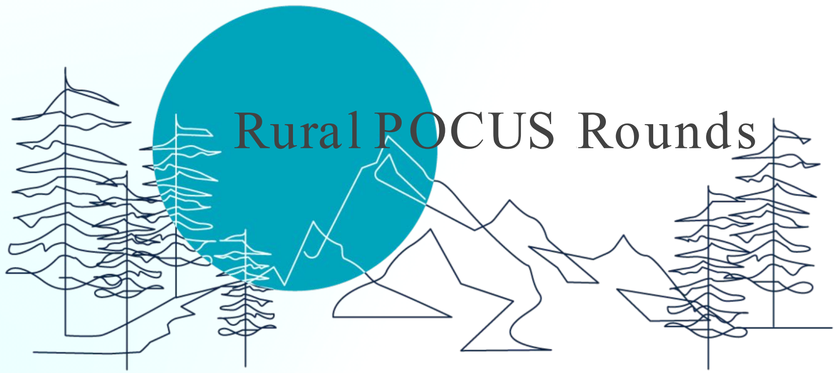
# POCUS and the Hip

Tracy Morton MD
Dec 5 2025




THE UNIVERSITY OF BRITISH COLUMBIA
Continuing Professional Development
Faculty of Medicine

# MSK series

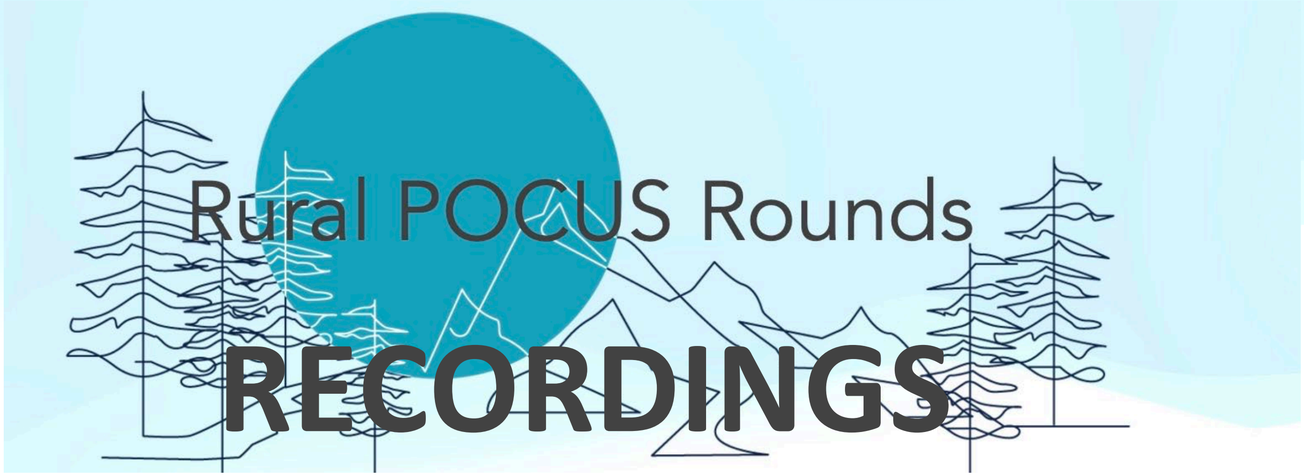
Intro

Hand + wrist

Foot + ankle

Elbows + knees

HIP




Honoured to be presenting
on the lands and waters
of the Haida Nation

Tracy Morton, MD CCFP
Haida Gwaii Hospital & Health Centre
Daajing Giids, Haida Gwaii BC

# Disclosures

## No commercial disclosures

Rural Coordination Centre of BC

UBC CPD Continuing Professional Development Medicine

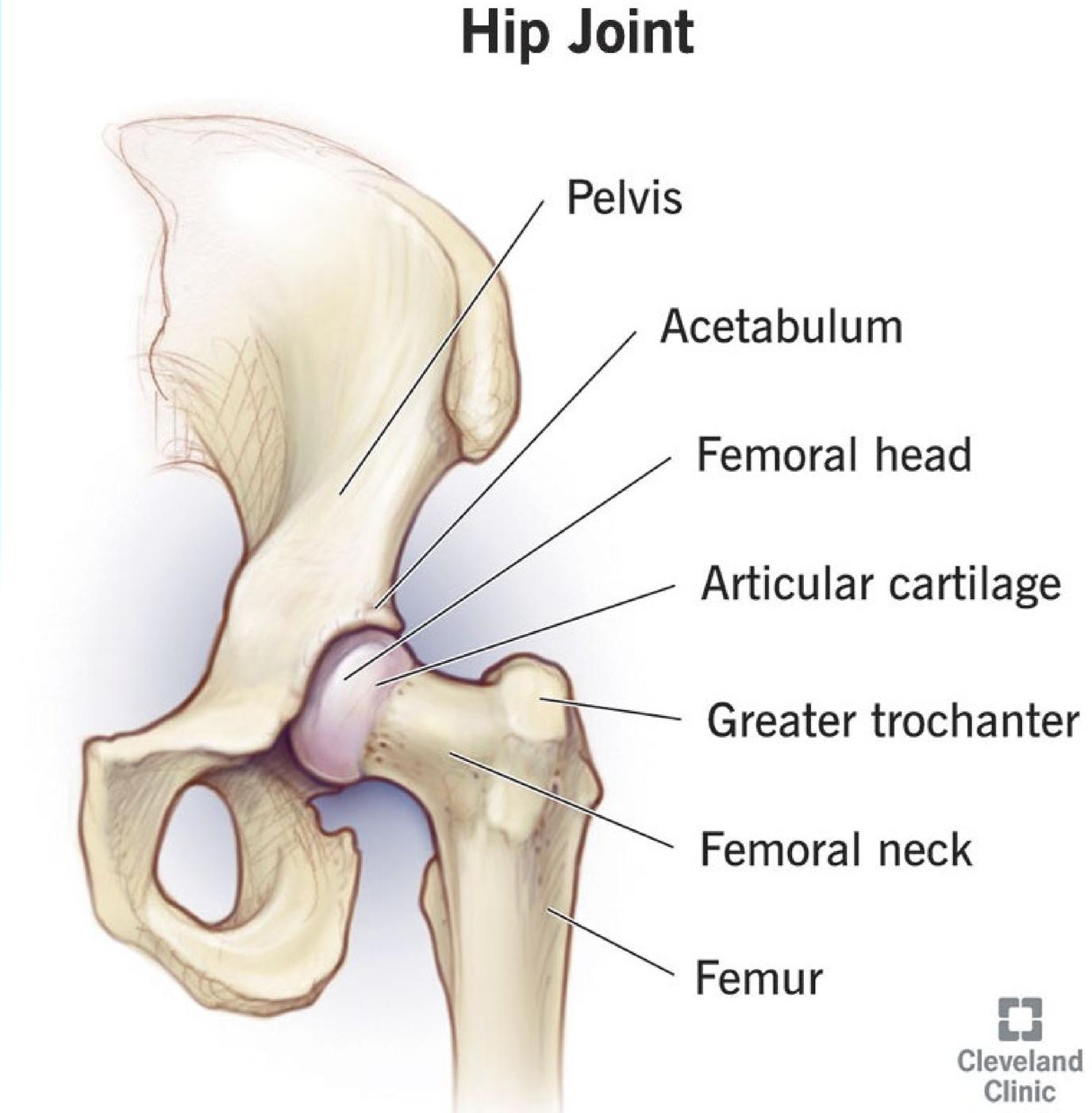
# Objectives

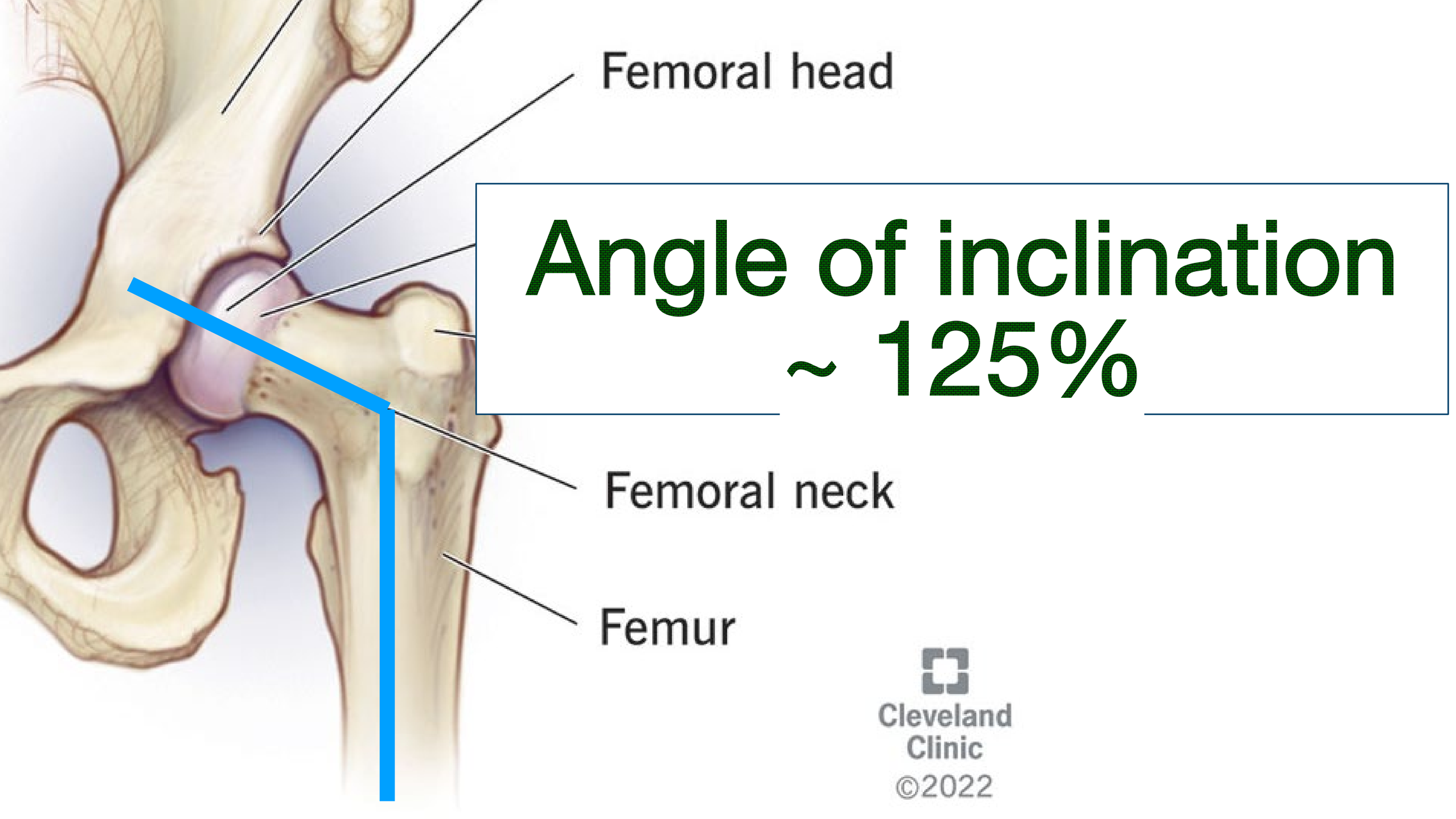
1. Review hip sonoanatomy

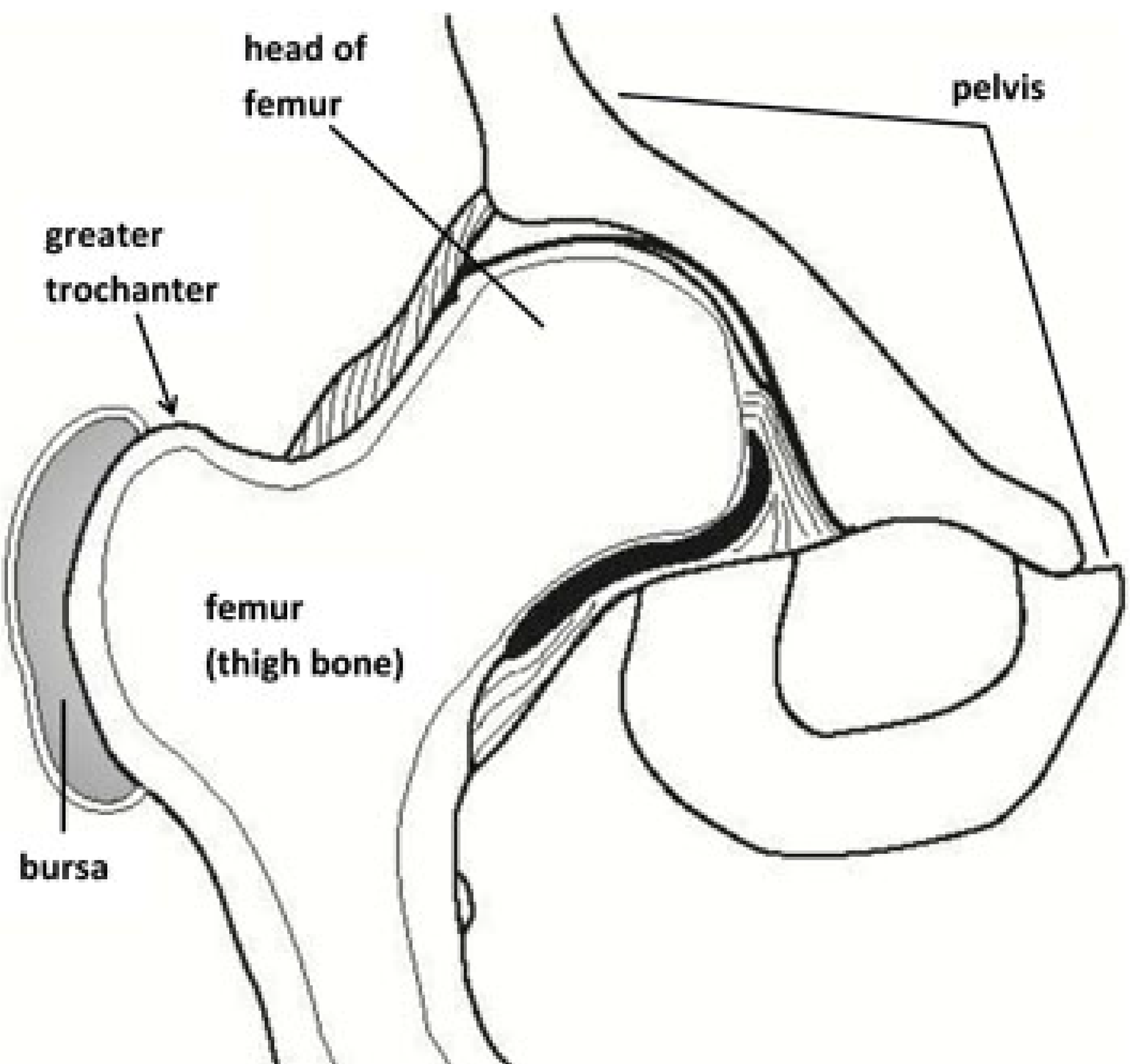
2. Cover POCUS diagnosis:
- hip effusions
- greater tronchateric pain syndrome

3. Learn 3 injections:
- femoral nerve block - hip and femur fractures
- hip joint
- trochanteric bursa injection

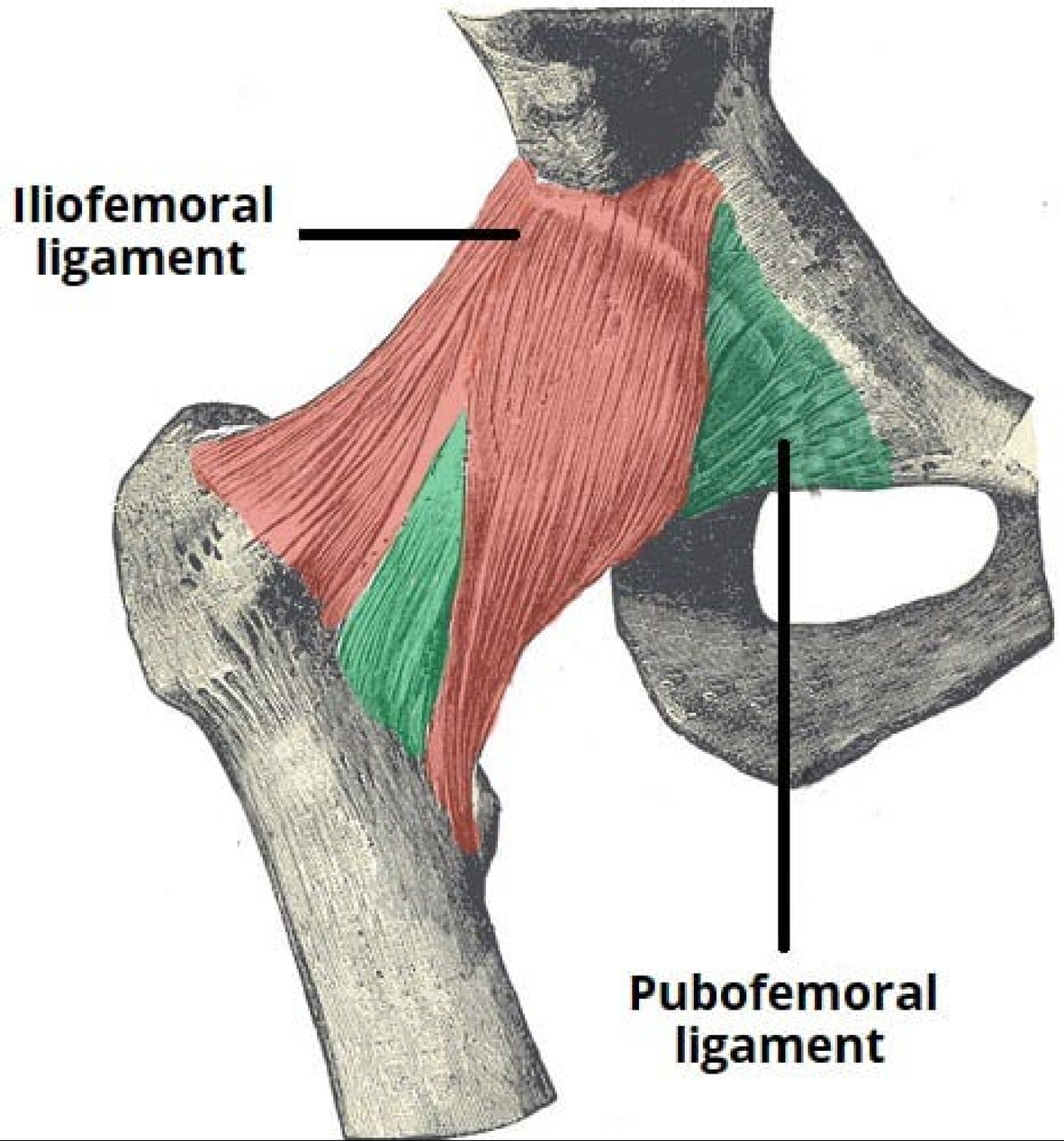
# Anatomy review



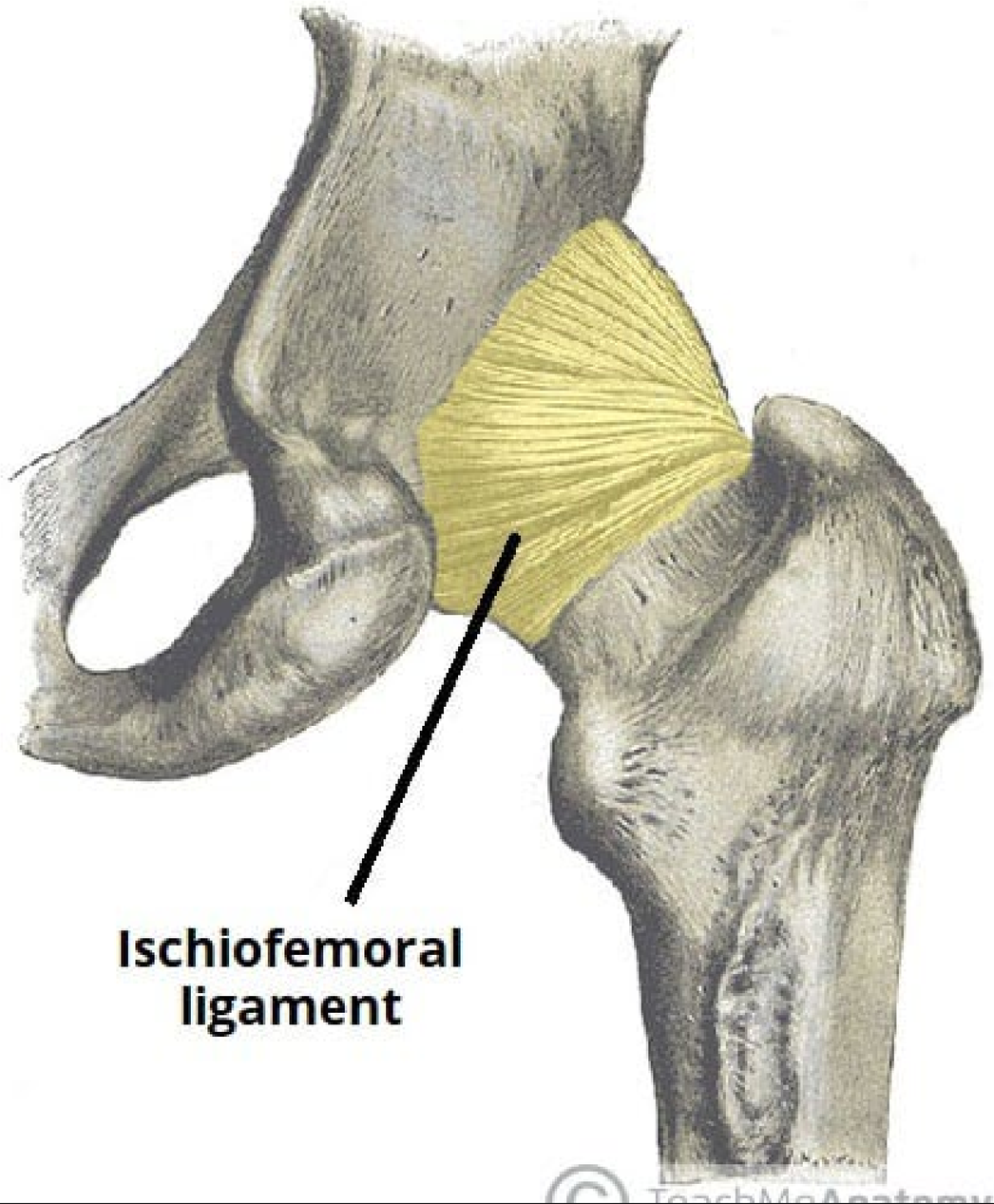

Femoral head
Femoral neck
Femur
Angle of inclination
~ 125%
Cleveland Clinic
©2022


head of
femur
pelvis
greater
trochanter
femur
(thigh bone)
bursa

# Anterior

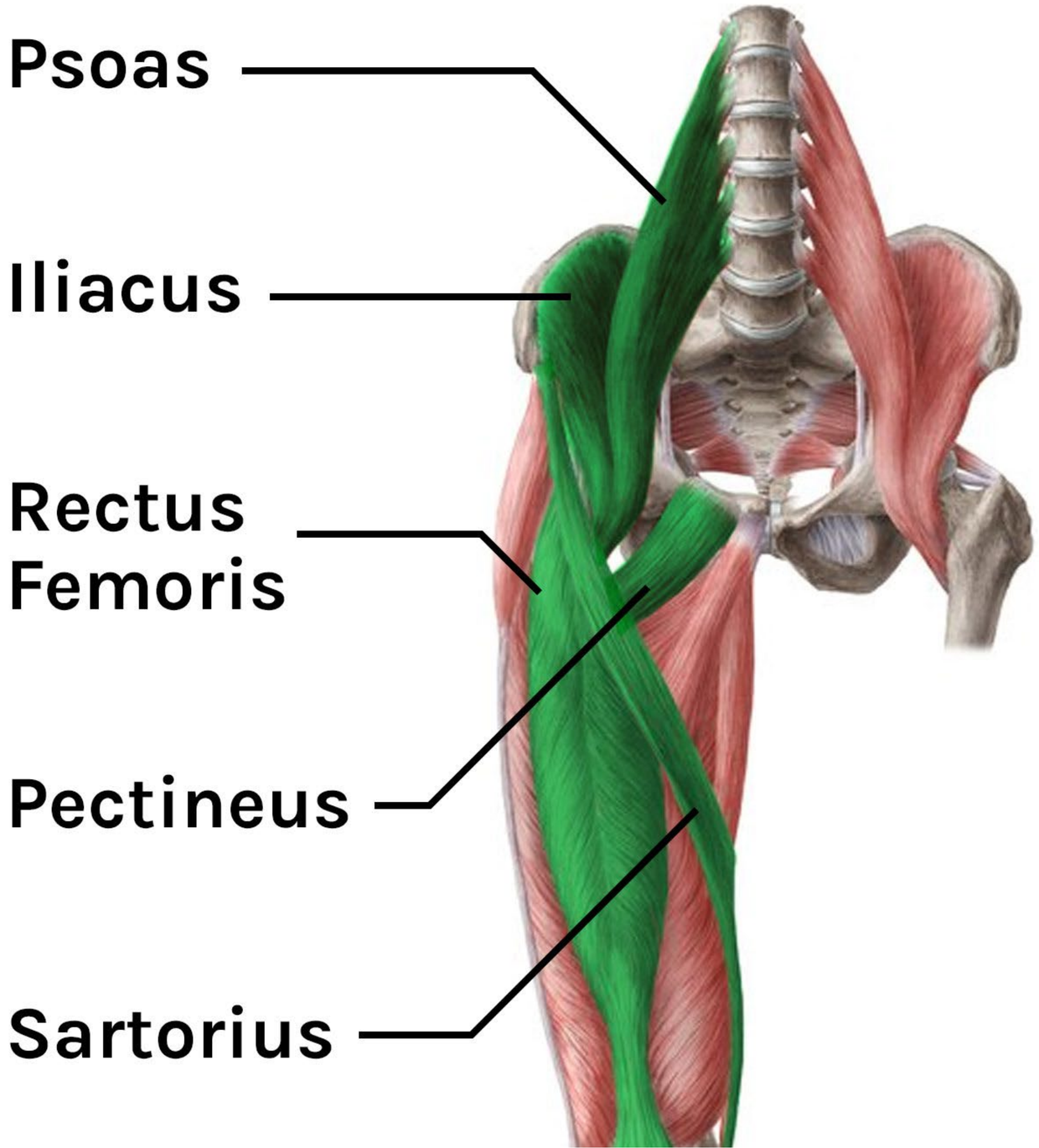



# Posterior

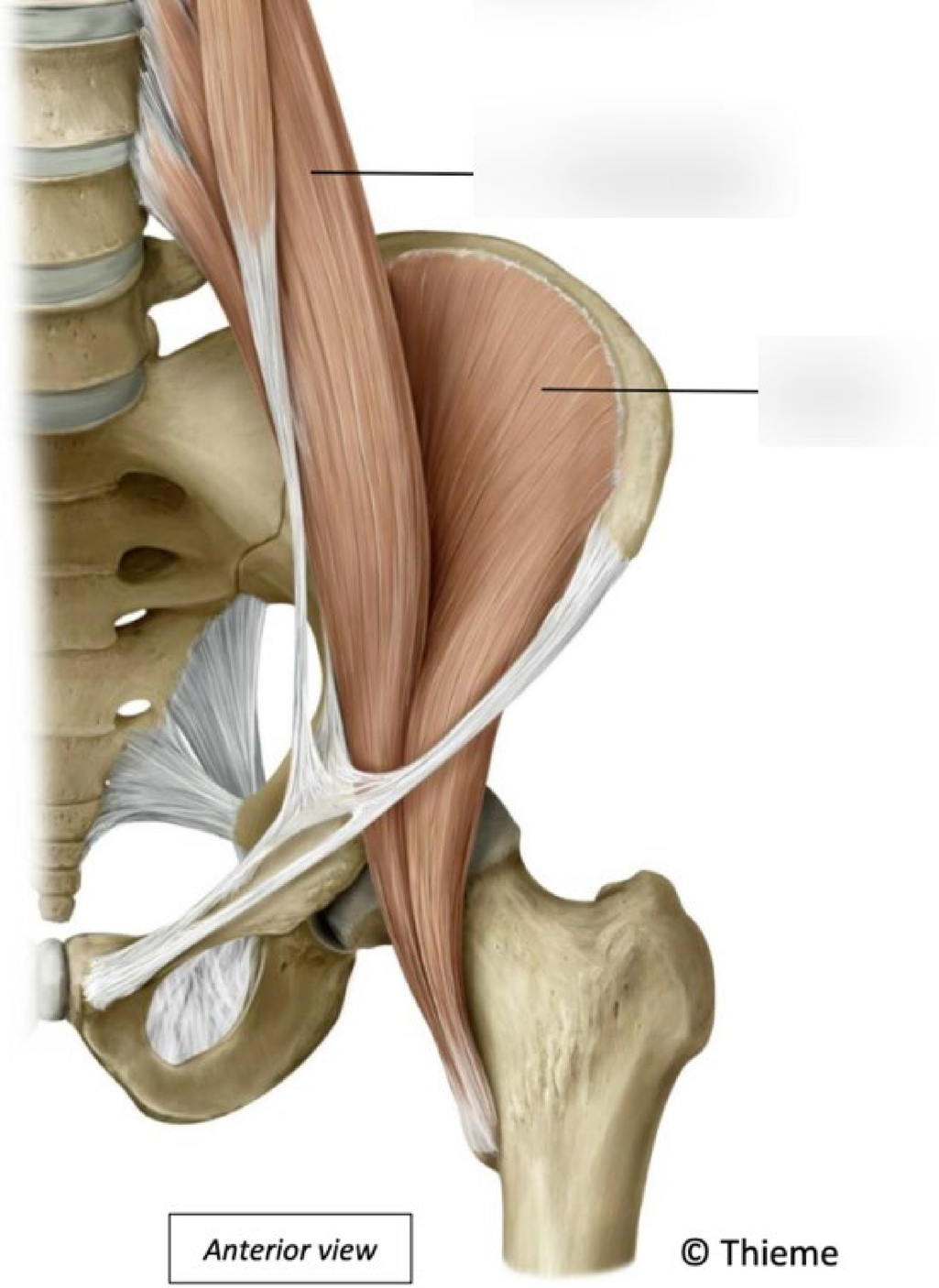



© TeachMeAnatomy

# Anterior



# Anterior

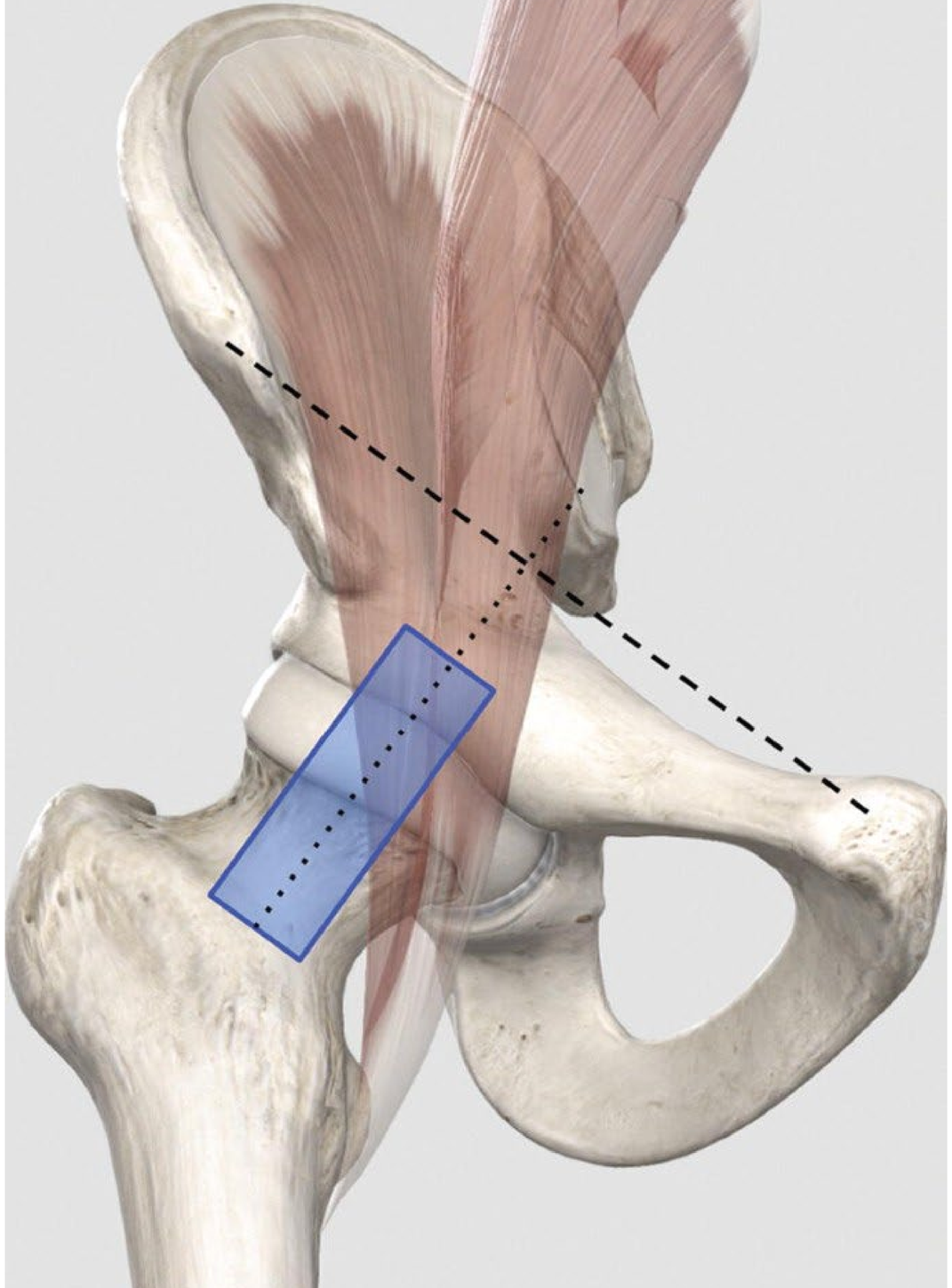


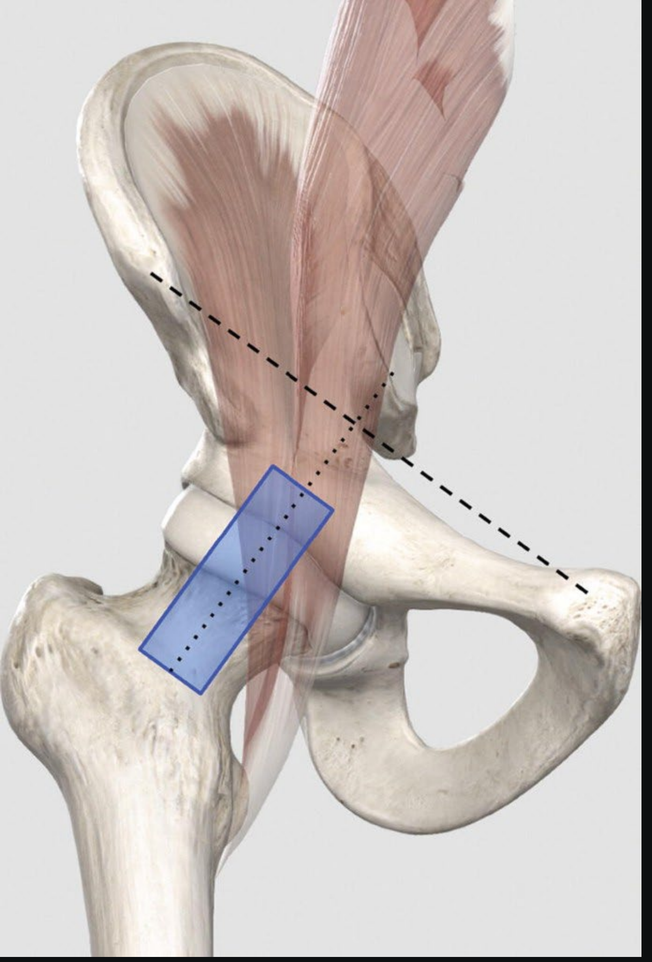
ıatomy

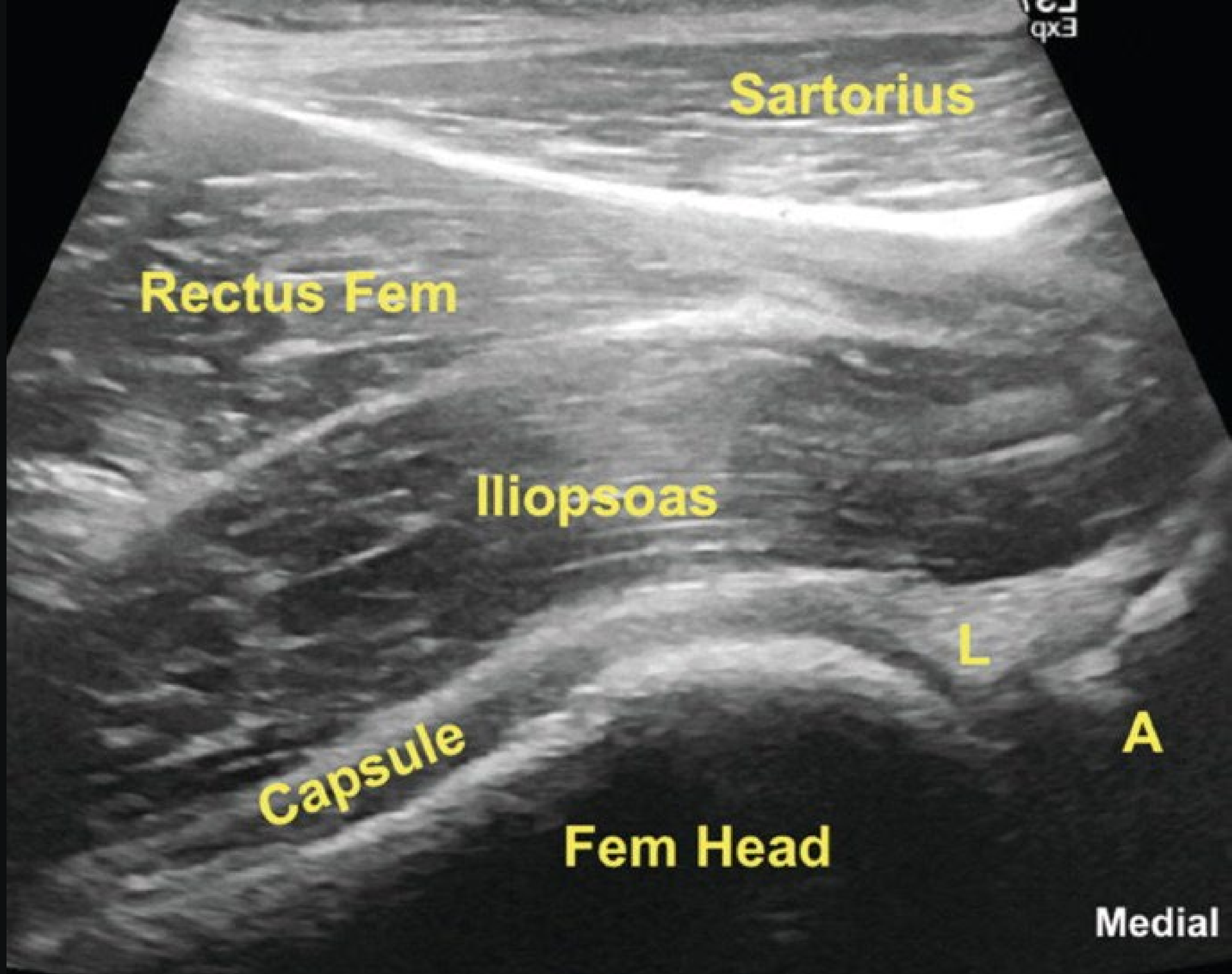
*Anterior view*

© Thieme

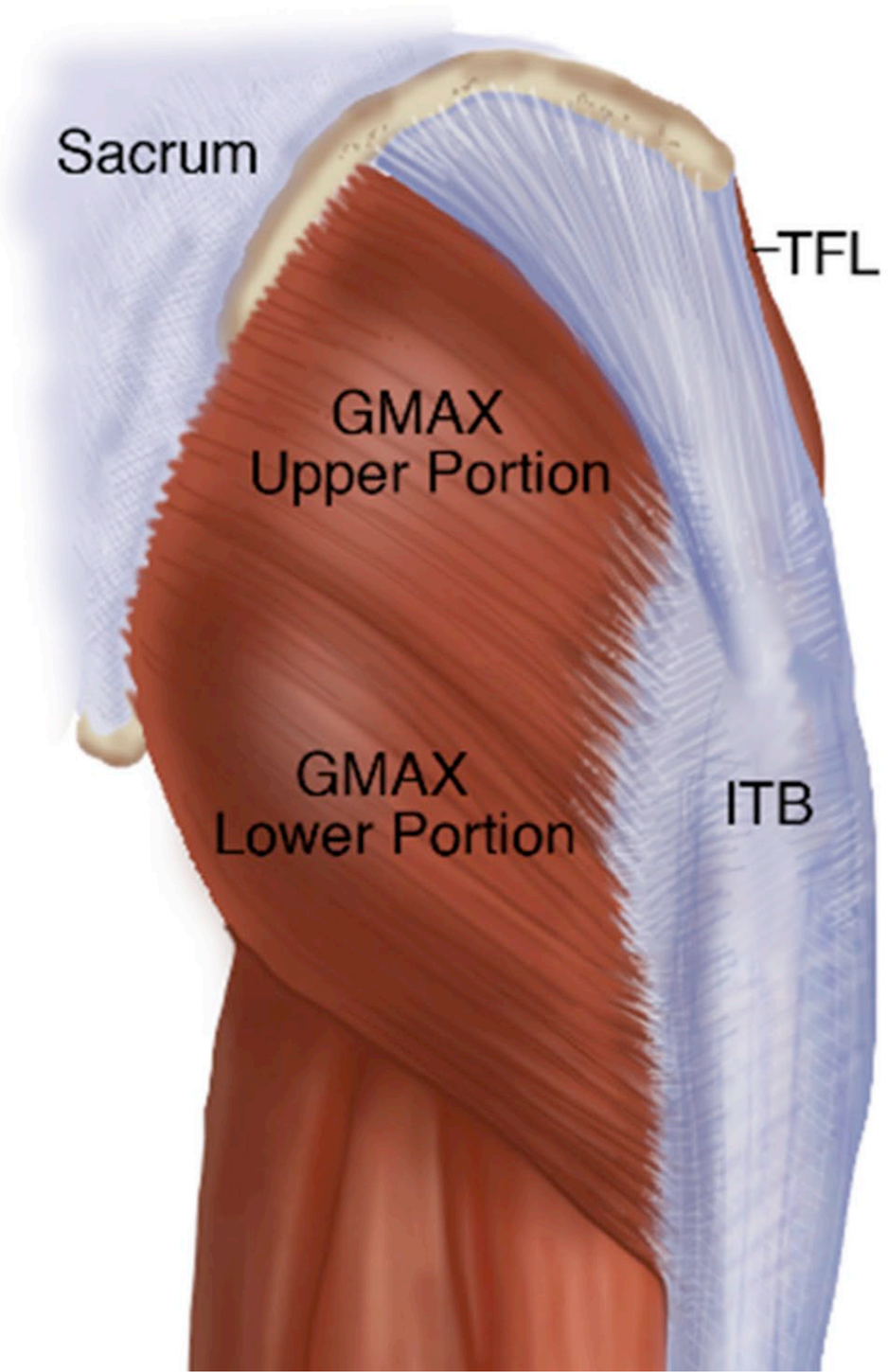
# Scanning Anterior Hip



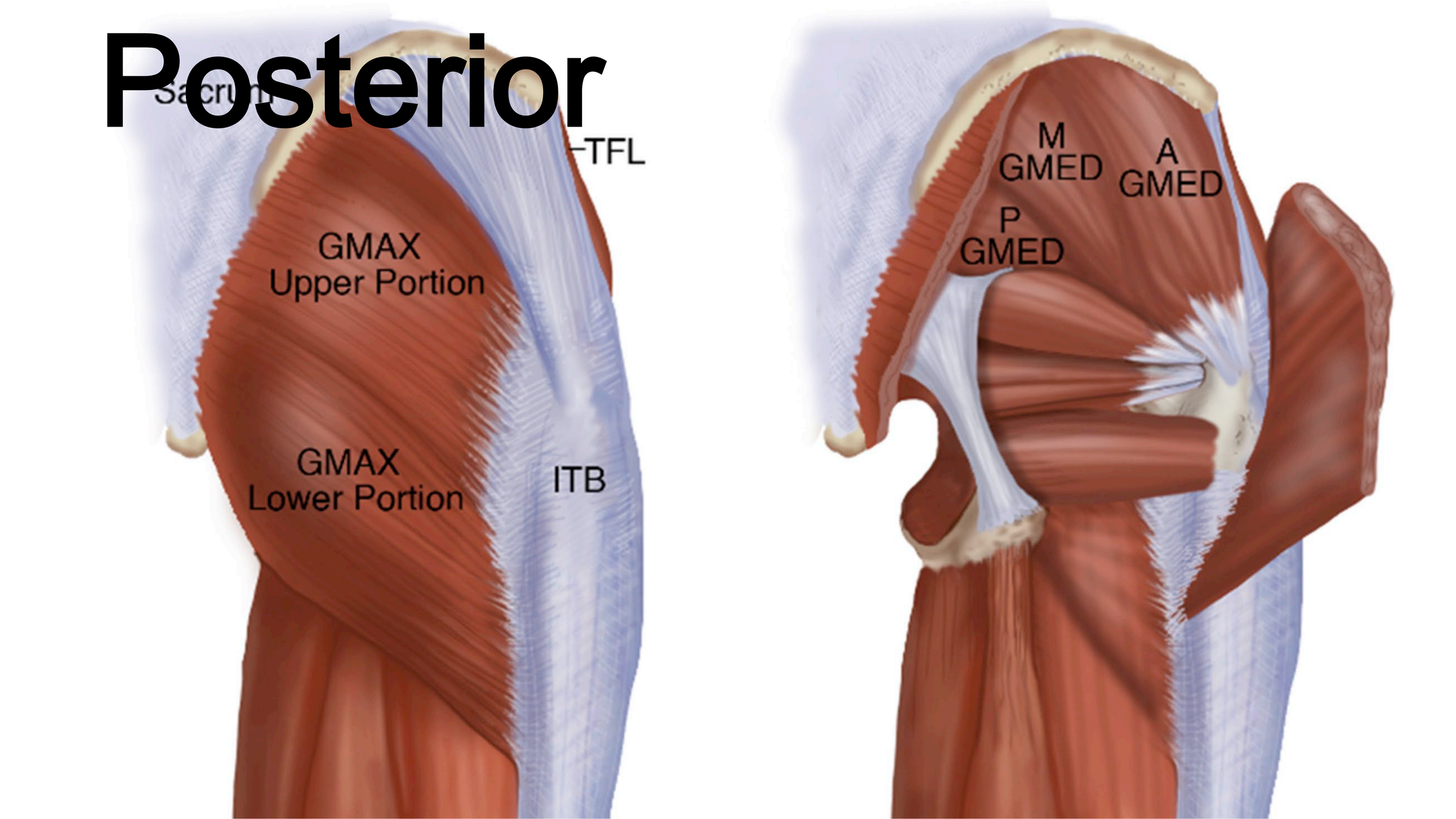


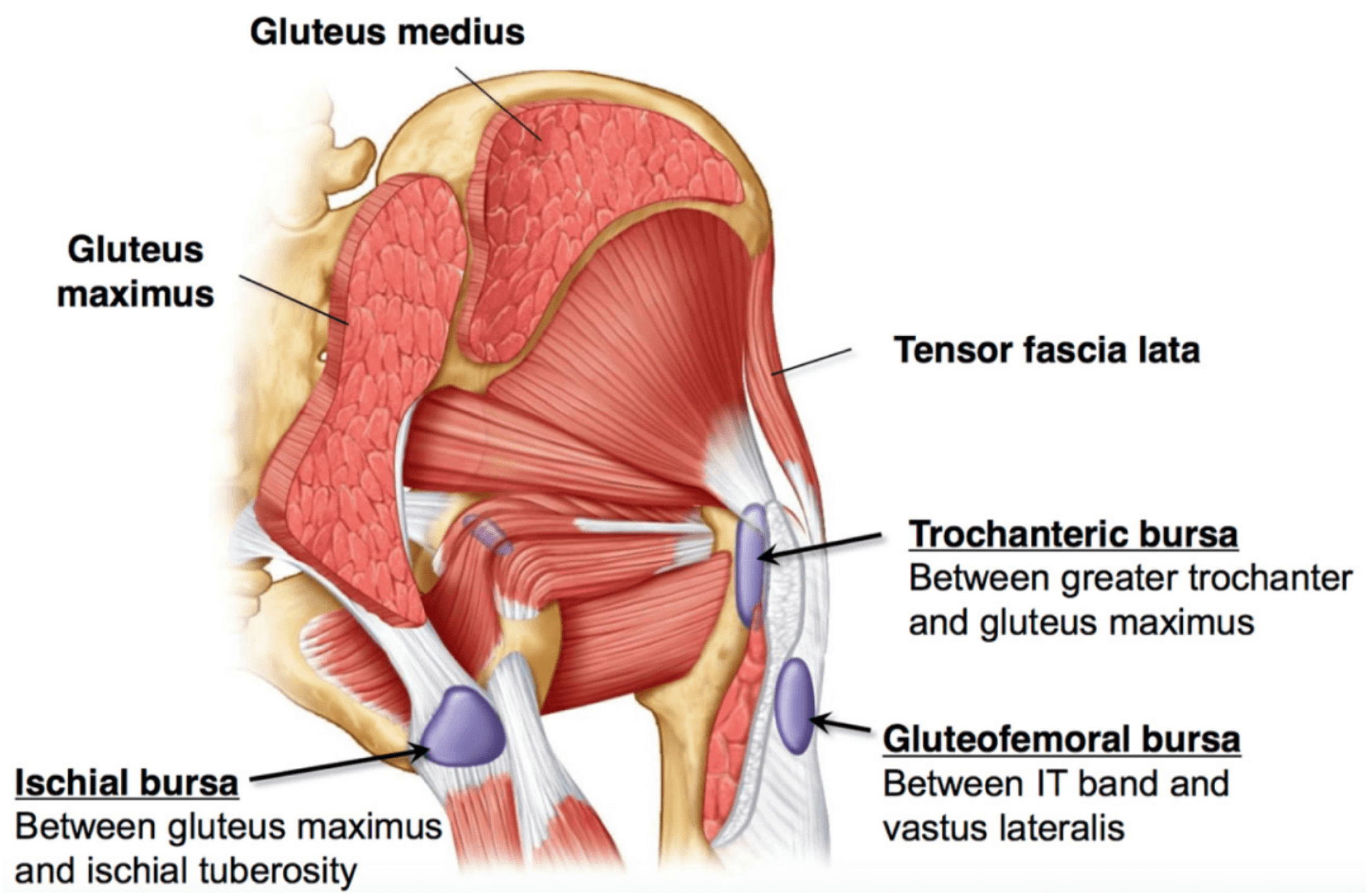

Sartorius
Rectus Fem
Iliopsoas
L
A
Capsule
Fem Head
Medial

# Posterior



# Posterior


Sacrum
TFL
GMAX
Upper Portion
GMAX
Lower Portion
ITB
M
GMED
A
GMED
P
GMED

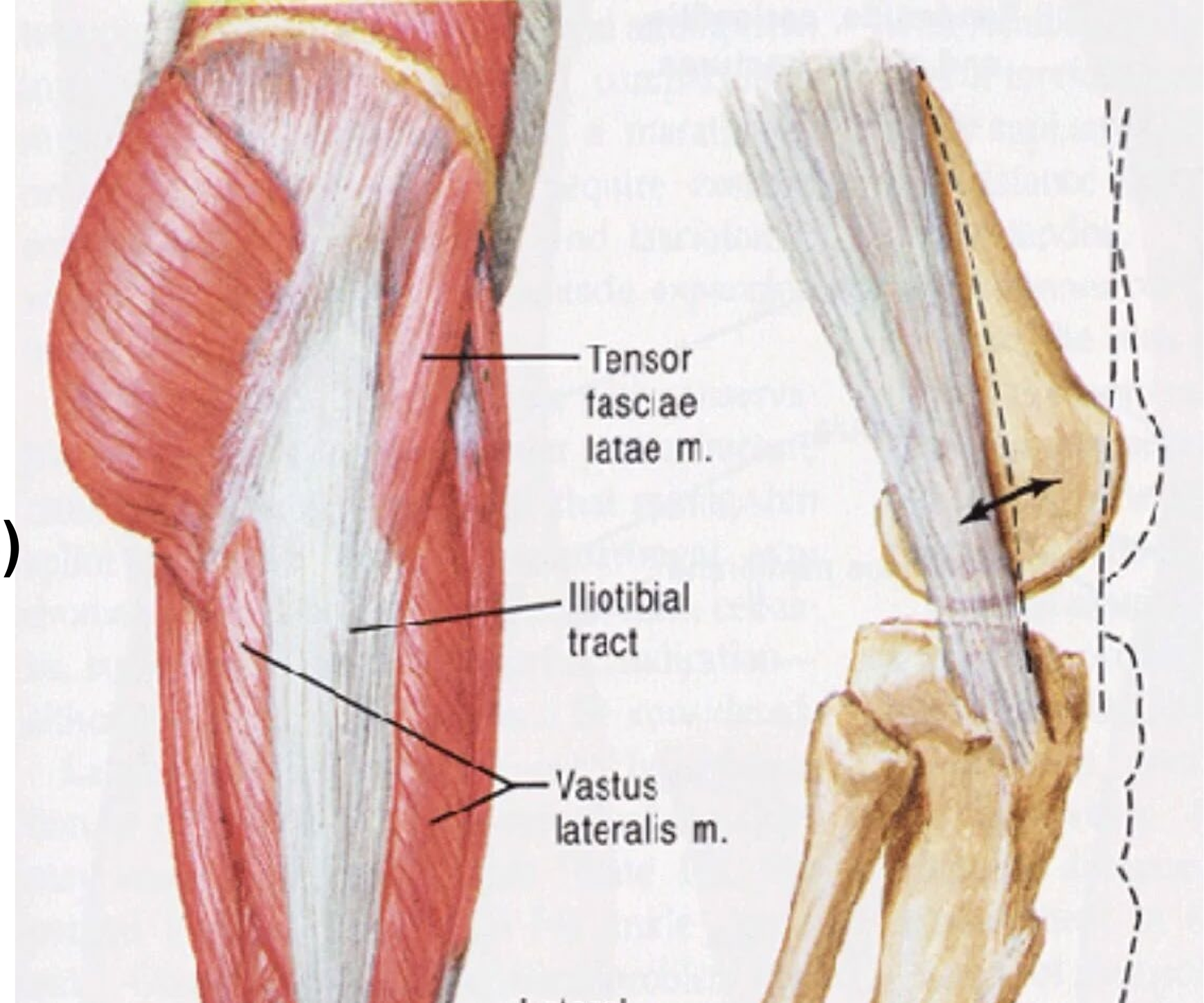

Gluteus medius
Gluteus maximus
Tensor fascia lata
Trochanteric bursa
Between greater trochanter and gluteus maximus
Gluteofemoral bursa
Between IT band and vastus lateralis
Ischial bursa
Between gluteus maximus and ischial tuberosity

# Lateral:
## superficial

**Iliotibial band (ITB)**

**Tensor fascia lata**

**Vastus lateralis**

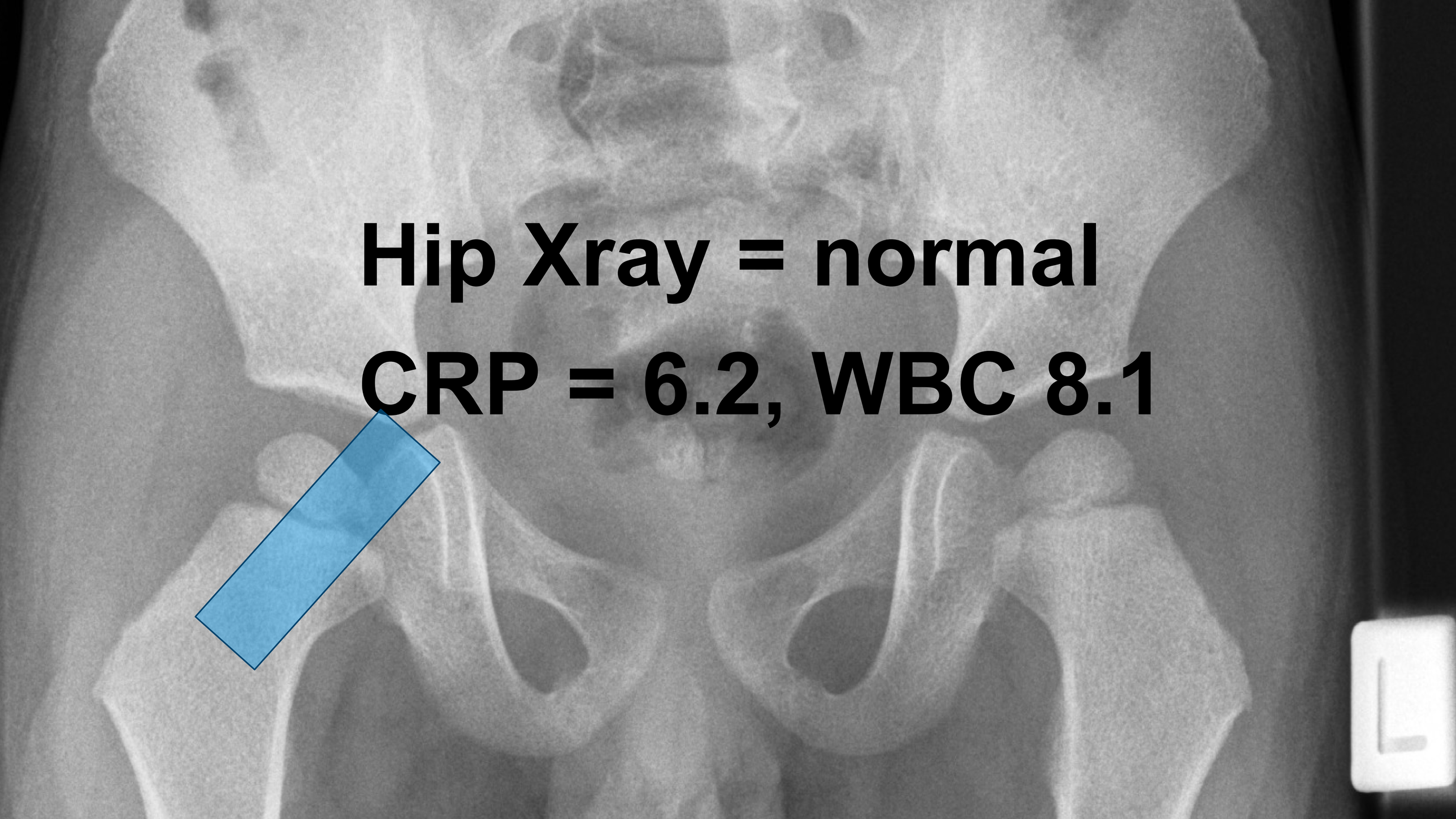


# Case #1

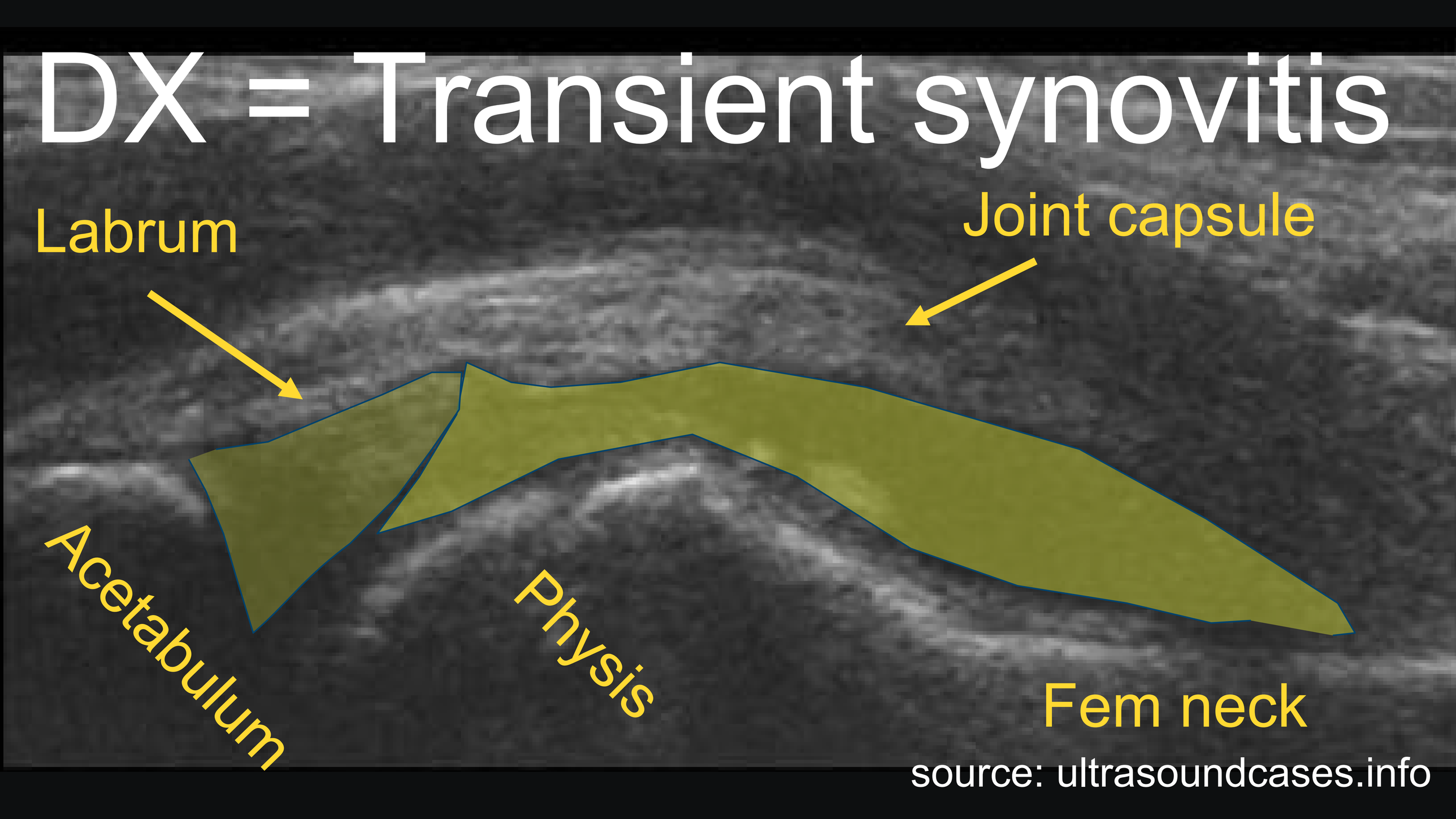
3 y/o M, “hurts” w/ walking

Hurts to weight bear, limp, wants to be carried

Recent RTI, VS = normal


Hip Xray = normal
CRP = 6.2, WBC 8.1

# DX = Transient synovitis




source: ultrasoundcases.info

# Hip effusion

Fig. 1

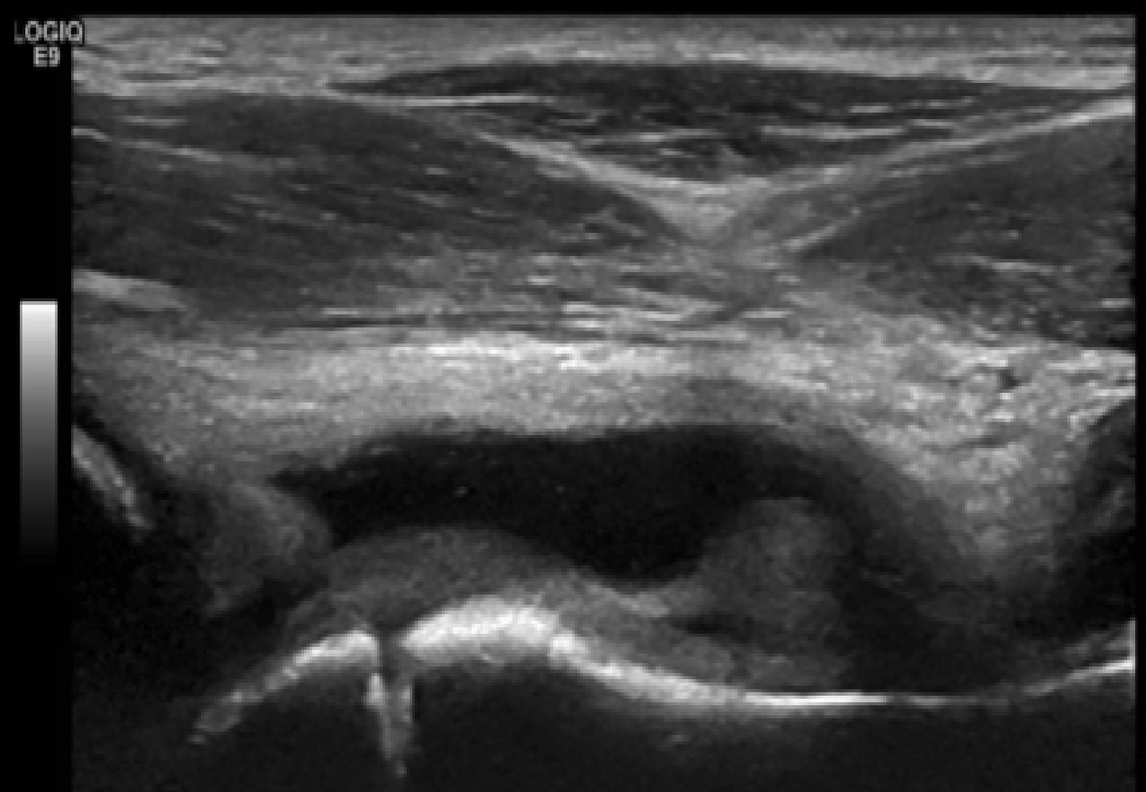
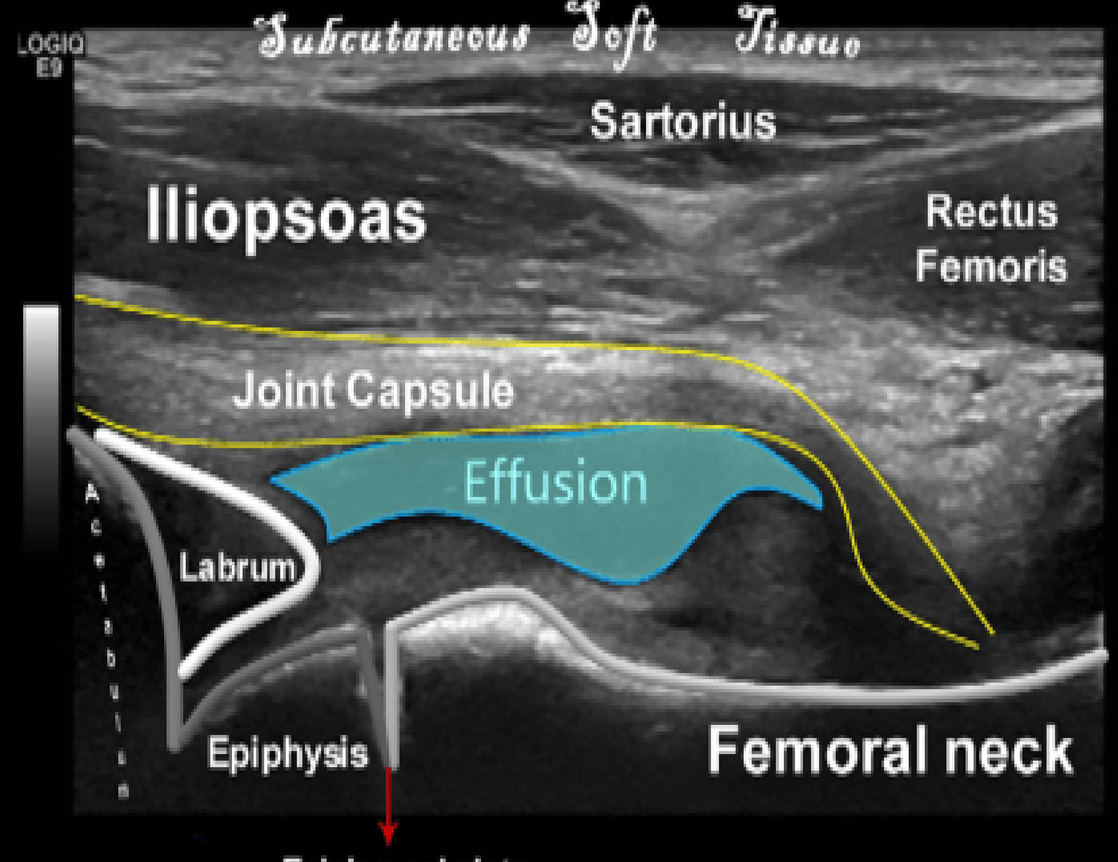
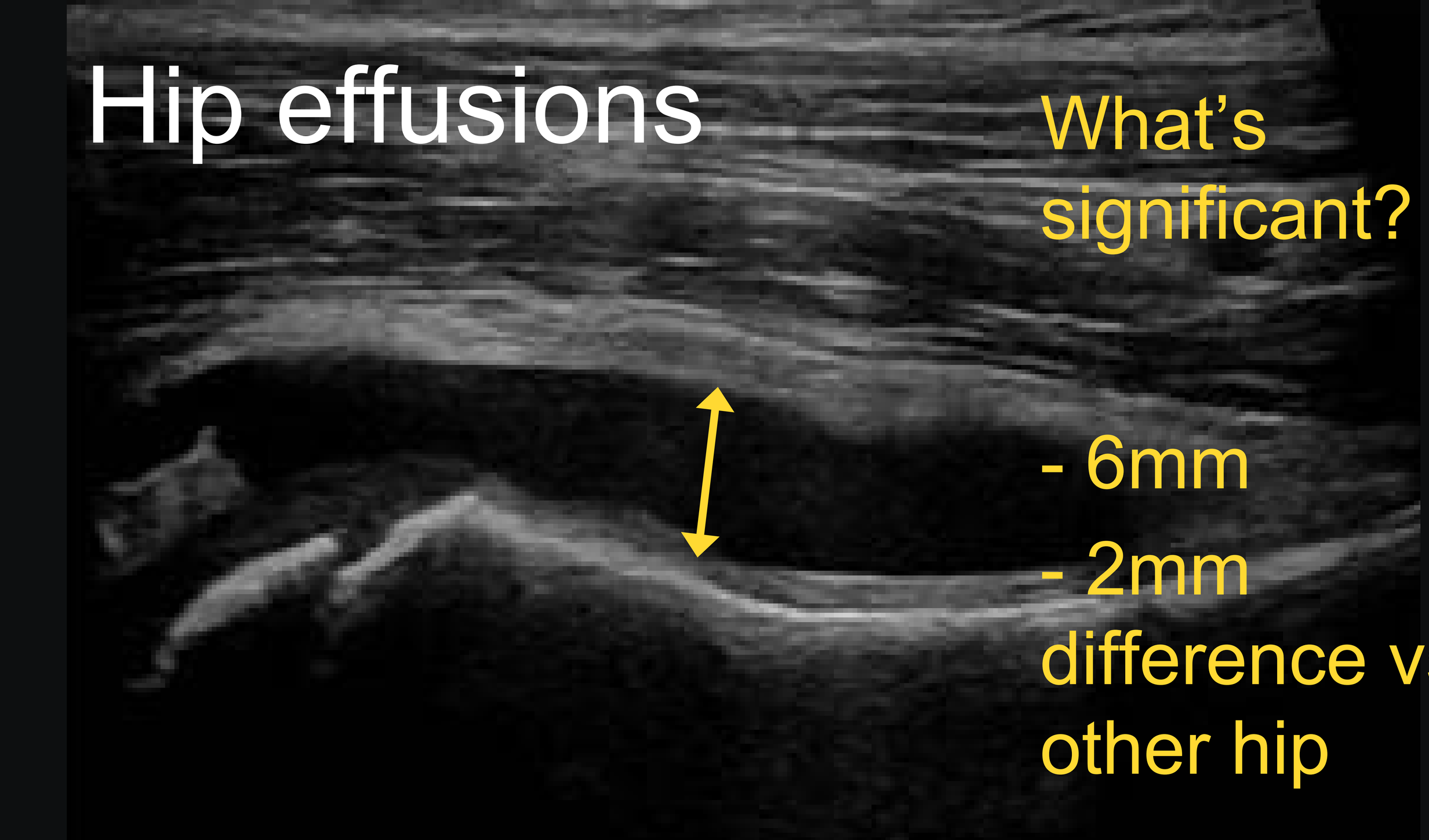



Fig 2.



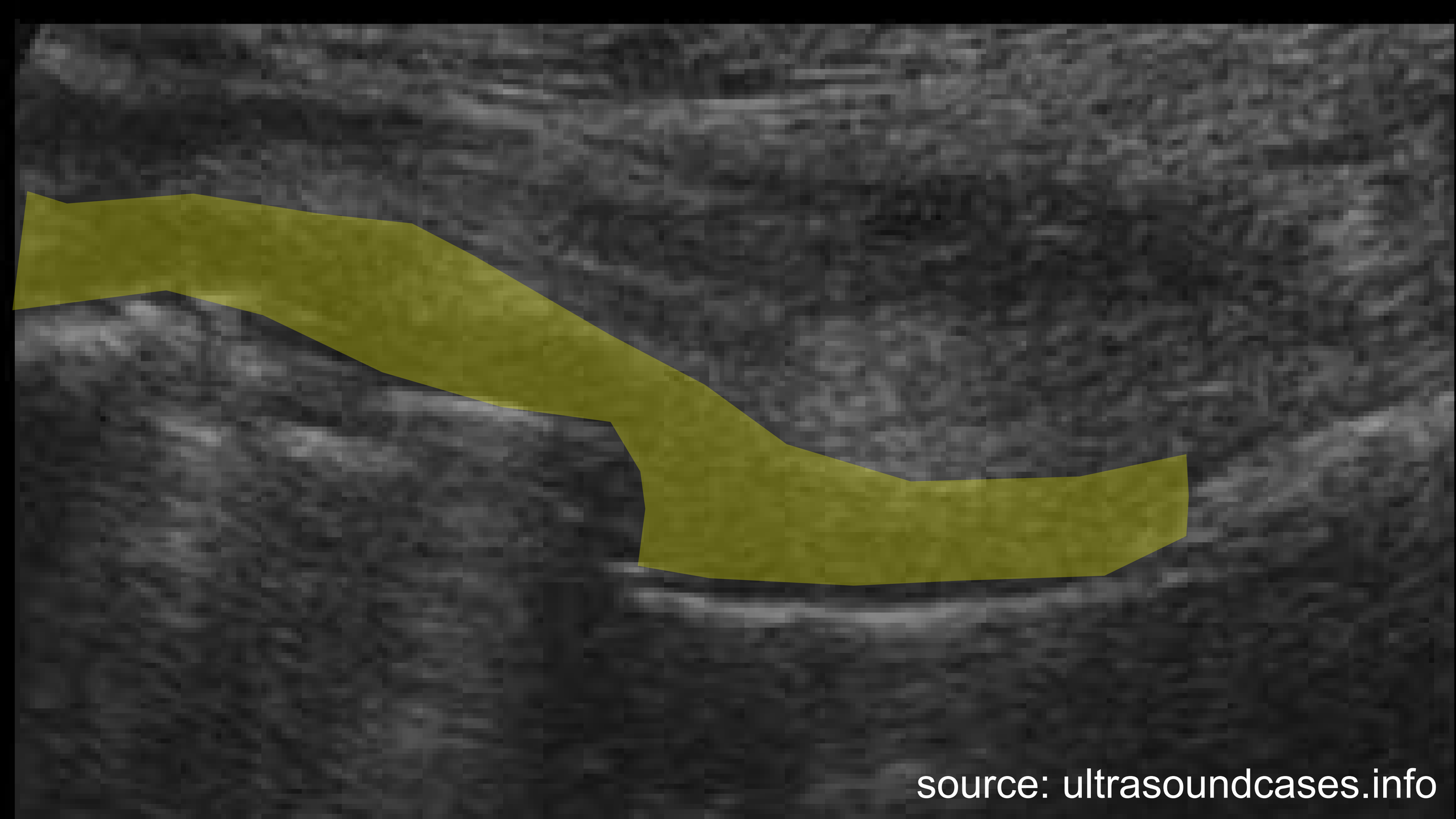

@henry_stax

# Hip effusions



What's significant?

- 6mm
- 2mm difference vs other hip


source: ultrasoundcases.info

# Case #2, continued

**T 38.1, CRP > 200, WBC 23,000, lactate normal**

**Septic arthritis! - must not miss**

# Next best step?

# Joint effusion

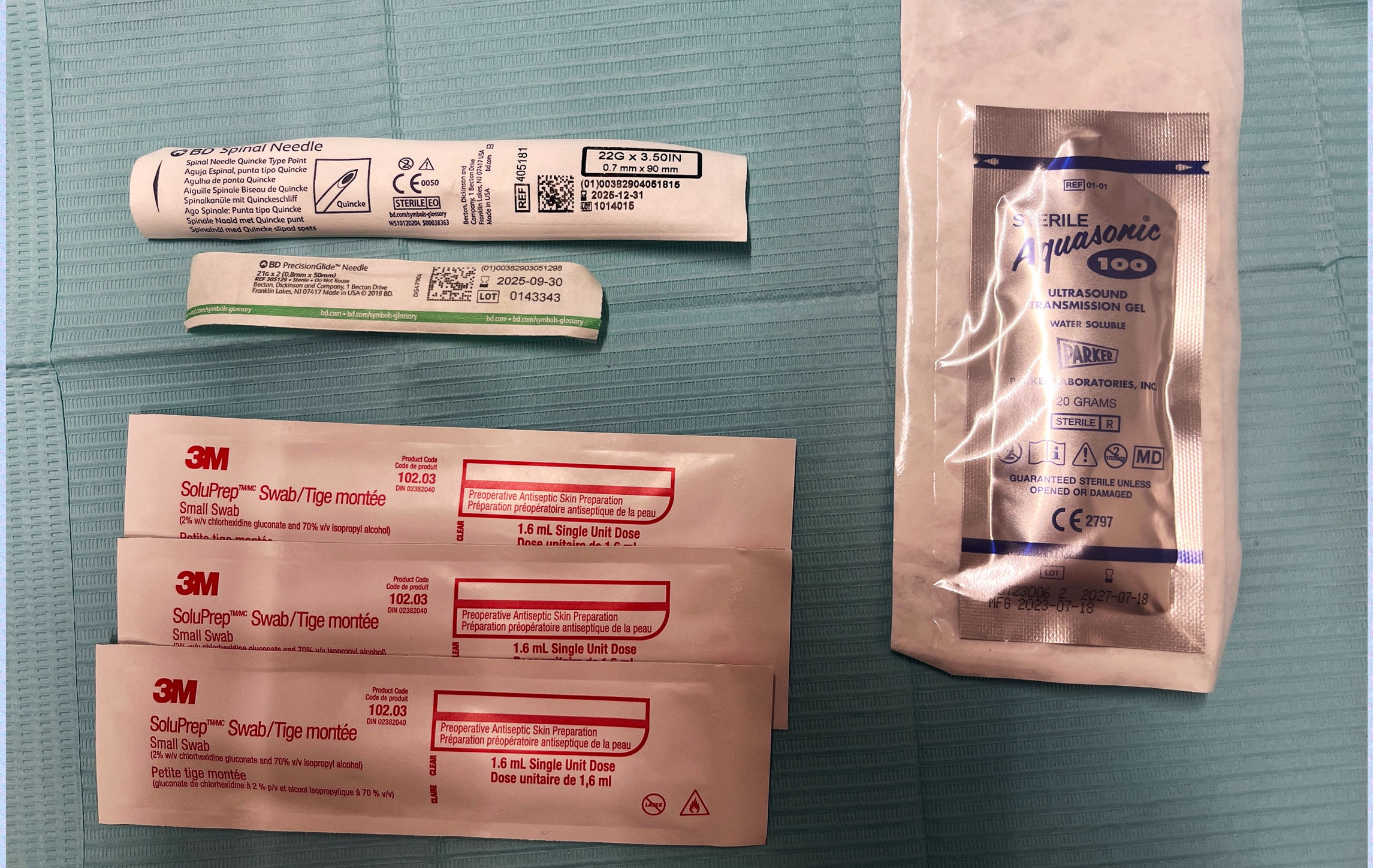
**Autoimmune joint disease (RA, psoriatic, AS)**

**Septic arthritis**

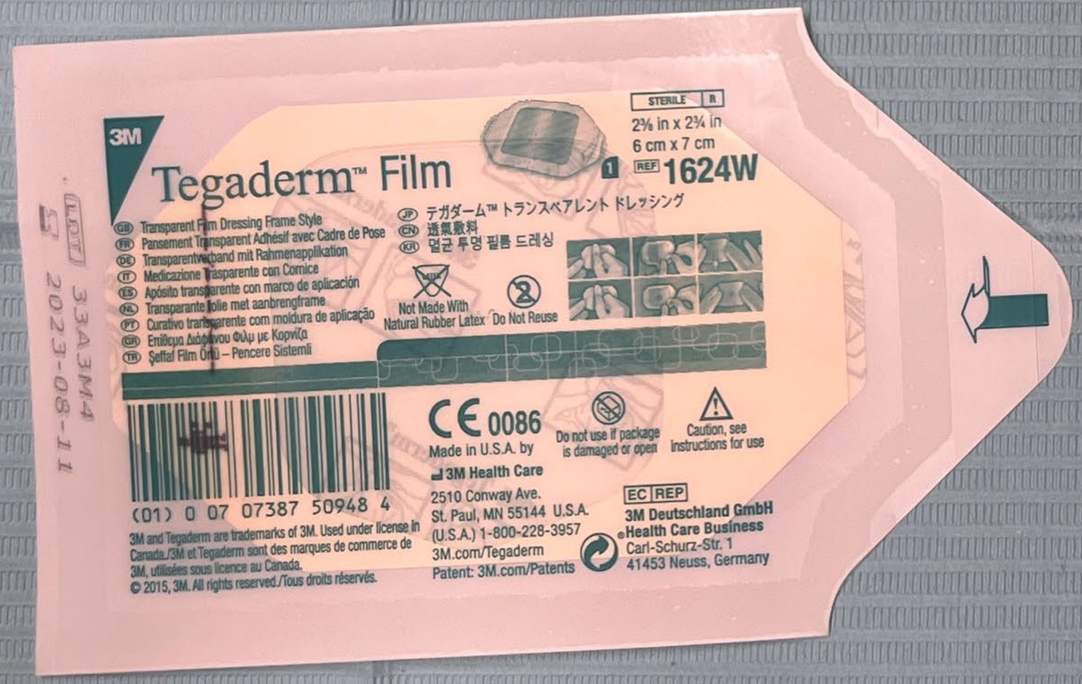
**Traumatic**

**Osteoarthritis**

# Hip aspiration (+ injection!)



BD Spinal Needle
Spinal Needle Quincke Type Point
Aguja Espinal, punta tipo Quincke
Agulha de ponta Quincke
Aiguille Spinale Biseau de Quincke
Spinalkanüle mit Quinckeschliff
Ago Spinale: Punta tipo Quincke
Spinale Naald met Quincke punt
Spinalnål med Quincke slipad spets
Quincke
CE 0050
STERILE EO
bd.com/symbols-glossary
WS10120204 500038363
Becton, Dickinson and Company, 1 Becton Drive Franklin Lakes, NJ 07417 USA bd.com
Made in USA
REF 405181
22G x 3.50IN
0.7 mm x 90 mm
(01)00382904051815
2026-12-31
1014015
BD PrecisionGlide™ Needle
21G x 2 (0.8mm x 50mm)
REF 305129 • Sterile • Do Not Reuse
Becton, Dickinson and Company, 1 Becton Drive
Franklin Lakes, NJ 07417 Made in USA © 2018 BD.
DG47904
(01)00382903051298
2025-09-30
LOT 0143343
bd.com • bd.com/symbols-glossary
3M
SoluPrep™ Swab/Tige montée
Small Swab
(2% w/v chlorhexidine gluconate and 70% v/v isopropyl alcohol)
Petite tige montée
(gluconate de chlorhexidine à 2 % p/v et alcool isopropylique à 70 % v/v)
Product Code
Code de produit
102.03
DIN 02382040
Preoperative Antiseptic Skin Preparation
Préparation préopératoire antiseptique de la peau
1.6 mL Single Unit Dose
Dose unitaire de 1,6 ml
CLEAR
CLAIRE
REF 01-01
STERILE
Aquasonic 100
ULTRASOUND TRANSMISSION GEL
WATER SOLUBLE
PARKER
LABORATORIES, INC
20 GRAMS
STERILE R
MD
GUARANTEED STERILE UNLESS OPENED OR DAMAGED
CE 2797
LOT
MFG 2023-07-18


PULL HERE
HIER ZIEHEN
TIRER ICI
TIRARE QUI


3M
Tegaderm™ Film
STERILE R
2⅜ in x 2¾ in
6 cm x 7 cm
REF 1624W
GB Transparent Film Dressing Frame Style
FR Pansement Transparent Adhésif avec Cadre de Pose
DE Transparentverband mit Rahmenapplikation
IT Medicazione Trasparente con Cornice
ES Apósito transparente con marco de aplicación
NL Transparante folie met aanbrengframe
PT Curativo transparente com moldura de aplicação
GR Επίθεμα Διάφανου Φιλμ με Κορνίζα
TR Şeffaf Film Örtü – Pencere Sistemli
JP テガダーム™ トランスペアレント ドレッシング
CN 透氣敷料
KR 멸균 투명 필름 드레싱
Not Made With Natural Rubber Latex
Do Not Reuse
(01) 0 07 07387 50948 4
CE 0086
Made in U.S.A. by
3M Health Care
2510 Conway Ave.
St. Paul, MN 55144 U.S.A.
(U.S.A.) 1-800-228-3957
3M.com/Tegaderm
Patent: 3M.com/Patents
Do not use if package is damaged or open
Caution, see instructions for use
EC REP
3M Deutschland GmbH
Health Care Business
Carl-Schurz-Str. 1
41453 Neuss, Germany
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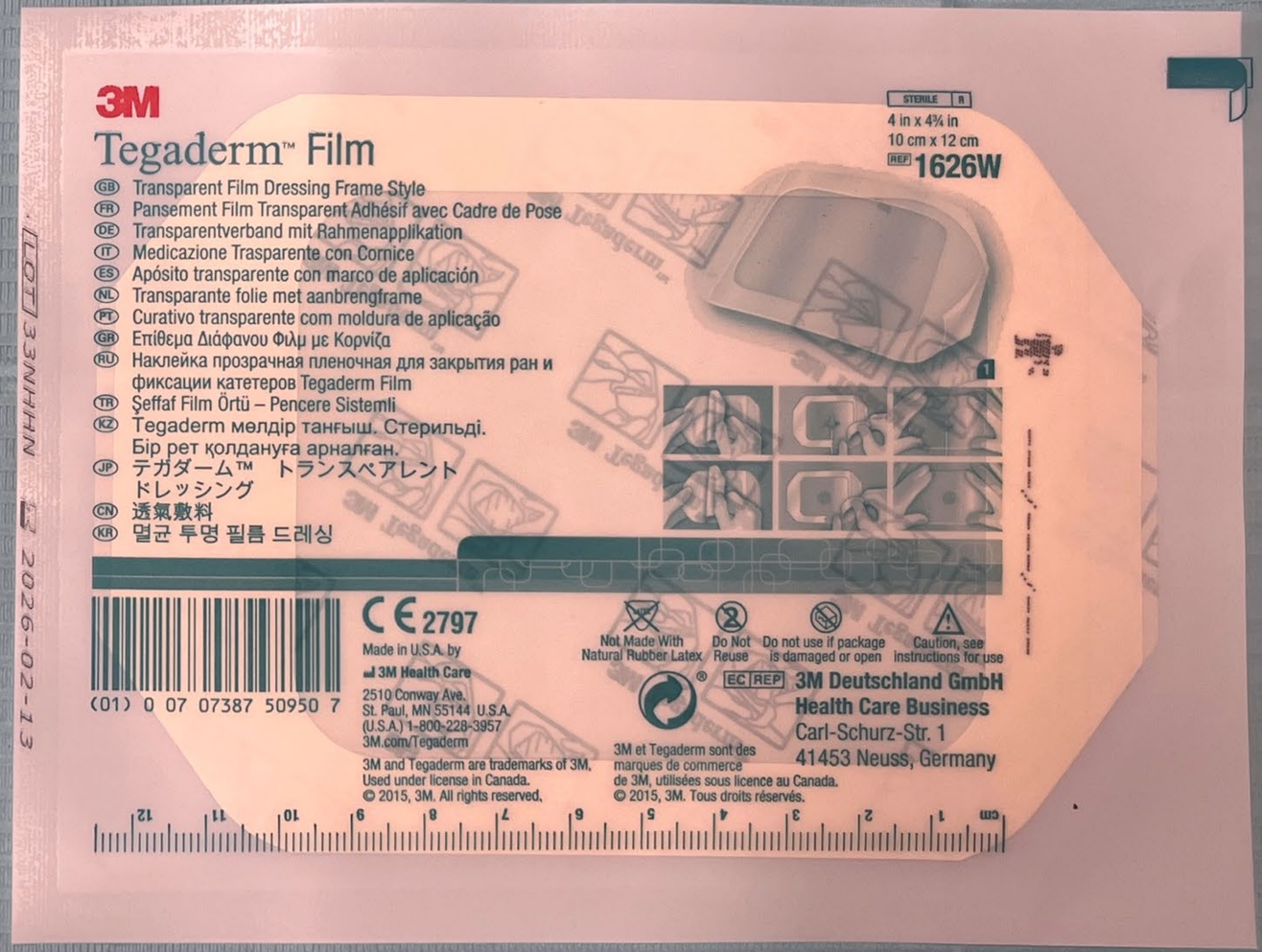
LOT 33A3M4
2023-08-11


3M
Tegaderm™ Film
STERILE R
4 in x 4¾ in
10 cm x 12 cm
REF 1626W
GB Transparent Film Dressing Frame Style
FR Pansement Film Transparent Adhésif avec Cadre de Pose
DE Transparentverband mit Rahmenapplikation
IT Medicazione Trasparente con Cornice
ES Apósito transparente con marco de aplicación
NL Transparante folie met aanbrengframe
PT Curativo transparente com moldura de aplicação
GR Επίθεμα Διάφανου Φιλμ με Κορνίζα
RU Наклейка прозрачная пленочная для закрытия ран и фиксации катетеров Tegaderm Film
TR Şeffaf Film Örtü – Pencere Sistemli
KZ Tegaderm мөлдір таңғыш. Стерильді. Бір рет қолдануға арналған.
JP テガダーム™ トランスペアレント ドレッシング
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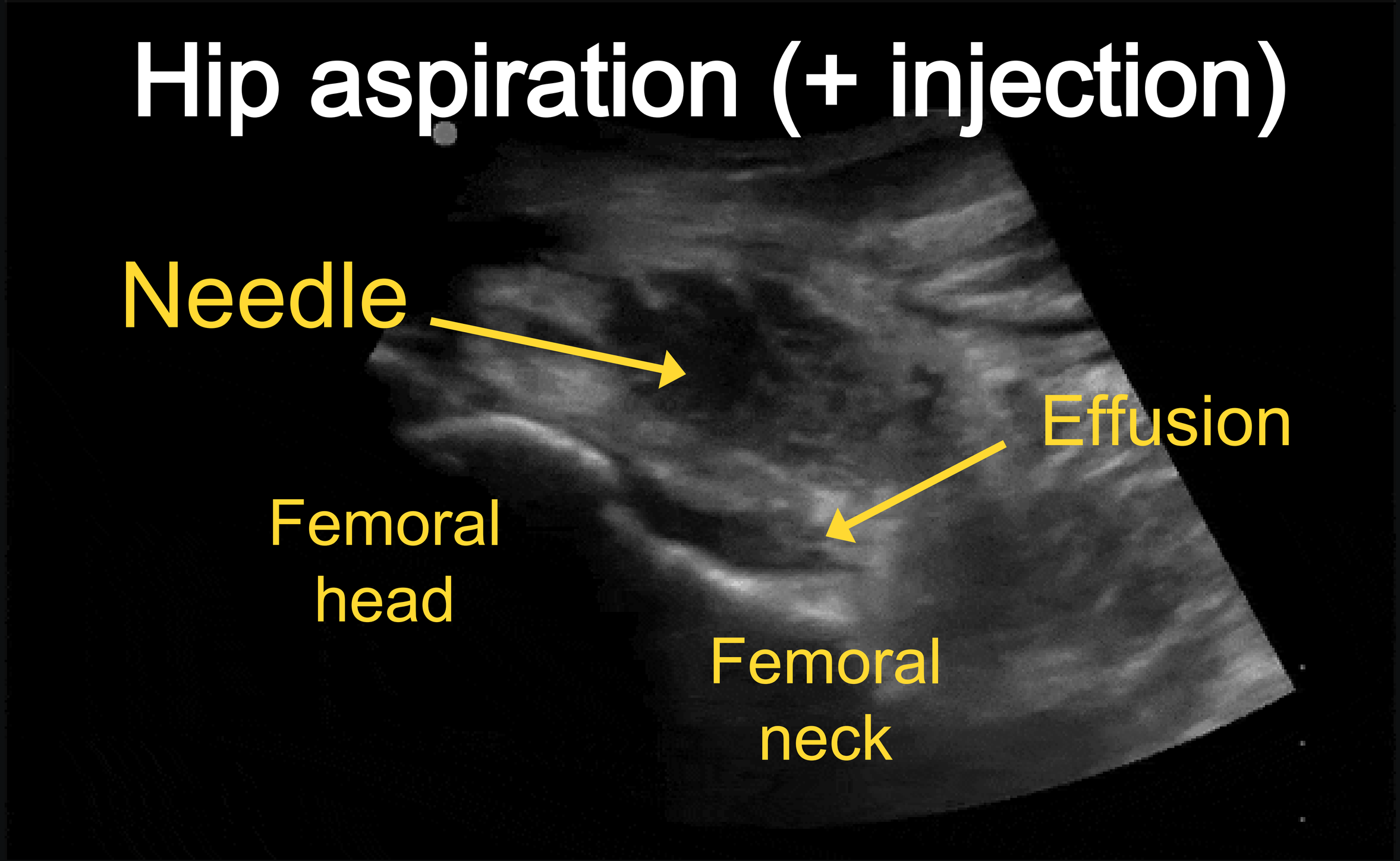
2026-02-13

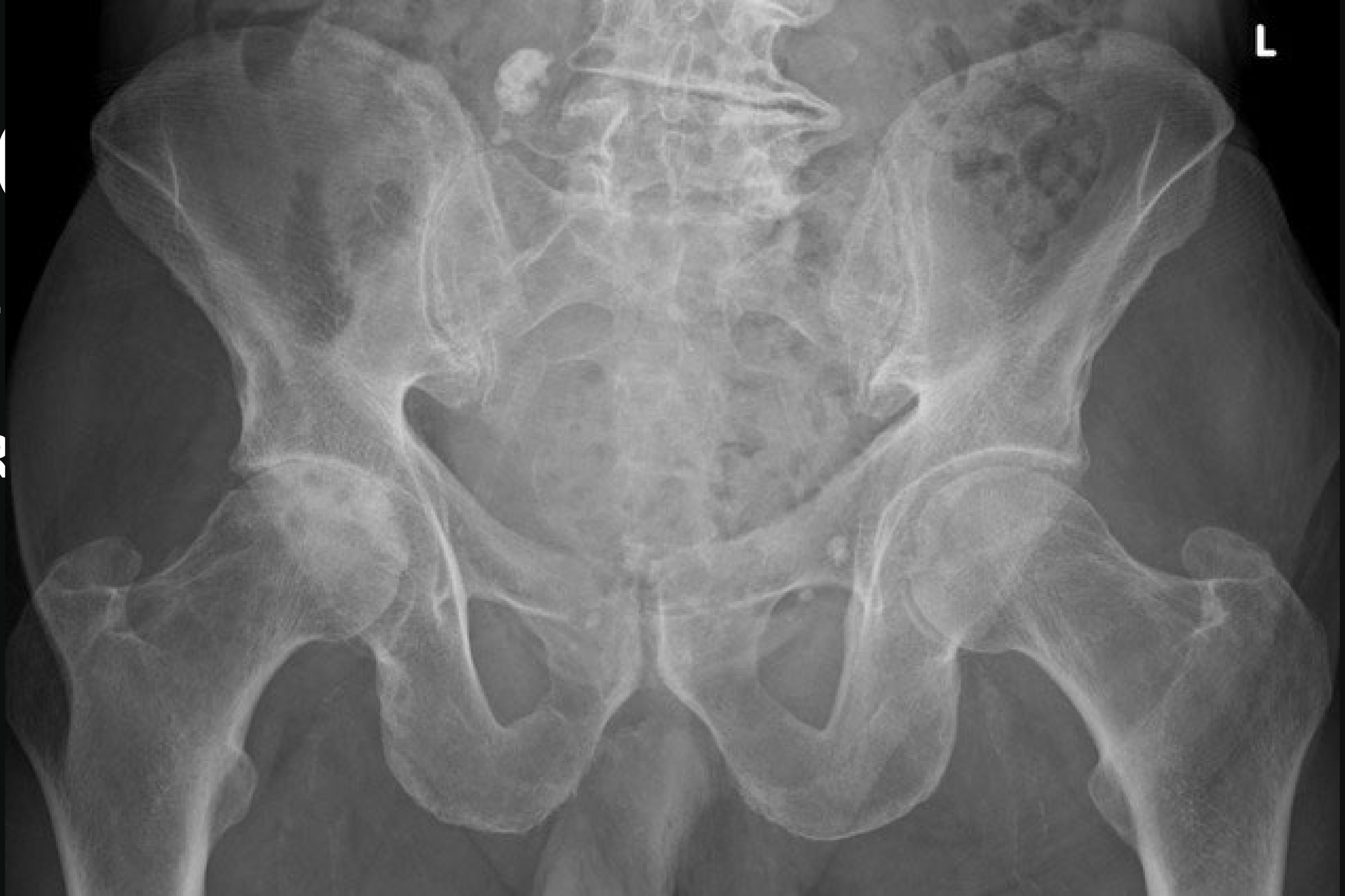

12L


12L


12L

# Hip aspiration (+ injection)



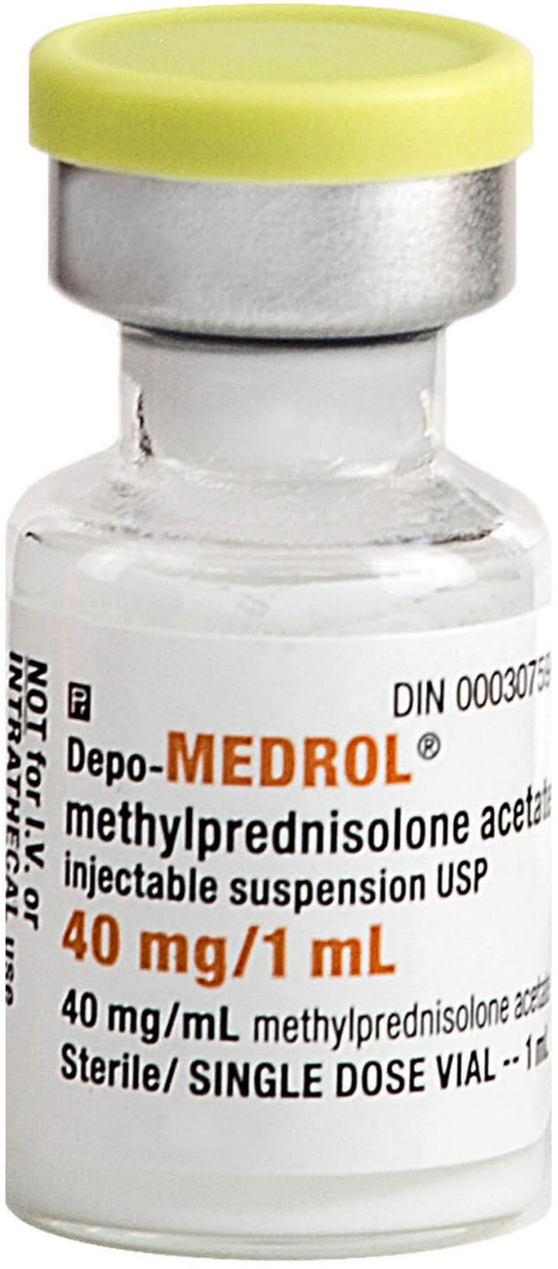

L

# Case #3

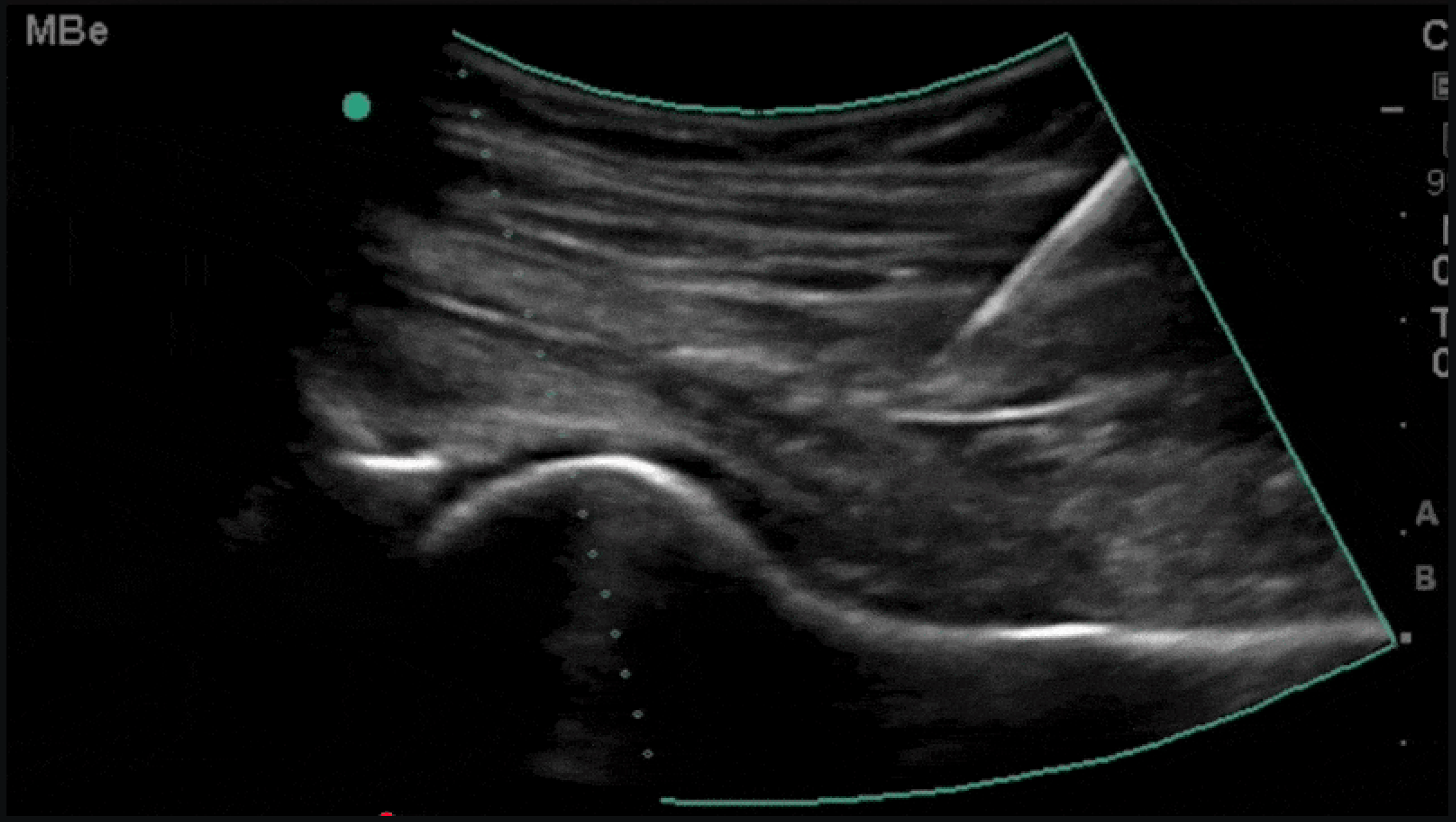
**Severe osteoarthritis**

**Referred for ortho + usual treatments, returns 6m**

# IA steroids and/or hyaluronic acid


NOT for I.V. or INTRATHECAL use
DIN 0003075
Depo-MEDROL®
methylprednisolone acetate
injectable suspension USP
40 mg/1 mL
40 mg/mL methylprednisolone acetate
Sterile/ SINGLE DOSE VIAL -- 1 mL


MONOVISC


MBe

# Case #3

**Good response, 3m of pain relief and improved QOL**

**Receives 2 further IA steroids**

**THR 2y later**

# Case #4

# Case #4

64 y/o F, lateral hip pain

Hurts to weight bear, limp

Tender @ g trochanter

# Greater trochanteric pain syndrome (GTPS)

“rotator cuff syndrome” of the hip

≠ Trochanteric bursitis

# GTPS

Trochanteric bursitis

* Gluteus medius tendon

Gluteus minimus tendon

External snapping hip

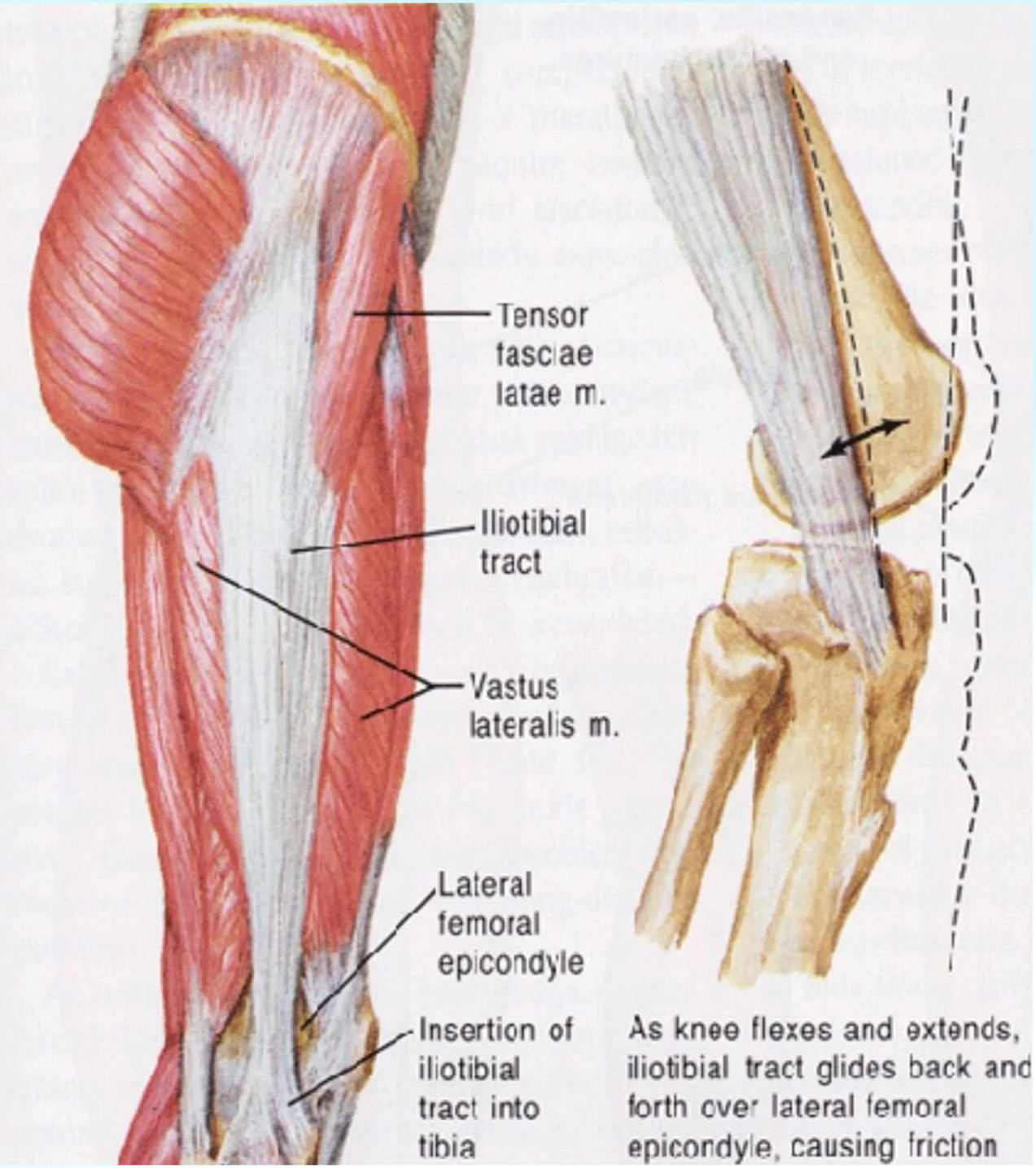
Arthritis & Rheumatology

AN OFFICIAL JOURNAL OF THE AMERICAN COLLEGE OF RHEUMATOLOGY

American College of Rheumatology
Empowering Rheumatology Professionals

Research Article

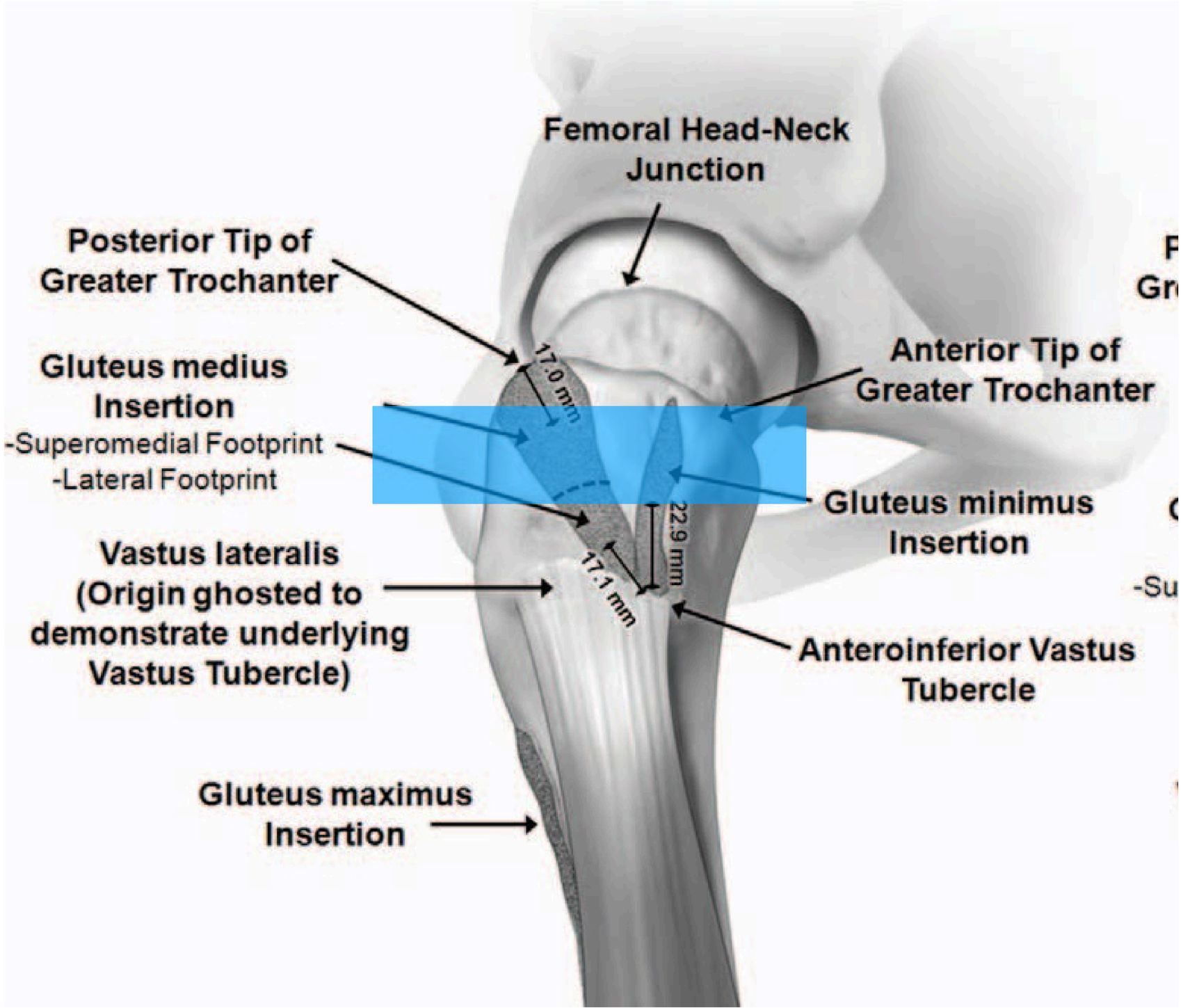
***Conclusion.*** **The results support the hypothesis that gluteus medius tendon pathology is important in defining GTPS. In this series, trochanteric bursal distension was uncommon and did not occur in the absence of gluteus medius pathology. The physical findings**

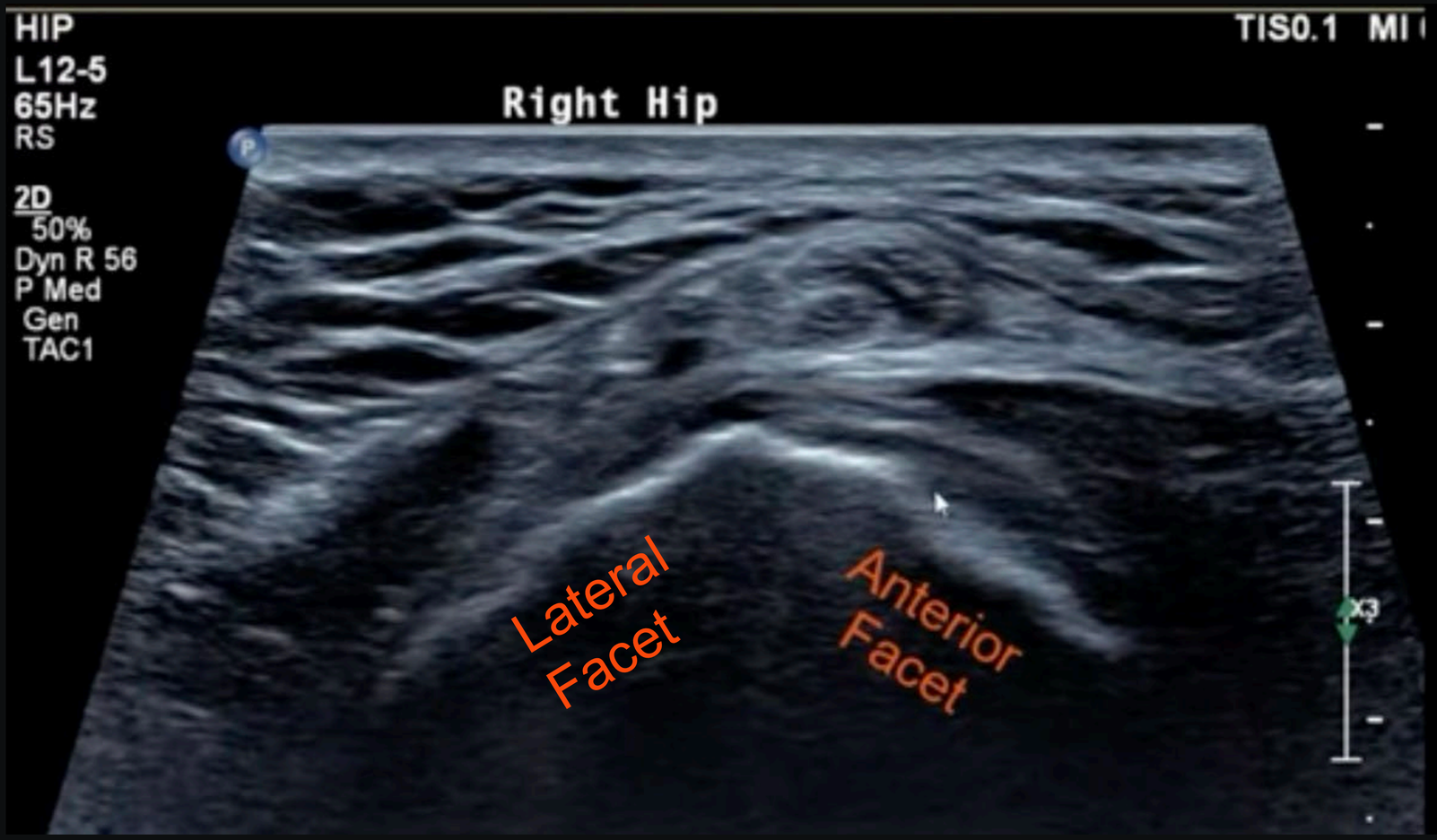


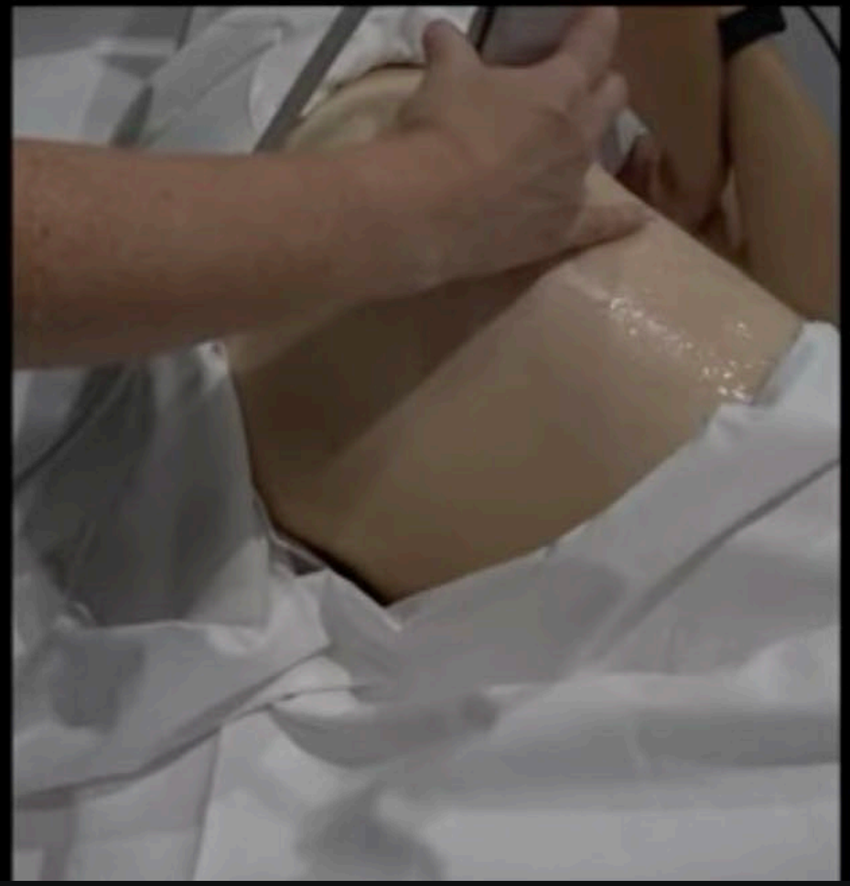

# The iliotibial band (ITB)

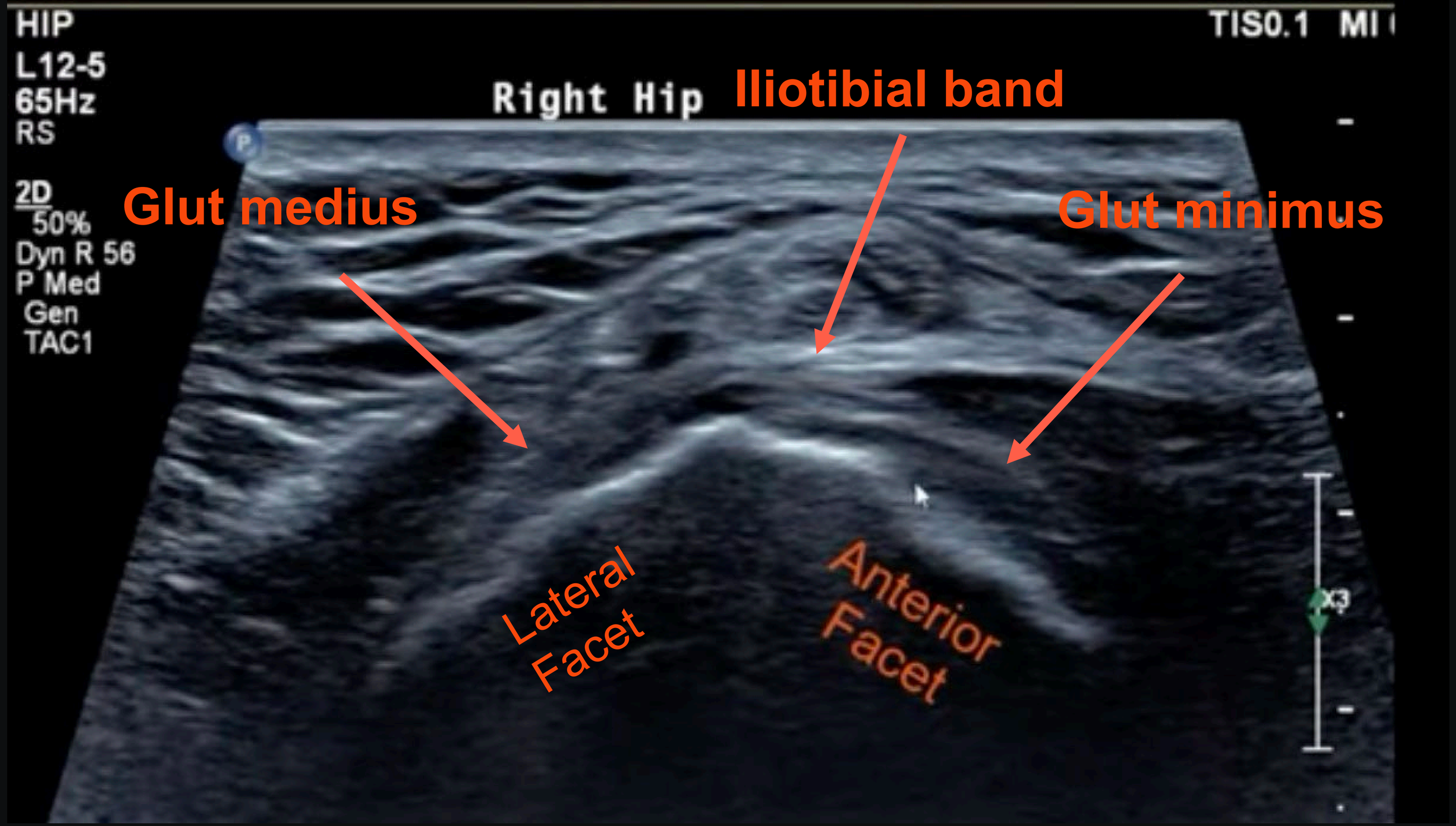
- tensioned by **glute medius,** preventing **pelvic drop** during swing phase of gait

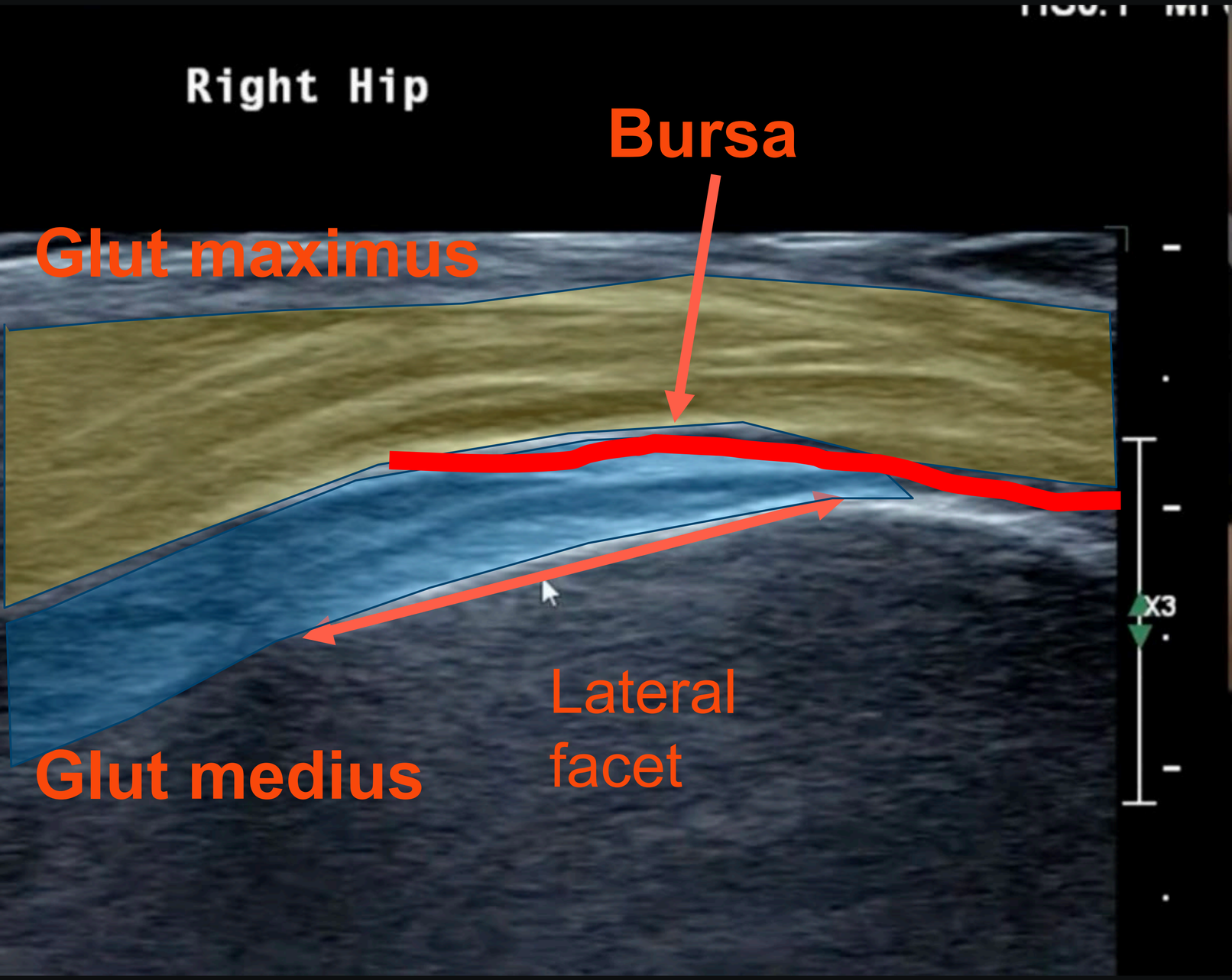
- **Glute med** + **TFL** keeps pelvis level

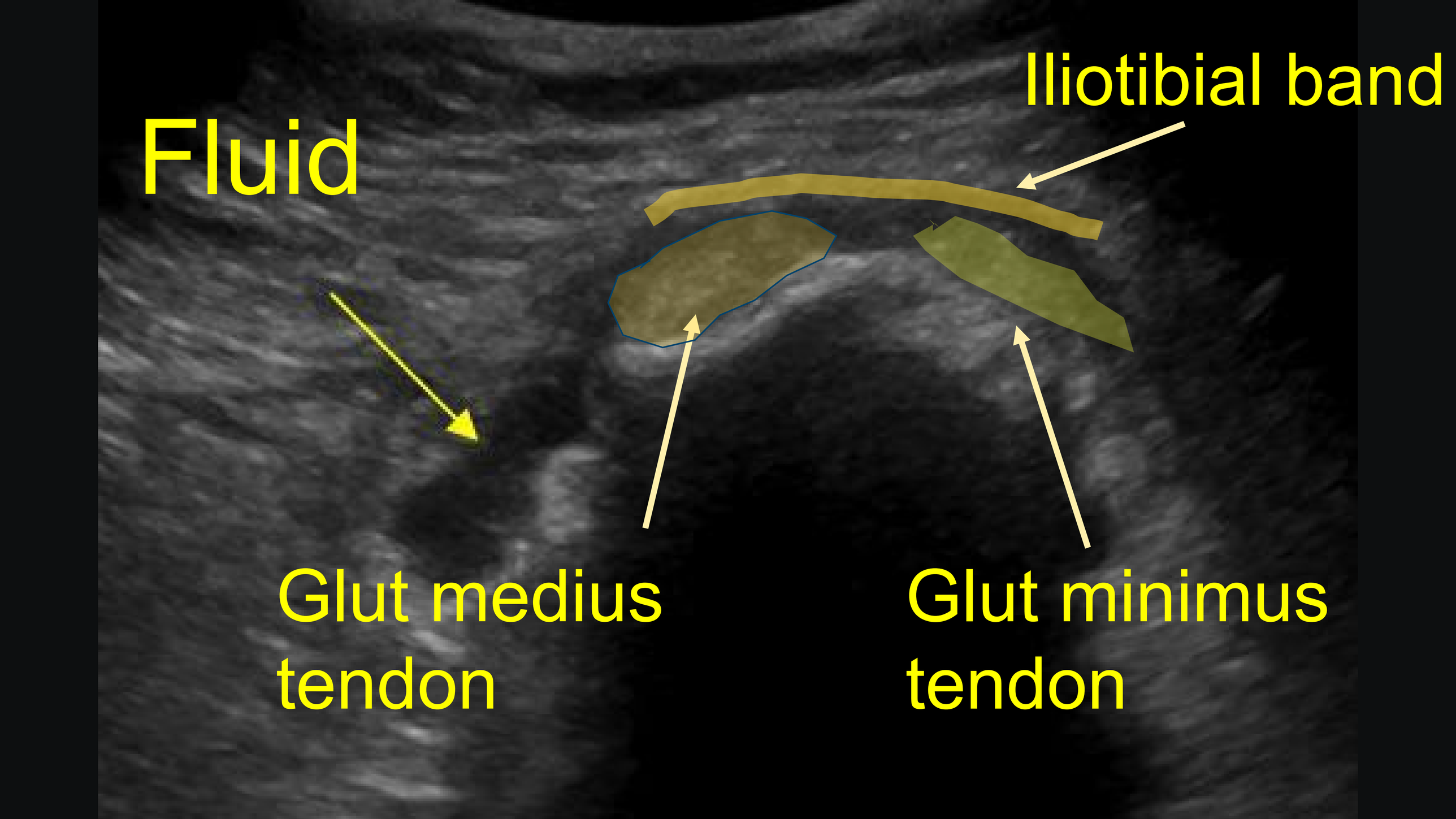

Femoral Head-Neck Junction
Posterior Tip of Greater Trochanter
Gluteus medius Insertion
-Superomedial Footprint
-Lateral Footprint
17.0 mm
Anterior Tip of Greater Trochanter
Gluteus minimus Insertion
22.9 mm
17.1 mm
Vastus lateralis (Origin ghosted to demonstrate underlying Vastus Tubercle)
Anteroinferior Vastus Tubercle
Gluteus maximus Insertion

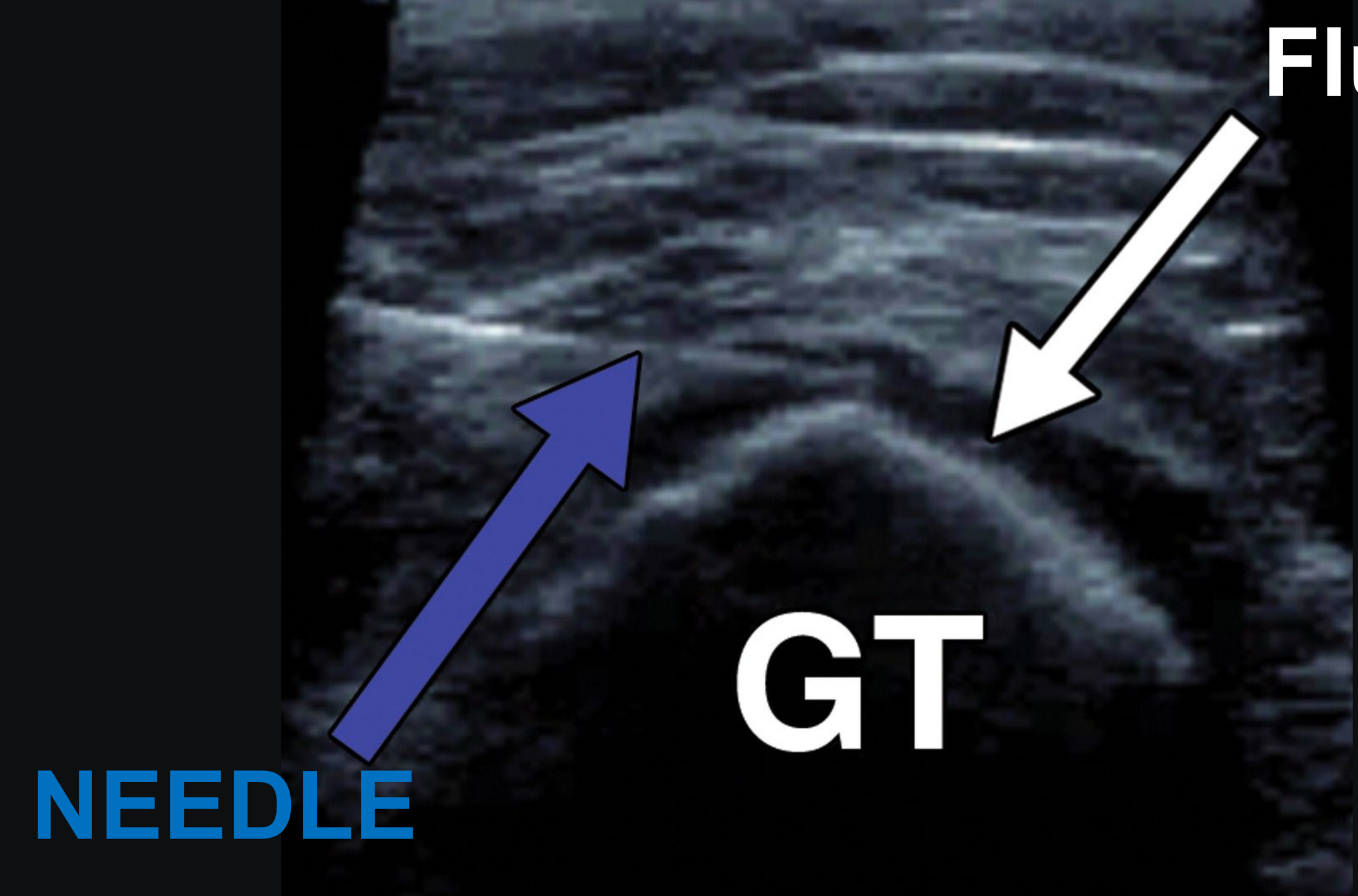

HIP
L12-5
65Hz
RS
2D
50%
Dyn R 56
P Med
Gen
TAC1
TIS0.1 MI
Right Hip
Lateral Facet
Anterior Facet




HIP
L12-5
65Hz
RS
2D
50%
Dyn R 56
P Med
Gen
TAC1
TIS0.1 MI
Right Hip
Iliotibial band
Glut medius
Glut minimus
Lateral Facet
Anterior Facet
X3


Right Hip
Bursa
Glut maximus
Lateral
facet
Glut medius
X3


Iliotibial band
Fluid
Glut medius tendon
Glut minimus tendon


Fluid
GT
NEEDLE

clarius

FREE WEBINAR

# POCUS for MSK: A Structured Approach to the Hip

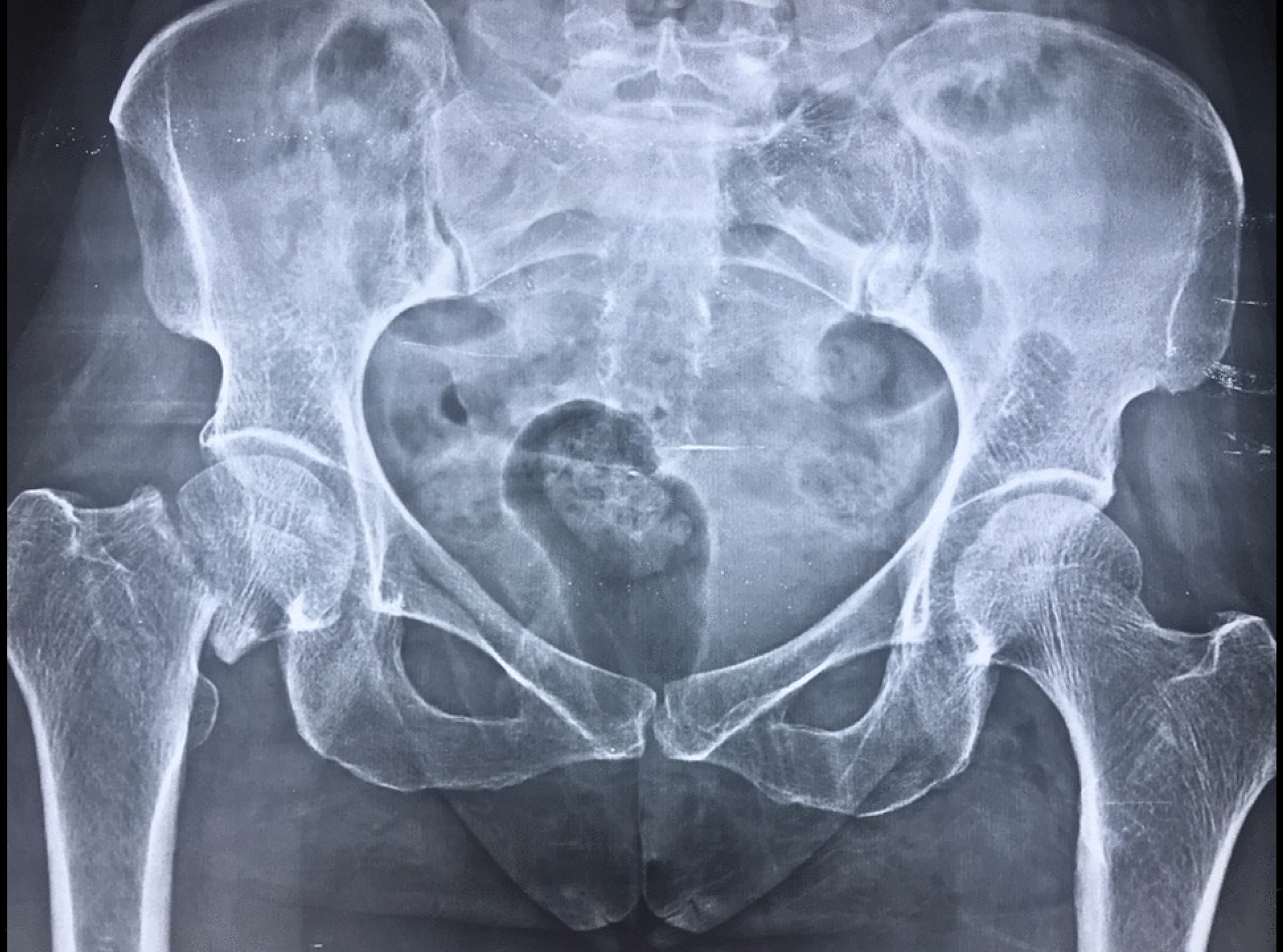
December 3, 2025 - 11 AM Pacific | 2 PM Eastern | 7 PM British | 8 PM Central EU
(December 4, 2025 – 4 AM Korea | 6 AM Australia Eastern | 8 AM New Zealand)

# Case #4

88 y/o F, dementia

Fall at home, unable to WB severe pain

Xray = hip fracture

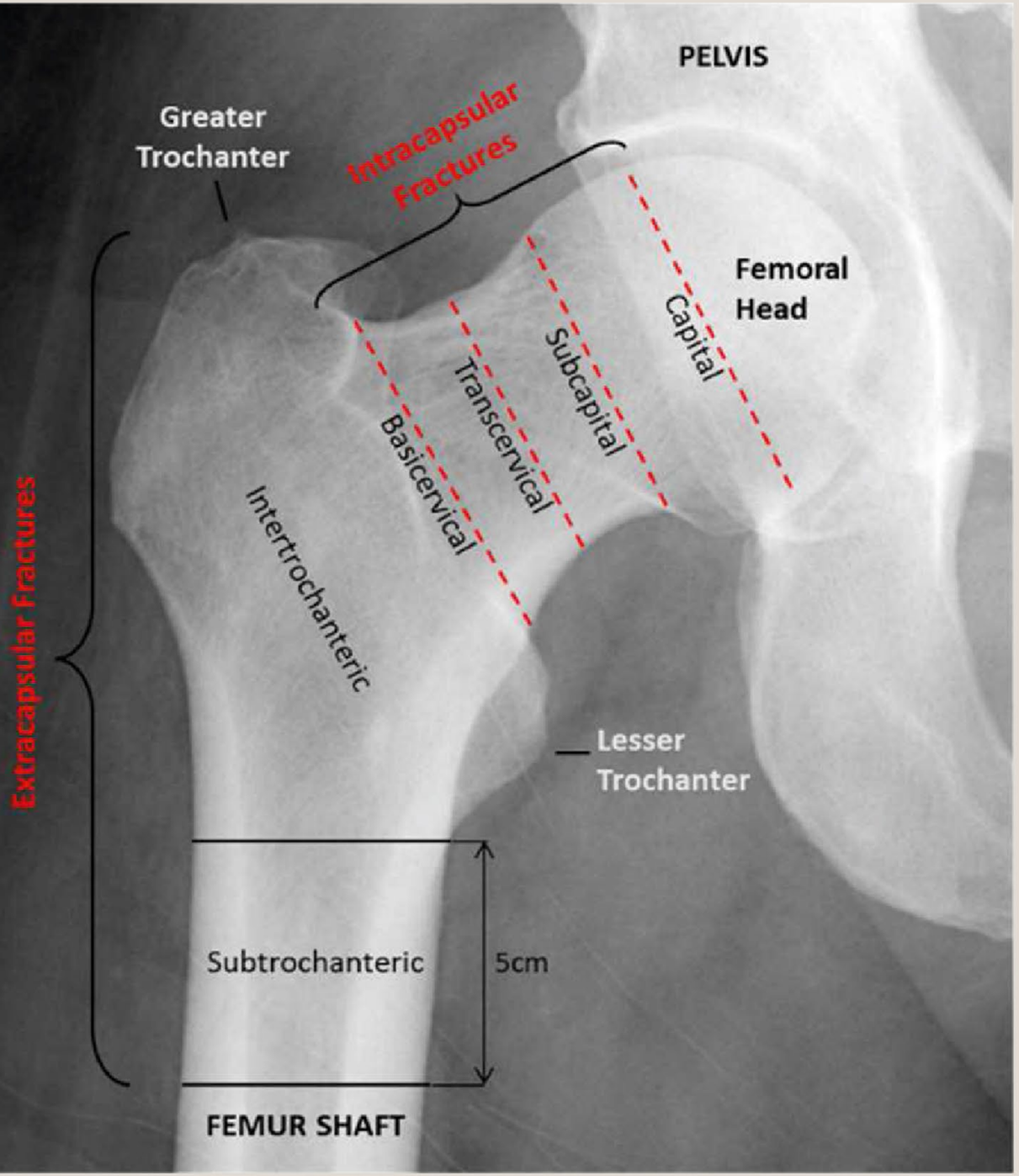


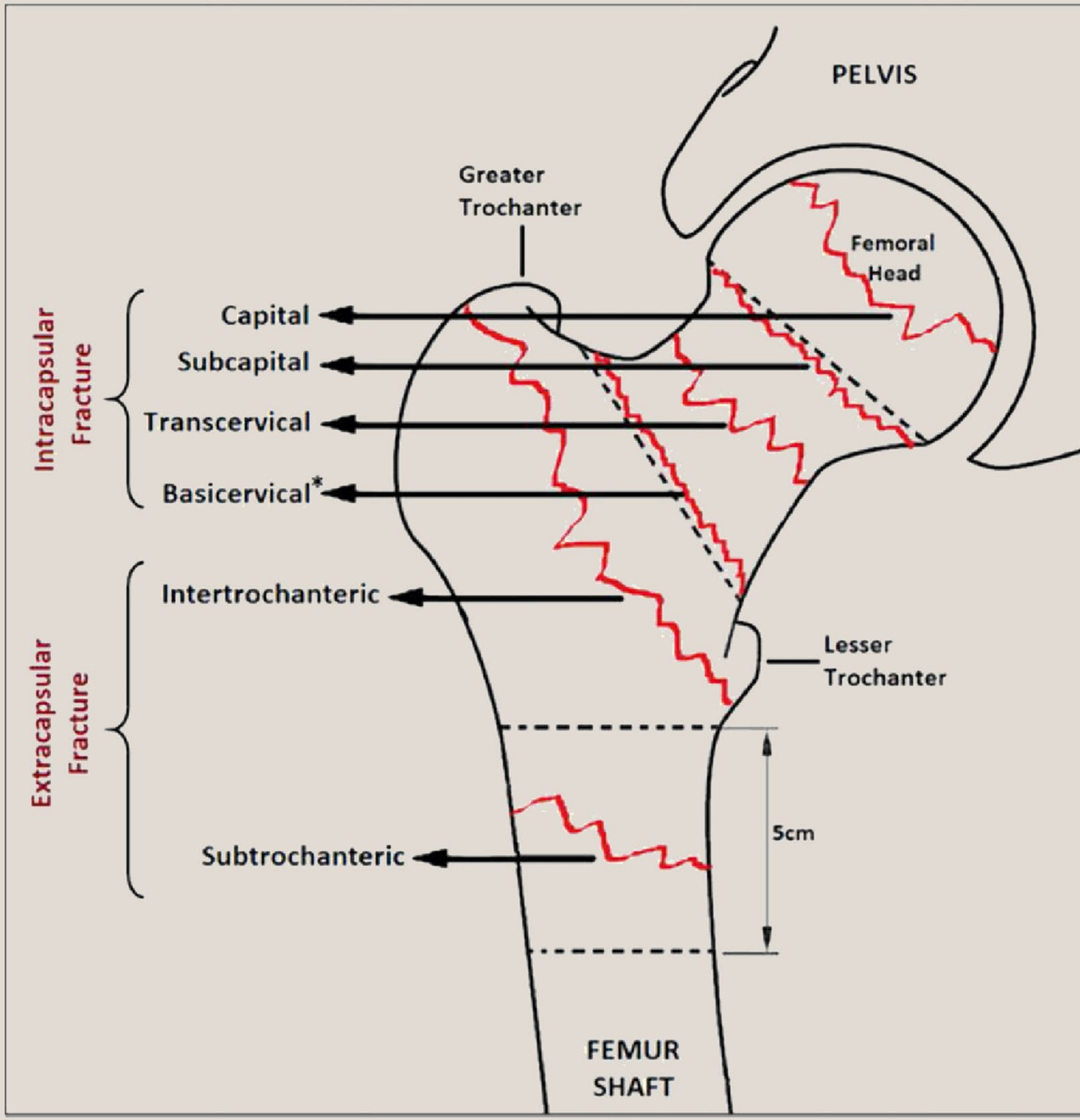
# Plan?

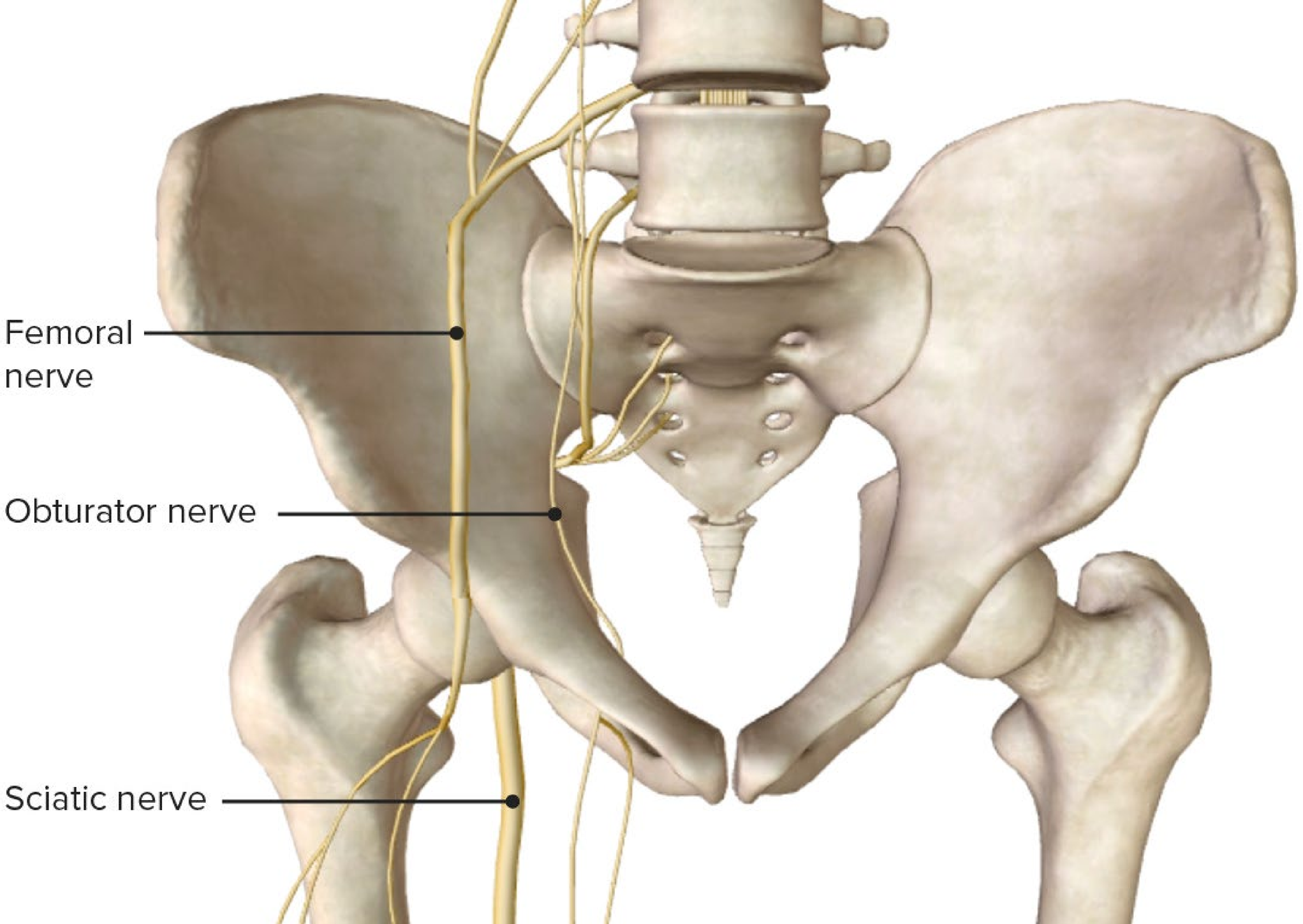
- Transfer -> “tomorrow”
- Opiates, immobilization
- Block?

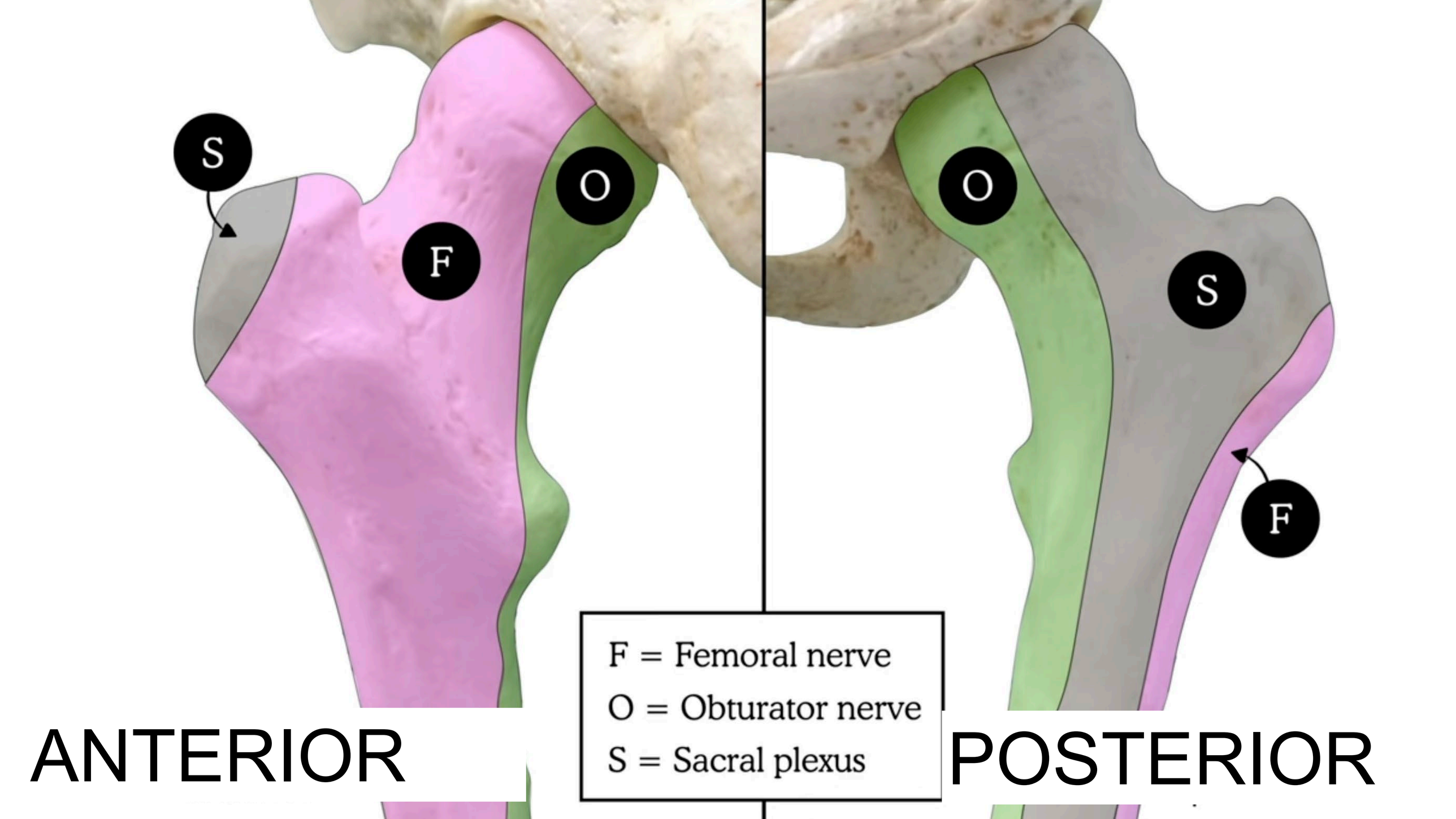
# Fascia iliaca block

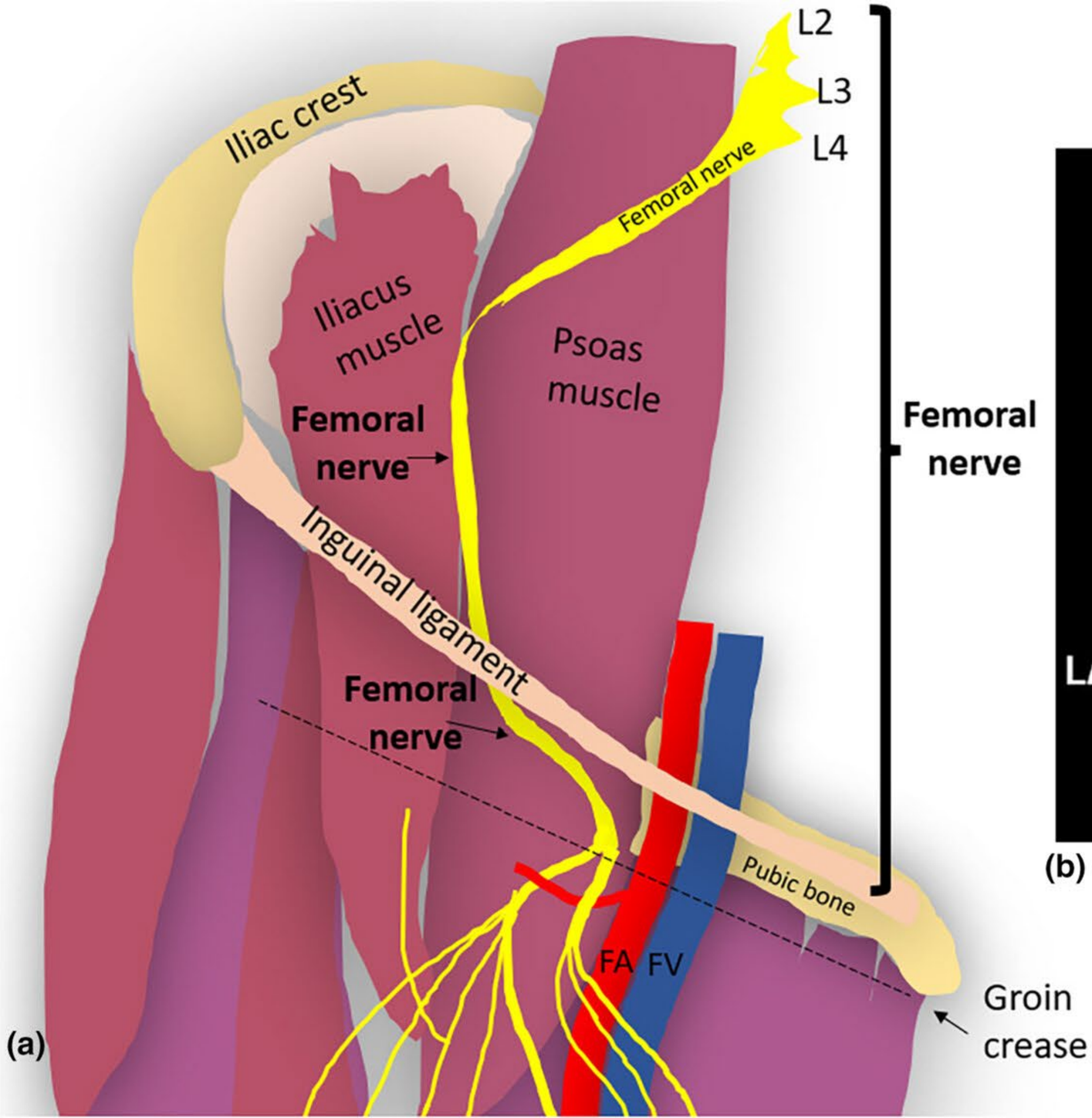
- Hip fractures
- Femoral fractures
- Patellar injuries

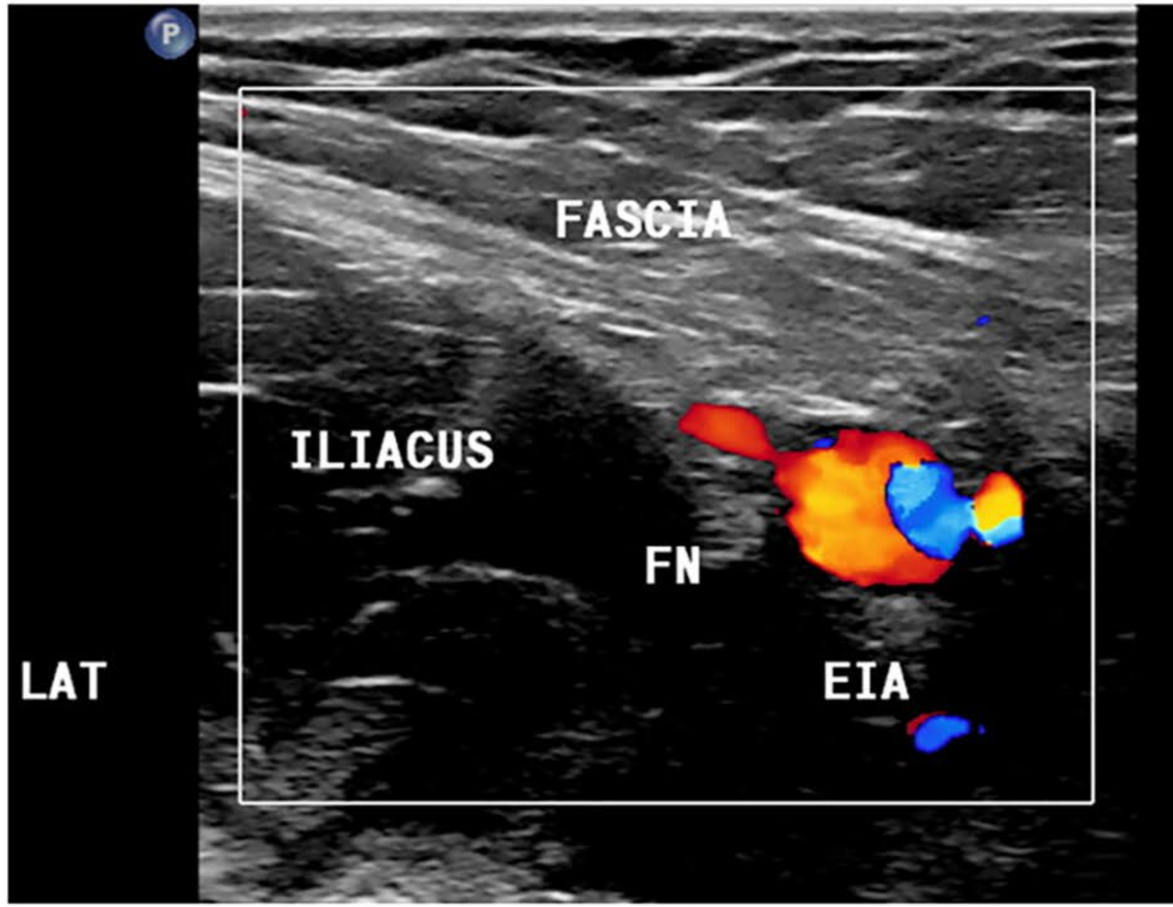

PELVIS
Greater Trochanter
Intracapsular Fractures
Femoral Head
Capital
Subcapital
Transcervical
Basicervical
Intertrochanteric
Extracapsular Fractures
Lesser Trochanter
Subtrochanteric
5cm
FEMUR SHAFT


PELVIS
Greater Trochanter
Femoral Head
Intracapsular Fracture
Capital
Subcapital
Transcervical
Basicervical*
Extracapsular Fracture
Intertrochanteric
Lesser Trochanter
Subtrochanteric
5cm
FEMUR SHAFT

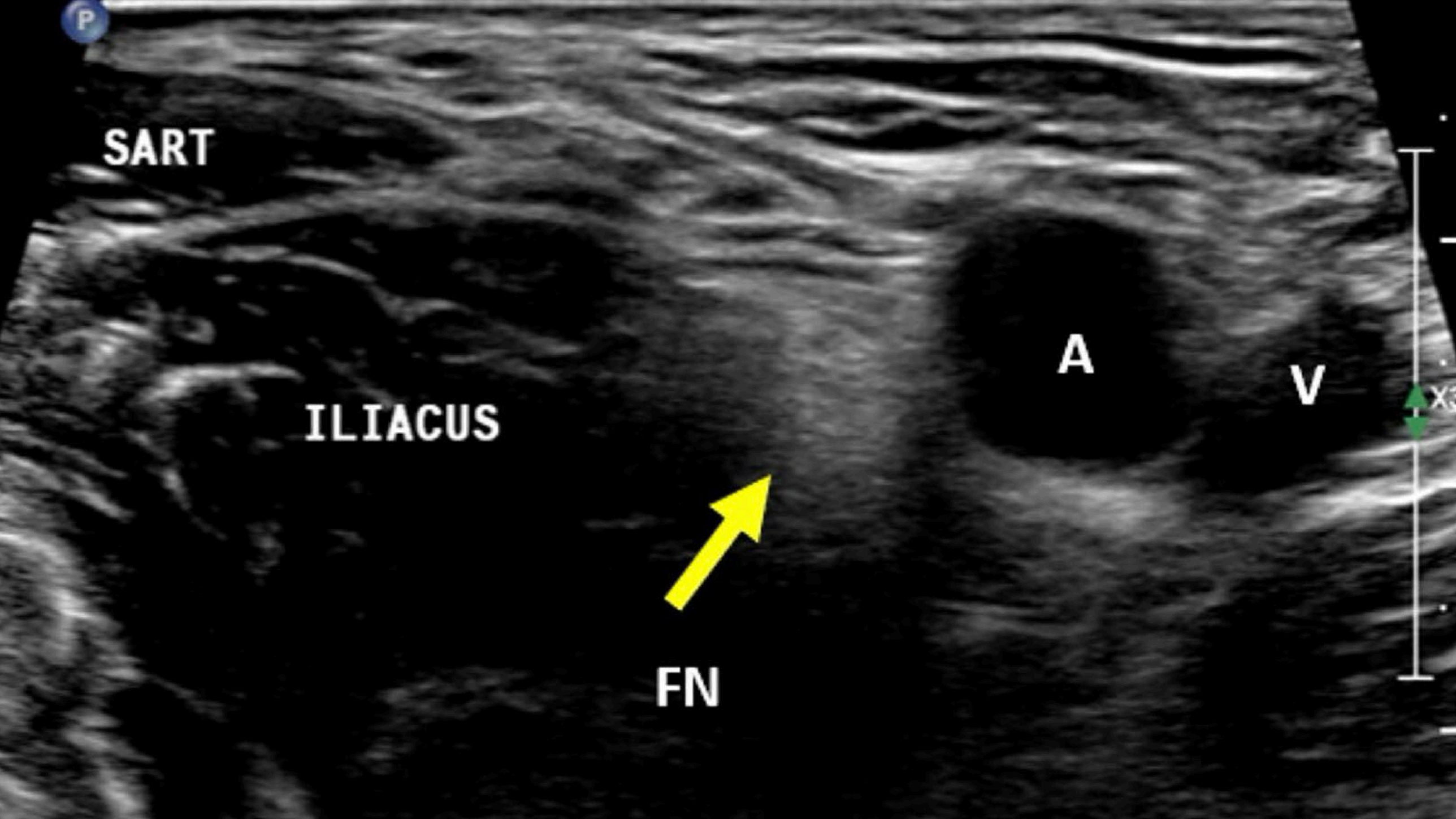

Femoral nerve
Obturator nerve
Sciatic nerve

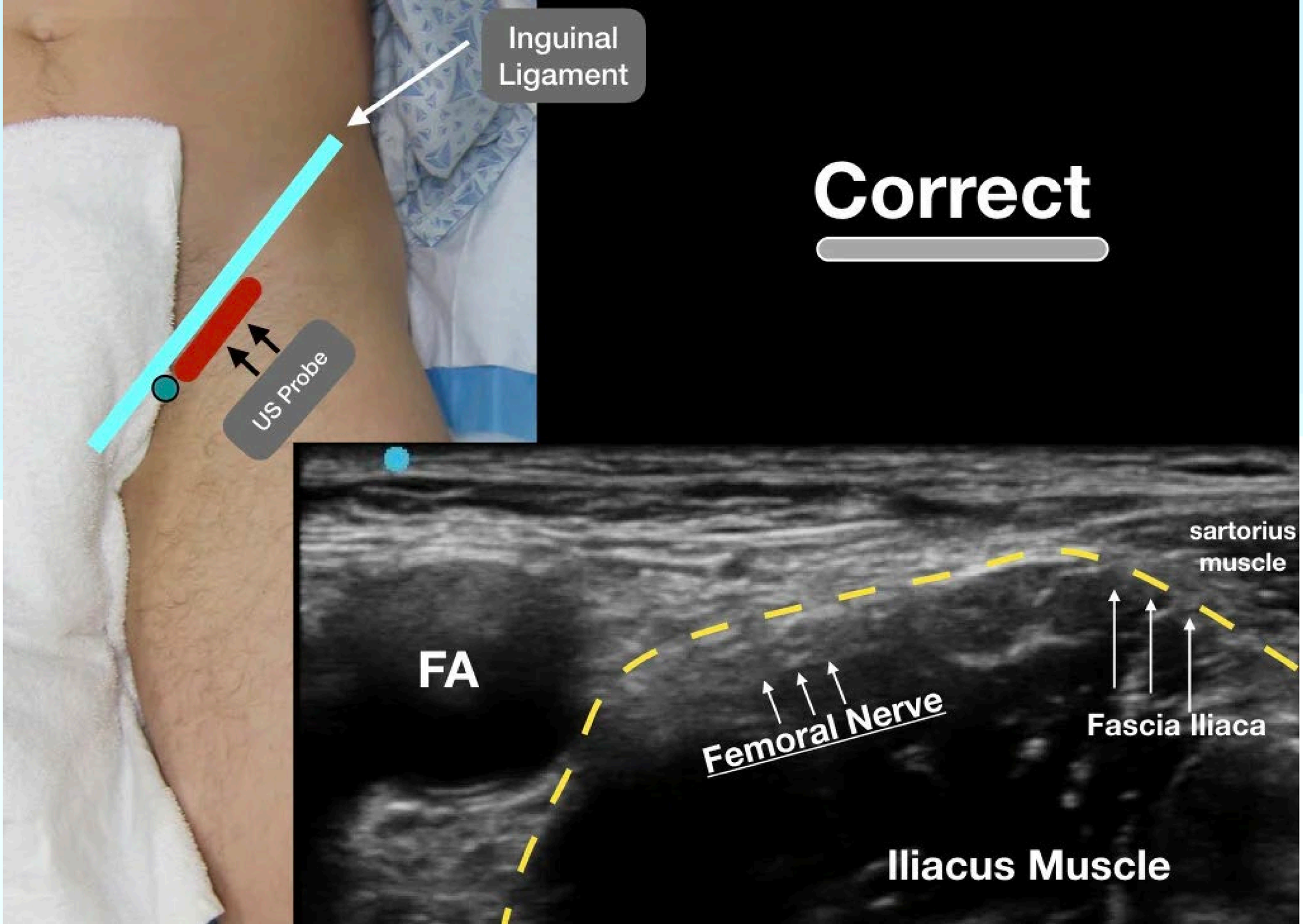

S
F
O
O
S
F
F = Femoral nerve
O = Obturator nerve
S = Sacral plexus
ANTERIOR
POSTERIOR

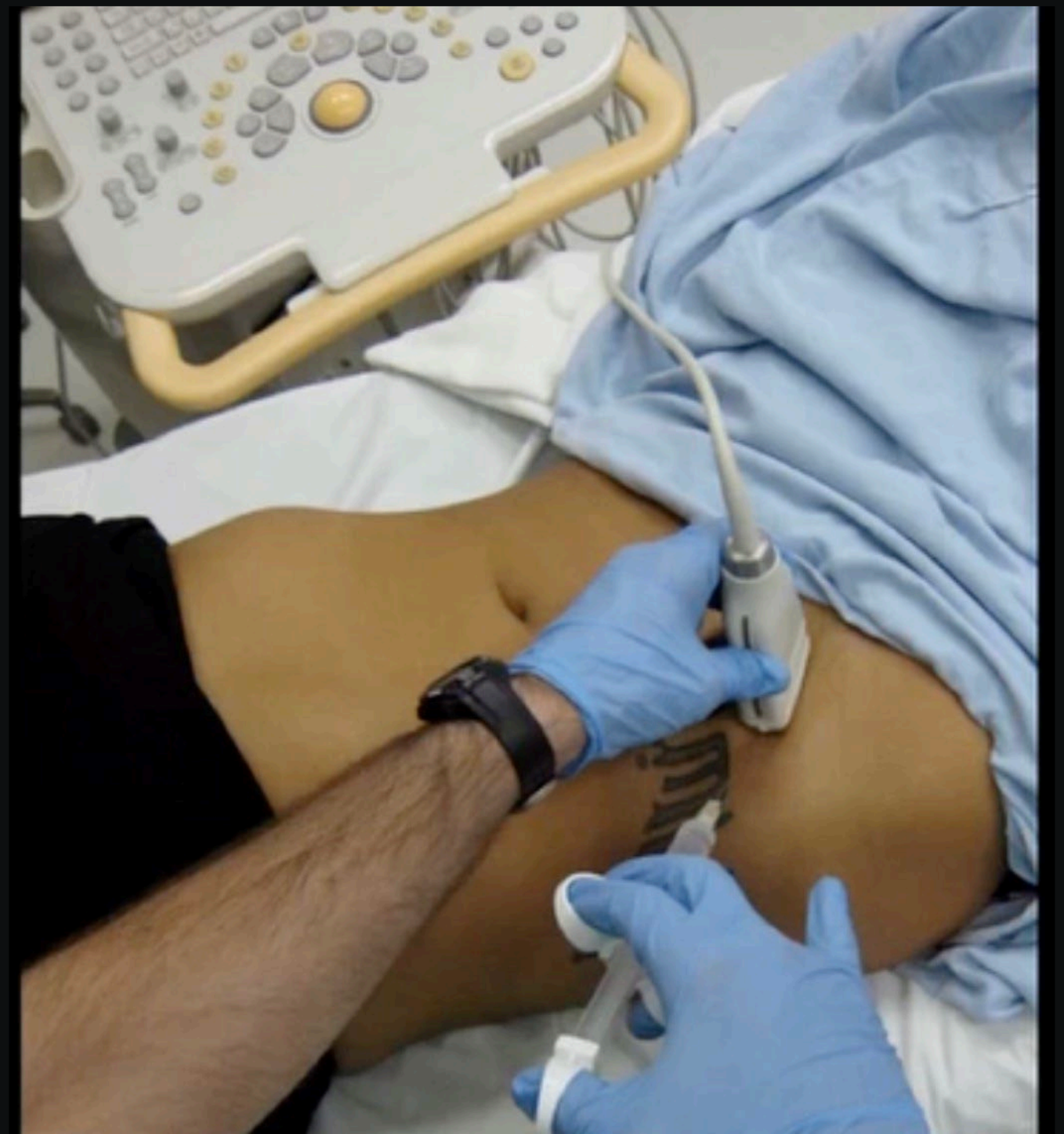

L2
L3
L4
Iliac crest
Femoral nerve
Iliacus muscle
Psoas muscle
Femoral nerve
Femoral nerve
Inguinal ligament
Femoral nerve
Pubic bone
FA
FV
Groin crease
(a)


FASCIA
ILIACUS
FN
EIA
LAT

(b)


SART
ILIACUS
A
V
FN


Inguinal Ligament
US Probe
Correct
FA
Femoral Nerve
sartorius muscle
Fascia Iliaca
Iliacus Muscle

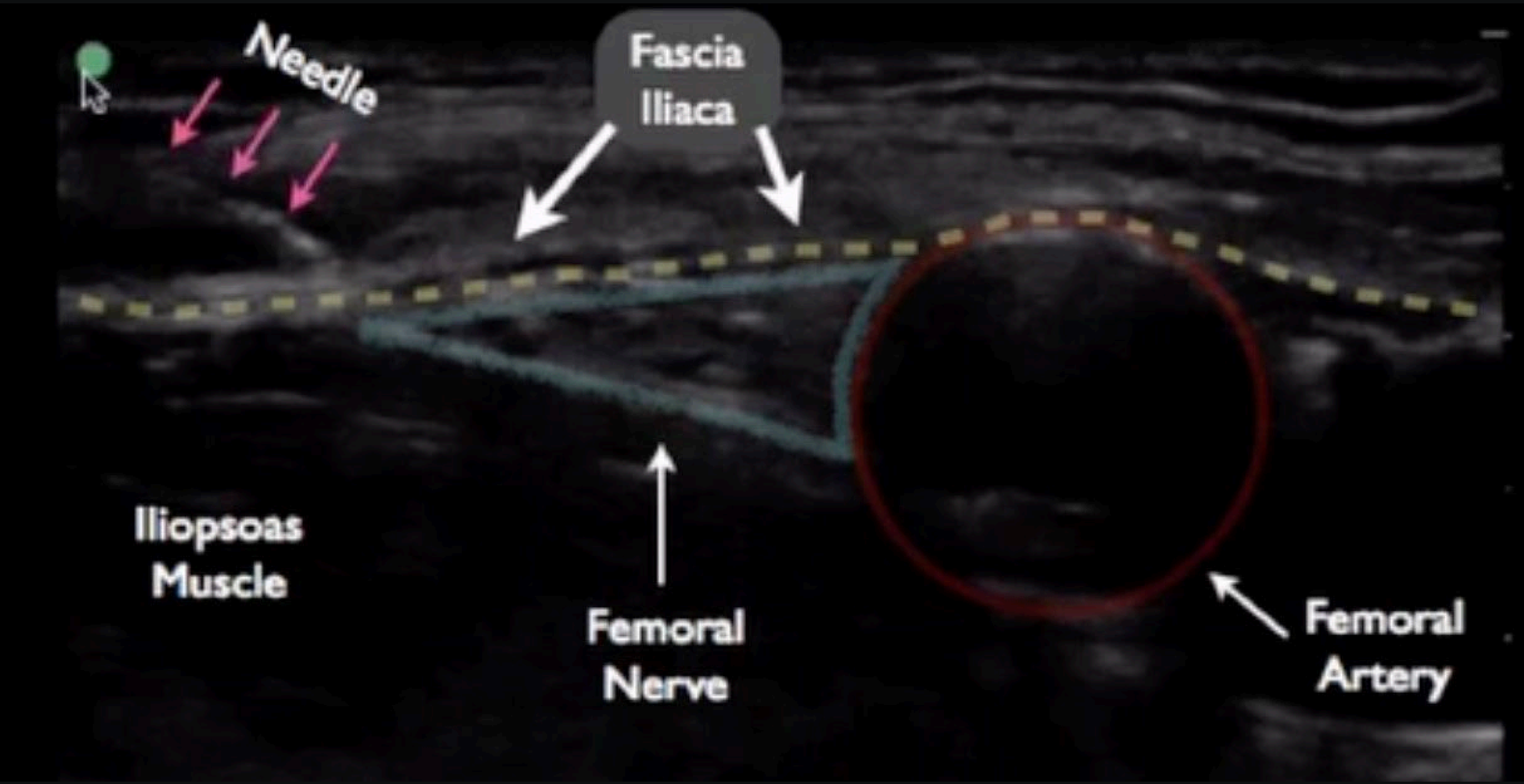


Lateral -> medial

Parallel to inguinal ligament

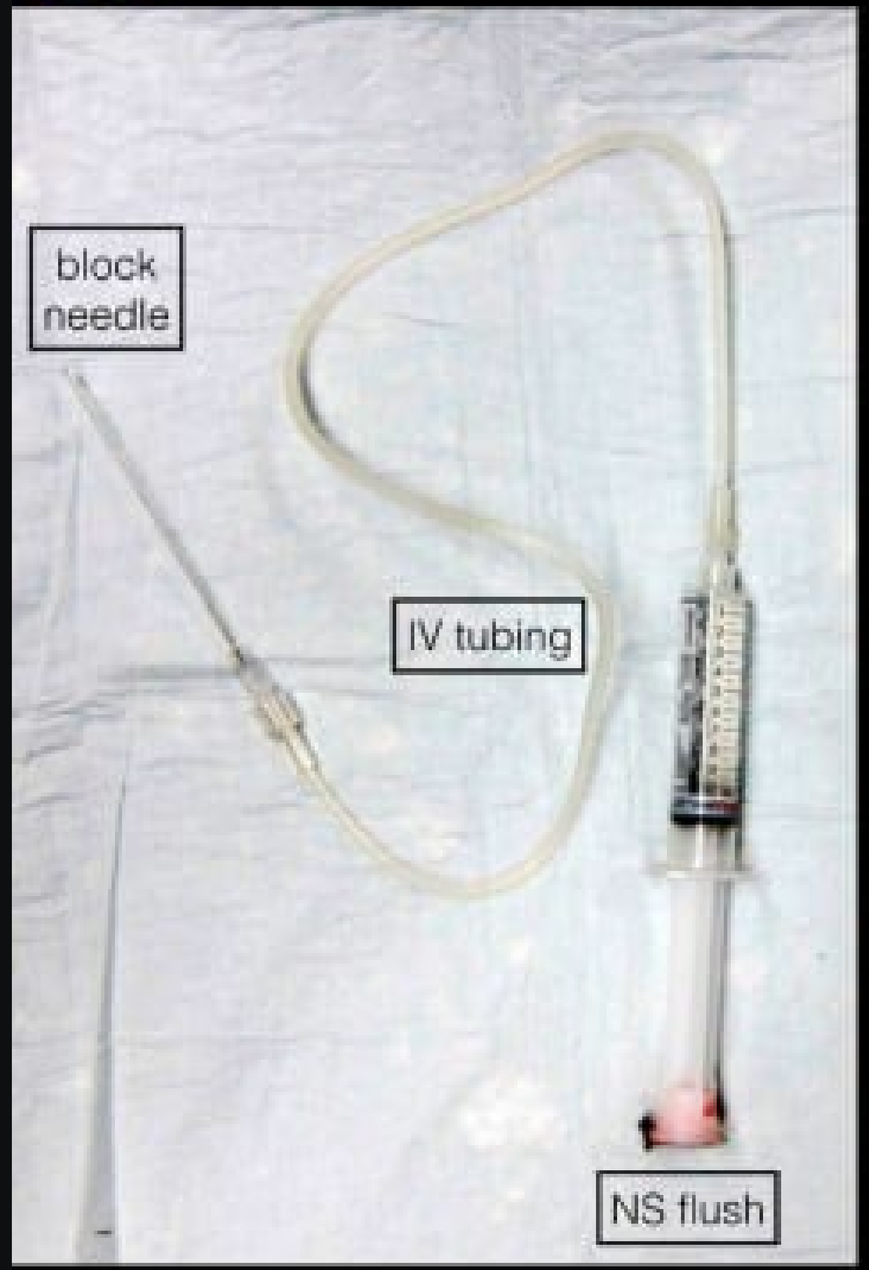
Deep to fascia iliaca, approaching fem nerve

Volume = 20-25ml

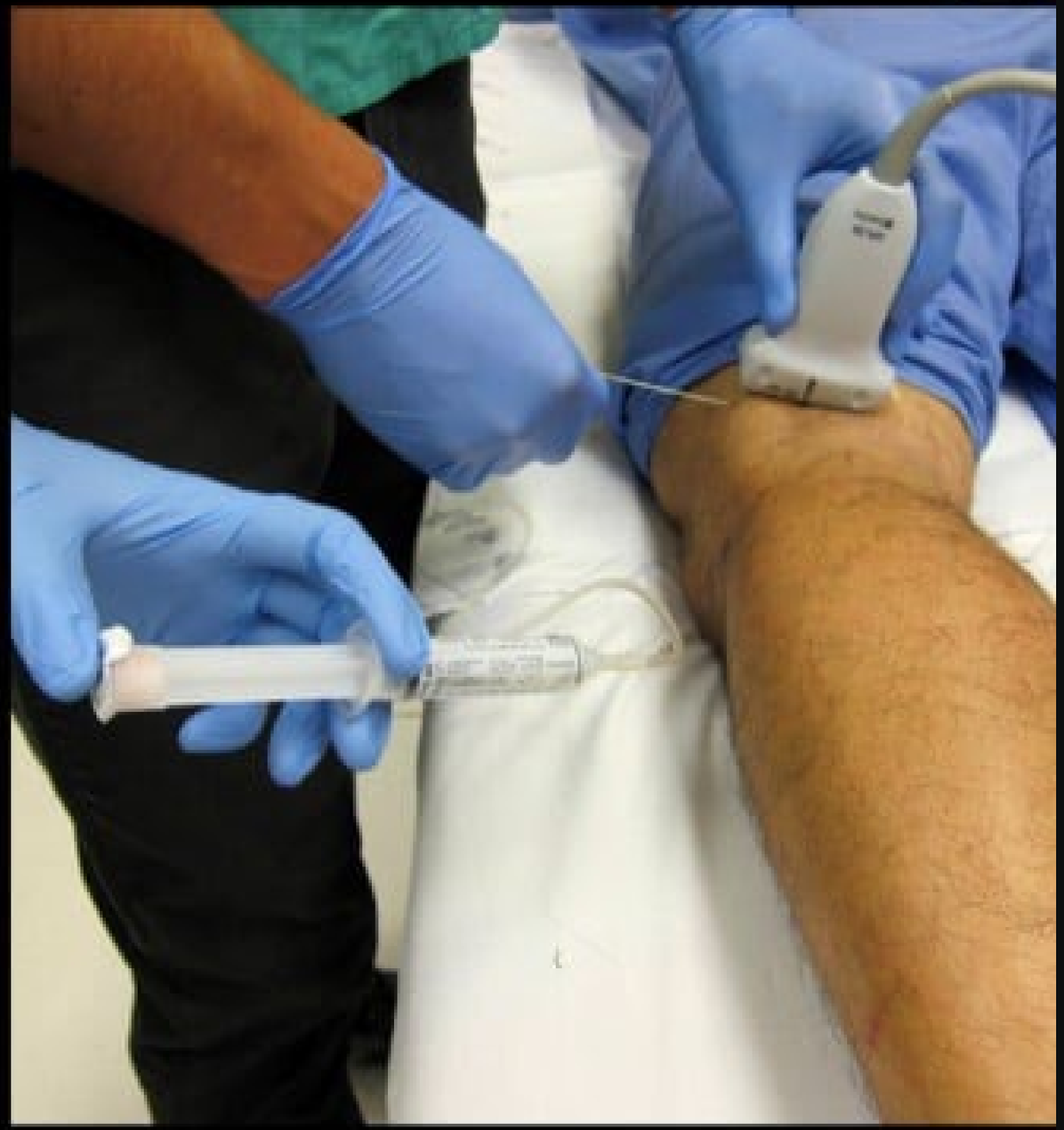

Needle
Fascia Iliaca
Iliopsoas Muscle
Femoral Nerve
Femoral Artery

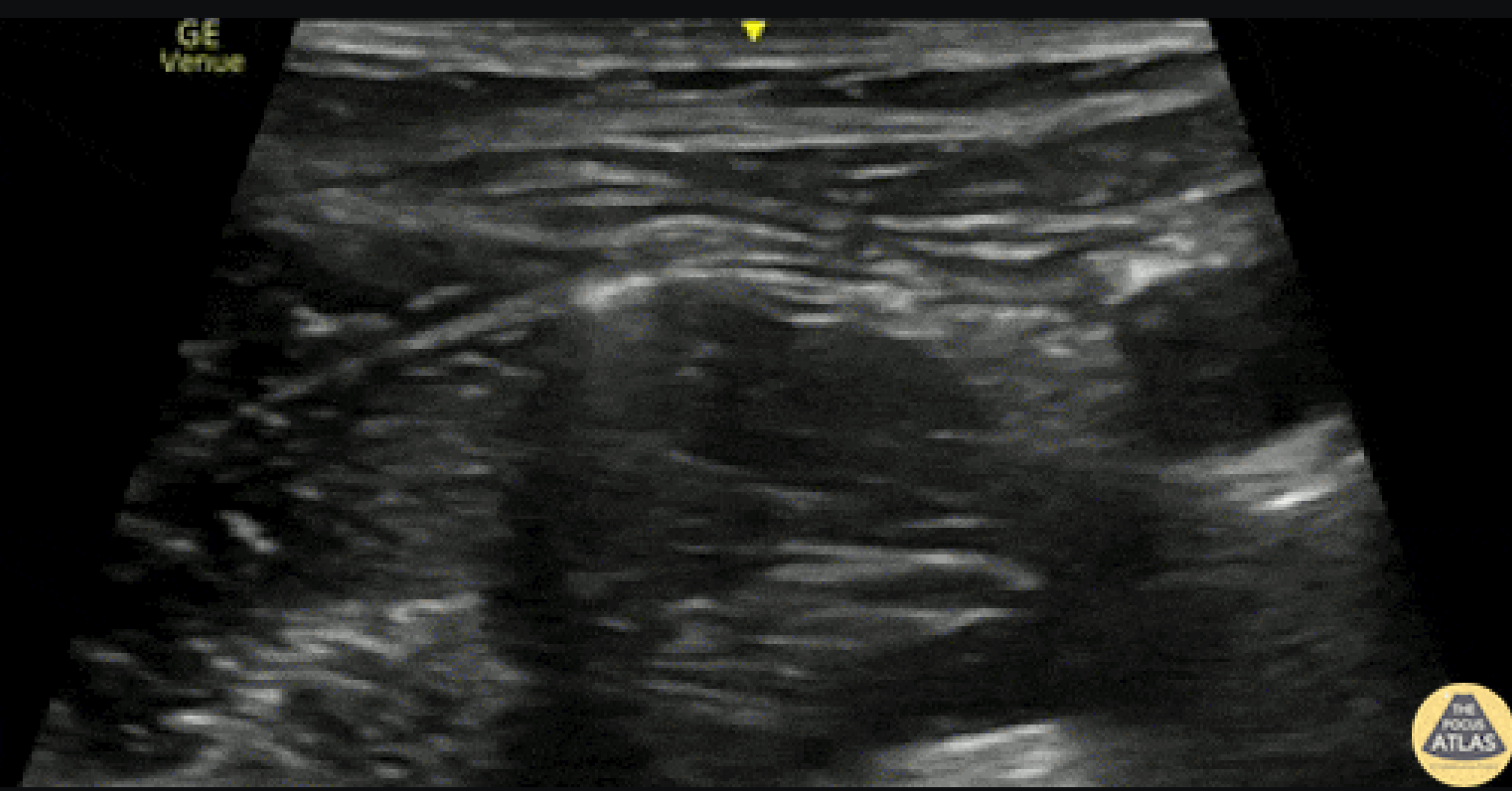
# Two-person block setup

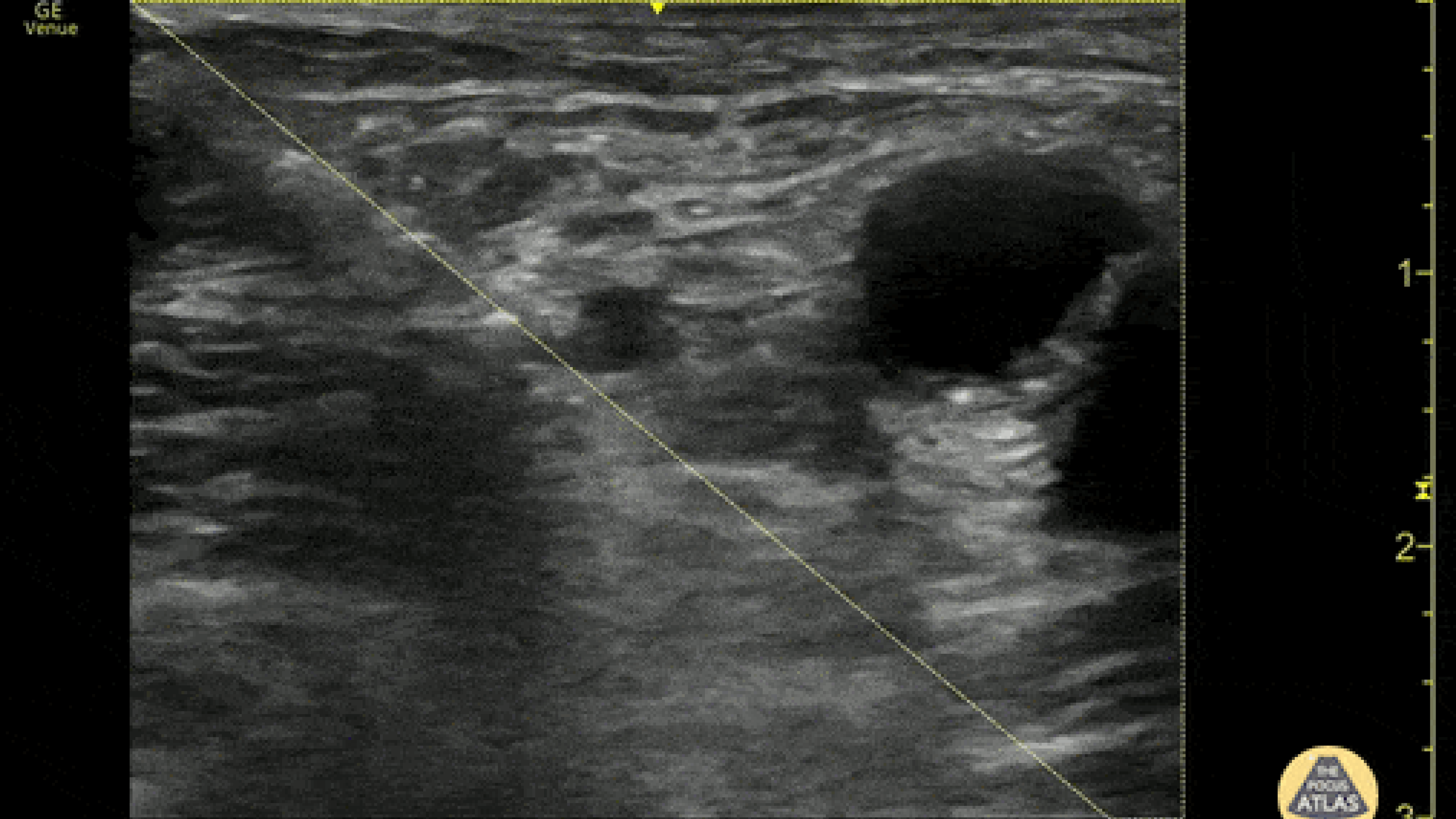
A




B




GE
Venue


GE
Venue
1
2

# Does it work?

The American Journal of Emergency Medicine

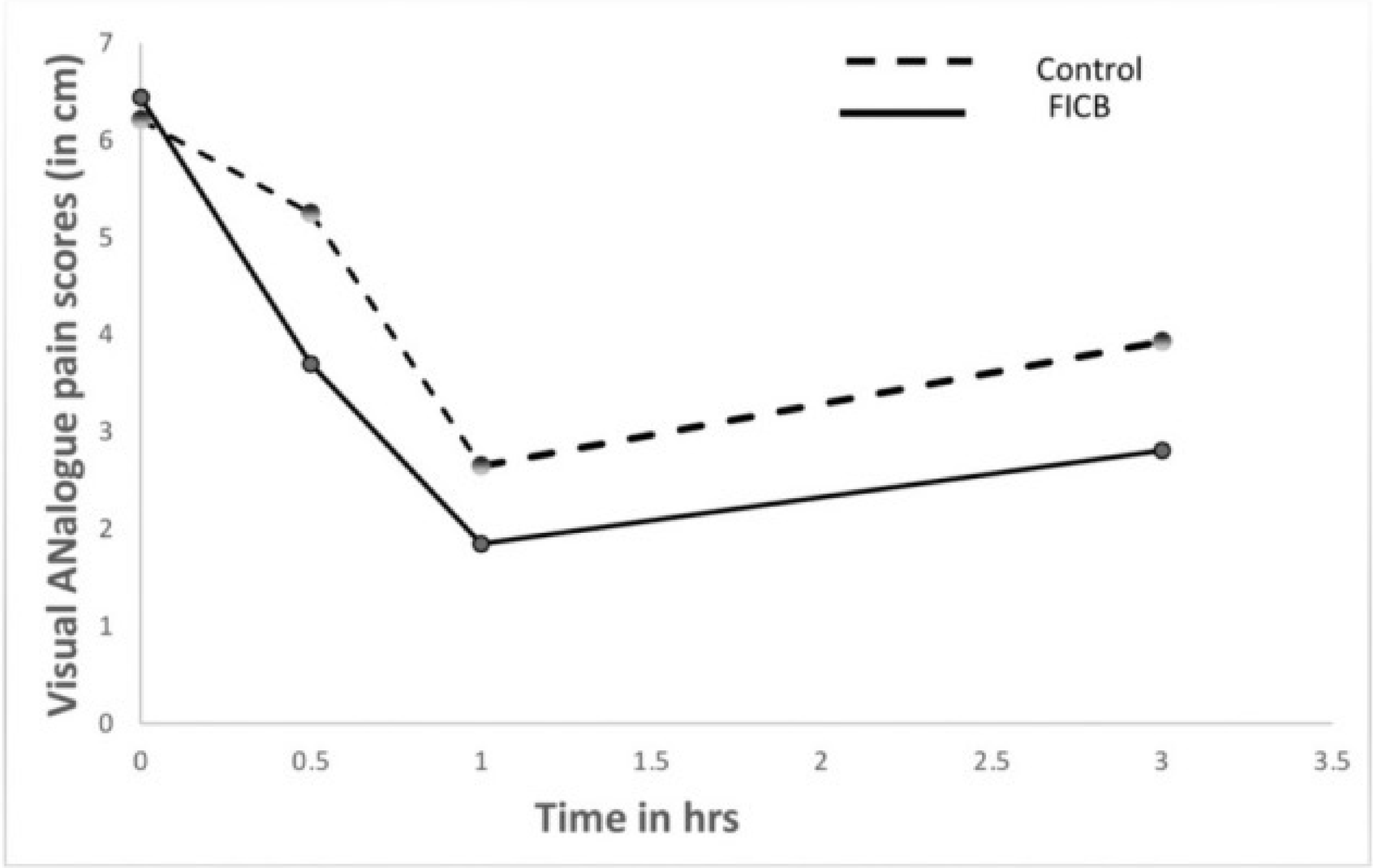
Volume 50, December 2021, Pages 654-660

## Fascia iliaca block for hip fractures in the emergency department: meta-analysis with trial sequential analysis

Jeetinder K. Makkar, MD, DNB [a], Narinder P. Singh, MD [b,*], Nidhi Bhatia, MD [c], Tanvir Samra, MD [d], Preet Mohinder Singh, MD [e]

# Does it work?

b)

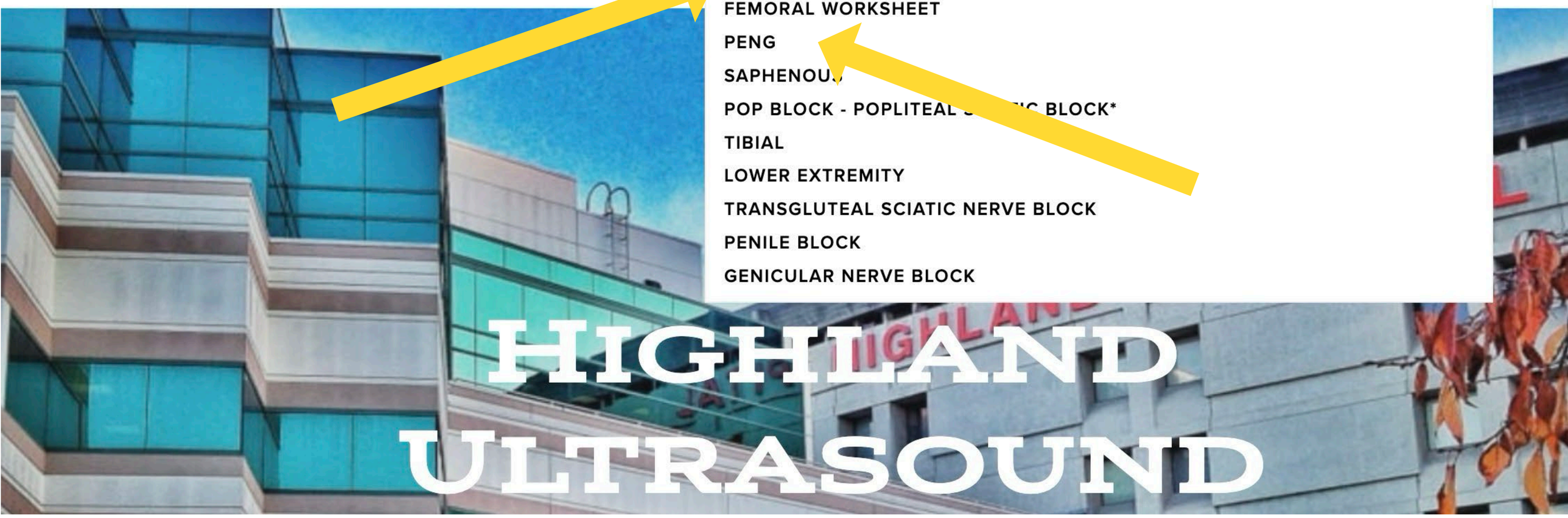


HIGHLAND EM
ULTRASOUND

COMMON ED INJURY / BLOCK BASICS / UPPER EXTREMITY BLOCKS / LOWER EXTREMITY BLOCKS / TRUNCAL BLOCKS / ATHROCENTESIS /

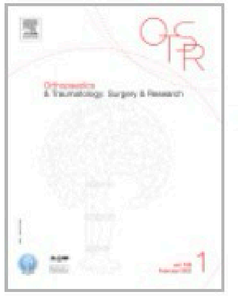
VASCULAR ACCESS - PROCEDURE / DIAGNOSTIC / BLOCKHEADS (O

- INFRAINGUINAL FASCIA ILIACA PLANE BLOCK ( AKA : FEMORAL NERVE BLOCK)
- FEMORAL WORKSHEET
- PENG
- SAPHENOU
- POP BLOCK - POPLITEAL IC BLOCK*
- TIBIAL
- LOWER EXTREMITY
- TRANSGLUTEAL SCIATIC NERVE BLOCK
- PENILE BLOCK
- GENICULAR NERVE BLOCK



Orthopaedics & Traumatology: Surgery & Research

Volume 108, Issue 1, February 2022, 103135



Original article

# Comparison of pericapsular nerve group (PENG) block with fascia iliaca compartment block (FICB) for pain control in hip fractures: A double-blind prospective randomized controlled clinical trial

Faramarz Mosaffa [a], Mehrdad Taheri [a], Alireza Manafi Rasi [b], Hamidreza Samadpour [a], Elham Memary [a], Alireza Mirkheshti [a]

| Variable | FICB (*n*=22) | PENG (*n*=30) | *p*-value |
|---|---|---|---|
| **VAS score before blocks (baseline)** | 4.63±1.39 | 4.33±0.88 | *p*=0.37 |
| **VAS score 15 minutes after blocks** | 3.73±0.98 | 3.2±0.55 | *p*=0.031 |
| **VAS score 6 h after post-surgery** | 3.45±1.47 | 3.46±1.27 | *p*=0.97 |
| **VAS score 12 h after post-surgery** | 3.91±1.48 | 3.01±1.08 | *p*=0.021 |
| **The first time of the analgesic drug consumption after surgery** | 2.58±2 | 4.7±3.1 | *p*=0.007 |
| **The total dose of morphine consumed during 24 hours** | 74.37±18.87 | 54±25.67 | *p*=0.008 |

# Summary

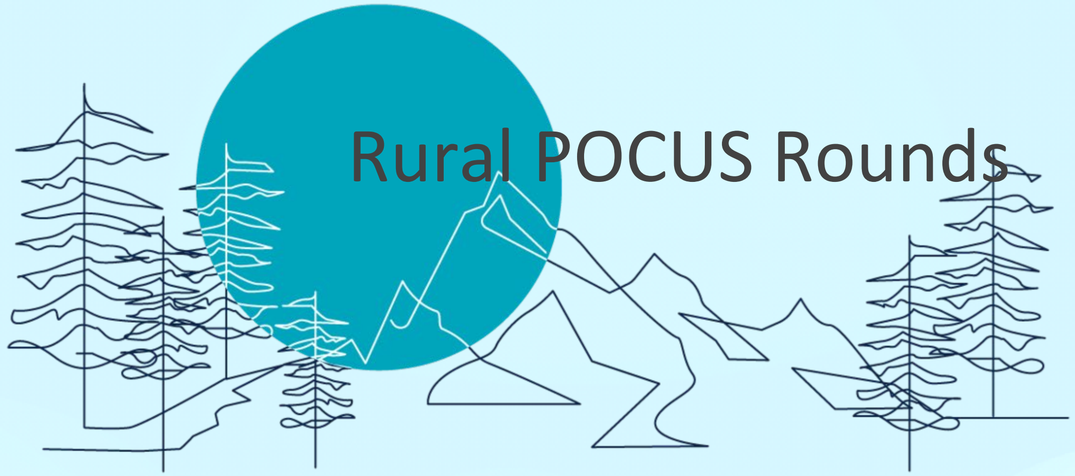
Hip effusions are easy to see – look for them

Hip injections and aspirations are fairly easy to do

Hip fractures – try the fascia iliaca block!

GTPS – direct the needle to where there's fluid

UBC CPD Medicine
CONTINUING PROFESSIONAL DEVELOPMENT



Rural POCUS Rounds

Rural Coordination Centre of BC

# Questions?