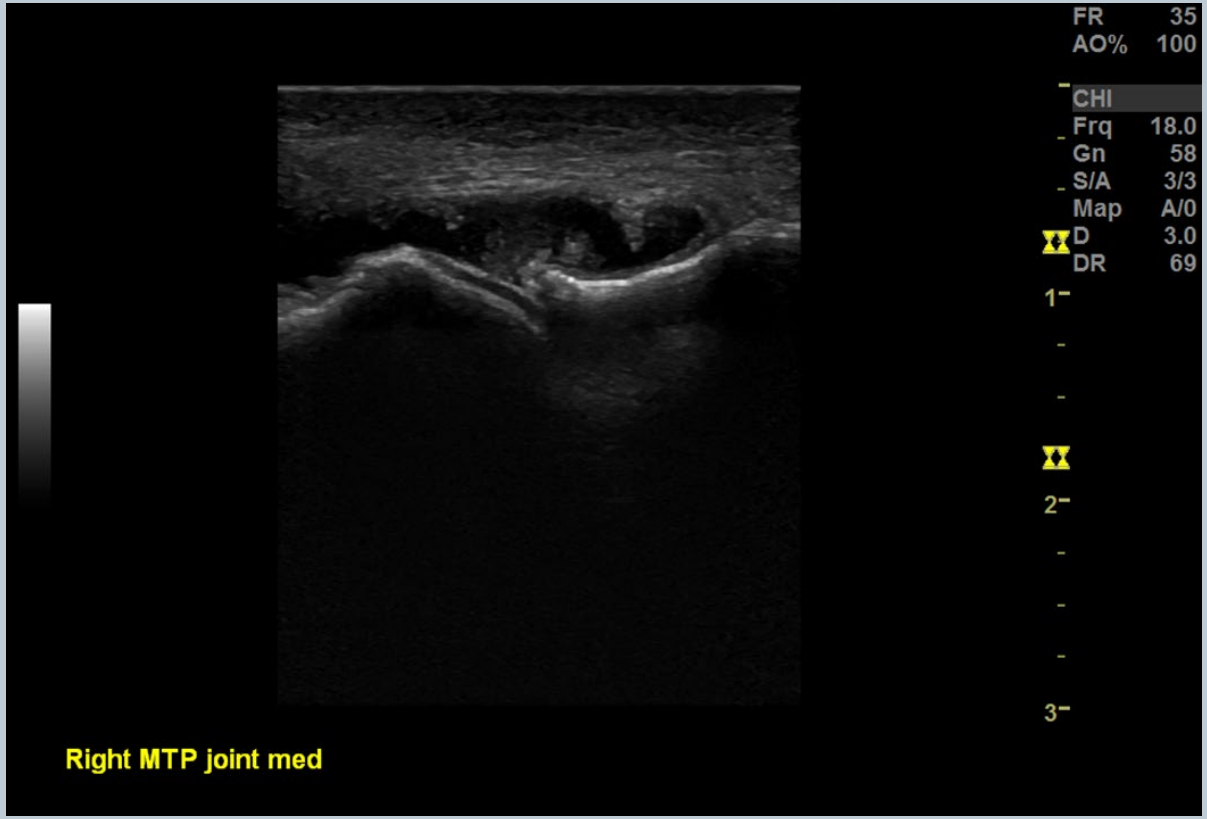
Case: 80 y/o male with pain in great toe

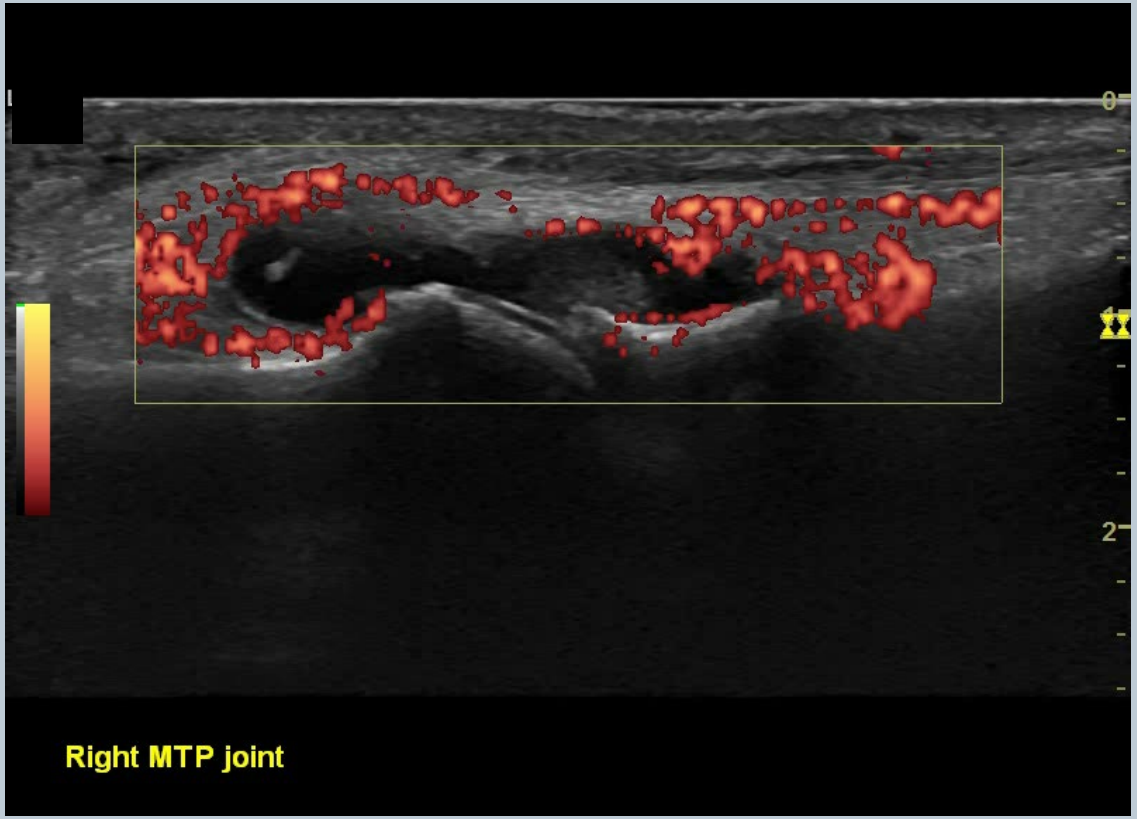
Patient History/Subjective

1. Patient reported pain in his right great toe for the last couple of days
2. He has been taking pain medication without significant success
3. Pain is limiting his functional abilities, in particular ambulation
4. Patient is concerned, because he planned a vacation for the following week
5. He has a history of gout, but has not experienced any issues in the last couple of years

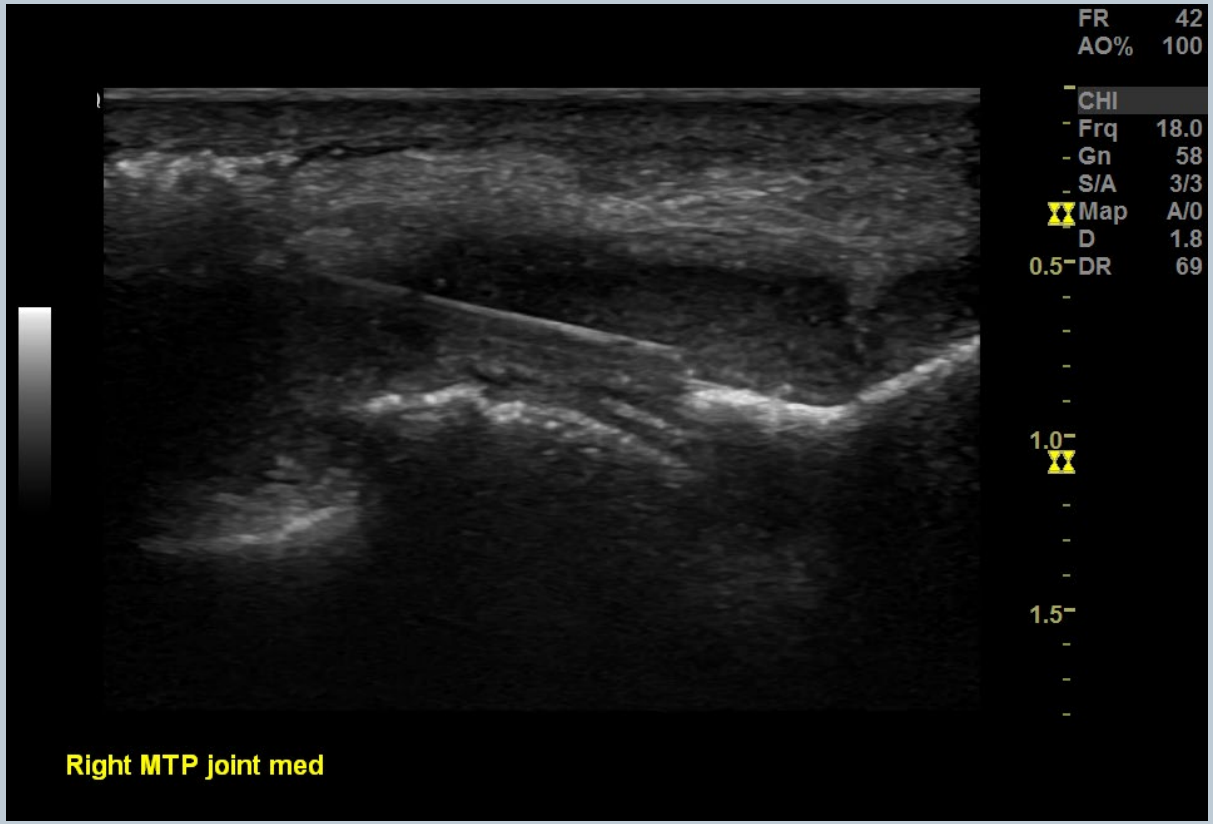
Patient Presentation

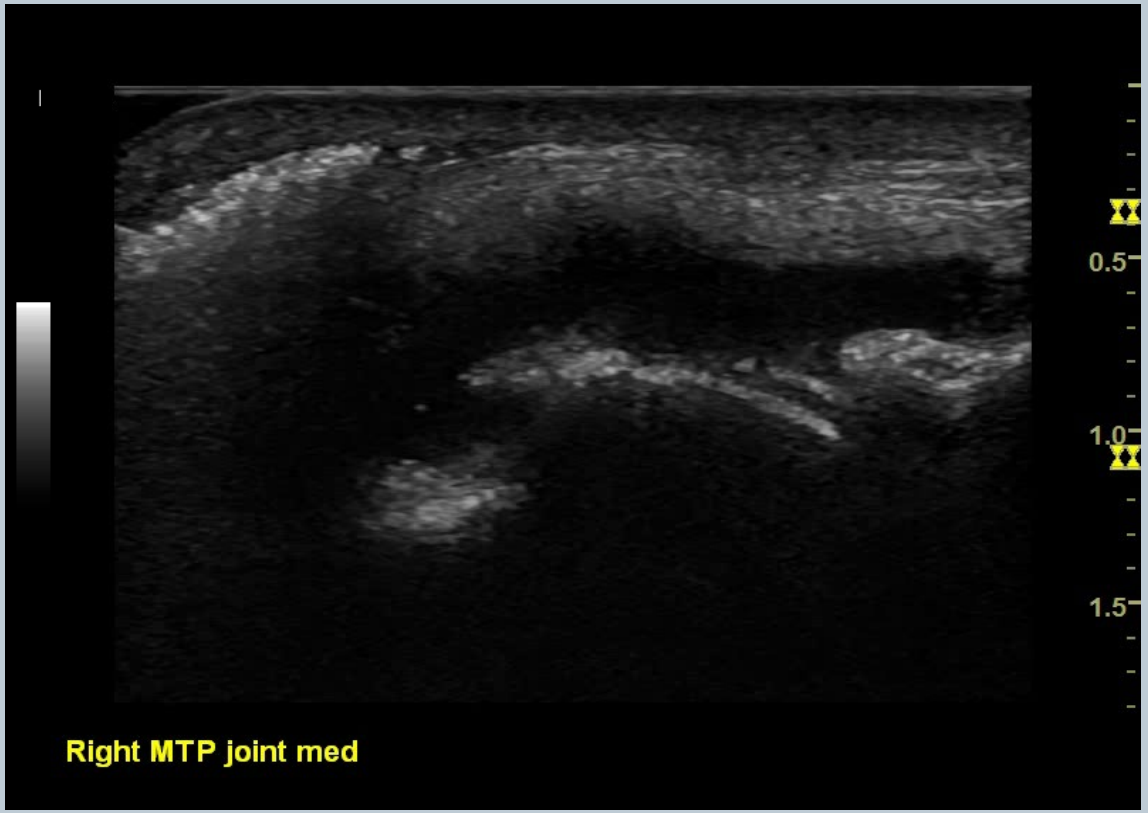
1. Limited flexion and extension MTP and IP
2. Mild dorsal swelling
3. Unable to tolerate full WB
4. Tender to palpation, especially on dorsal aspect





Right MTP joint in LAX





Aspiration of fluid

Results/Treatment Plan

Findings

1. Effusion
2. Increased inflammation
3. Gout exacerbation

Treatment

1. Aspiration
2. Cortisone Injection
3. Follow-up labs

Clinical Pearls

1. MSKUS can supplement clinical examination
2. Make sure to look for a double contour sign
3. MSKUS provides guidance for accurate aspiration and injections

Hemophilia
Acute joint pain in autistic patient

What's the diagnosis ?

ANNETTE VON DRYGALSKI, MD, PHARMD, RMSK

PROFESSOR OF CLINICAL MEDICINE

DIRECTOR, HEMOPHILIA & THROMBOSIS TREATMENT CENTER

UNIVERSITY OF CALIFORNIA SAN DIEGO

Case: 25 y/o male with severe Hemophilia A and autism

Presentation

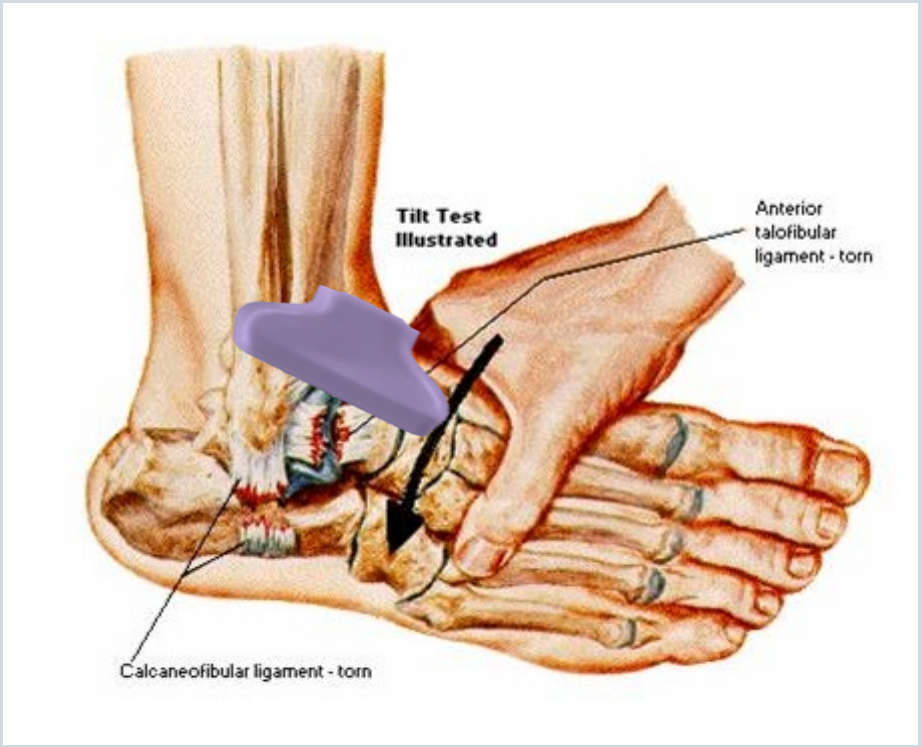
Several days of acute ankle pain

Non-responsive to FVIII-treatment

History is unrevealing (patient not communicative)

Exam: Mild joint swelling, painful inversion maneuver

Clinical questions: Bleeding or not ?
Ankle sprain?

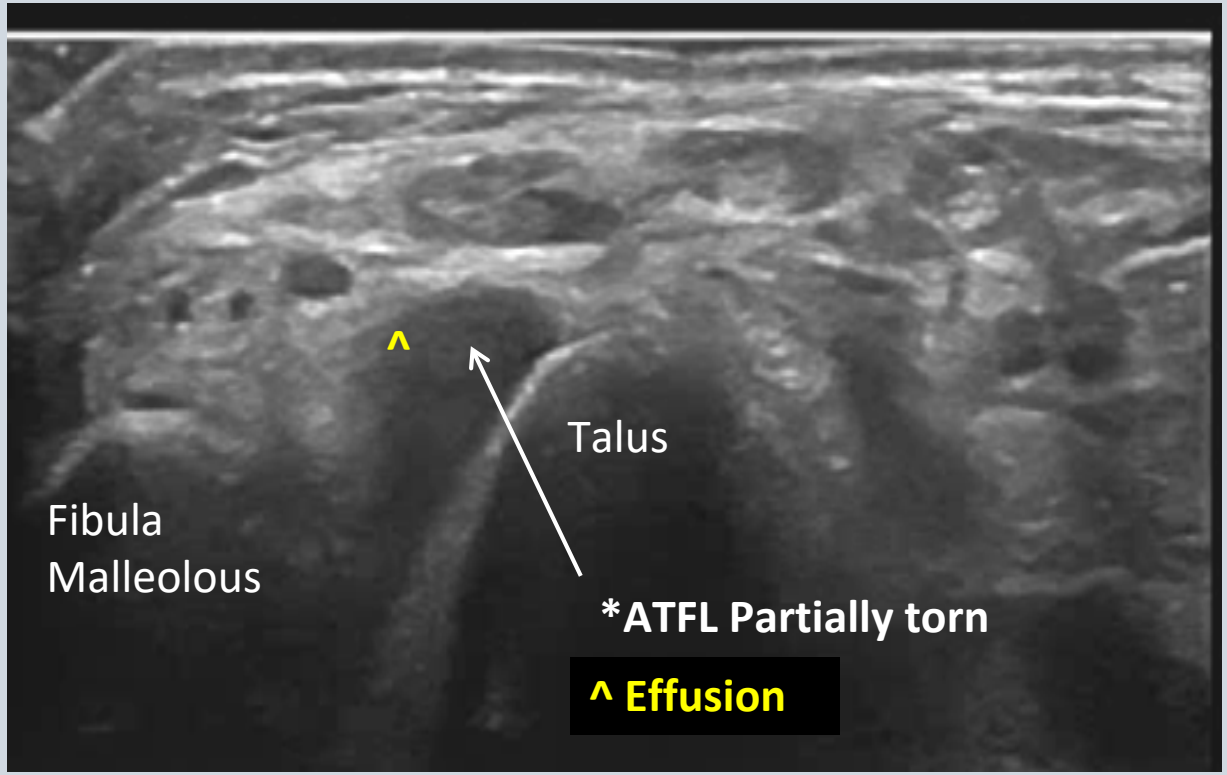


Normal Anterior Talo-Fibular Ligament (ATFL)

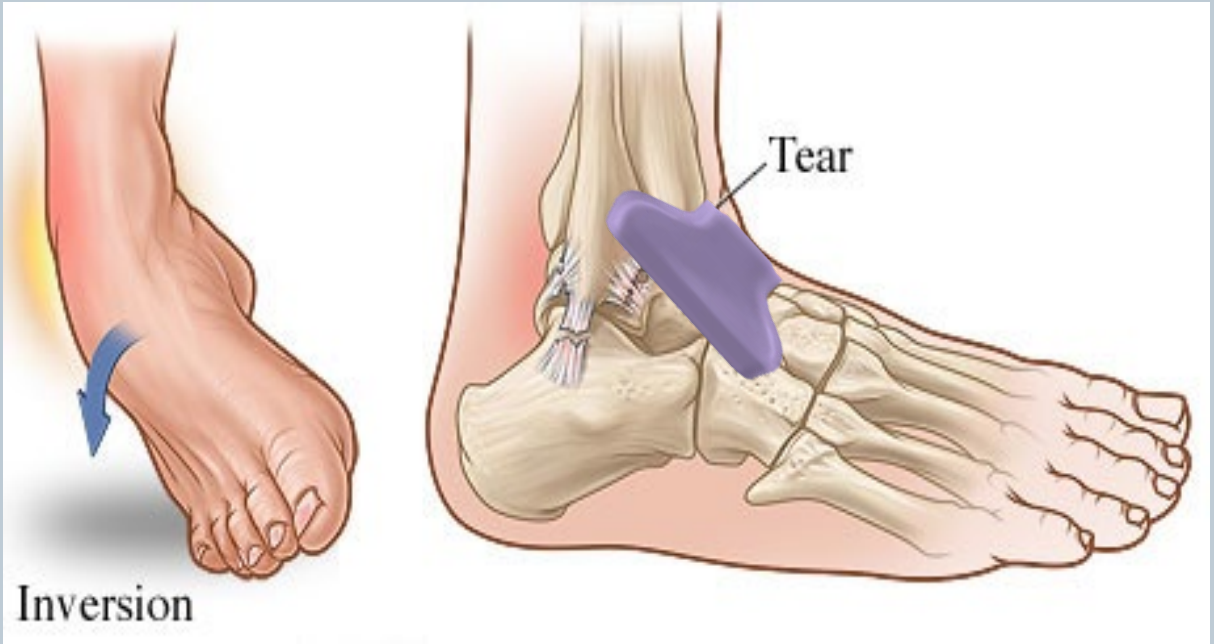
Firm insertions on malleolus and talus with tilting and/or inversion

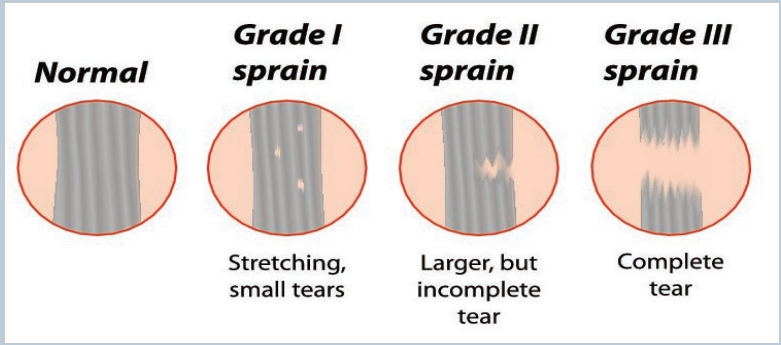
ATFL_0002.MP4

Patient



*ATFL = Anterior Talo-Fibular Ligament





Right ankle
Transducer: Between malleolous of fibula and talar dome

Results/Treatment Plan

Findings

Complex effusion (compressible)

Disrupted ATFL fibers with instability

Diagnosis

Findings most suggestive:

Partial ATFL sprain (grade II)

Treatment

Continue FVIII infusions daily

Consult with orthopedic surgery

X-rays to rule out other abnormal findings

Suggested conservative rehabilitation

Teaching points:

1) MSKUS provided a diagnosis of suspected inversion injury of ATFL

2) This diagnosis may have gone unrecognized in hemophilia where joint pains are often only treated empirically for assumed diagnosis of joint bleeding