

MSK Trauma

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uwmsk.org/arsenic

set WiFi to:

Richardson

169.254.73.176/

arsenic

<http://169.254.73.176/>
arsenic

Case 1

18 M

low speed MVC
—> high speed MVC

?

R
KS



18 M

low speed MVC
—> high speed MVC



fibular fracture

18 M

low speed MVC
—> high speed MVC



satisfaction of
search

18 M

low speed MVC
—> high speed MVC

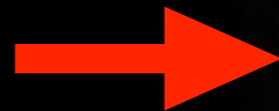


assess the
joint above
and the joint
below

18 M

low speed MVC
—> high speed MVC

assess the
joint above
and the joint
below



gravity stress view

what structure gave
its life to allow this?



gravity stress view

not the deltoid
complex...



gravity stress view

Not due to:

tibia & talus
moving apart



gravity stress view

**important
concept:**

**tibia & fibula
moving apart**



gravity stress view

syndesmosis
ligaments



gravity stress view

syndesmosis
ligaments

and interosseous
membrane



gravity stress view

surgery required

syndesmosis
ligaments

and interosseous
membrane





Maisonneuve
injury





Maissonneuve
injury

one of many
“ring bone”
injuries



18 M

low speed MVC
—> high speed MVC



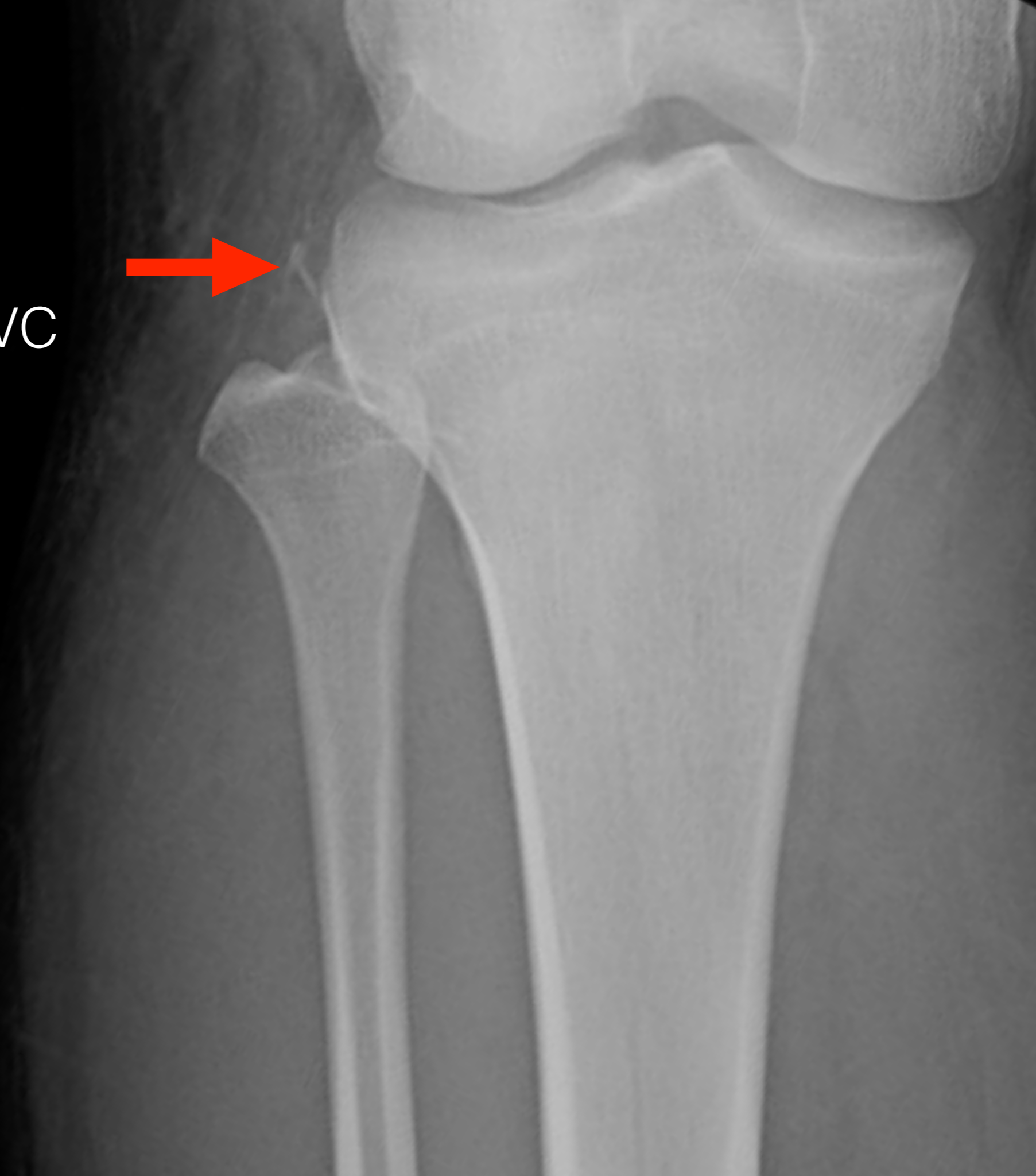
assess the
joint above
and the joint
below

18 M

low speed MVC
—> high speed MVC



?

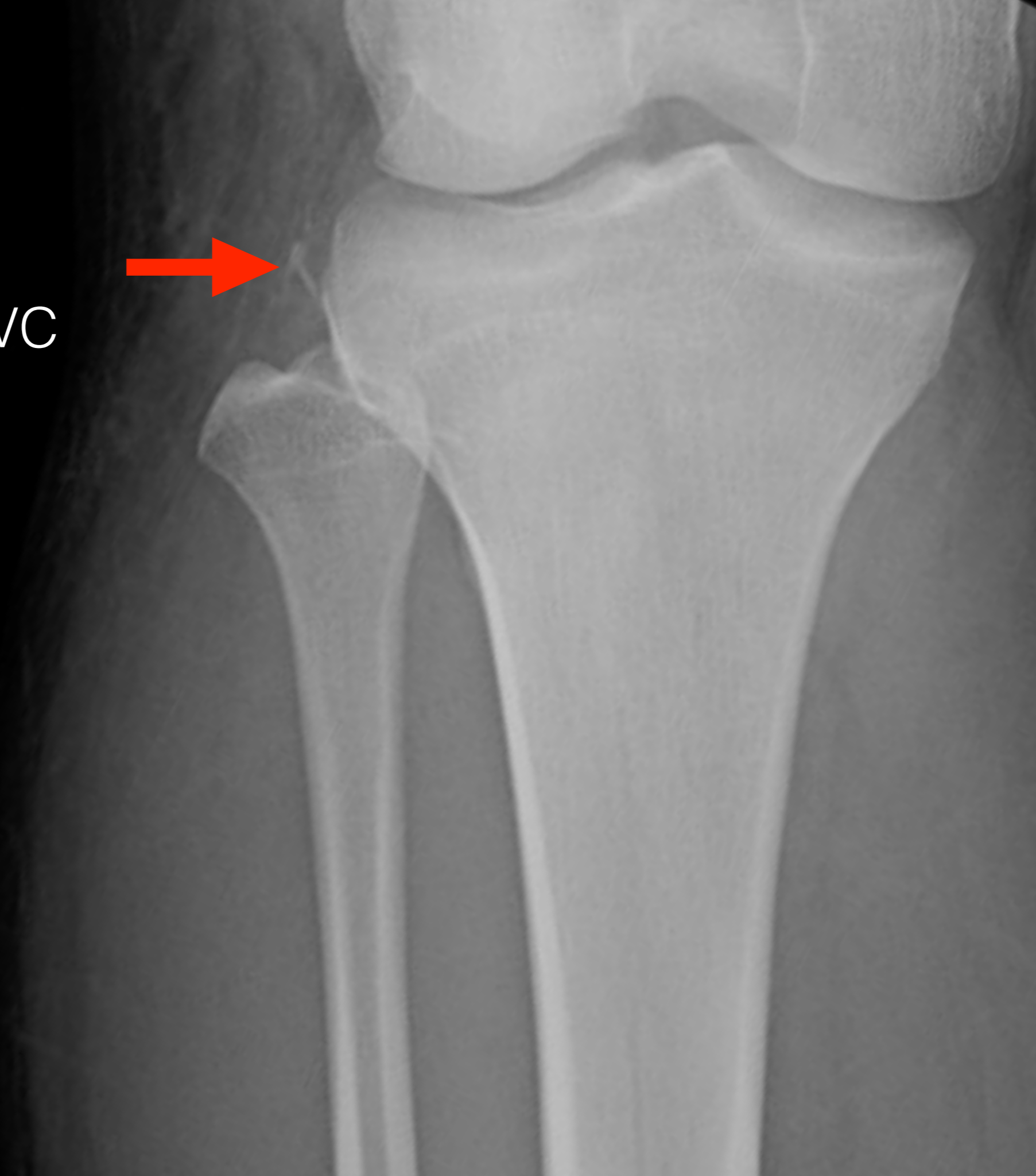


18 M

low speed MVC
—> high speed MVC



Segond
fracture

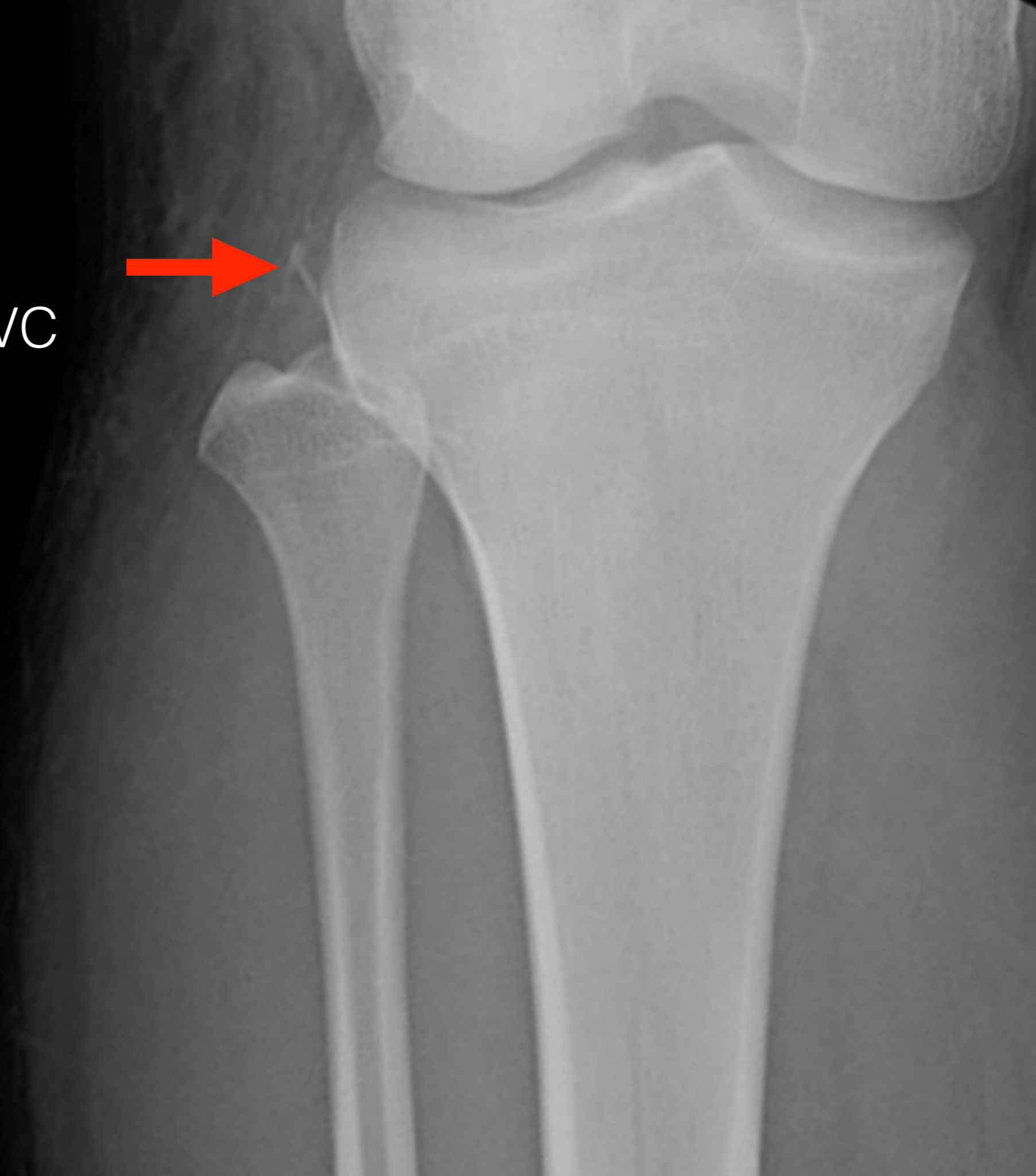


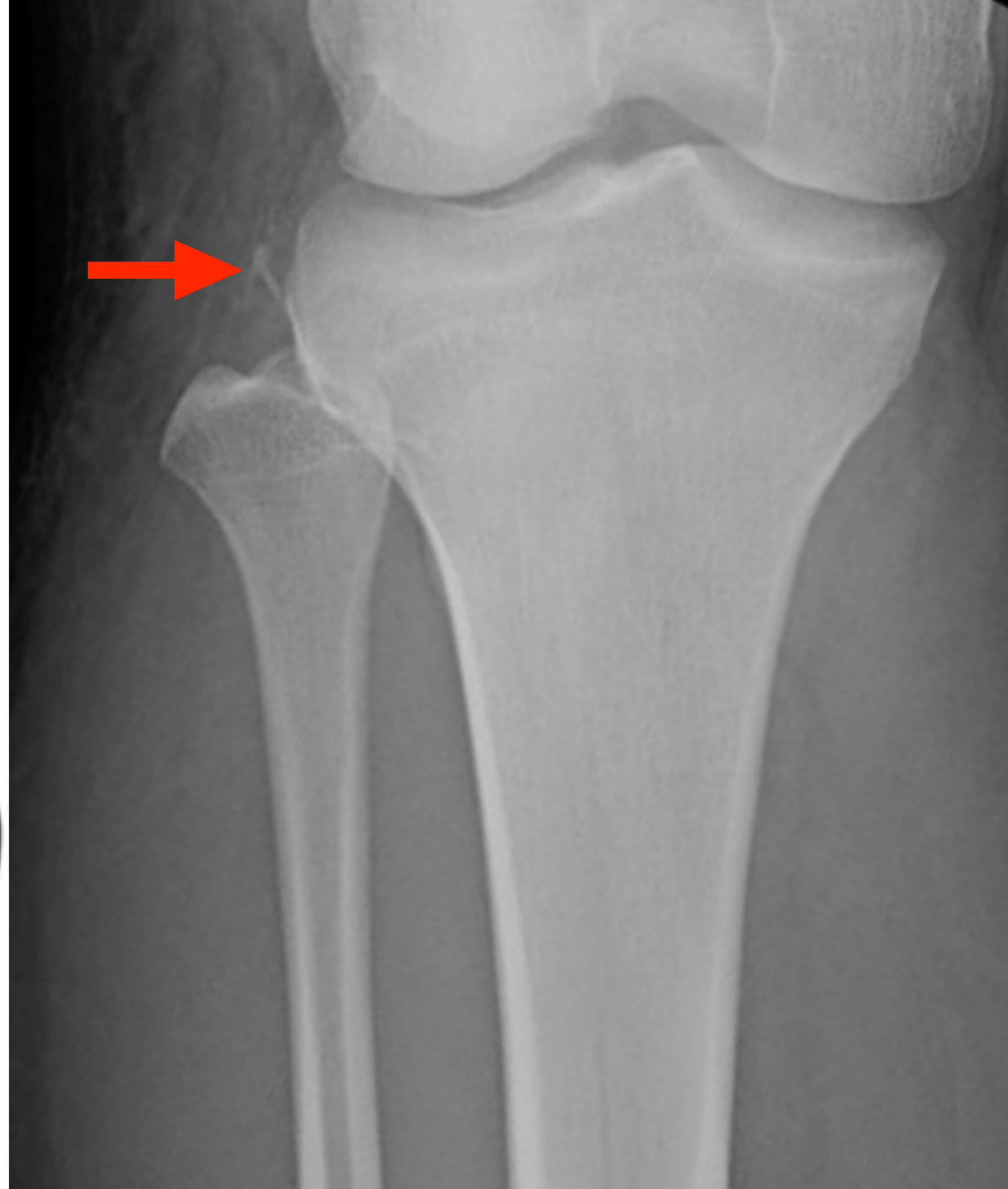
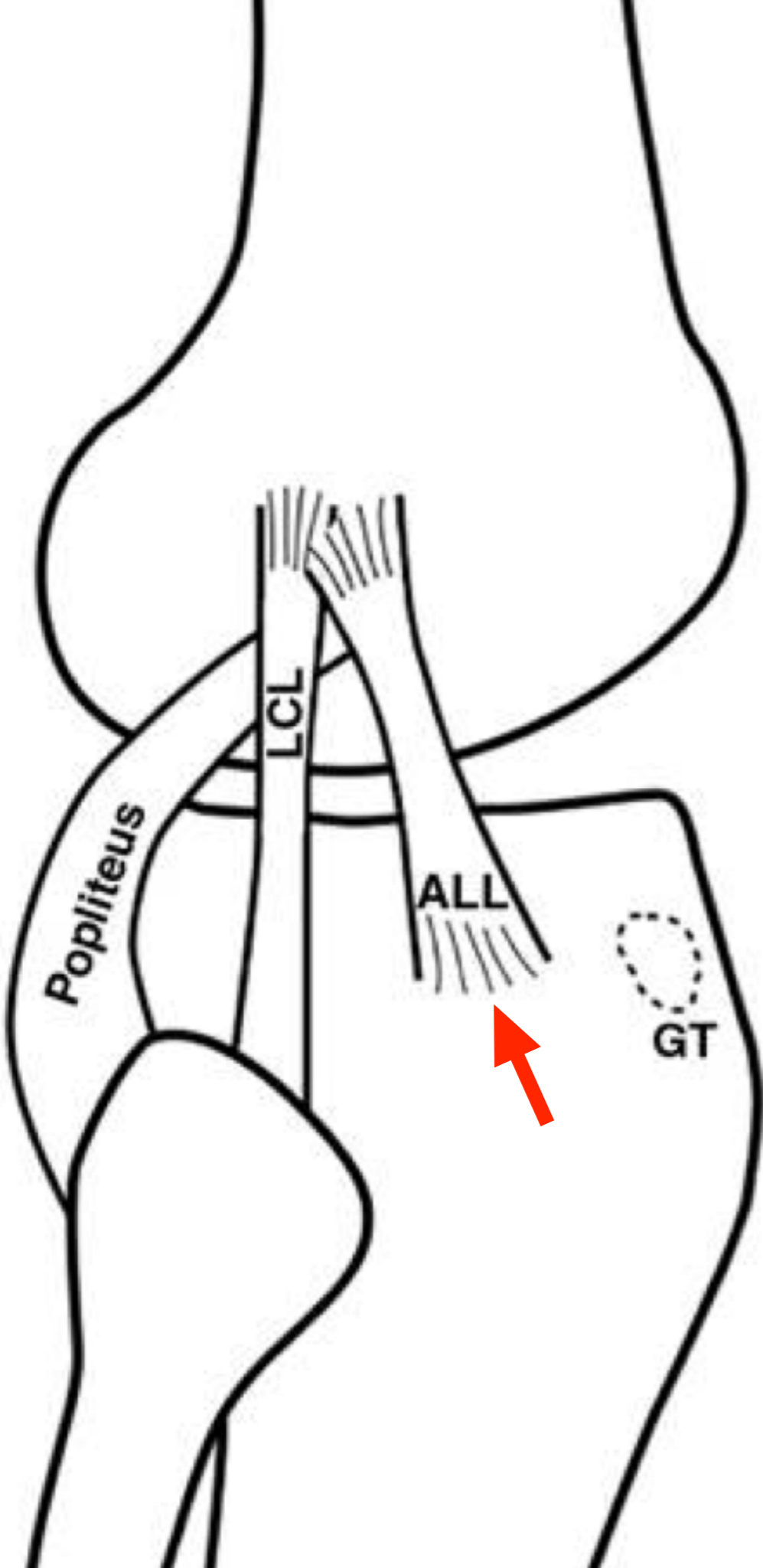
18 M

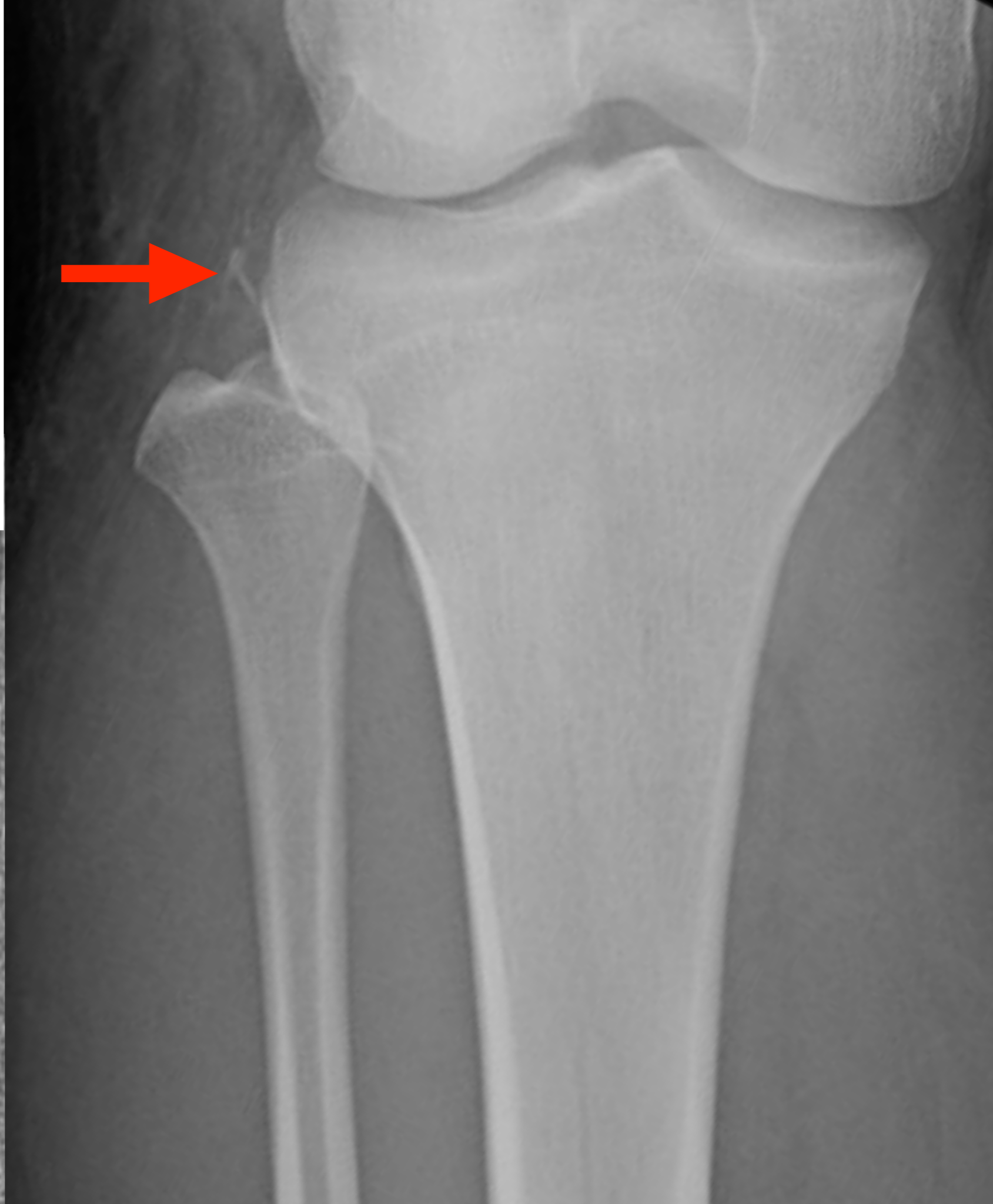
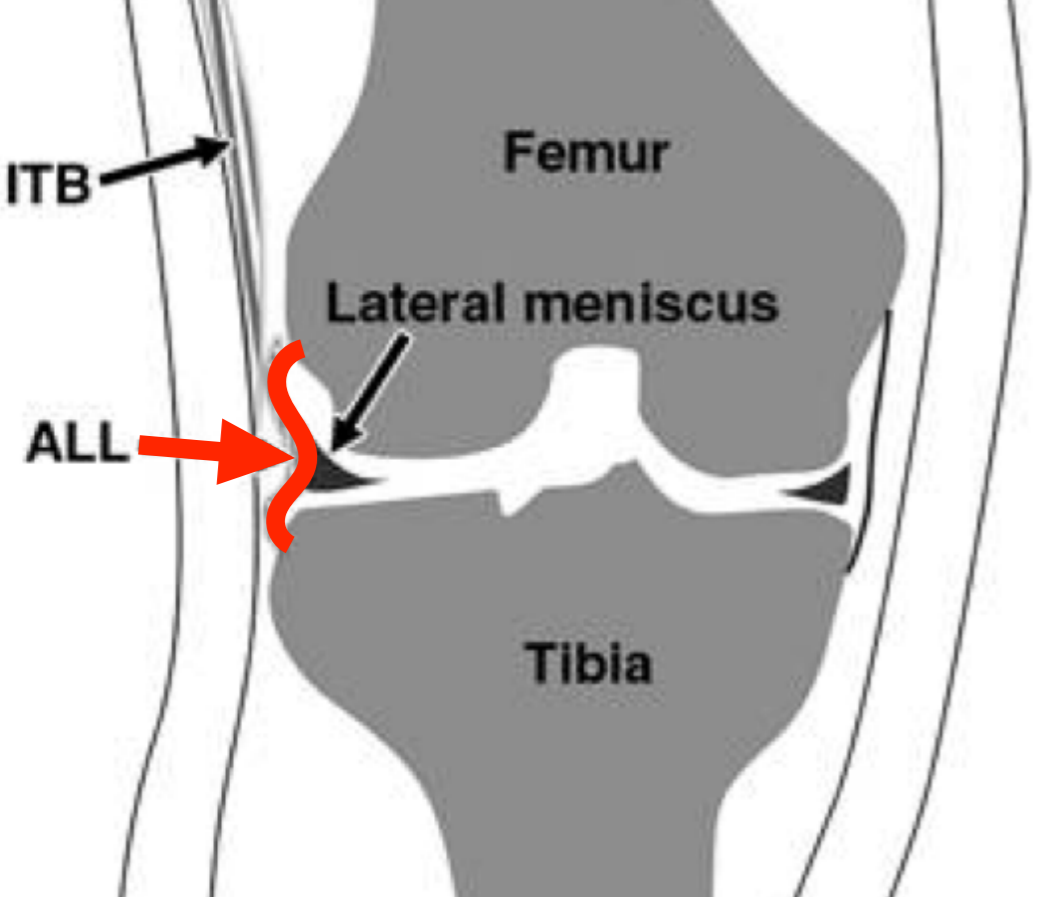
low speed MVC
—> high speed MVC



Porrino et al.
AJR 2015 ;
204 : 367



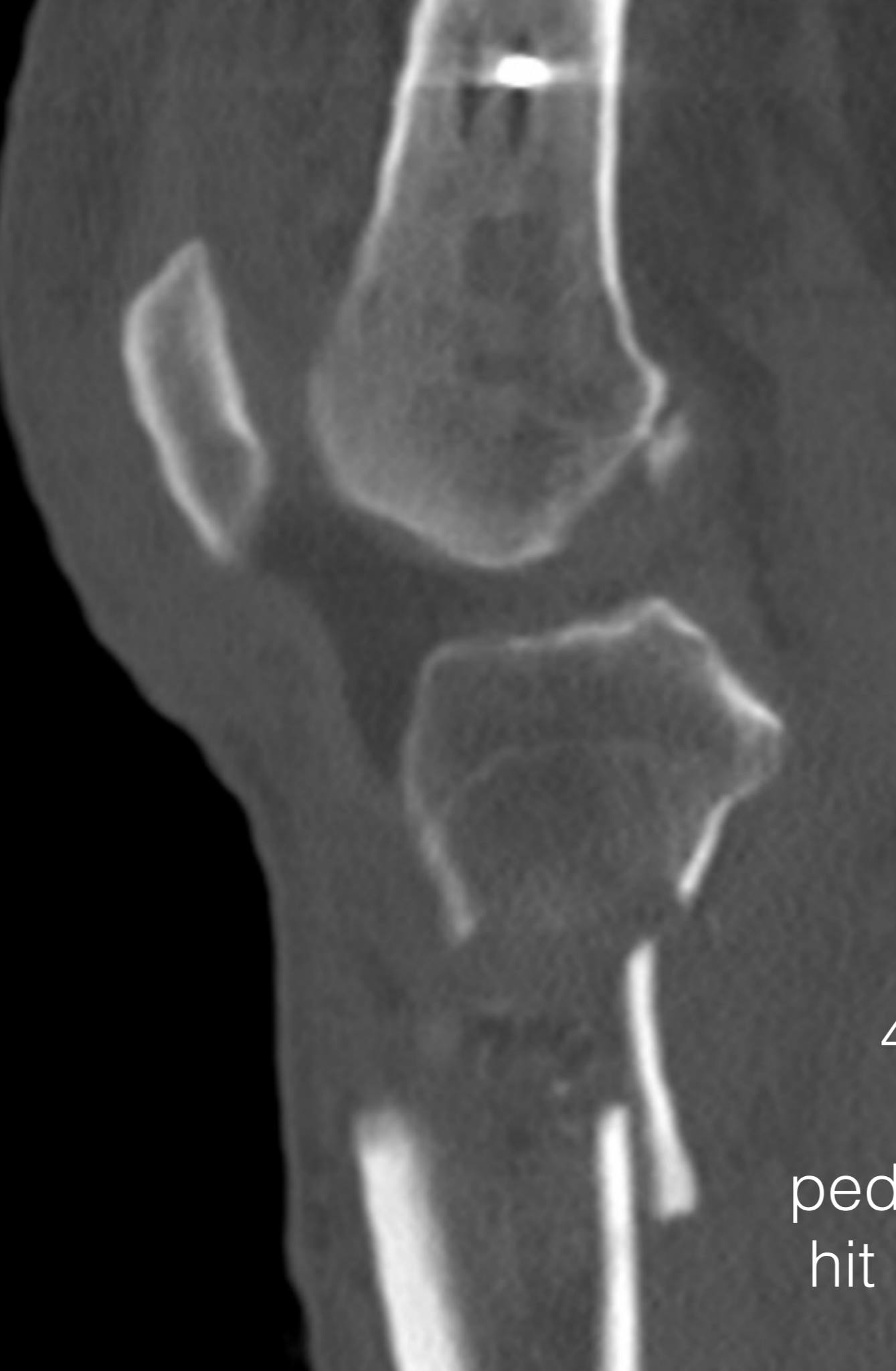






ACL tear

Case 2



47 F

pedestrian
hit by car



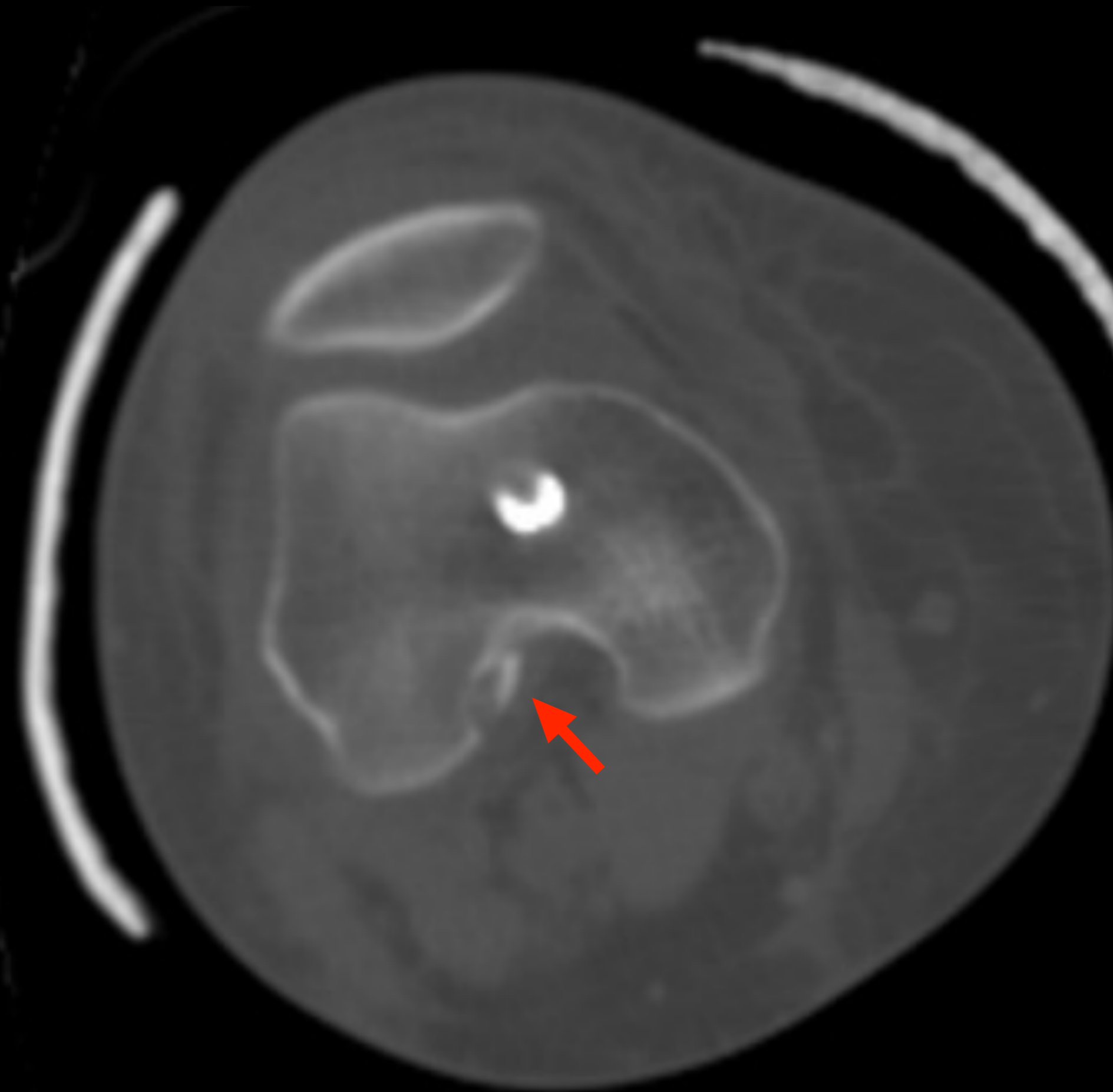
47 F
pedestrian
hit by car



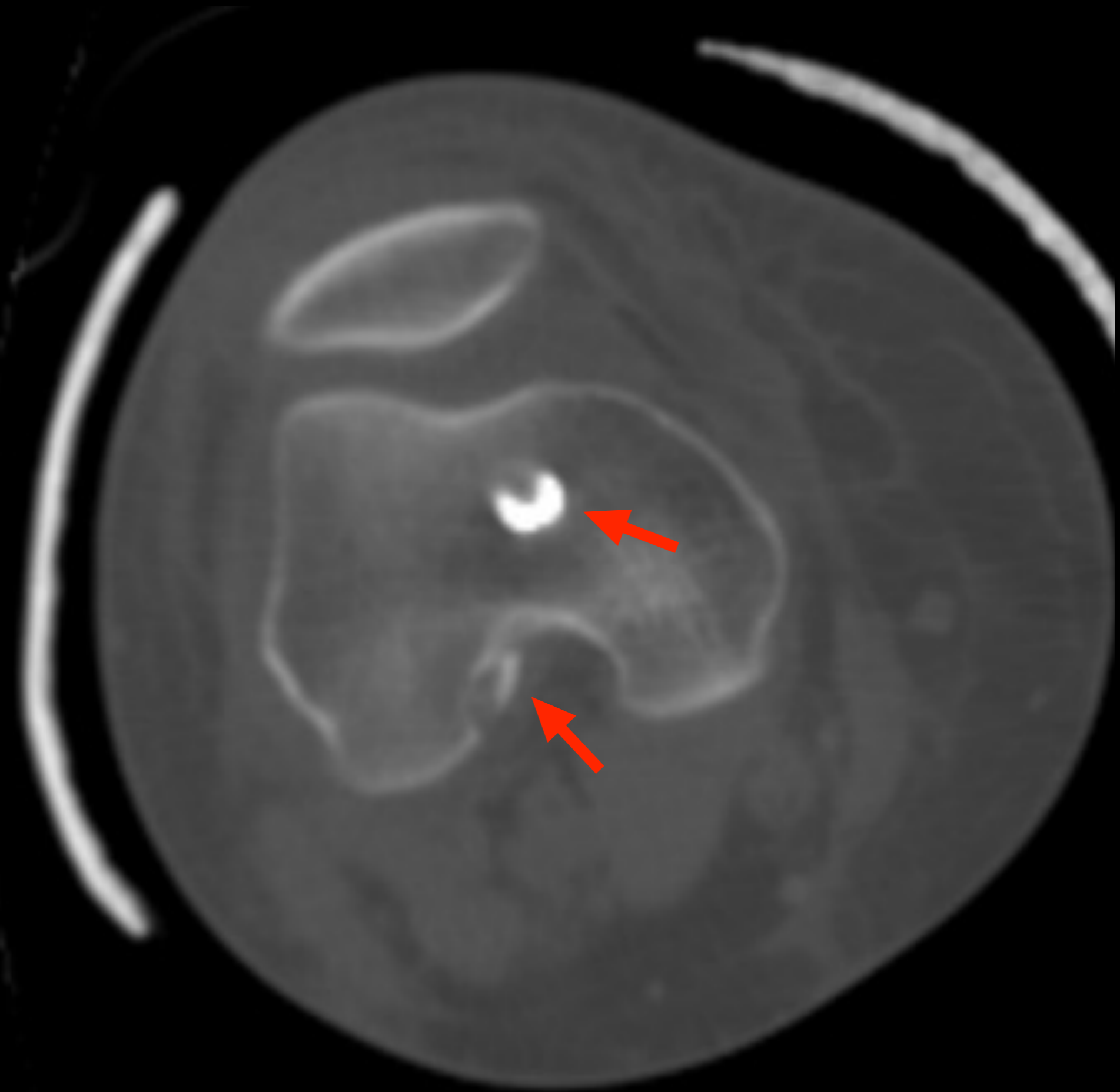
satisfaction
of search



avulsion of
proximal
attachment
of ACL



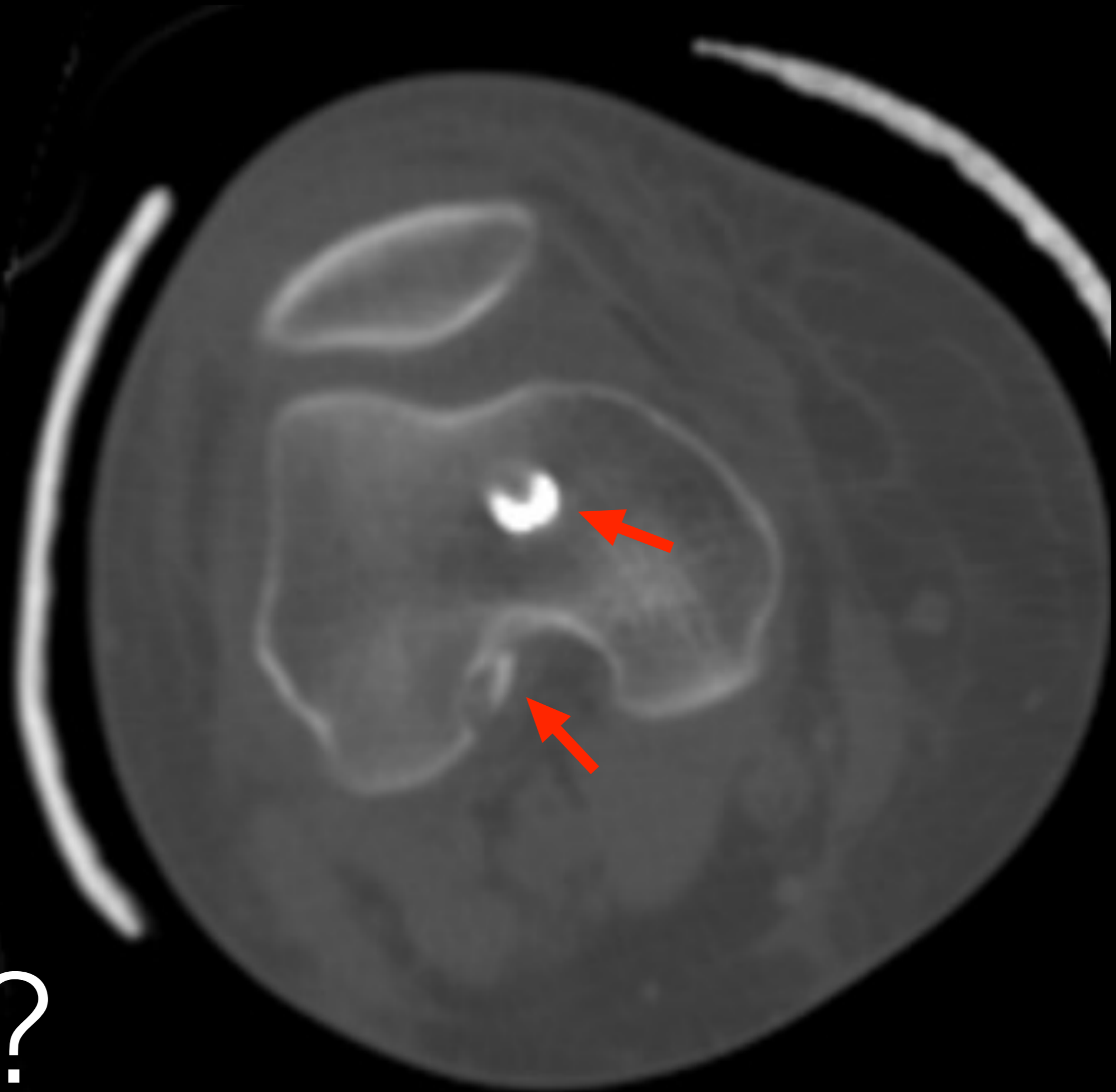
cross-sectional
imaging in
the presence
of metal



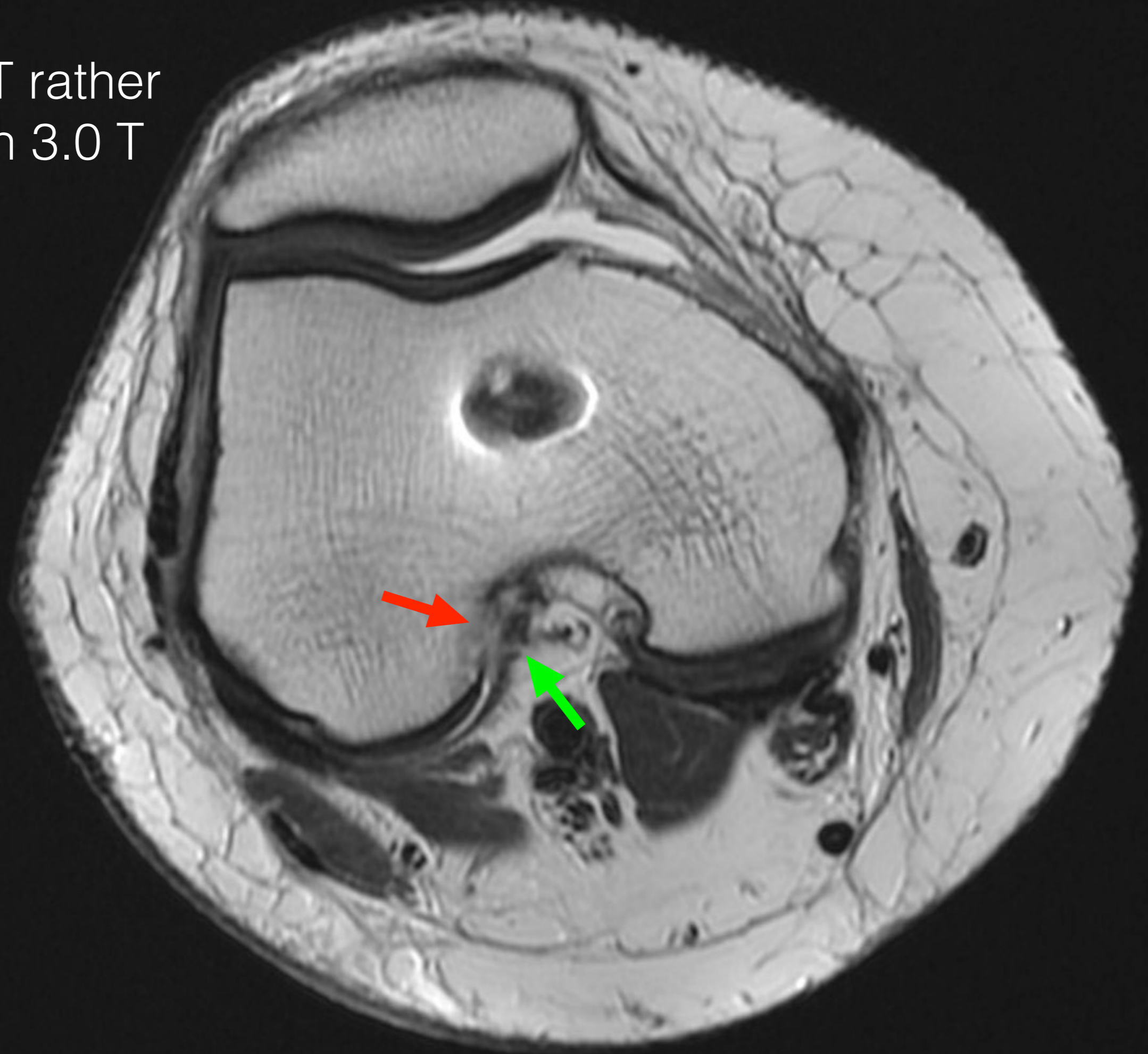
cross-sectional imaging in the presence of metal

which can we do to reduce metal artifacts on MR?

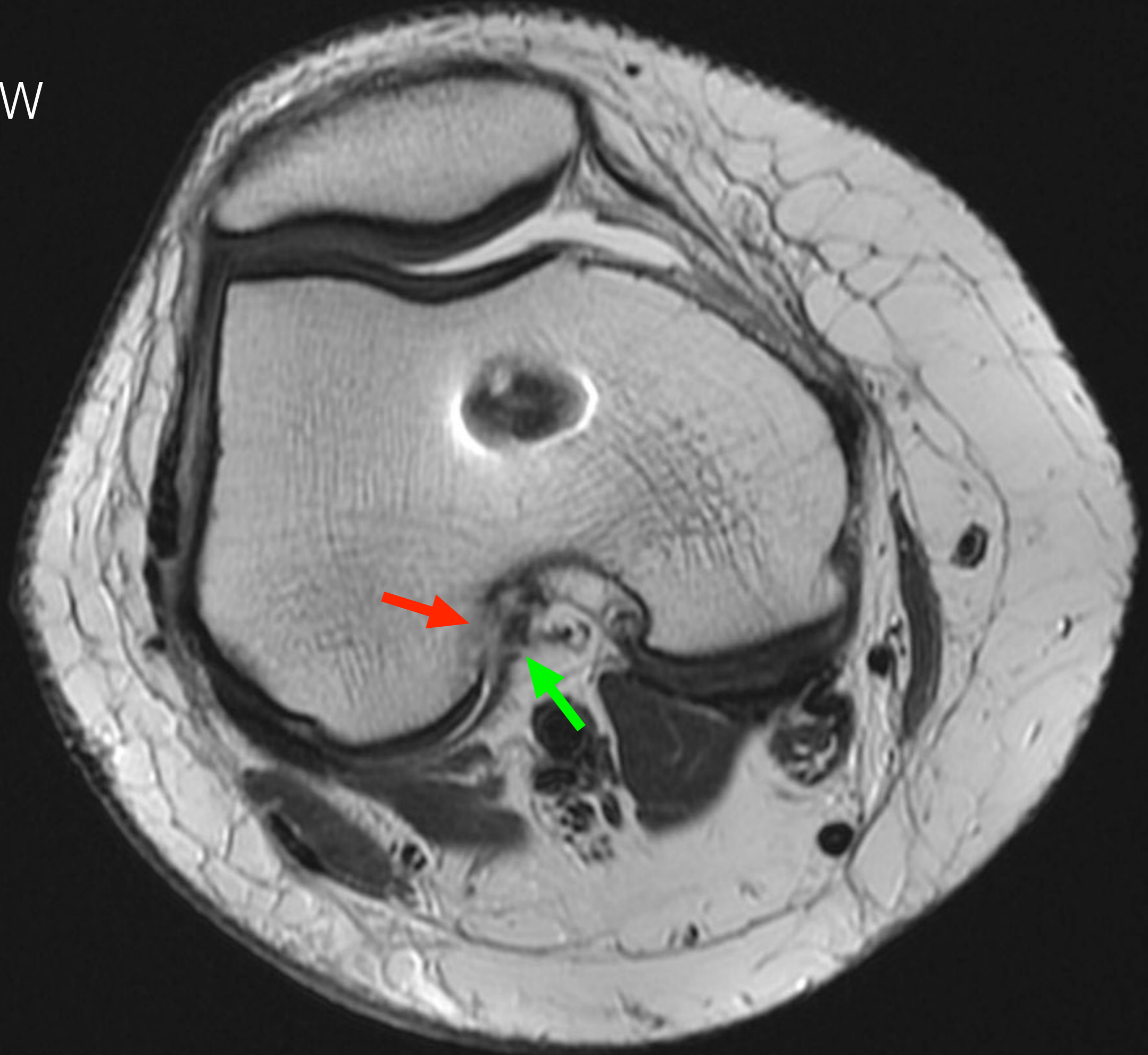
?

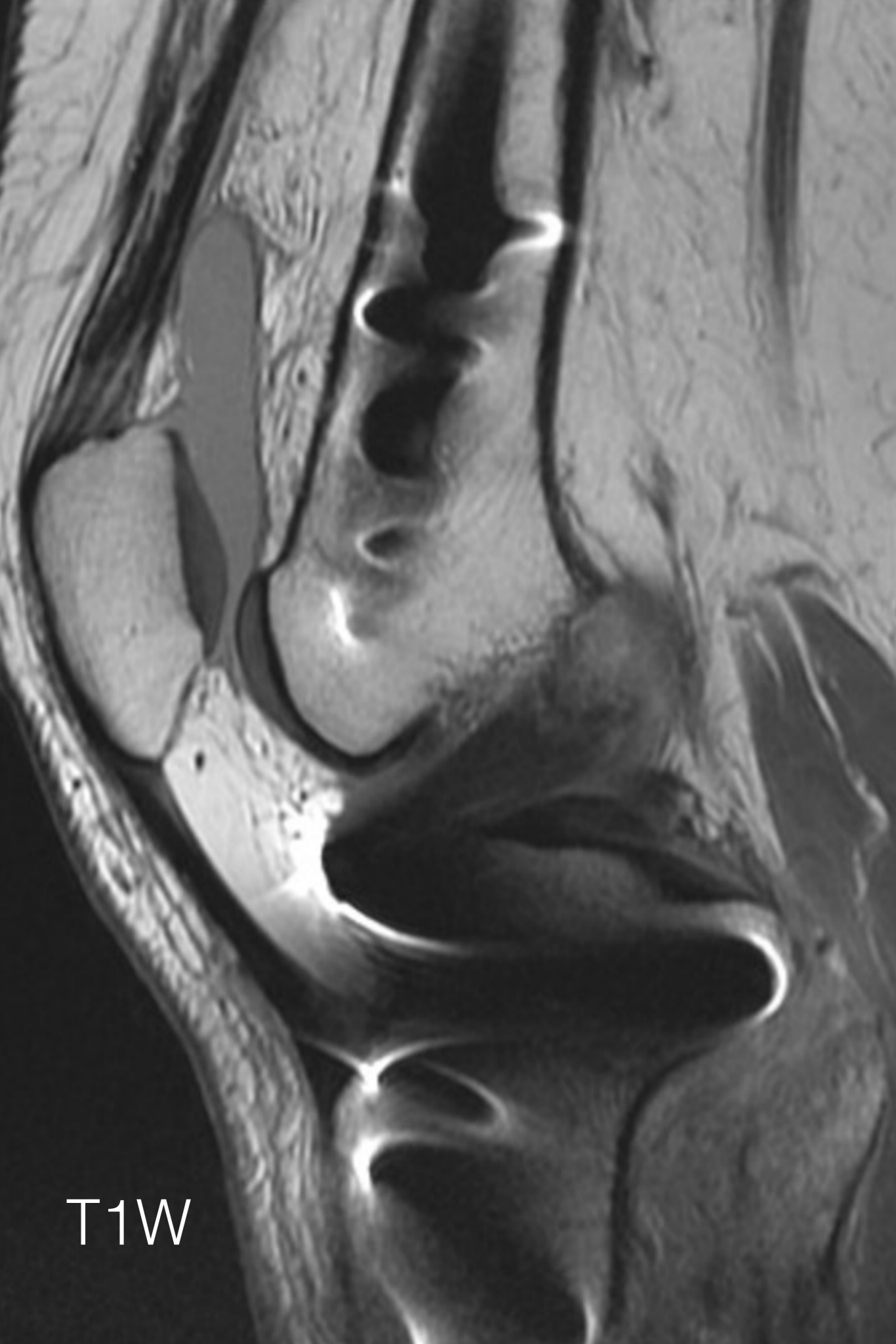


1.5 T rather
than 3.0 T



T1W

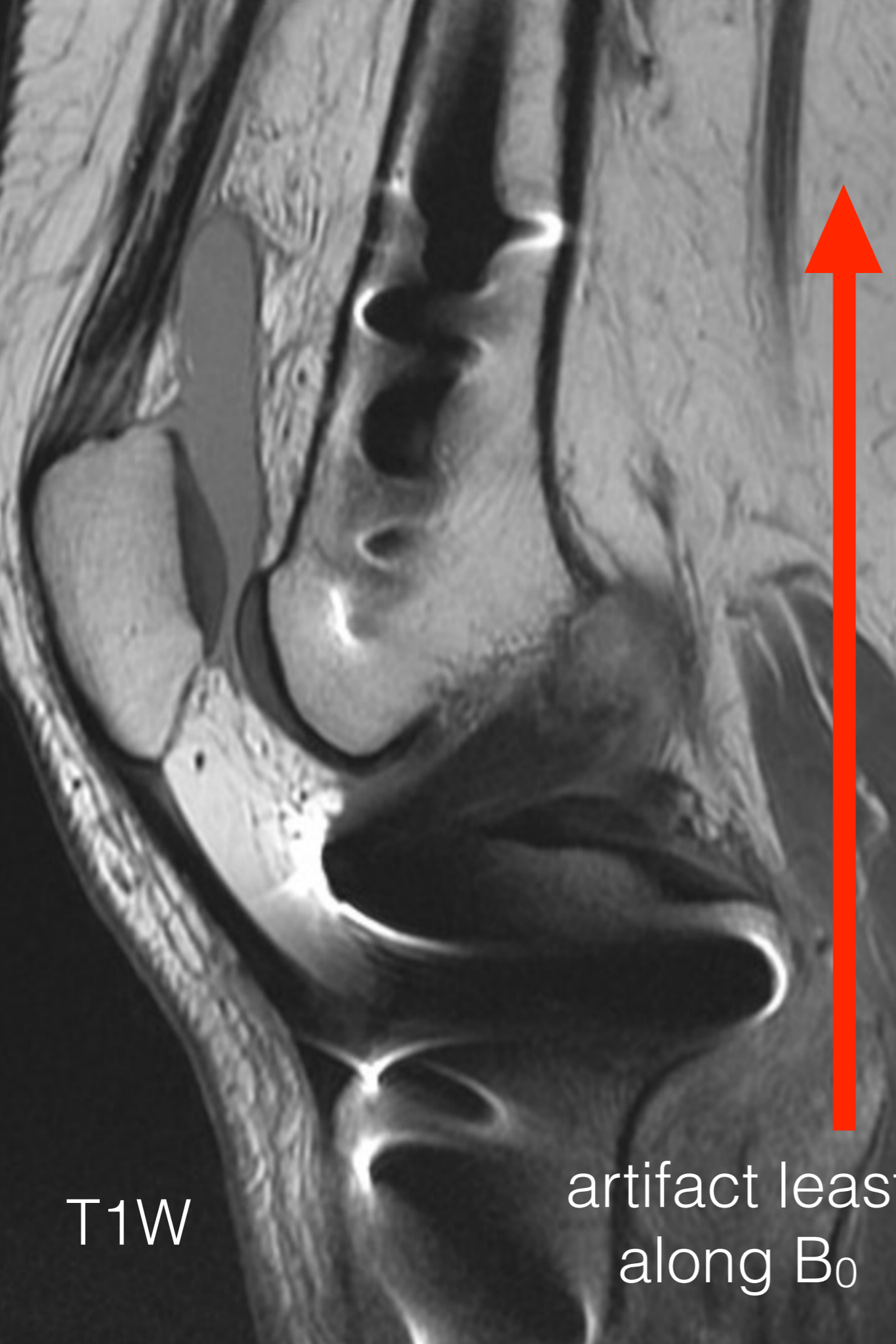




T1W



STIR





T1W



STIR

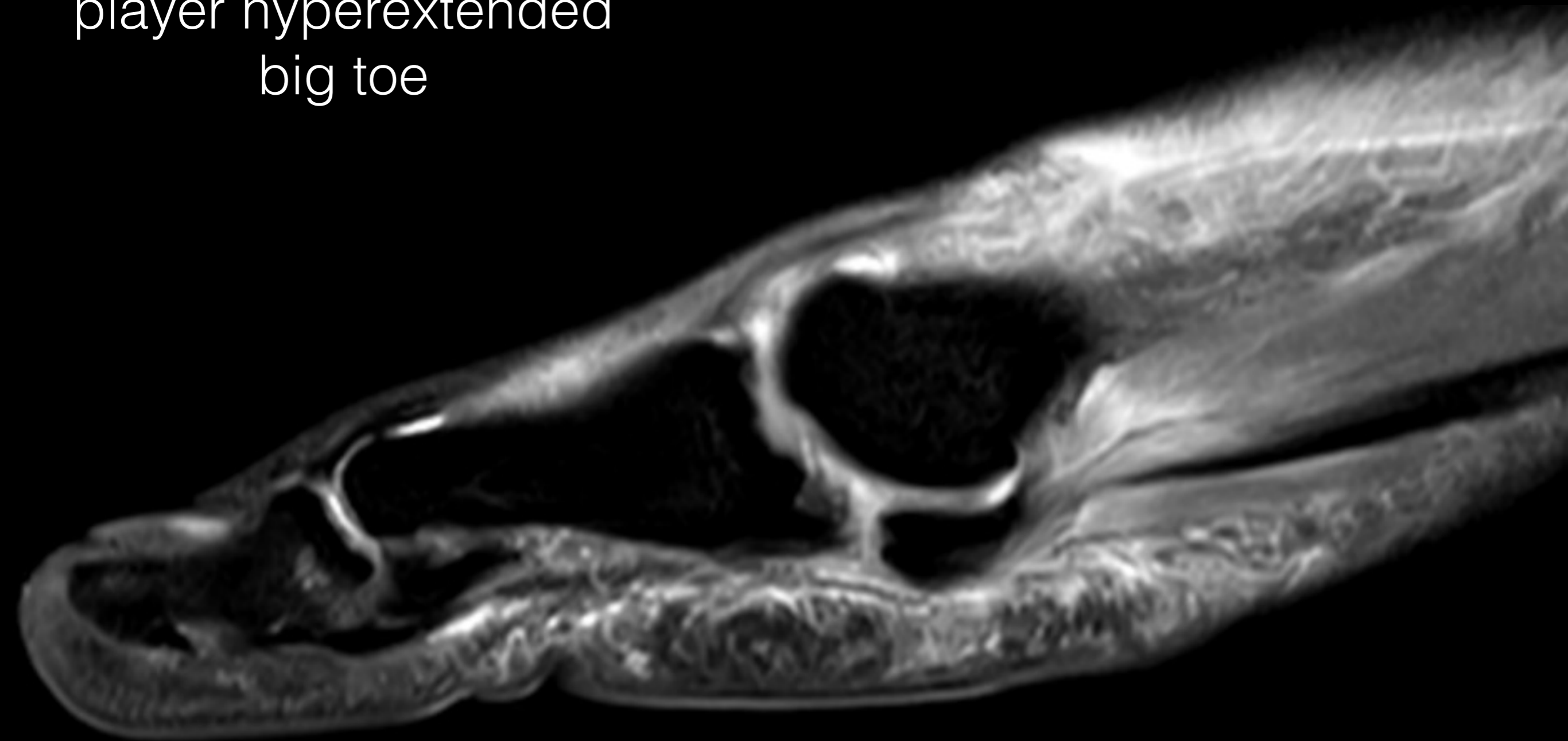


really glad to
have CT in
this case...

Case 3

18 F

collegiate soccer
player hyperextended
big toe



18 F

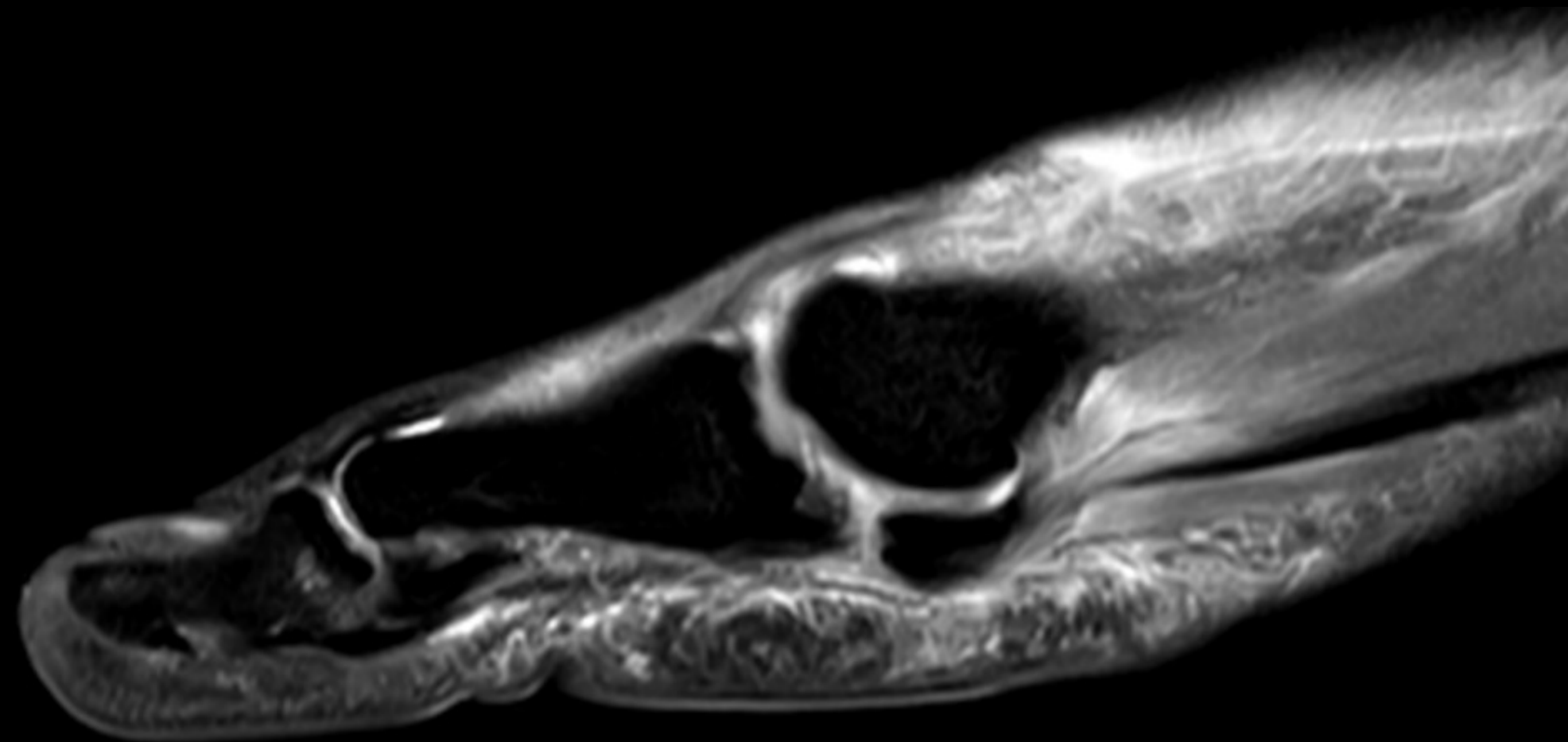
collegiate soccer
player hyperextended
big toe

?



“turf toe”

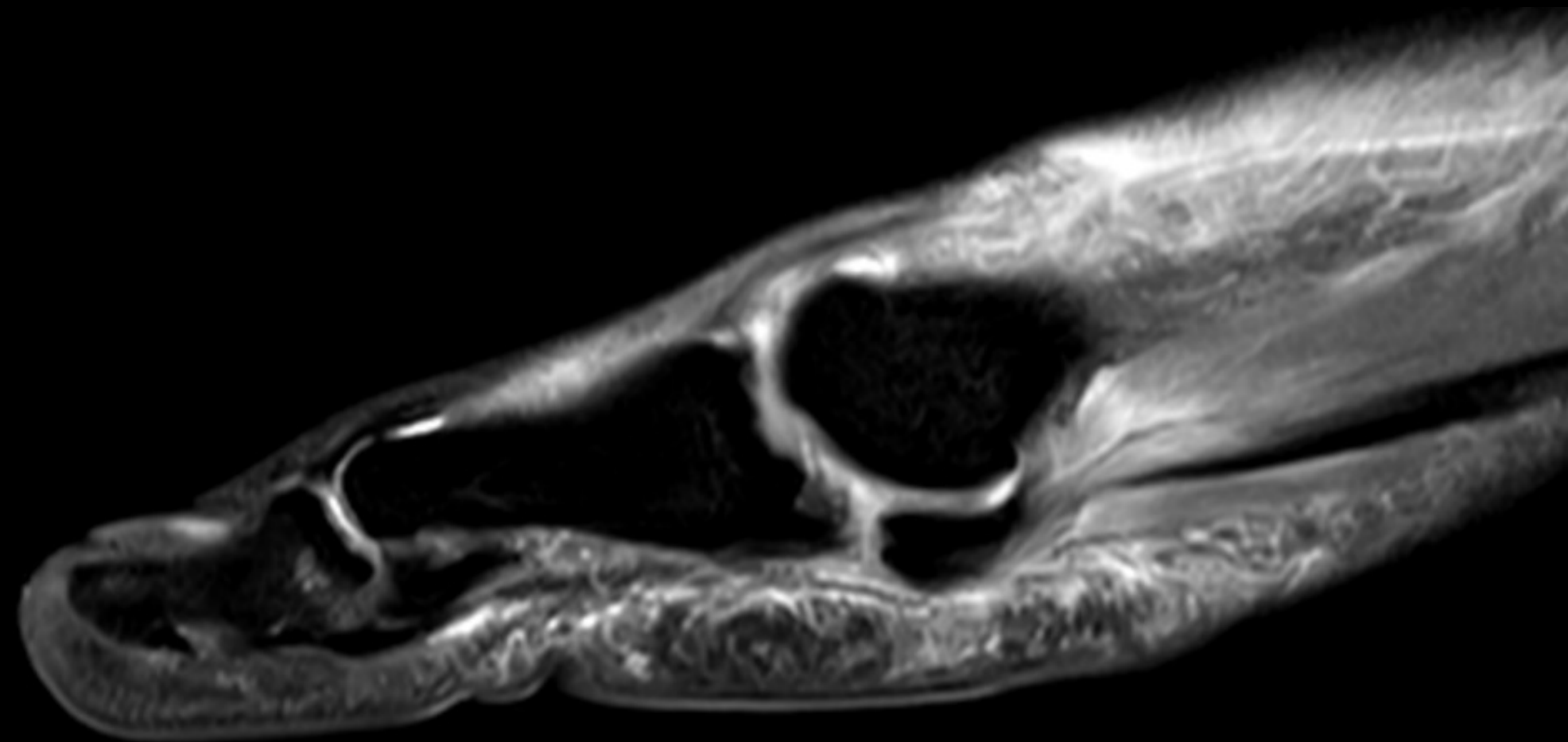
an injury to the
tarsal plate



“turf toe”

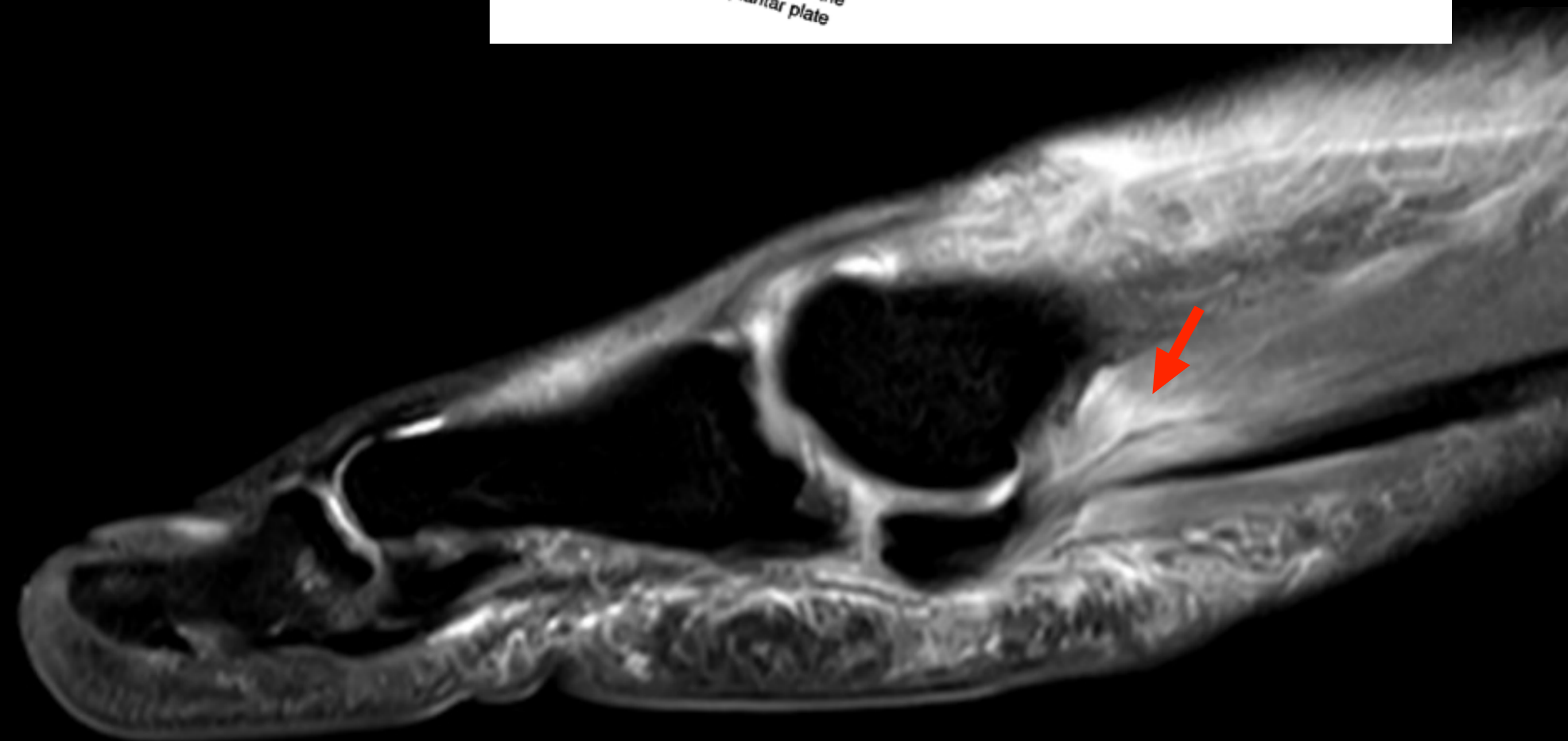
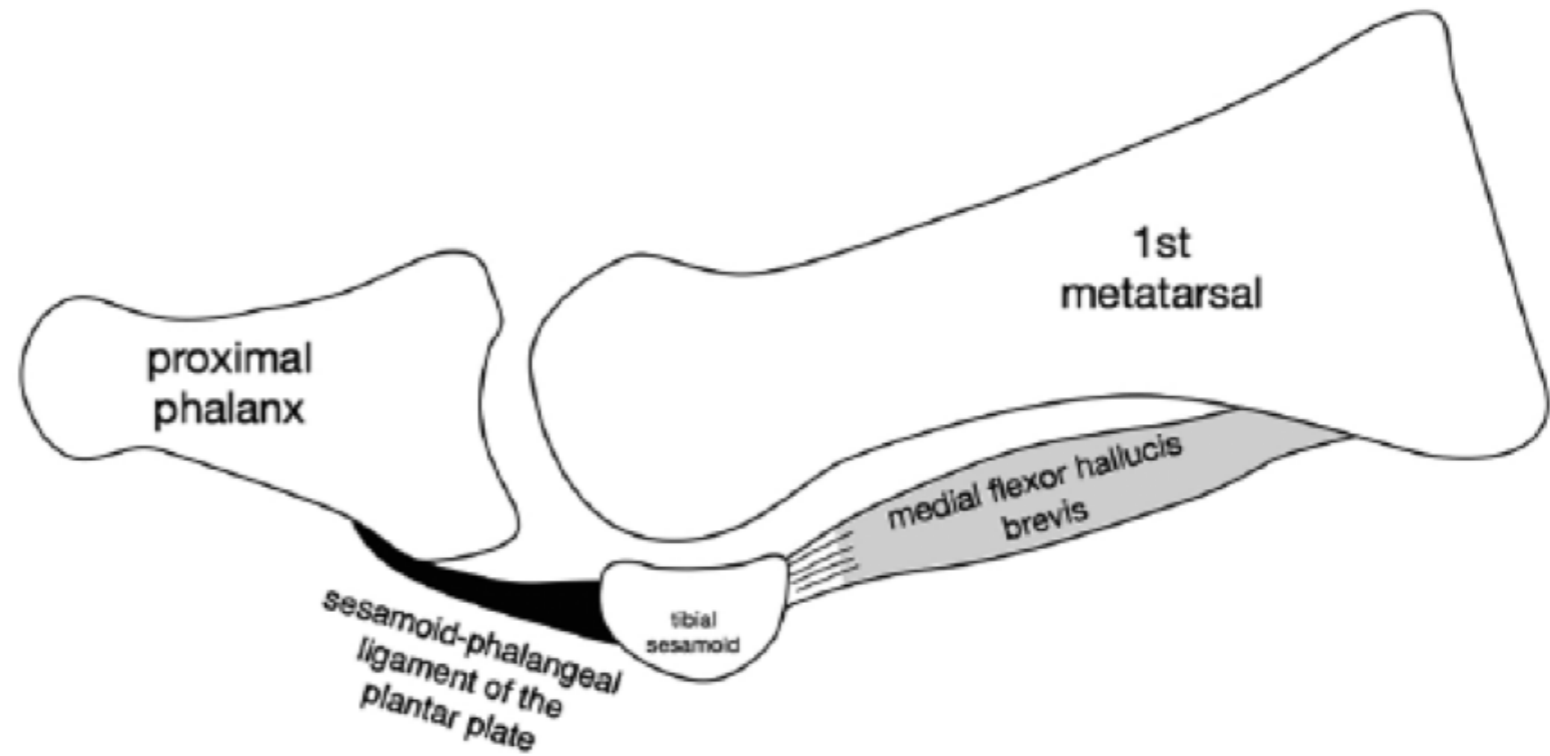
just what is the
tarsal plate?

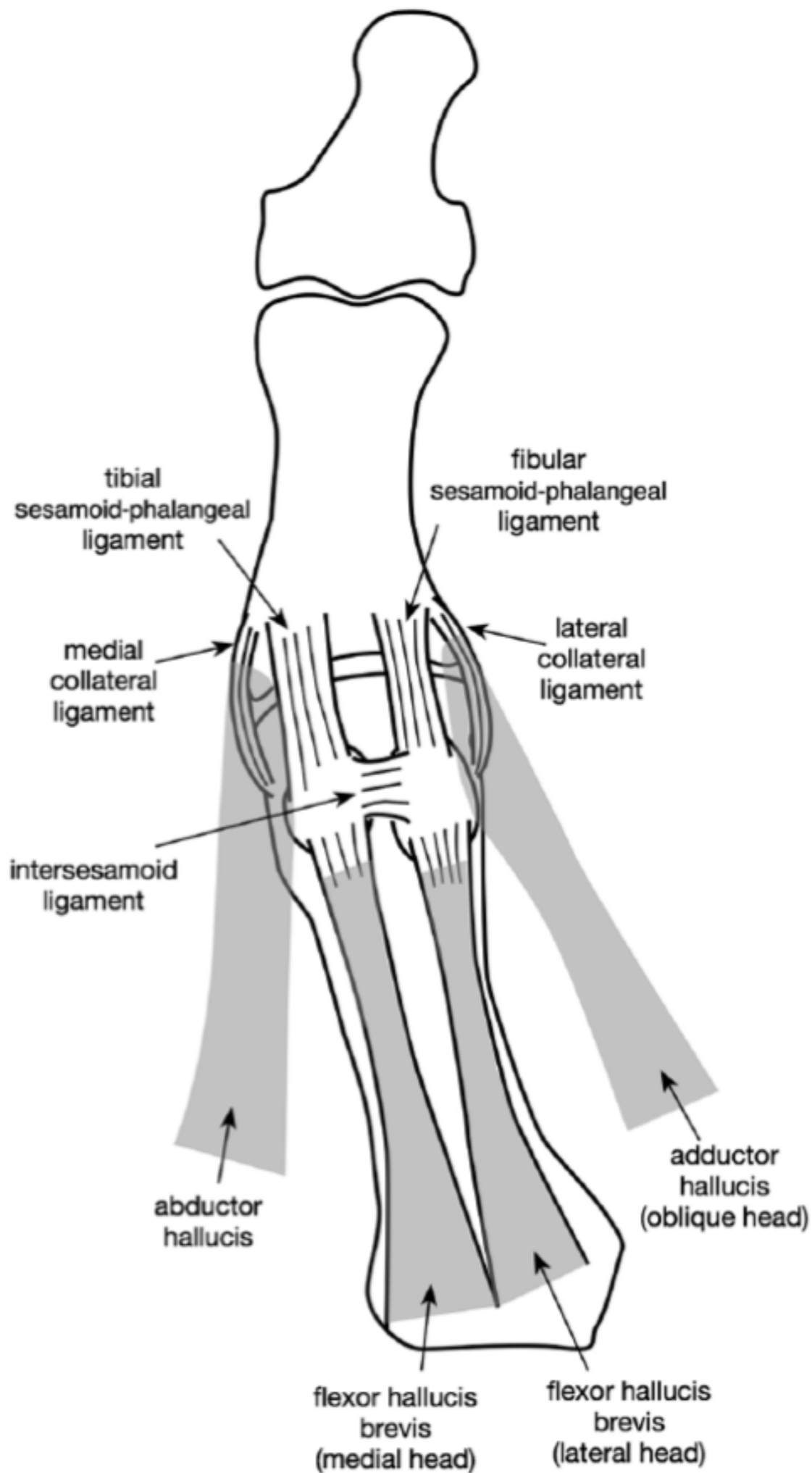
?



“turf toe”

an injury to the
tarsal plate

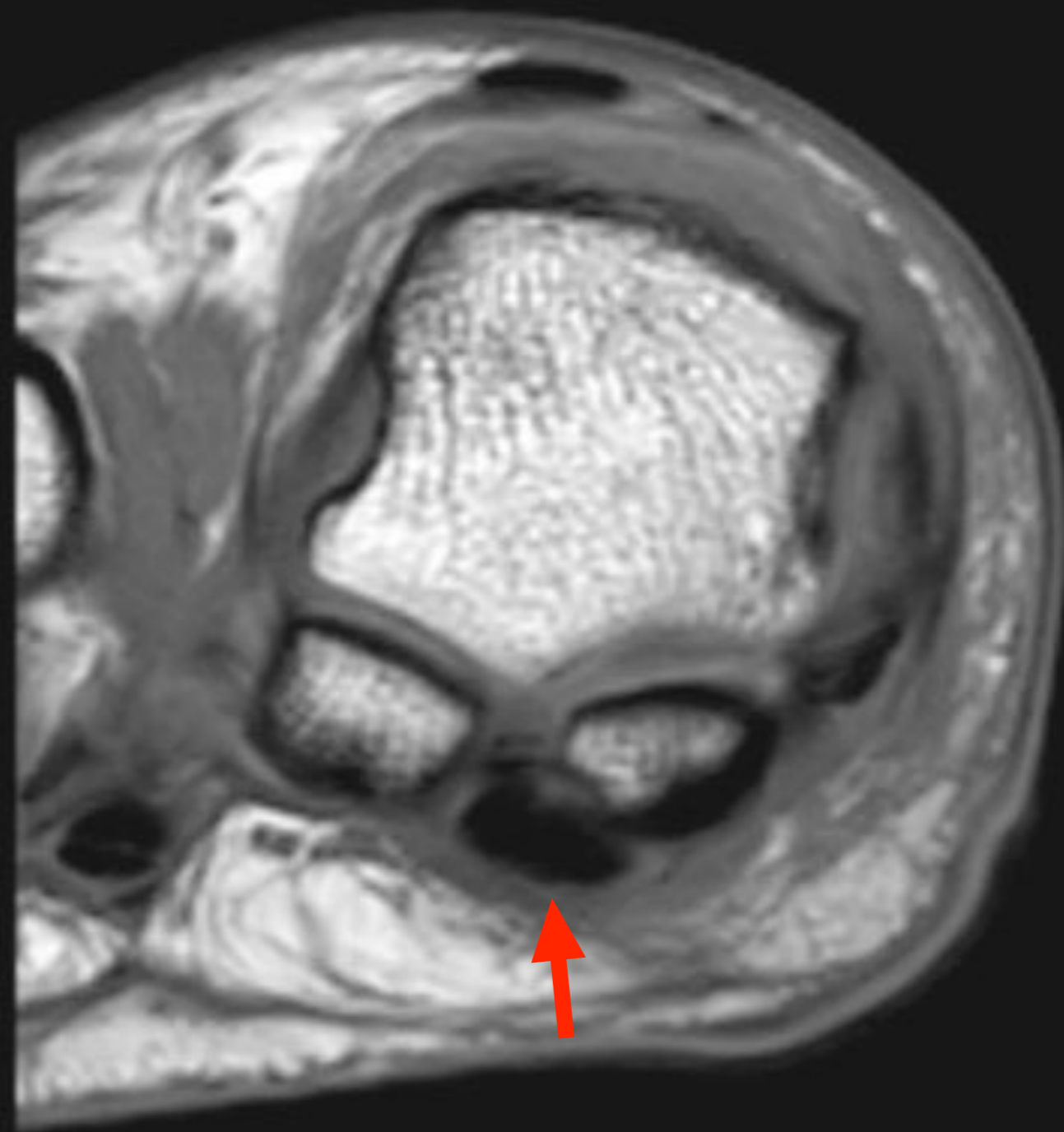
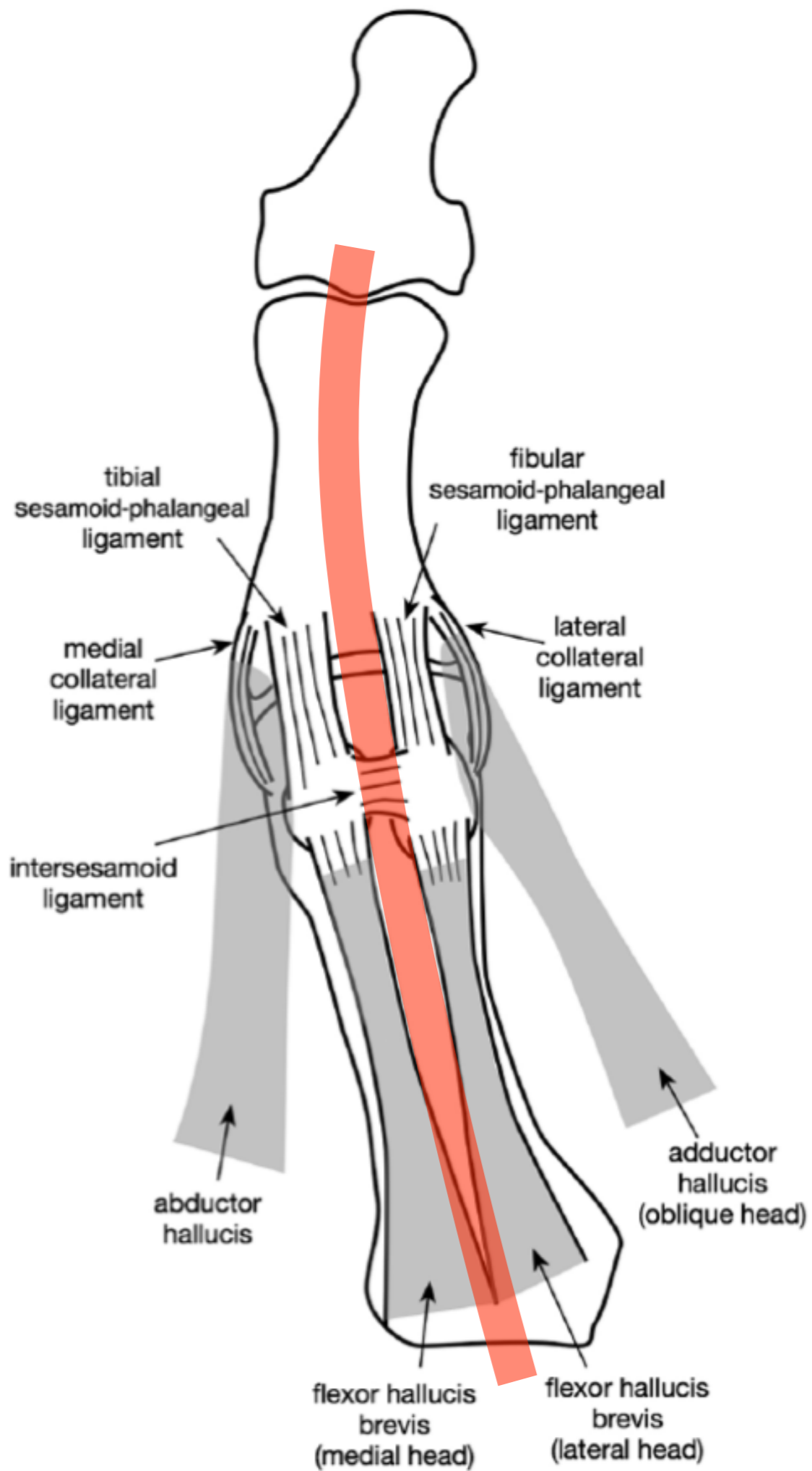




Favinger et al.

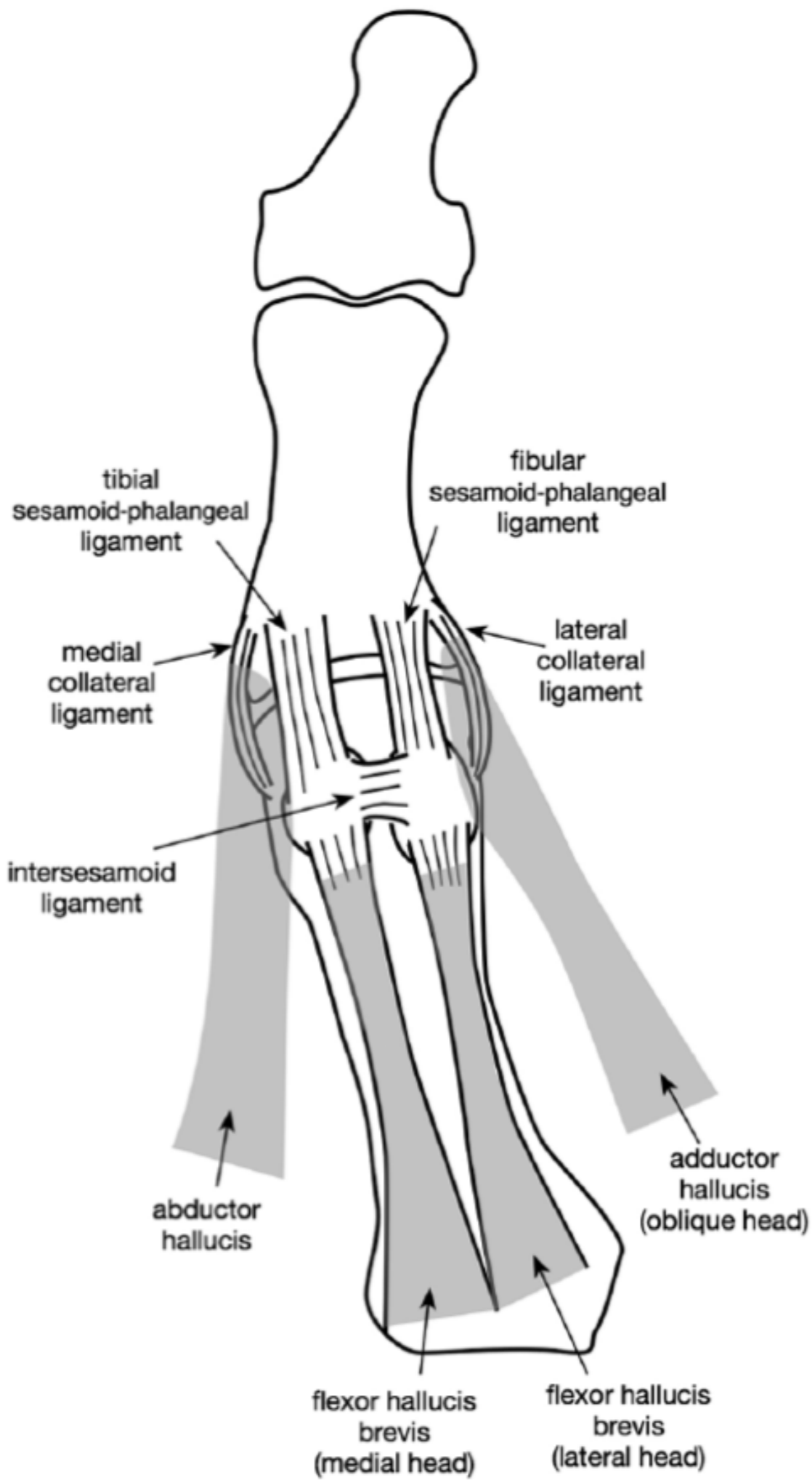
Epidemiology and Imaging Appearance of the Normal Bi-/ multipartite Hallux Sesamoid Bone.

Foot Ankle Int. 2014 Sep 18 ; 36(2) : 197–202



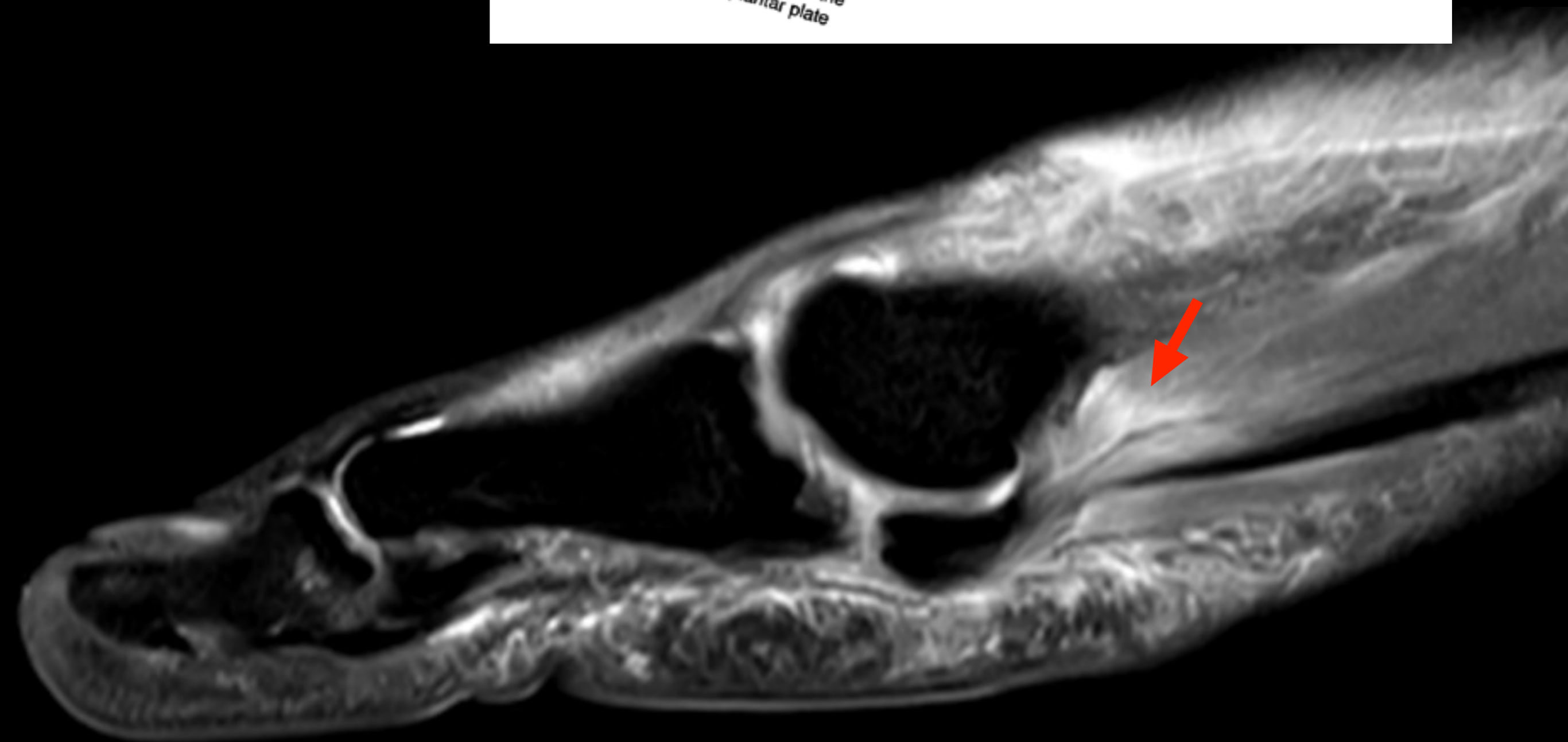
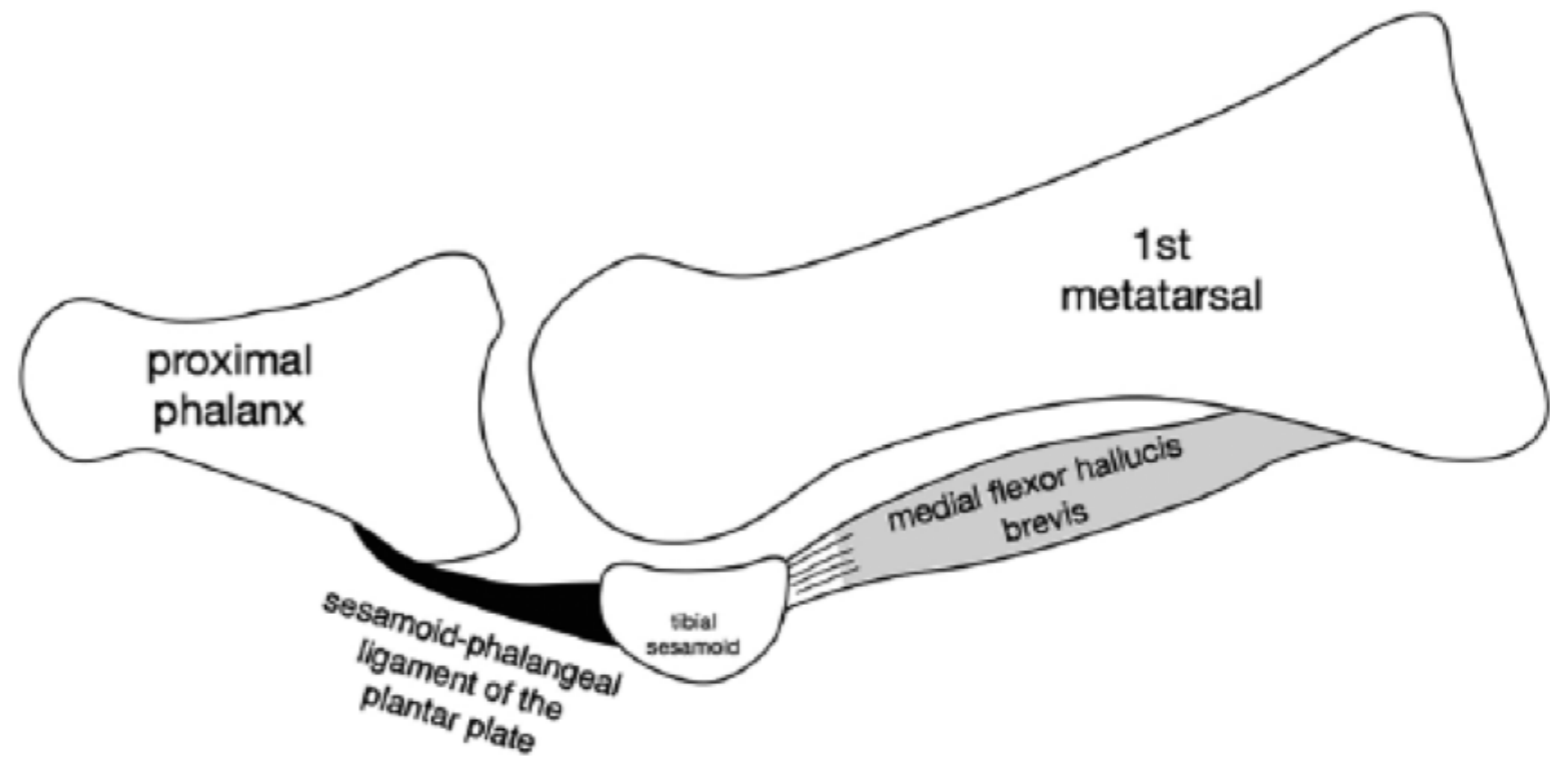
flexor hallucis longus

tear of
lateral
(fibular)
collateral
ligament



“turf toe”

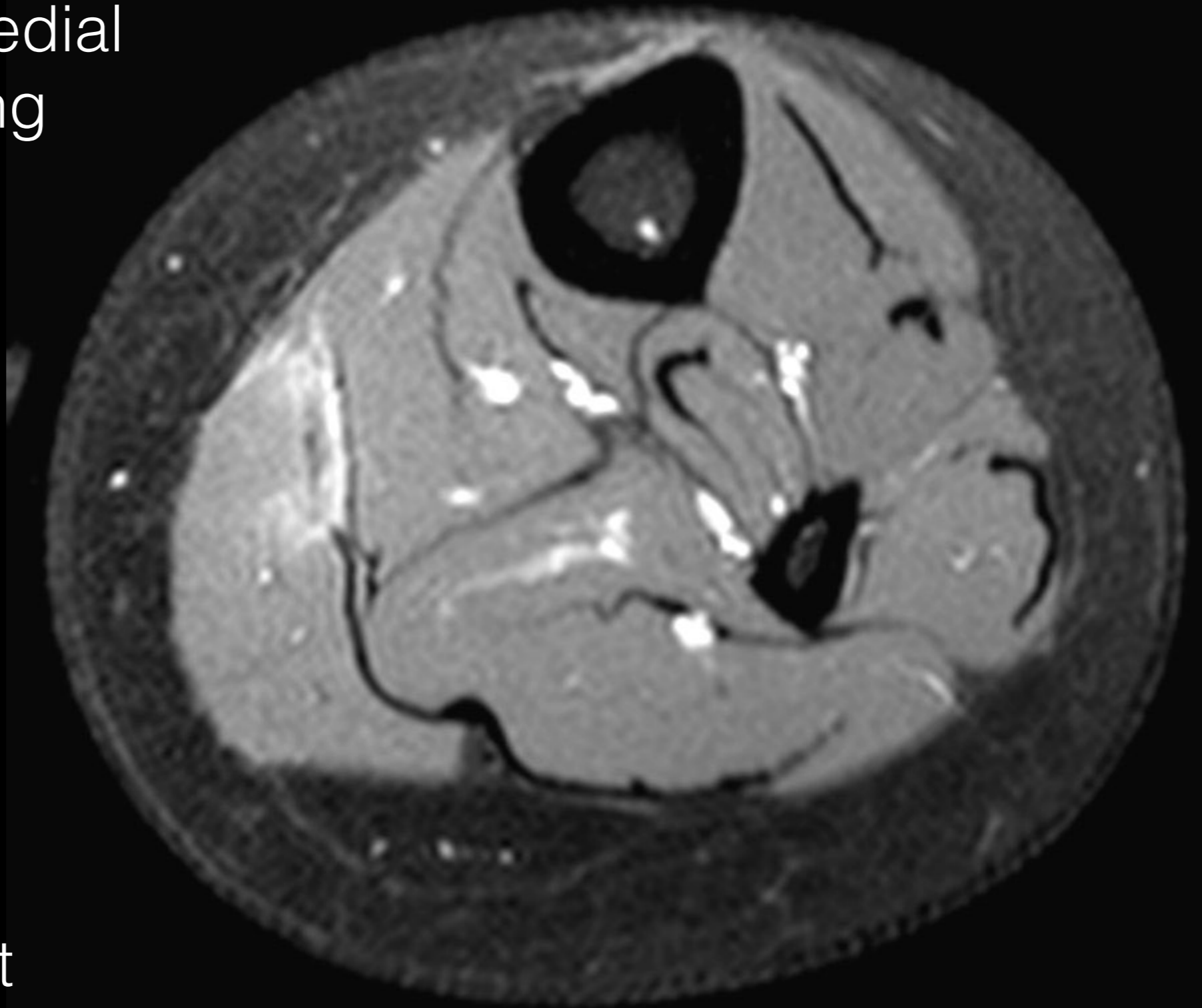
an injury to the
tarsal plate



Case 4

46 F

felt "pop" in left medial
calf while playing
basketball



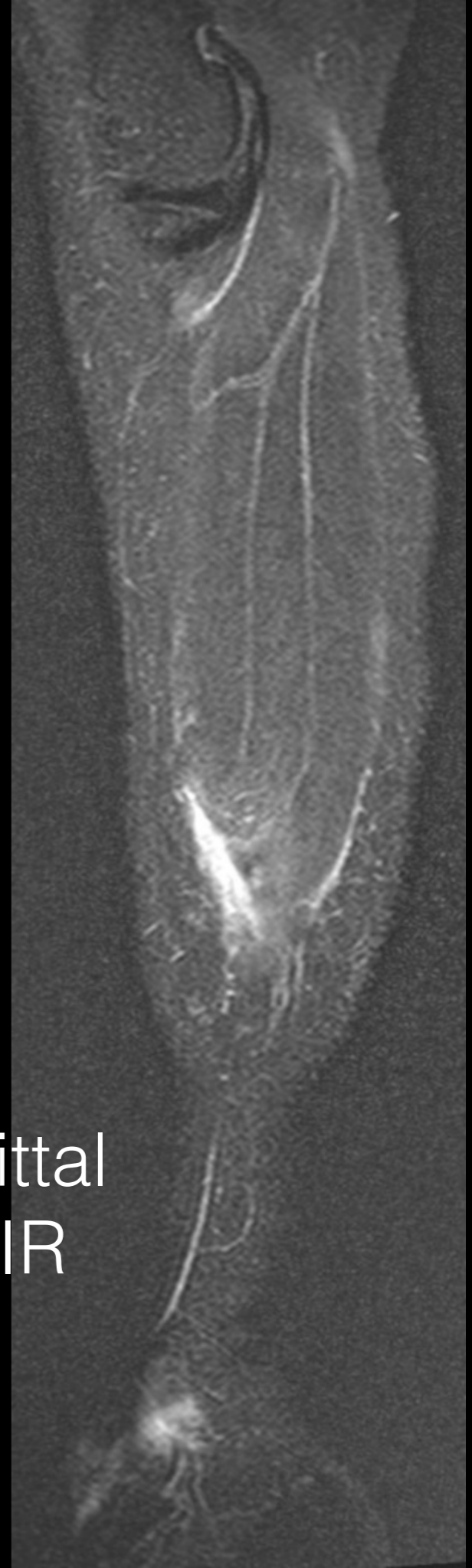
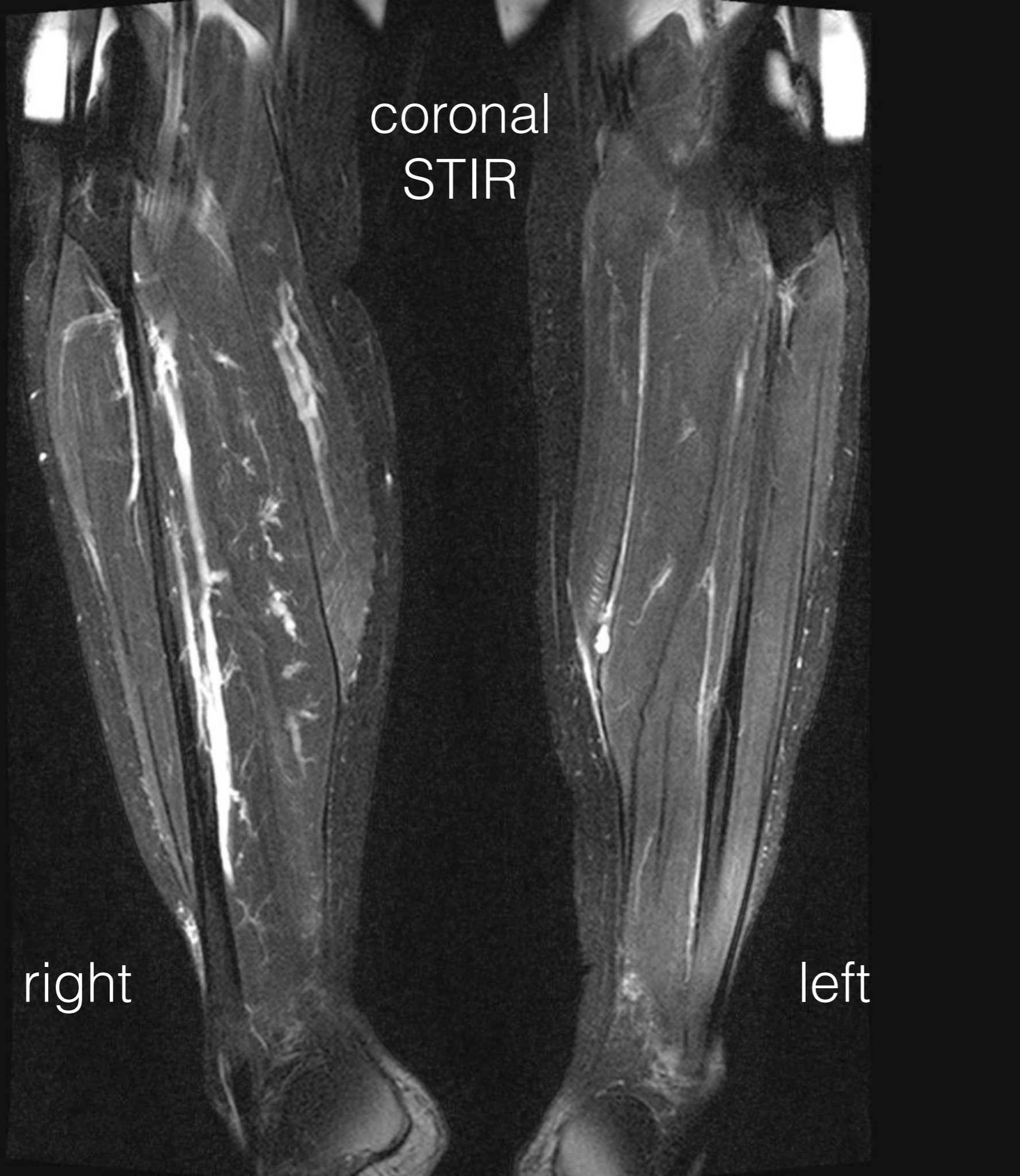
axial PD fat sat

coronal
STIR

right

left

sagittal
STIR

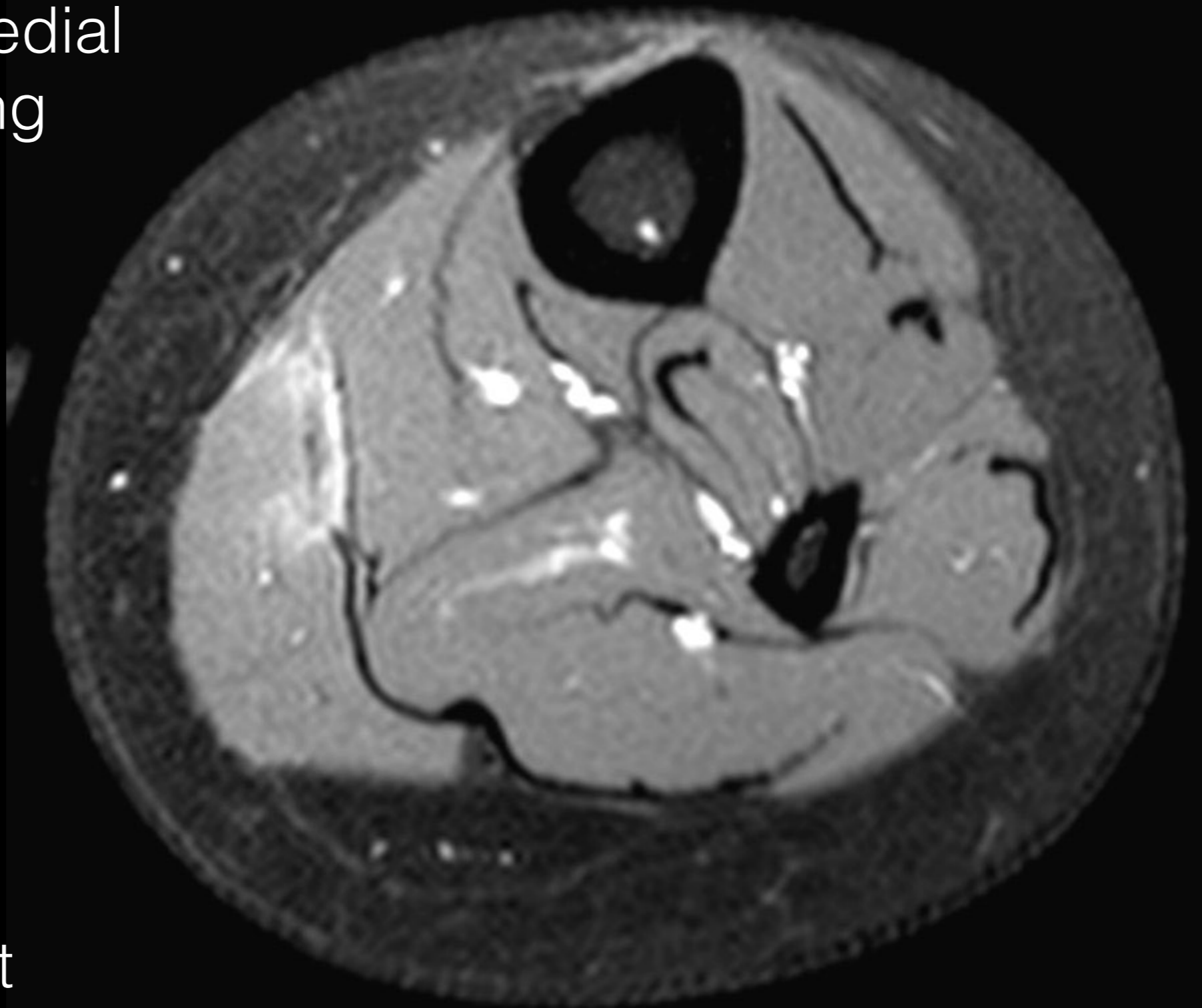


46 F

felt "pop" in left medial
calf while playing
basketball

?

axial PD fat sat

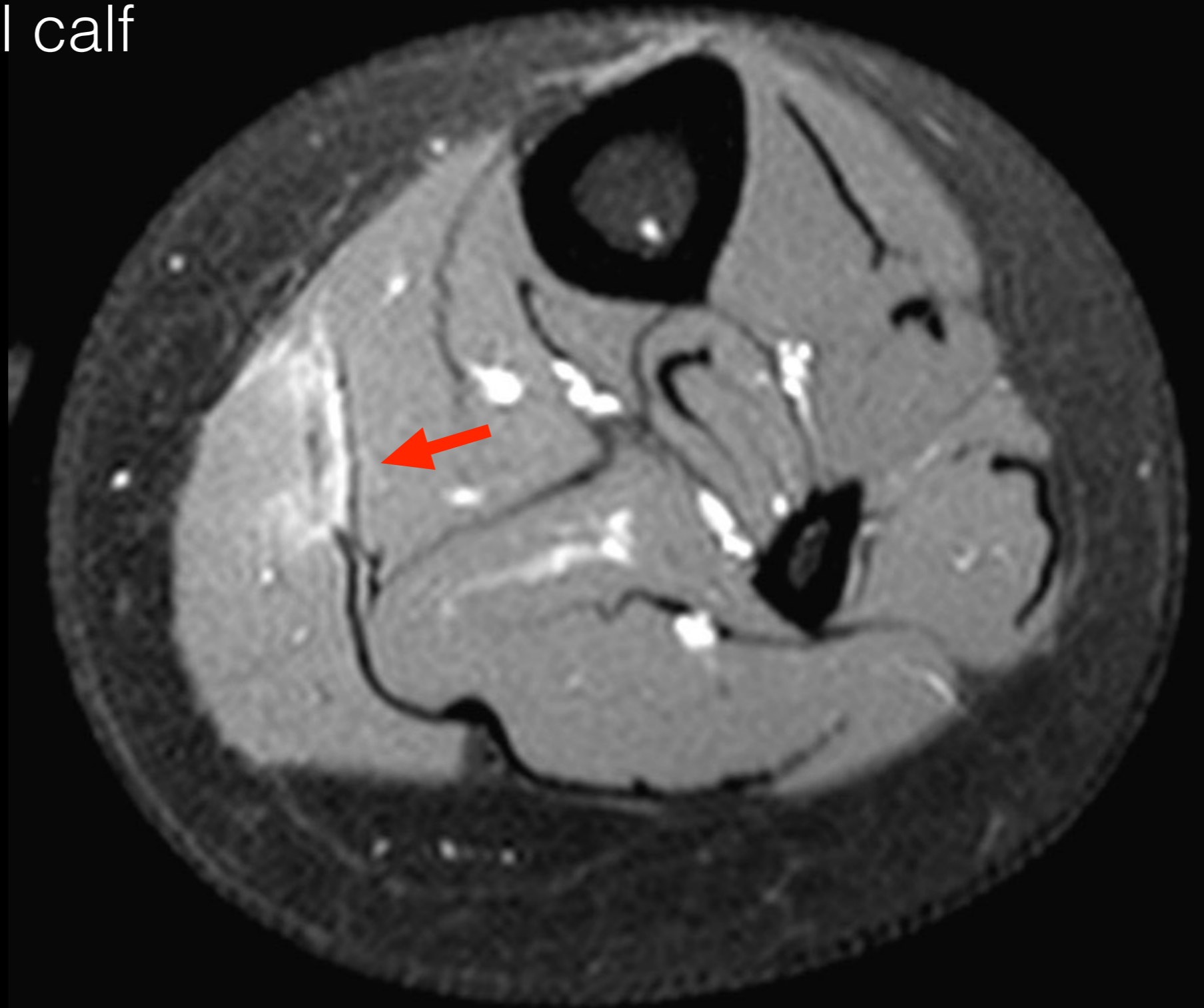


46 F

felt “pop” in medial calf
while playing
basketball

“tennis leg”

focal tear, medial
head of
gastrocnemius

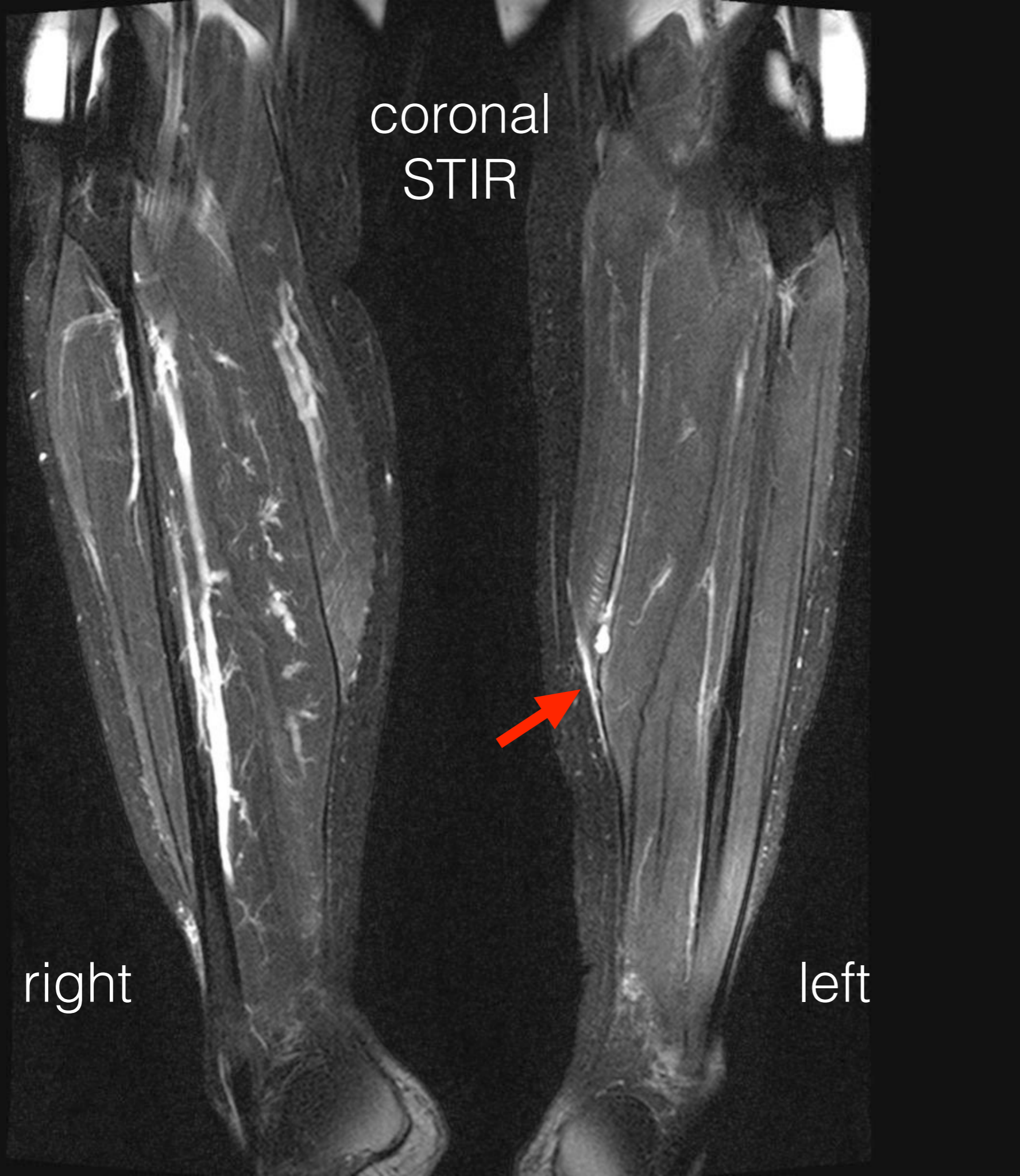


coronal
STIR

right

left

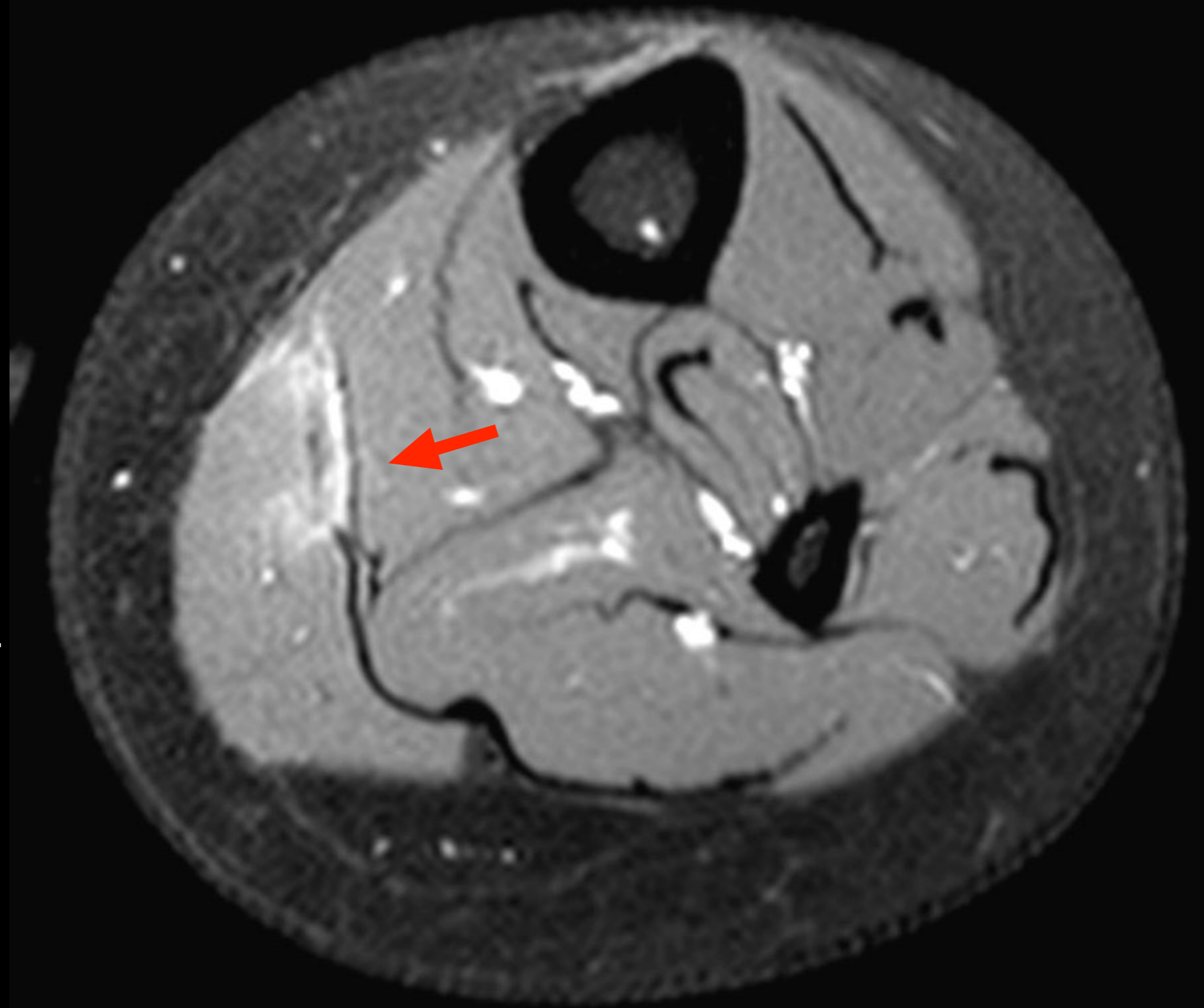
sagittal
STIR



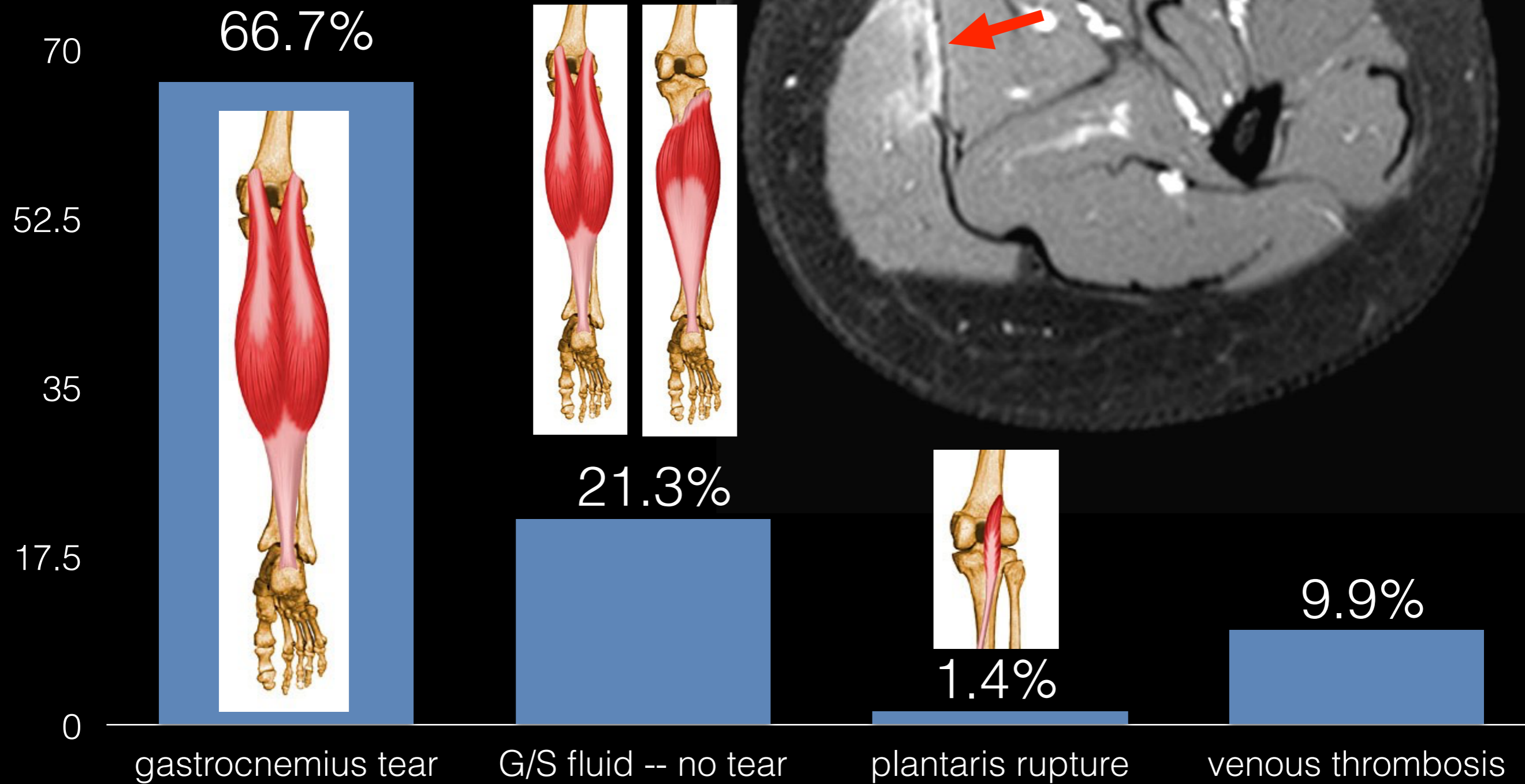
Delgado et al.
Radiology. 2002 Jul;
224(1):112–9.

“tennis leg”

middle-aged
person who
complains of sport-
related acute pain
in the middle
portion of the calf,
associated with a
snapping sensation



n = 141



Case 5

48 F

ring finger injury 10
days ago — now
cannot flex well



48 F

ring finger injury 10
days ago — now
cannot flex well

?



48 F

ring finger injury 10
days ago — now
cannot flex well



48 F

ring finger injury 10
days ago — now
cannot flex well



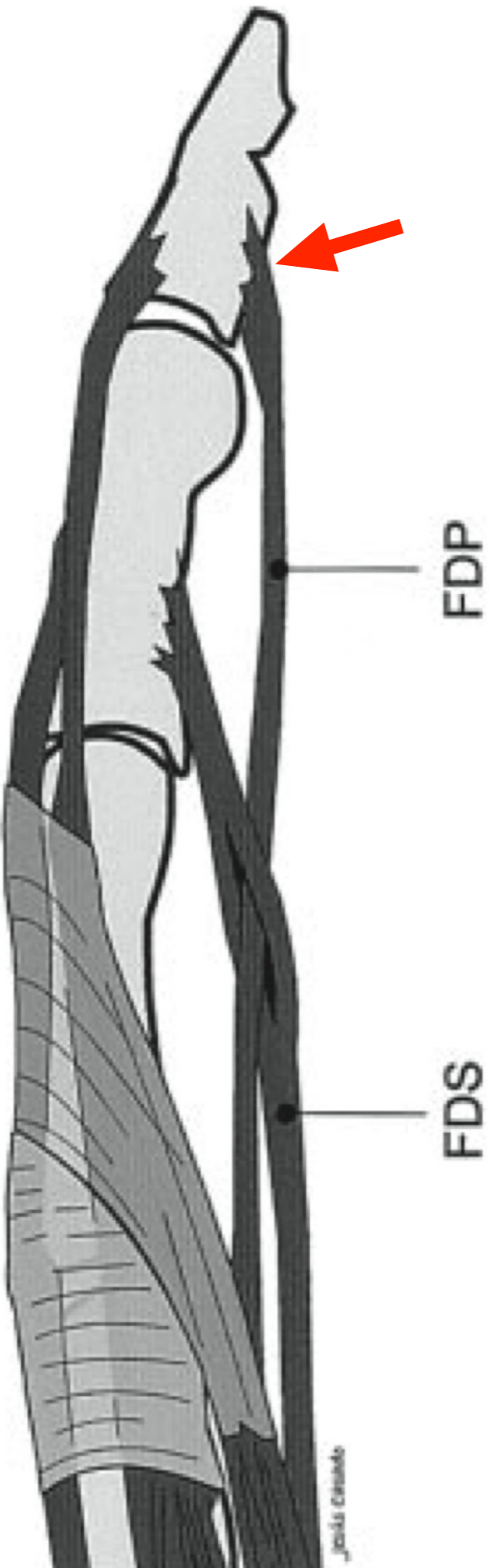
48 F

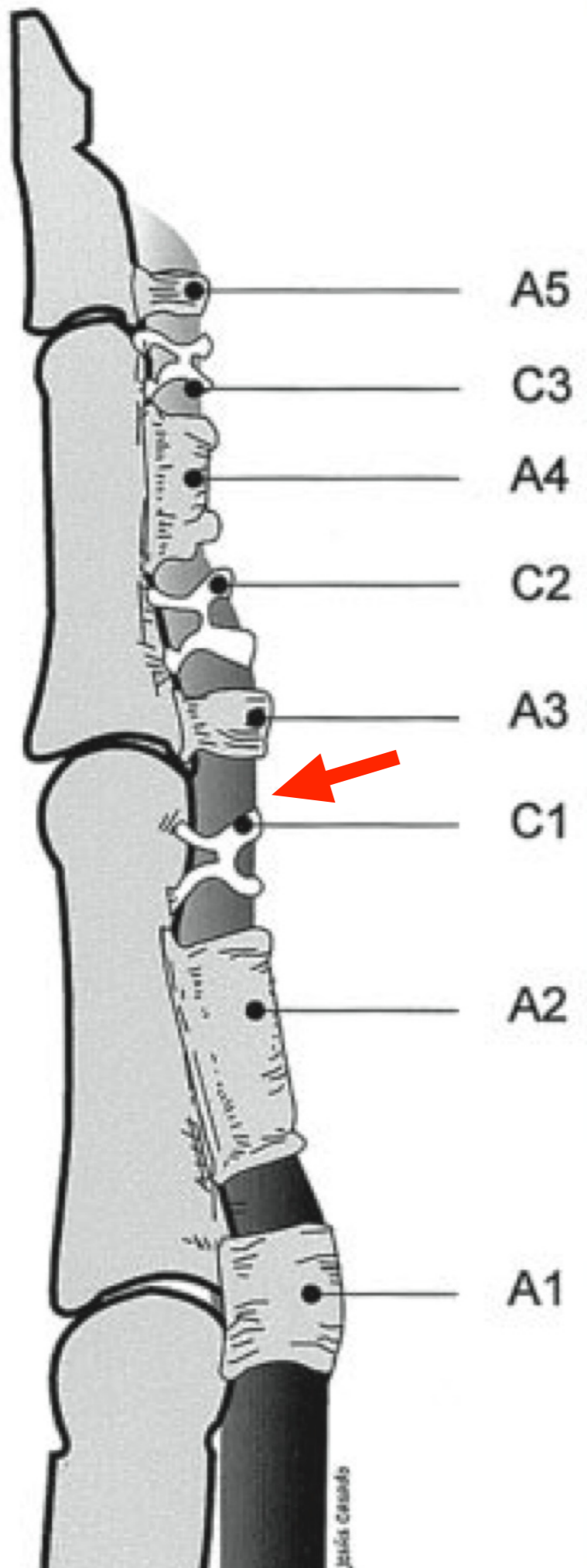
ring finger injury 10
days ago — now
cannot flex well

“jersey finger”

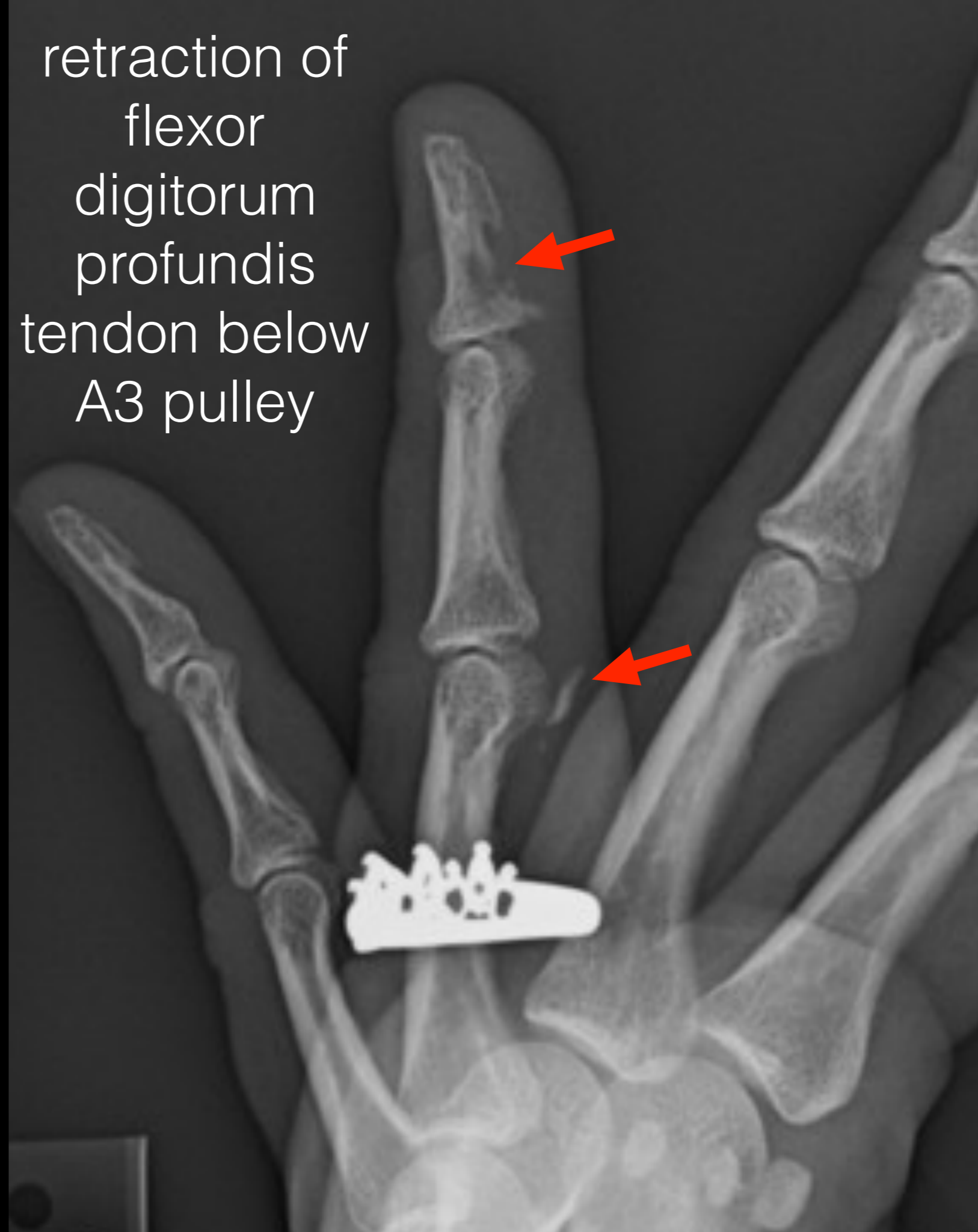
avulsion of flexor
digitorum profundus
insertion







retraction of
flexor
digitorum
profundis
tendon below
A3 pulley



Clavero et al.
Radiographics. 2002
Mar;22(2):237–56.

“jersey finger”

sudden
hyperextension during
active flexion

usually ring finger



Case 6

56 F

shoulder trauma
and pain



56 F

shoulder trauma
and pain



56 F

shoulder trauma
and pain

?



56 F

shoulder trauma
and pain

a hint



56 F

shoulder trauma
and pain

?



56 F

shoulder trauma
and pain

dislocation of
biceps tendon



56 F

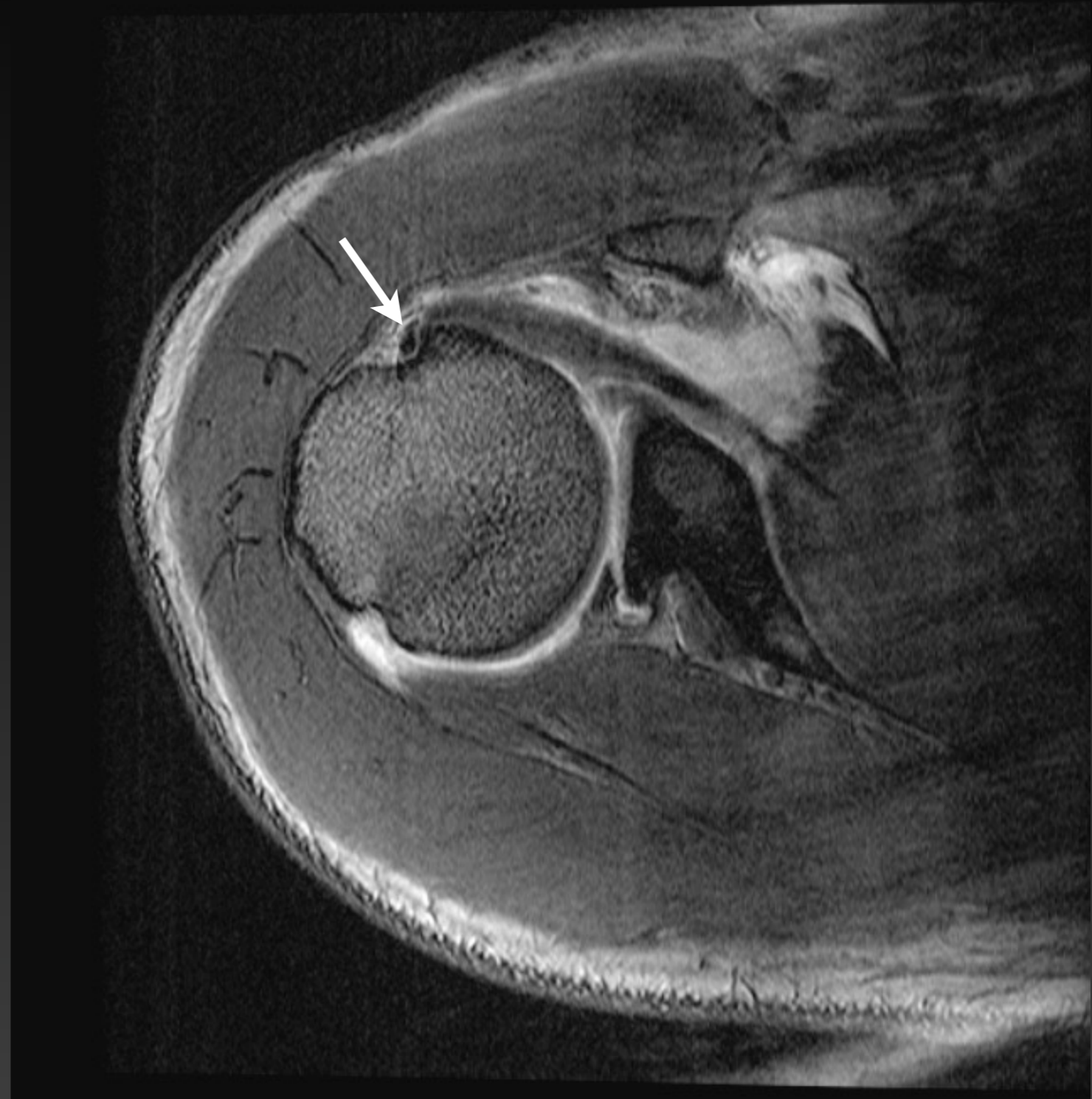
shoulder trauma
and pain

?

what structure
gave its life to
allow this to
happen?

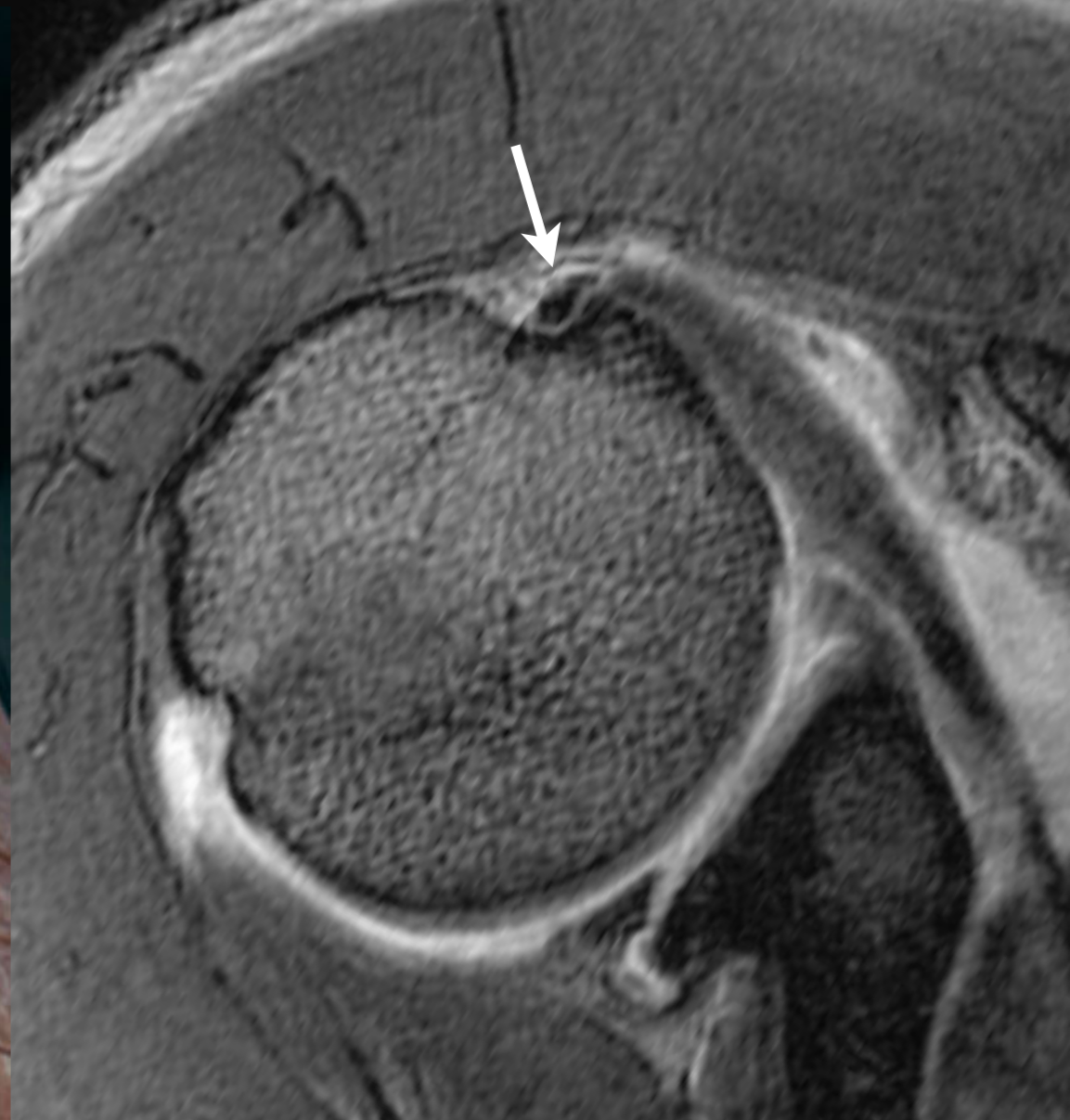


long head of biceps
tendon

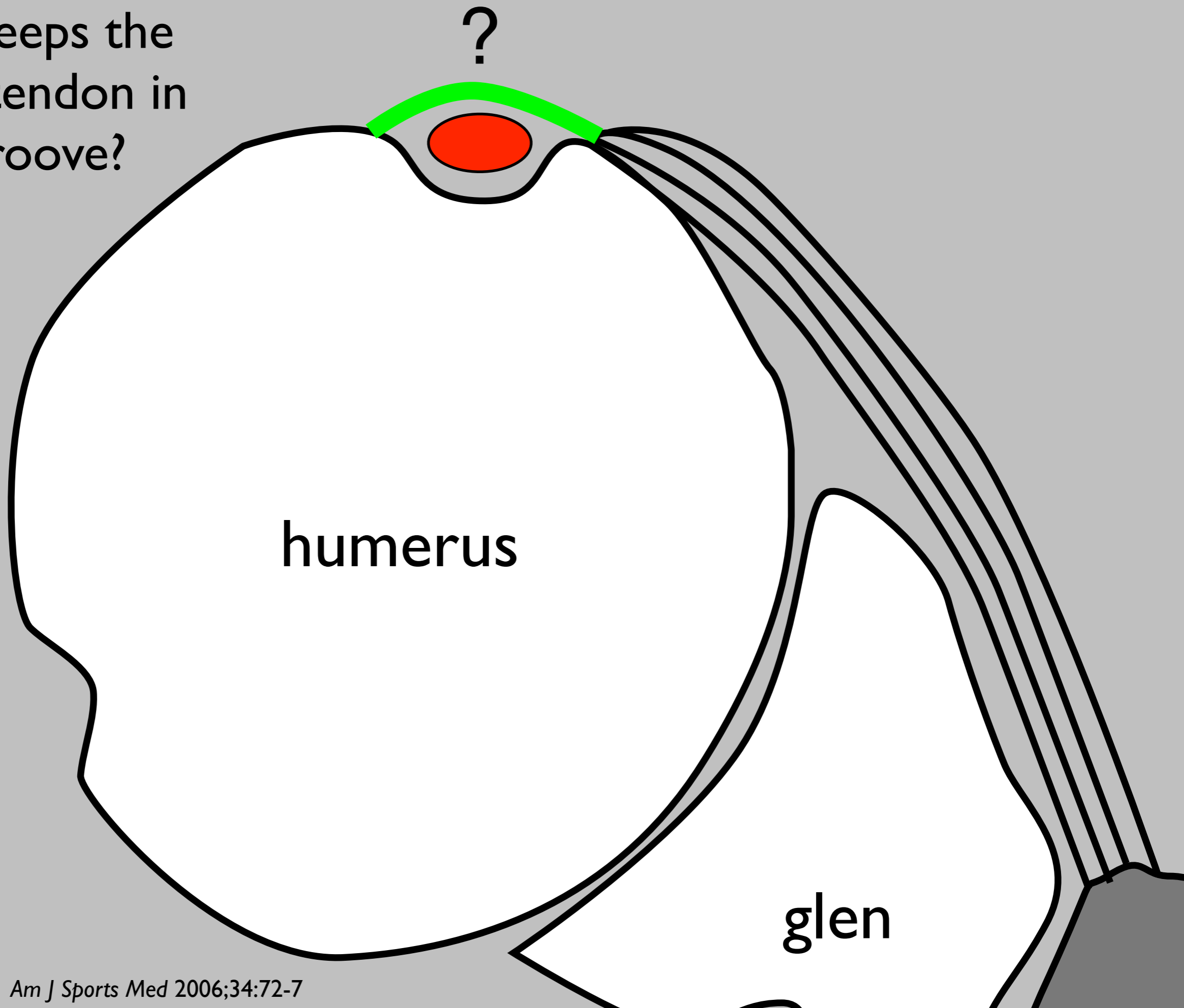








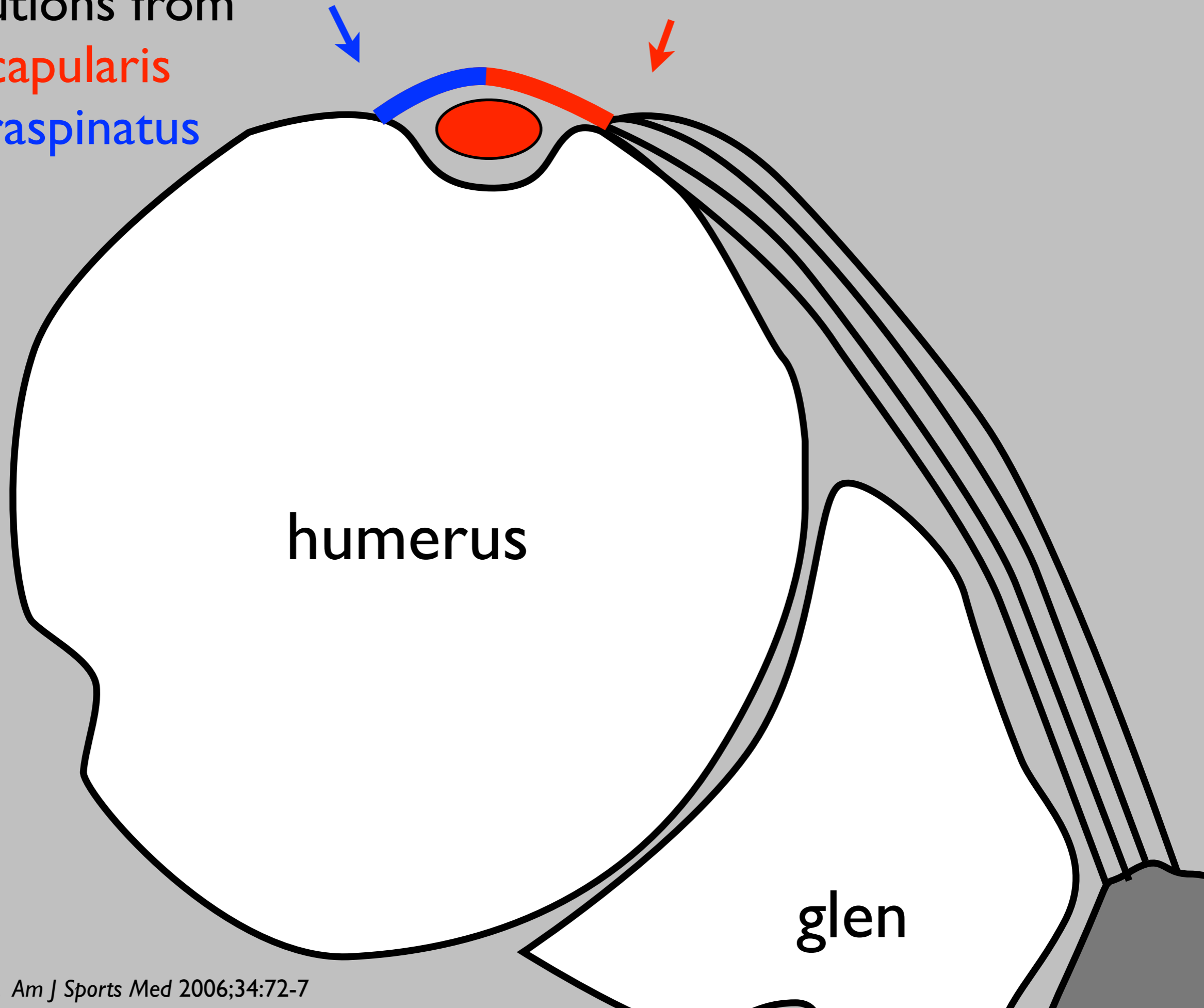
what keeps the
biceps tendon in
its groove?



humerus

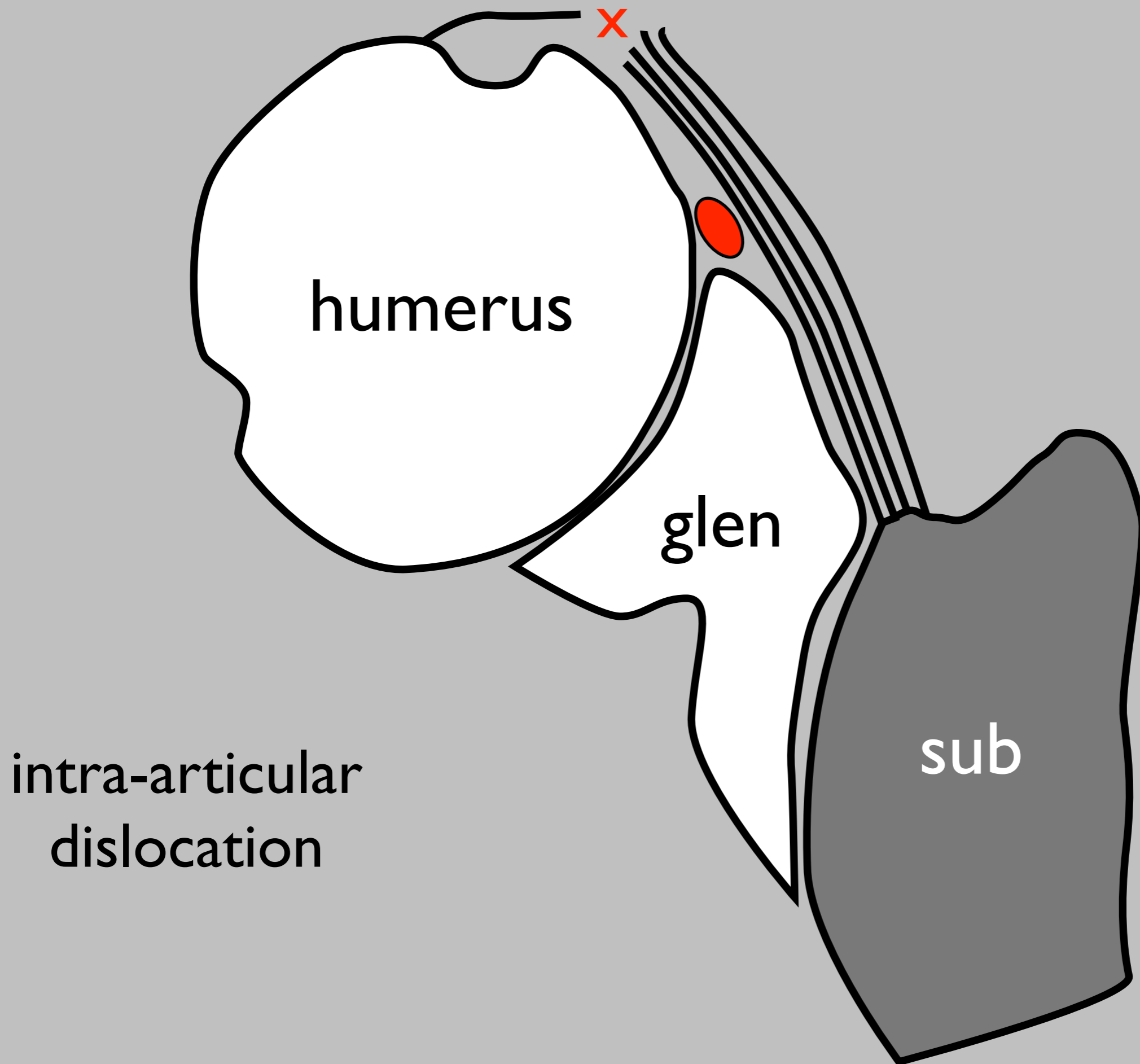
glen

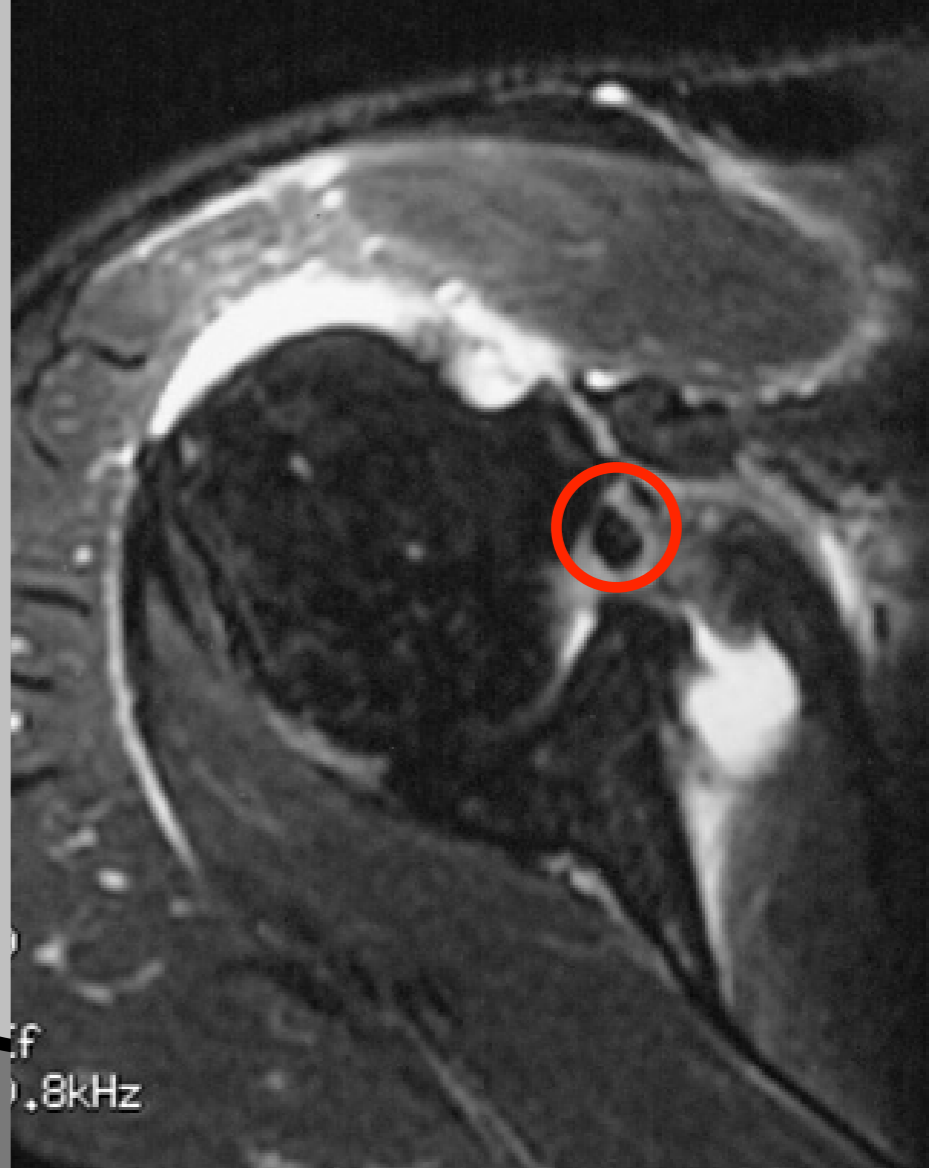
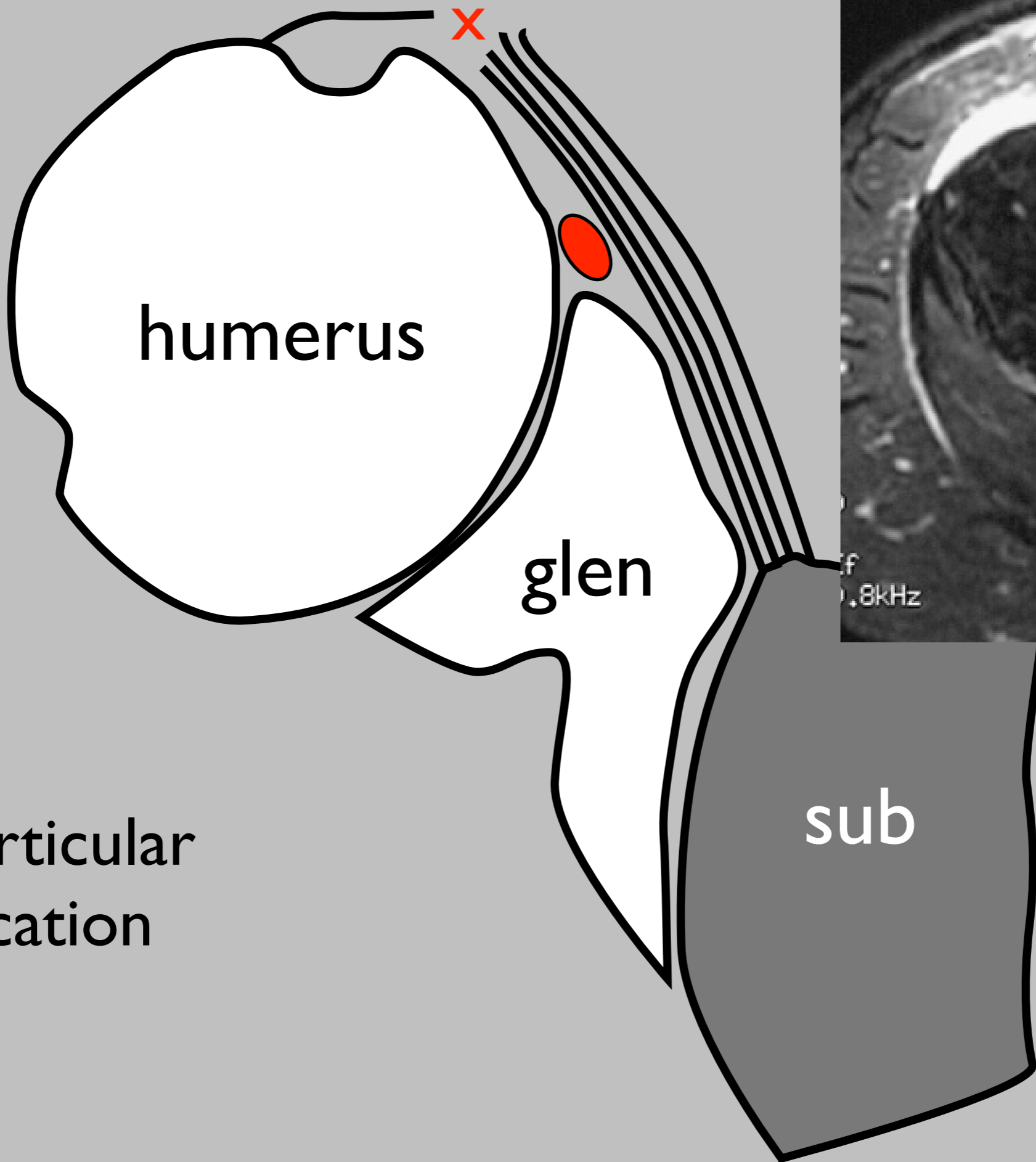
contributions from
subscapularis
& supraspinatus

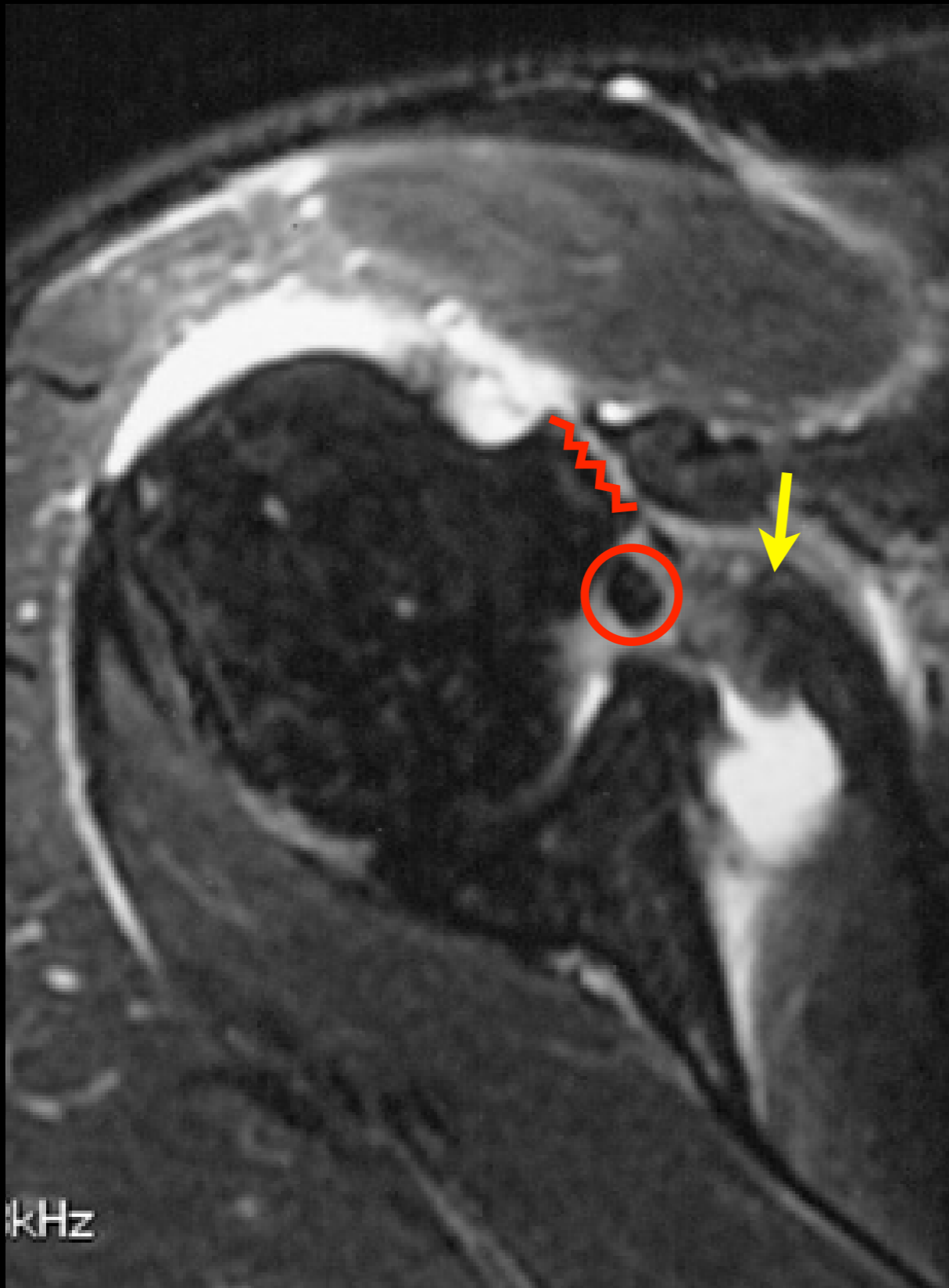


humerus

glen



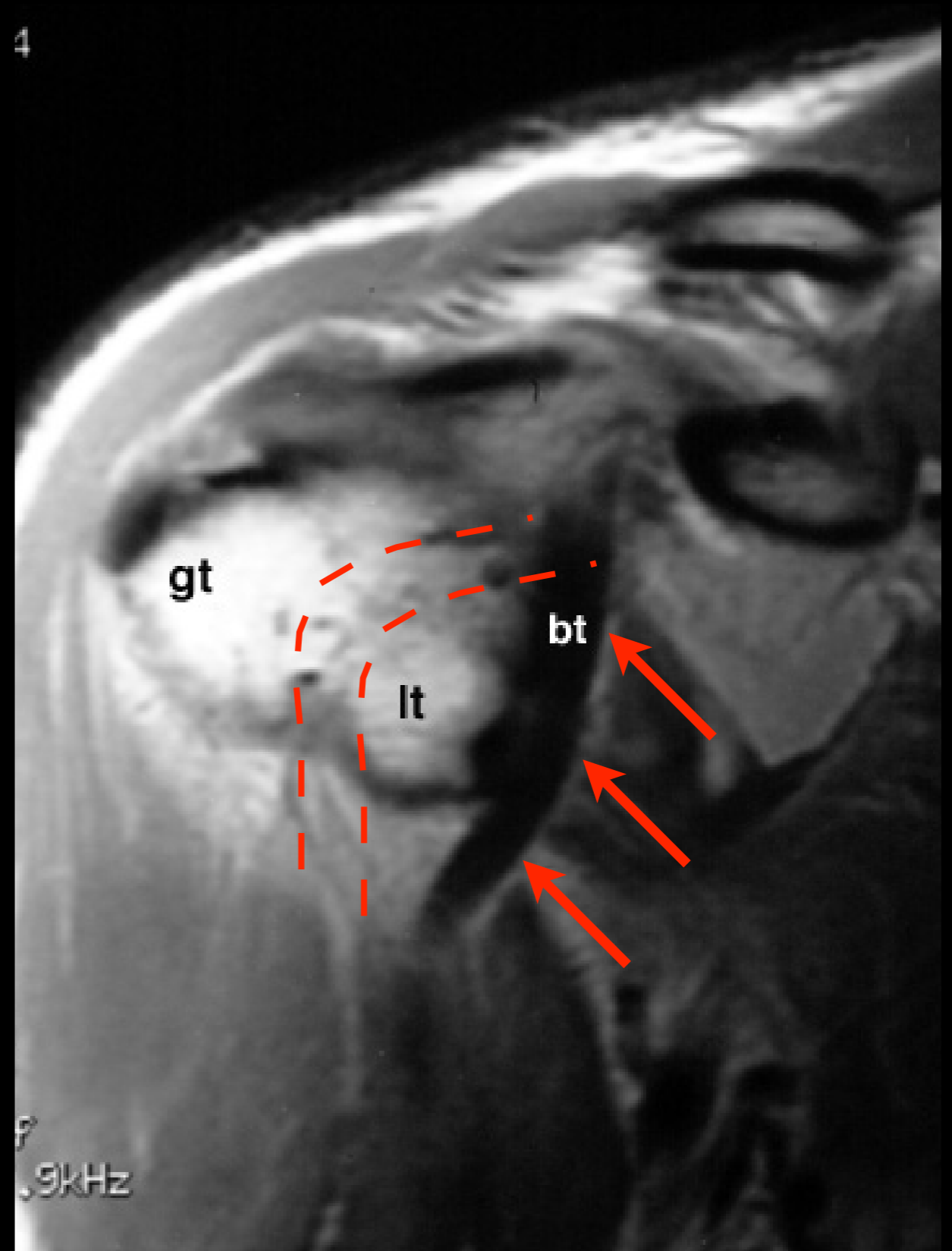




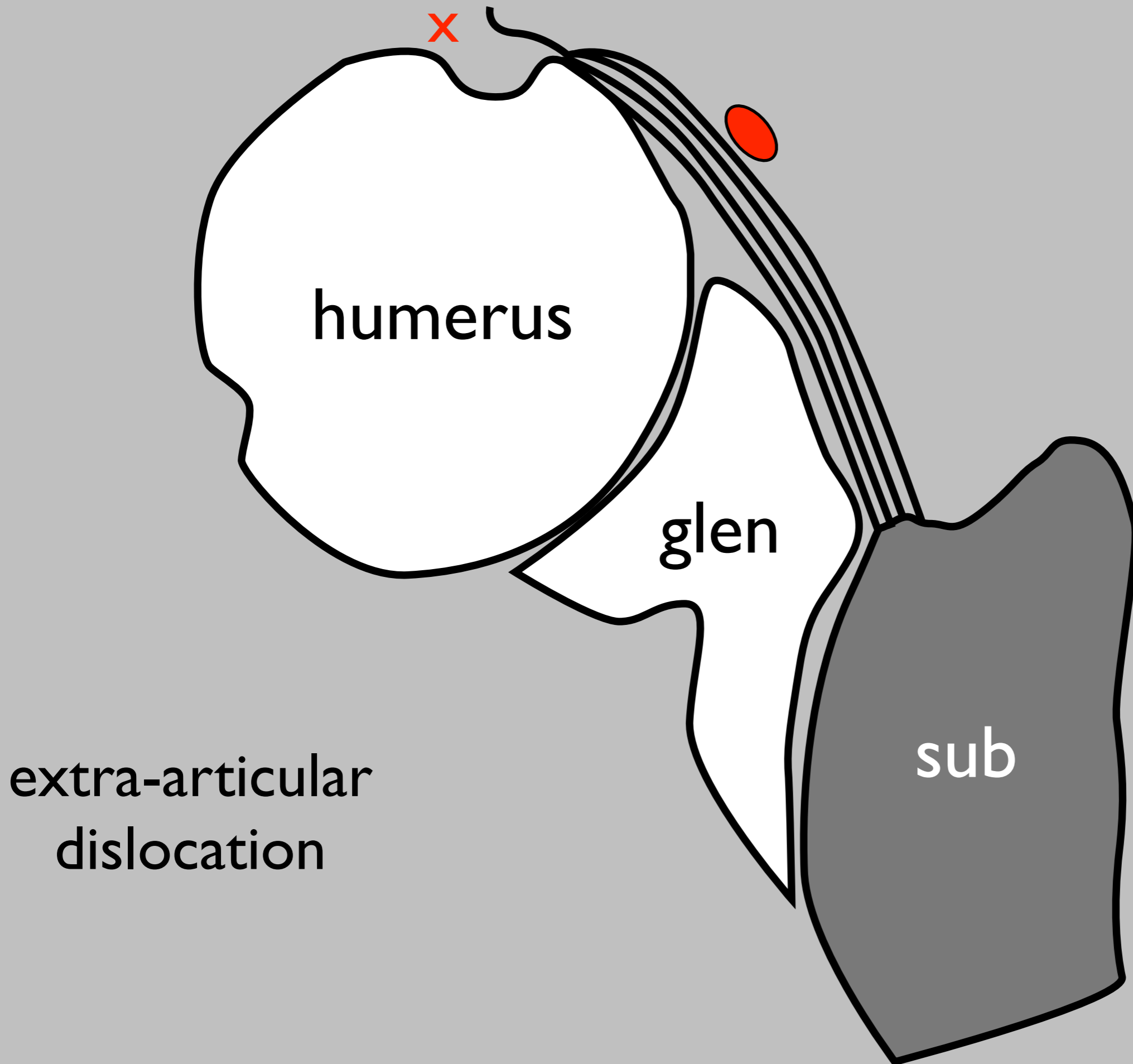
Axial T2W FS

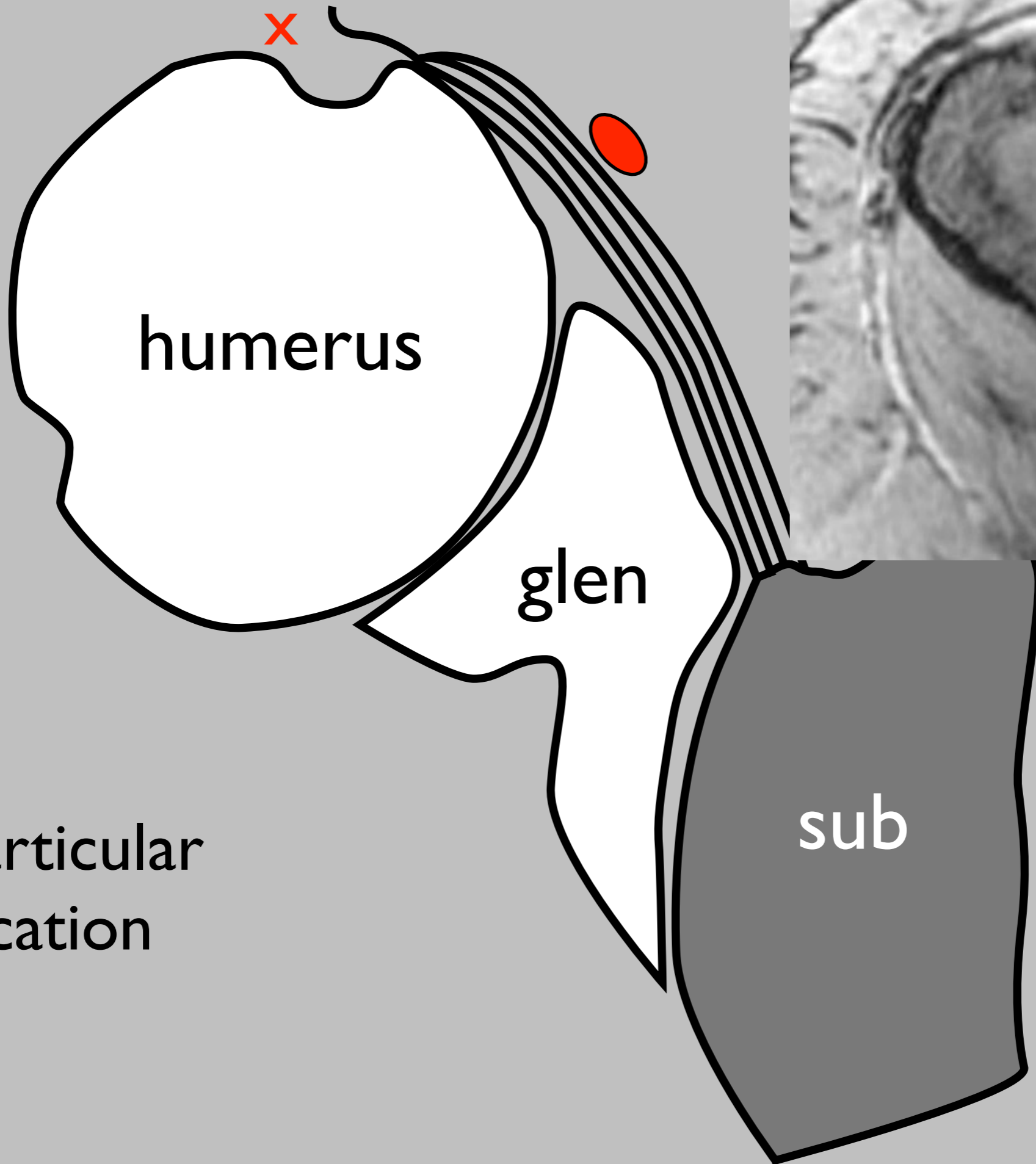


Axial T2W FS



Coronal T2W FS

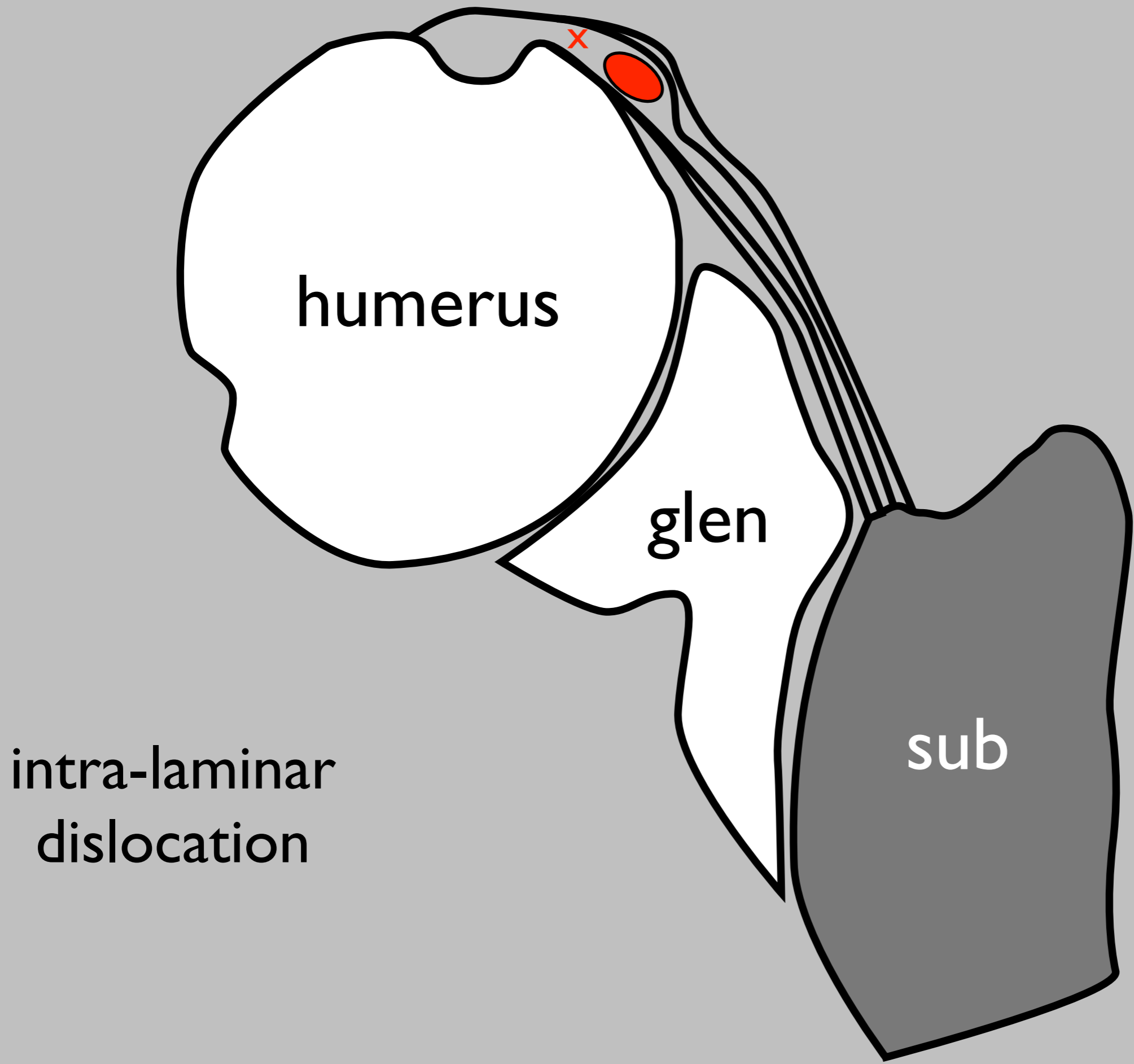




extra-articular
dislocation



sub

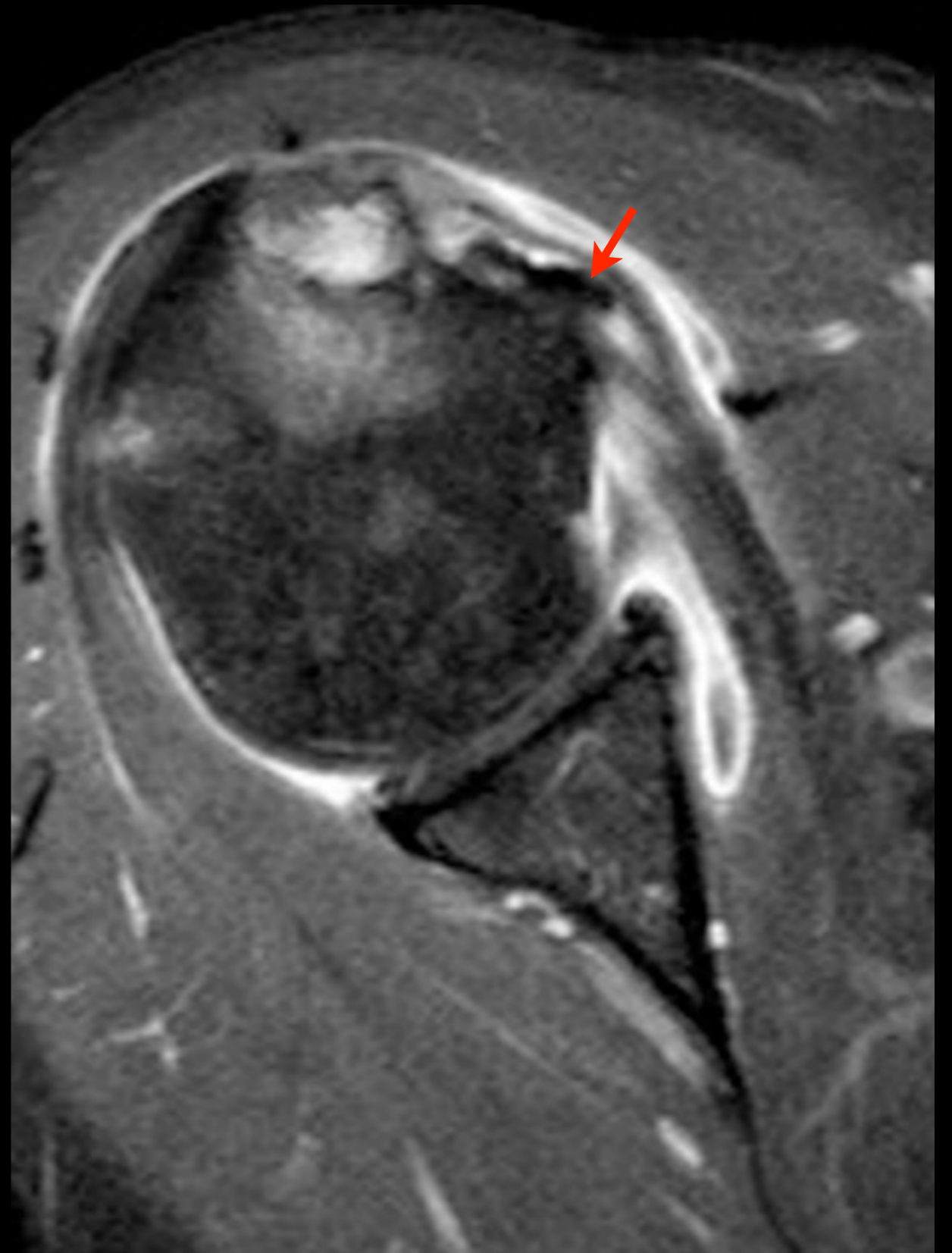
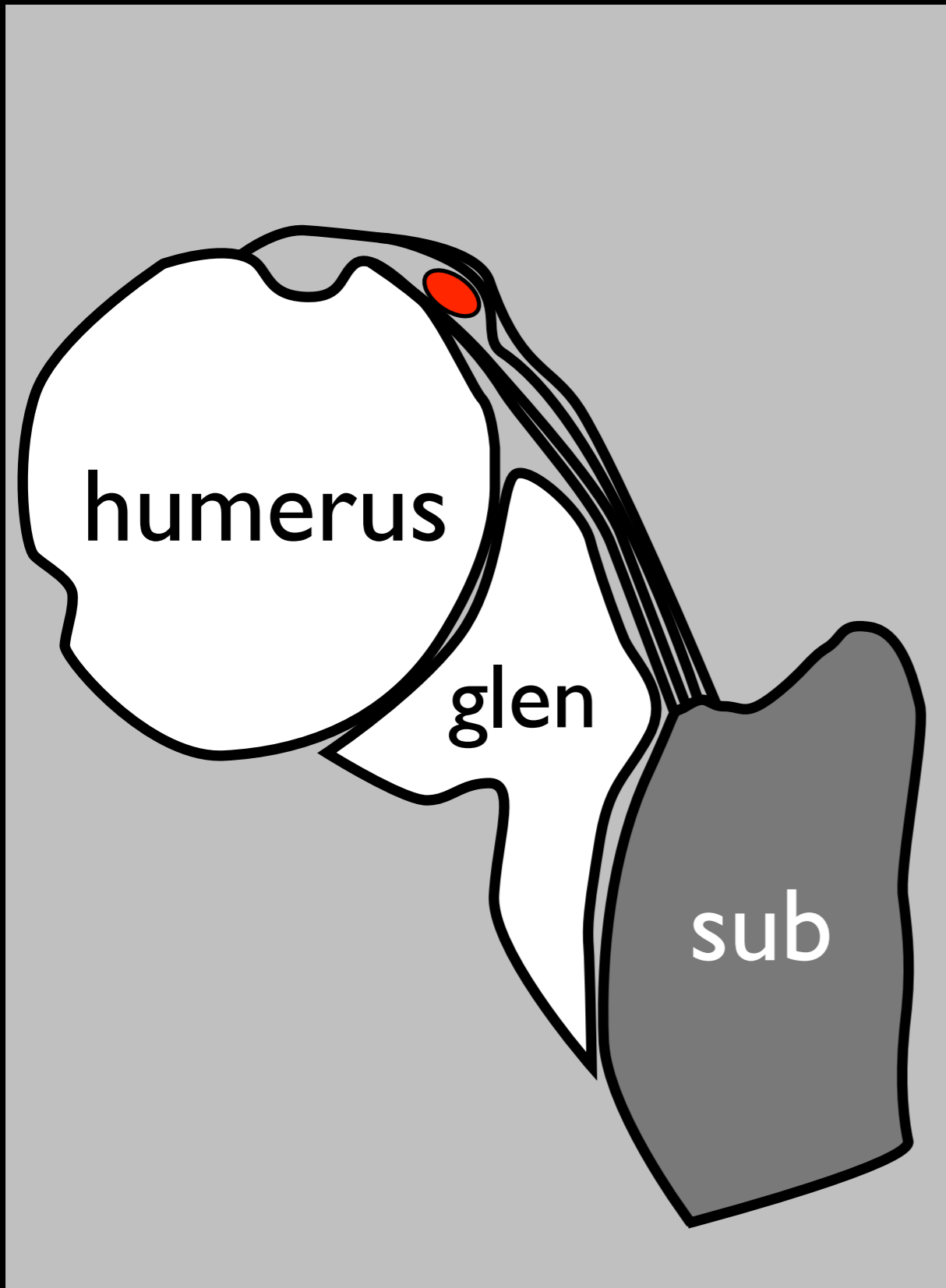


humerus

glen

sub

intra-laminar
dislocation

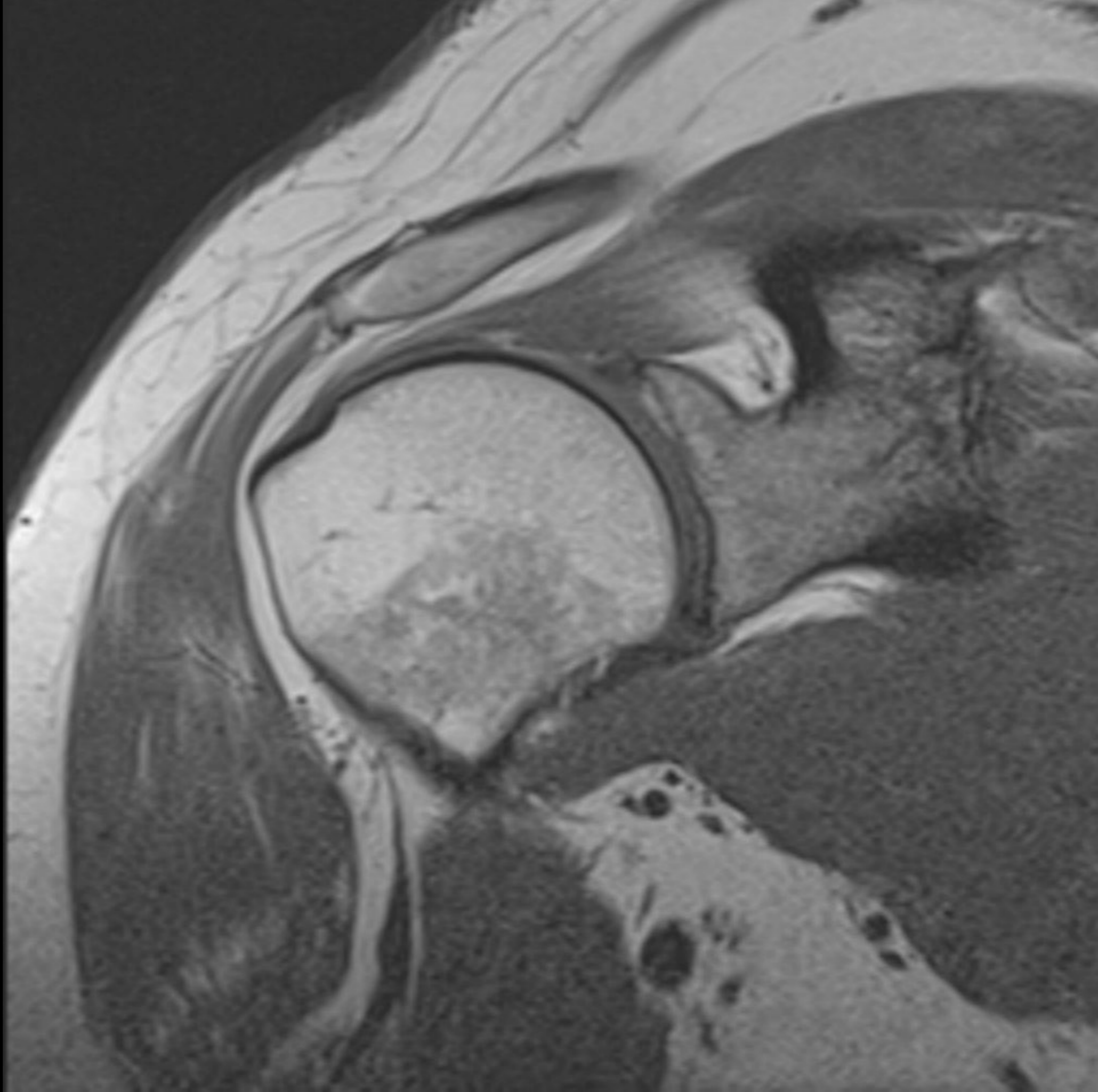


intra-laminar dislocation of biceps tendon

Case 7

47 M

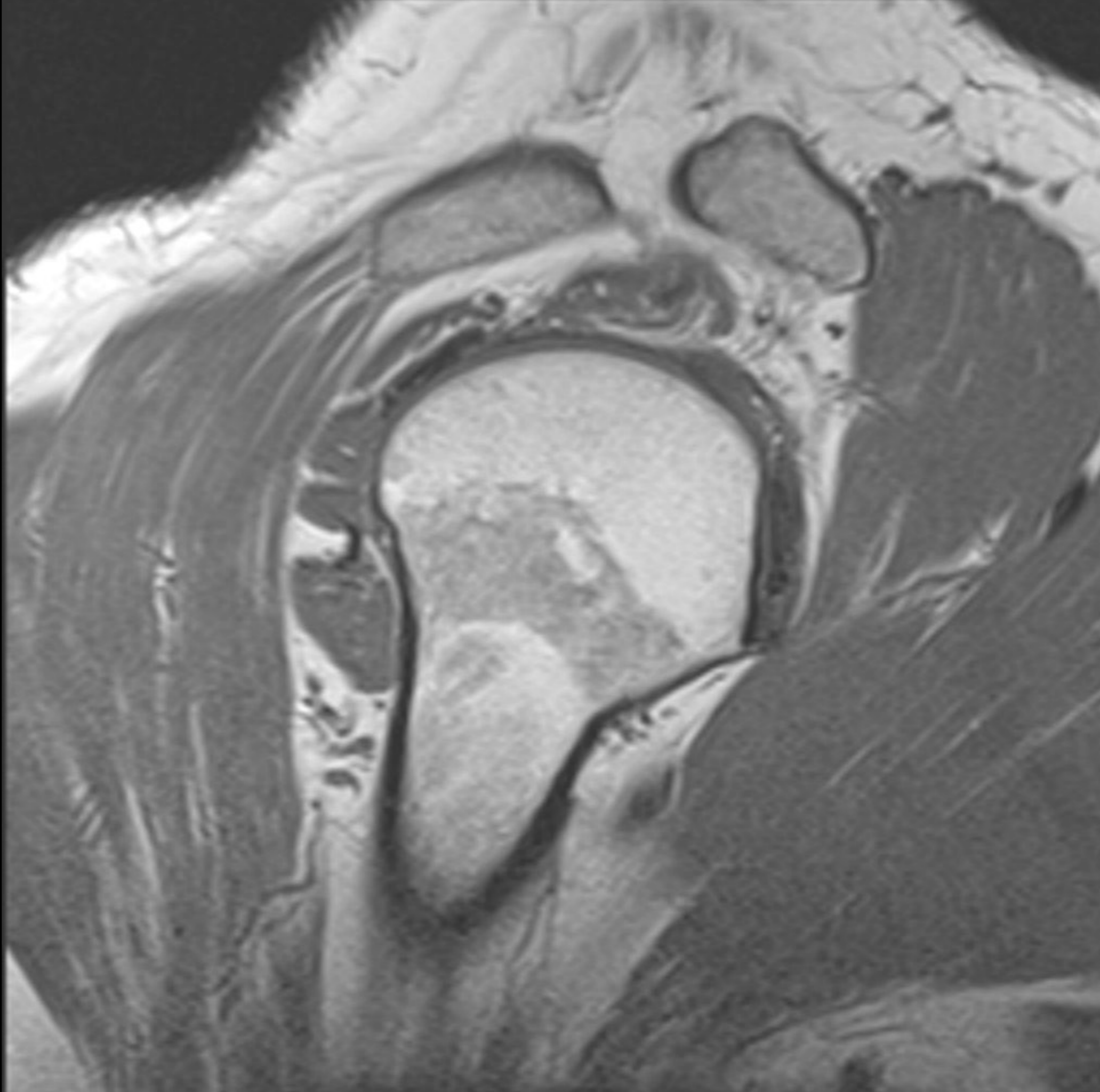
shoulder
pain and
weakness



47 M

shoulder
pain and
weakness

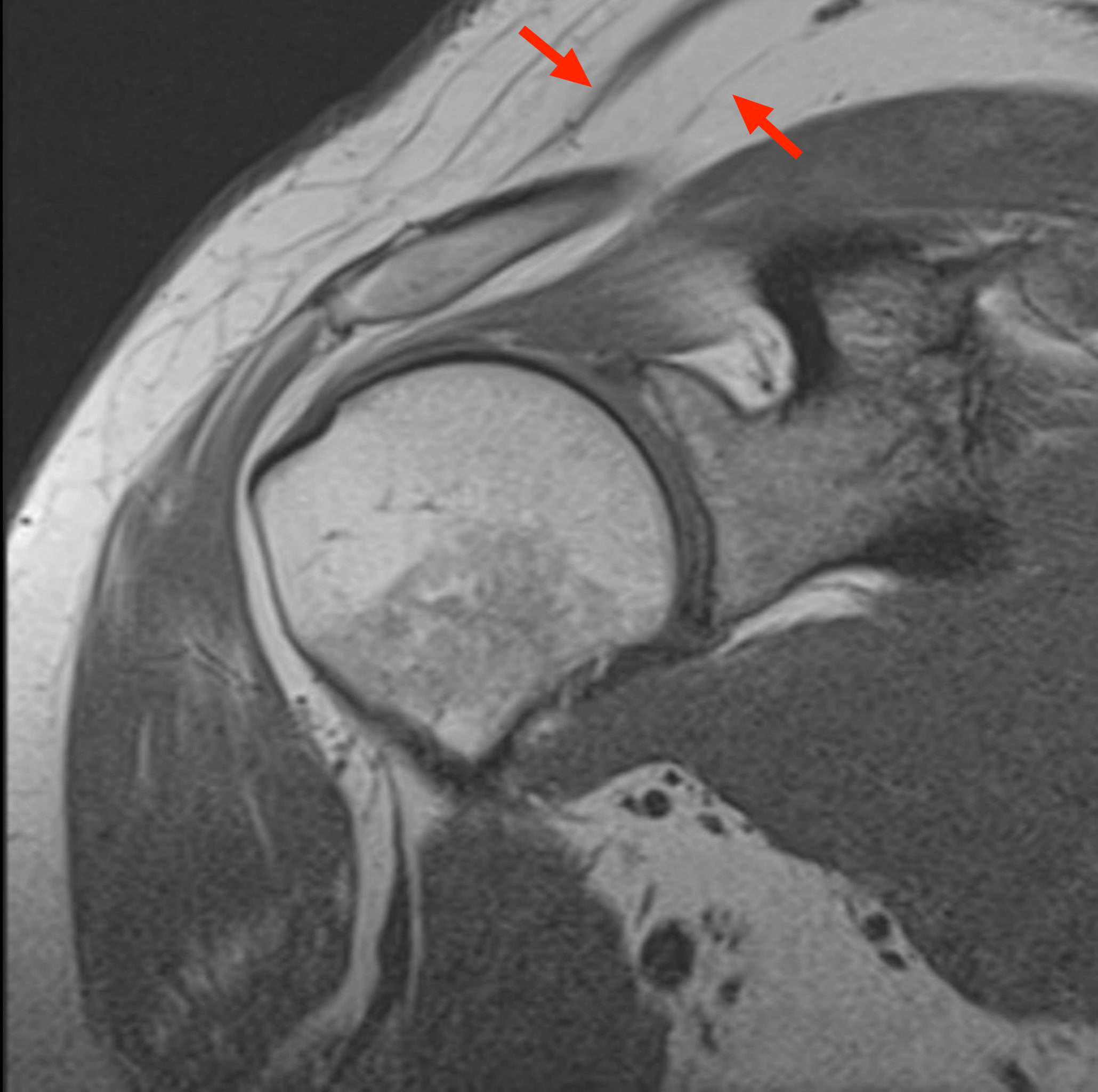
?



47 M

shoulder
pain and
weakness

a hint

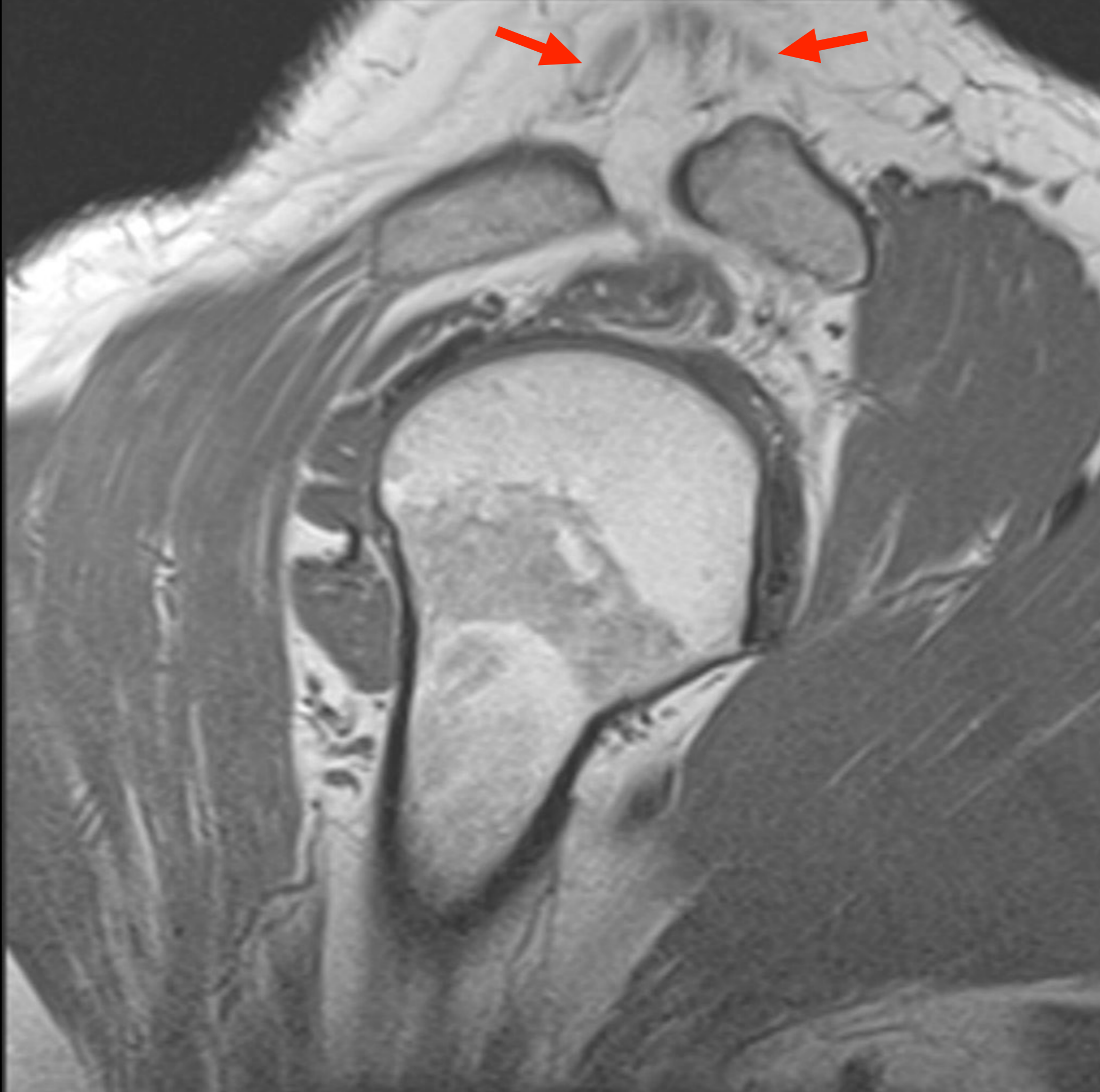


47 M

shoulder
pain and
weakness

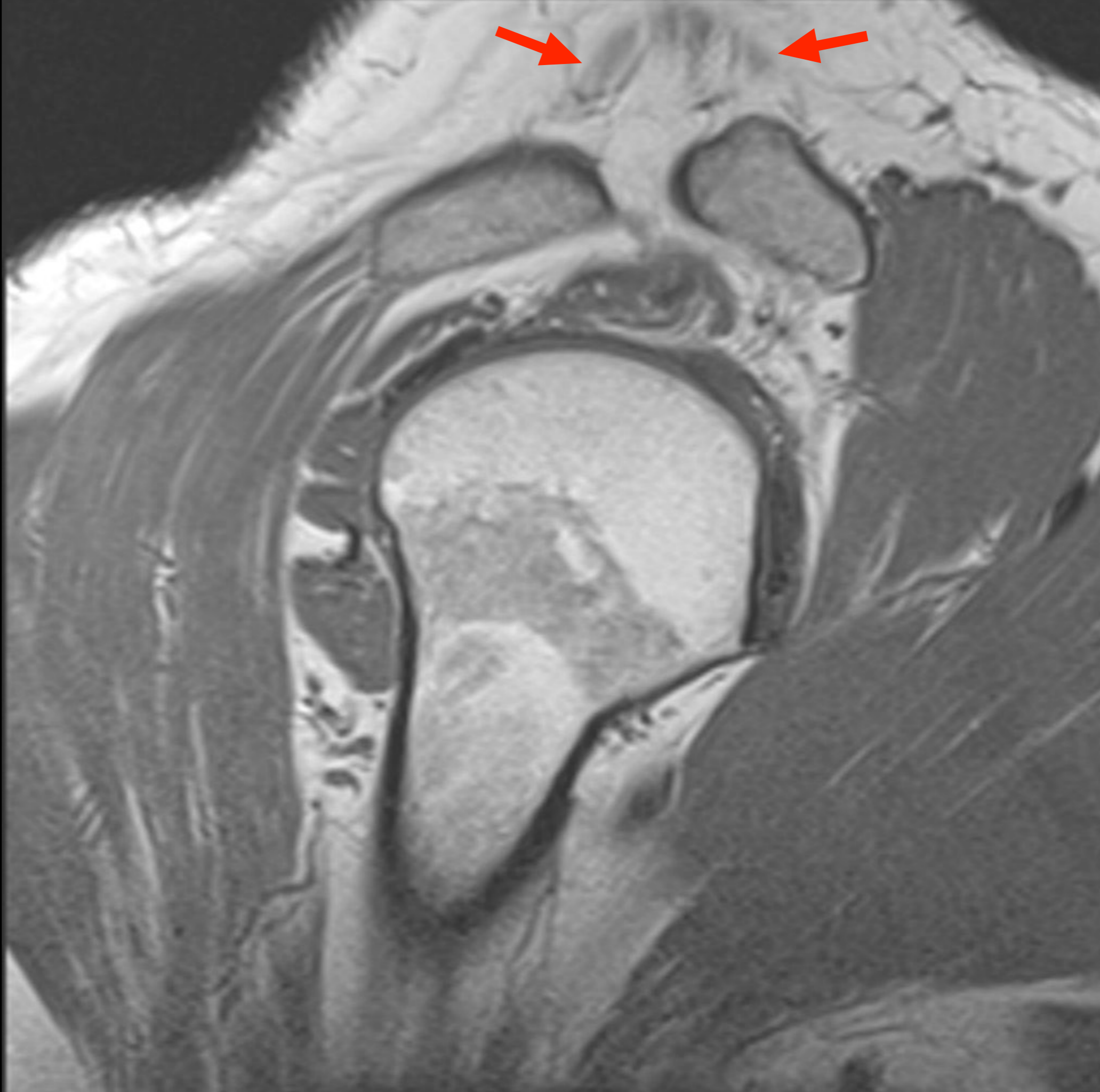
?

another
hint



denervation
patterns
about the
shoulder

Yanny et al.
AJR 2010
1;195:W157

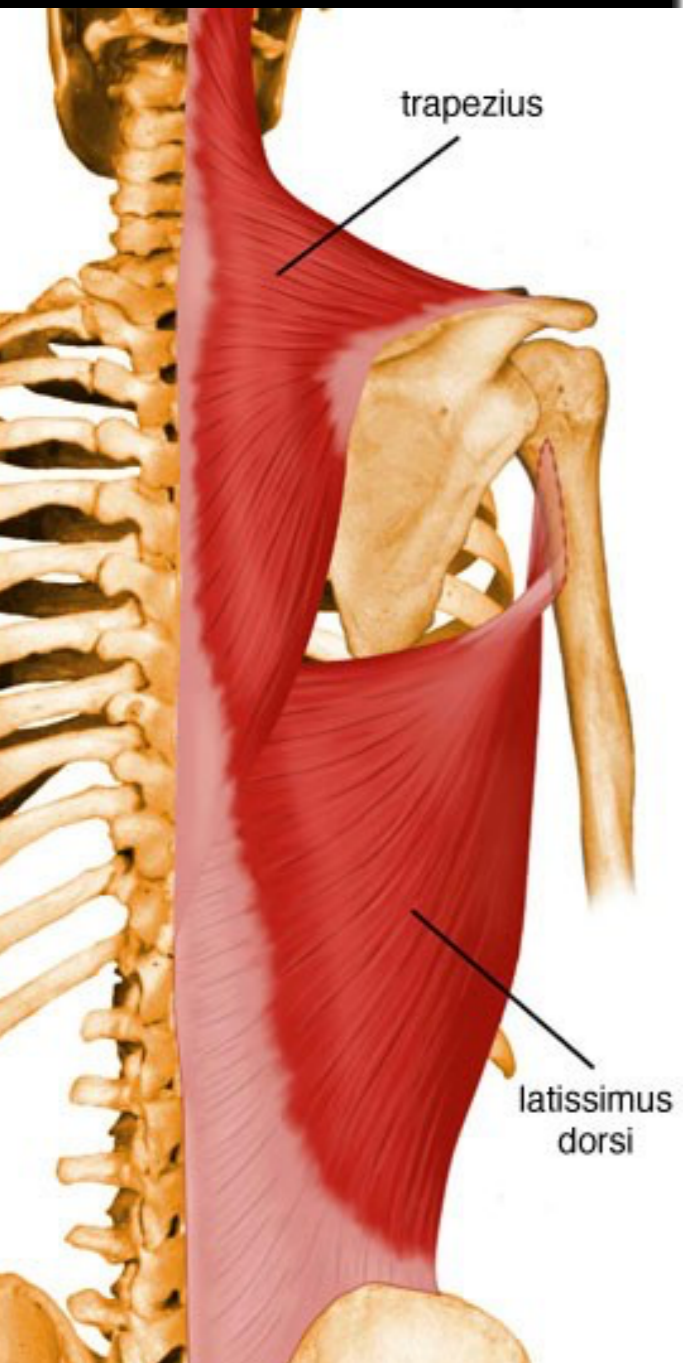


pattern 1.

47 M

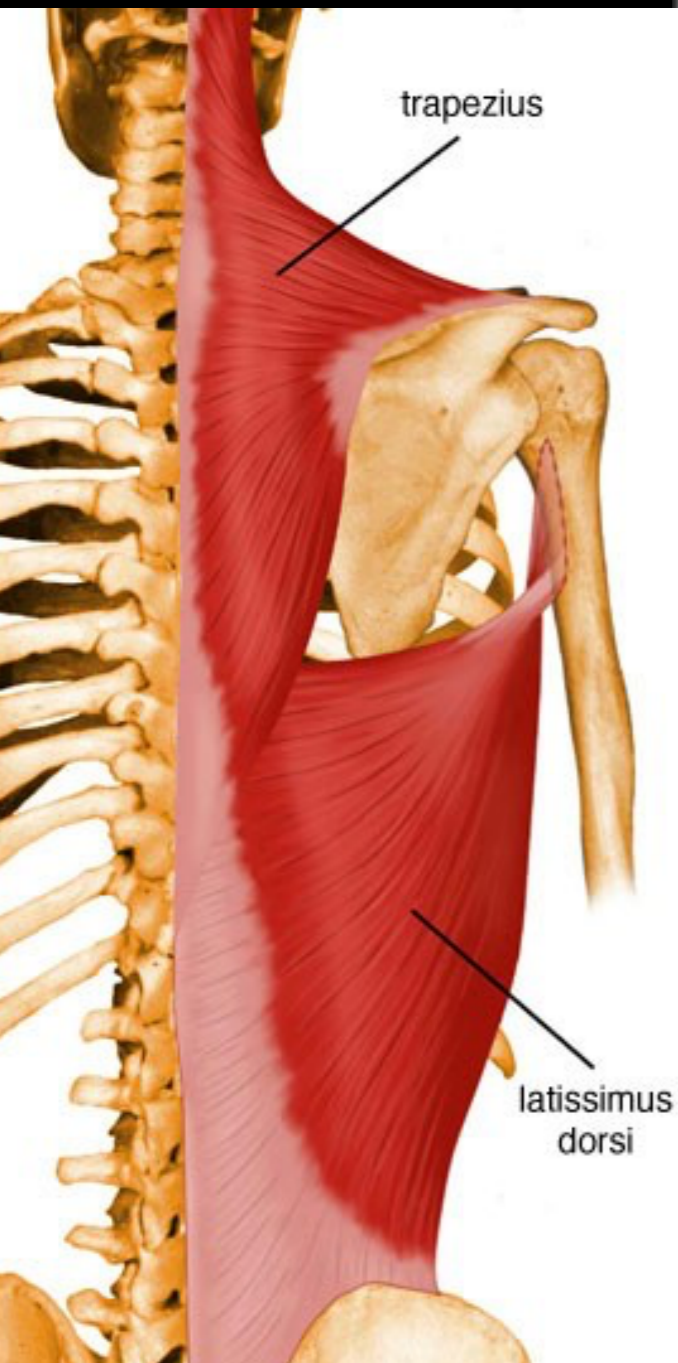
shoulder
pain and
weakness

trapezius

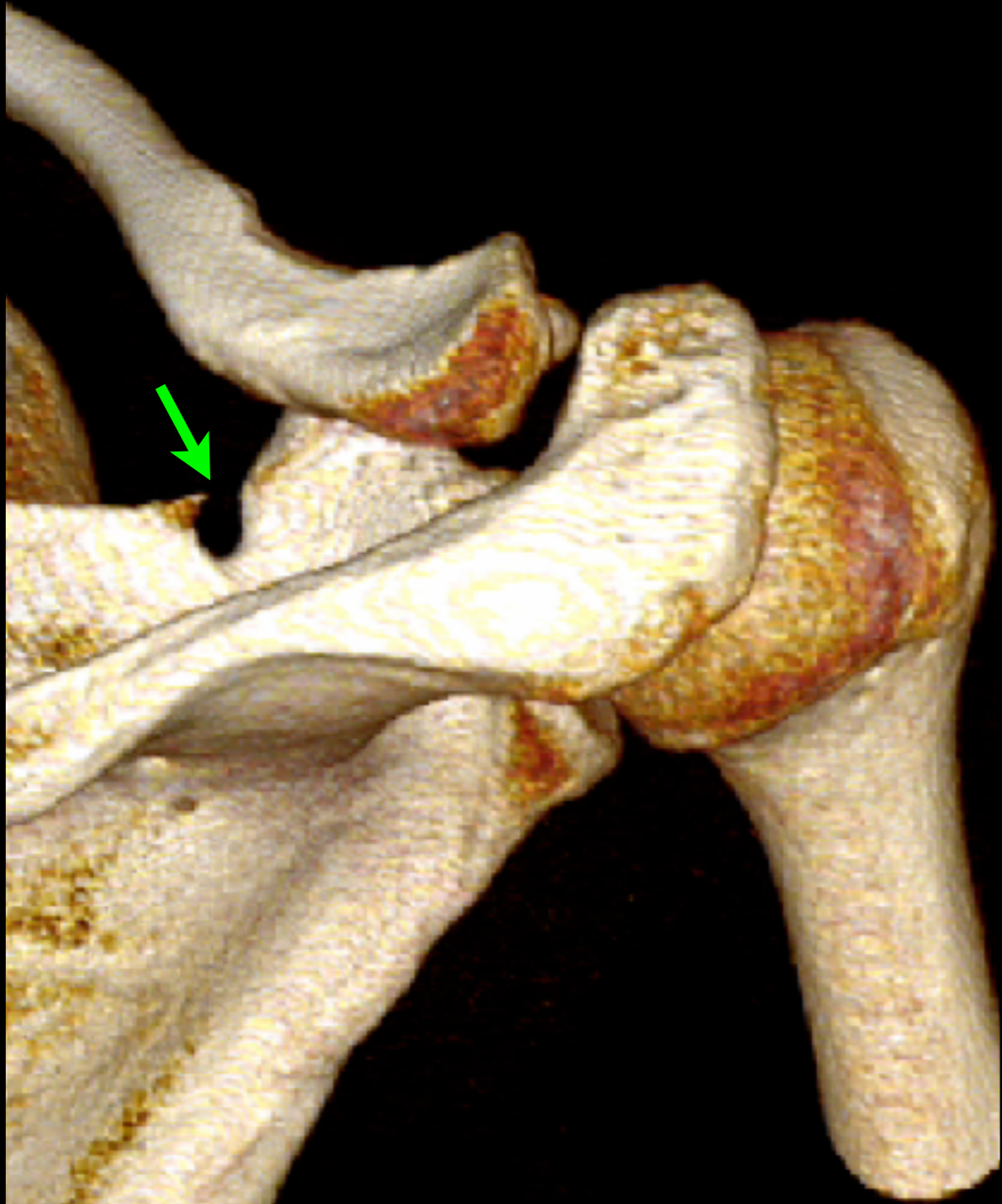


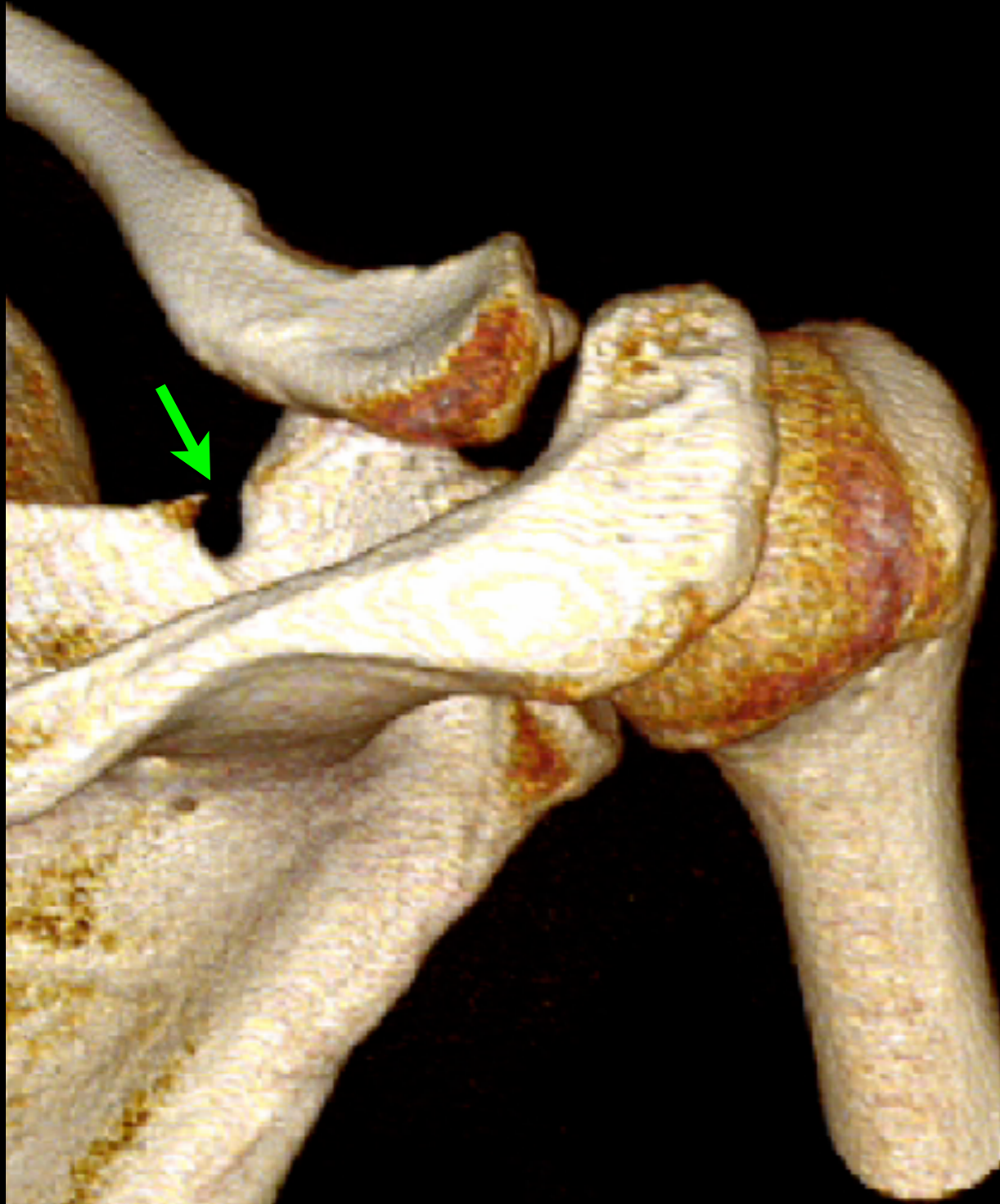
47 M

shoulder
pain and
weakness

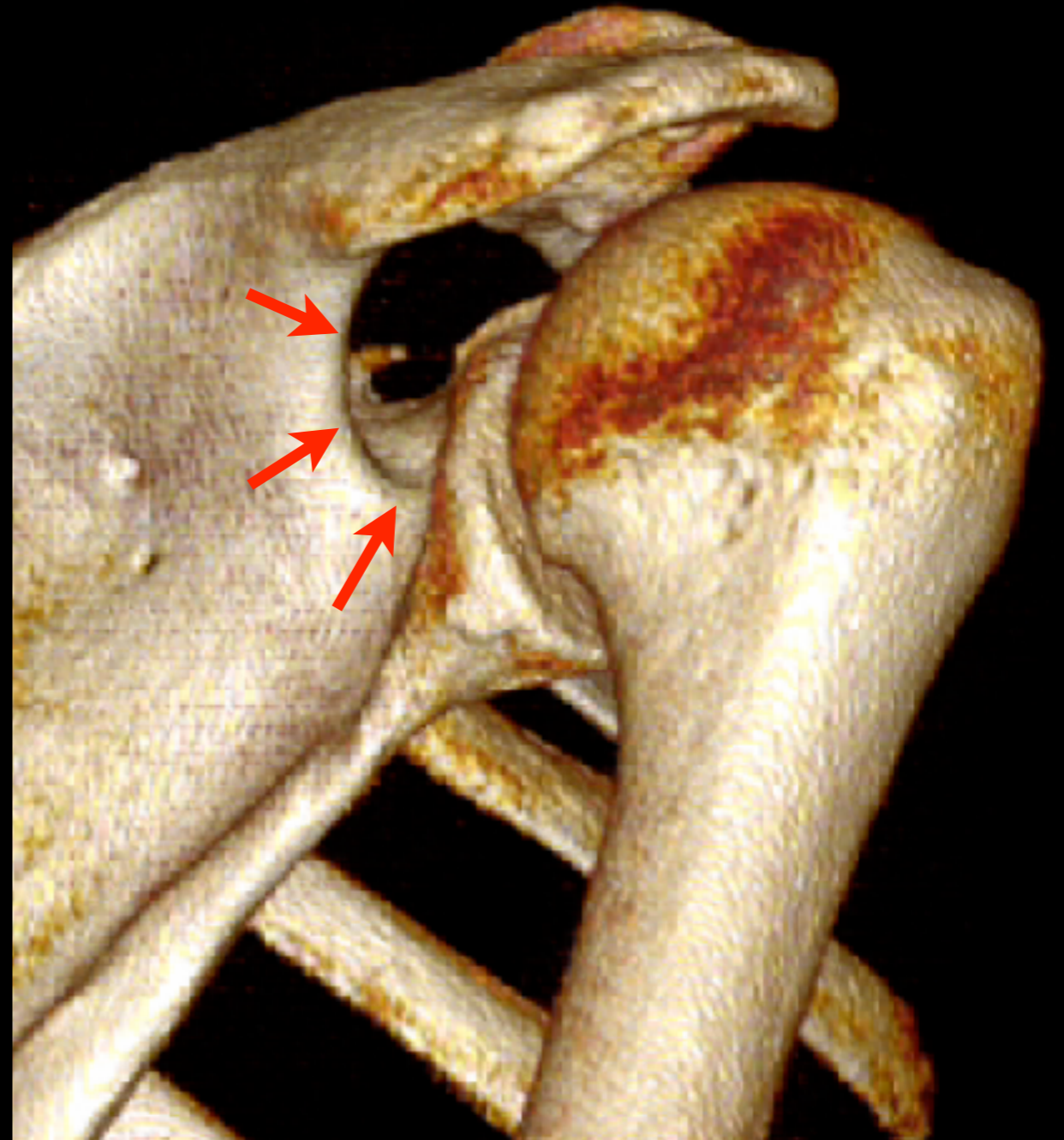
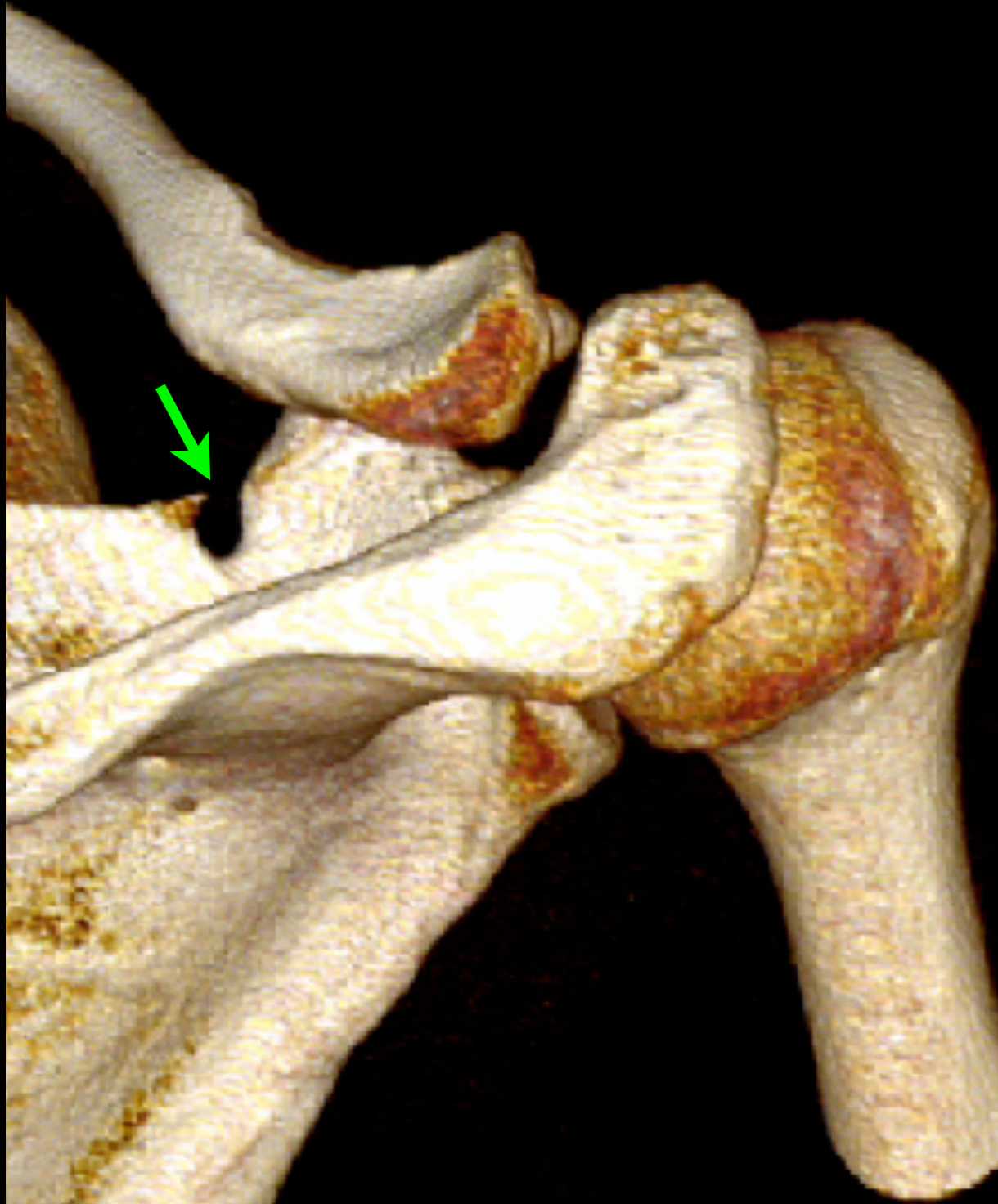


pattern 2.

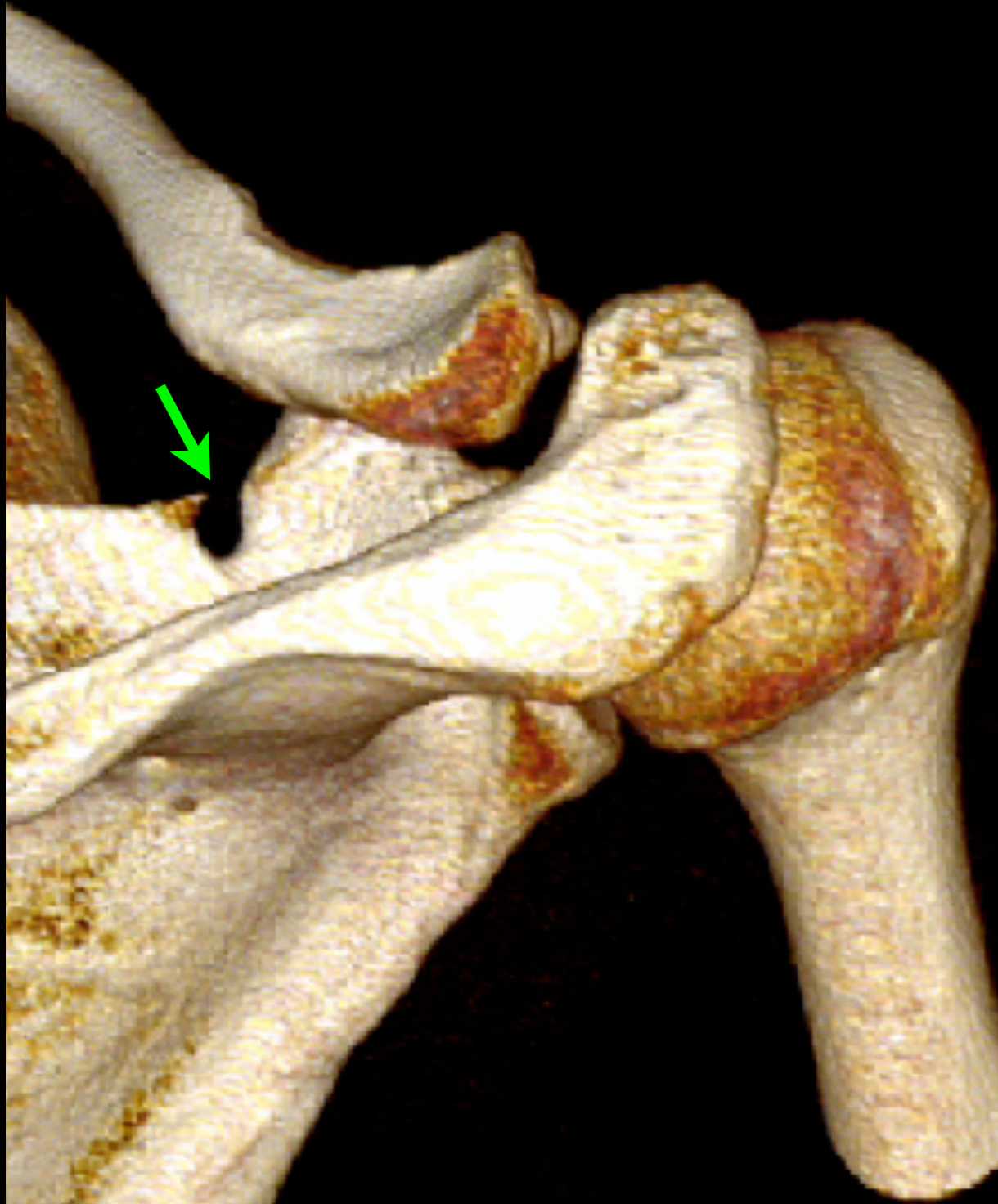




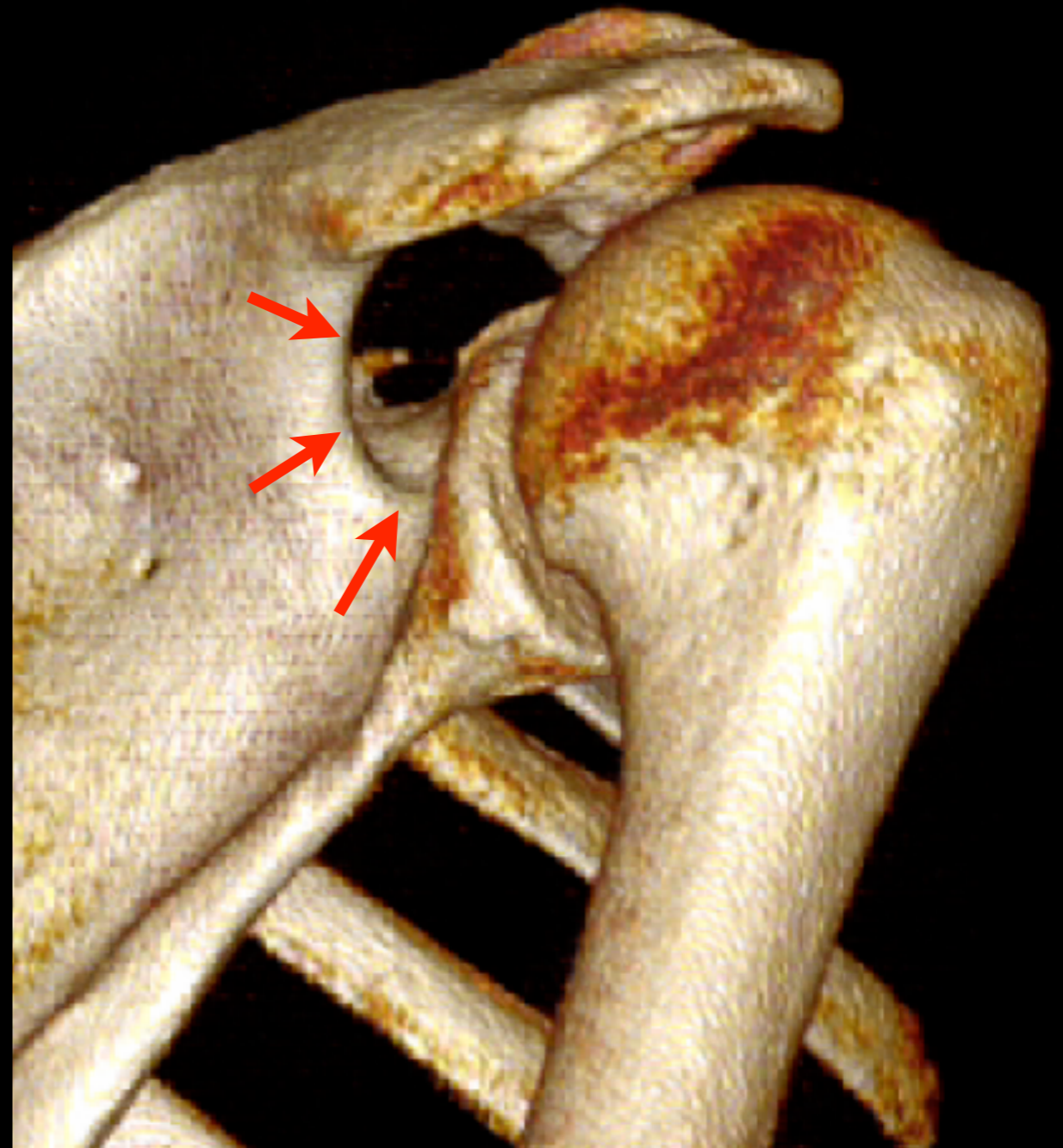
suprascapular notch



suprascapular notch

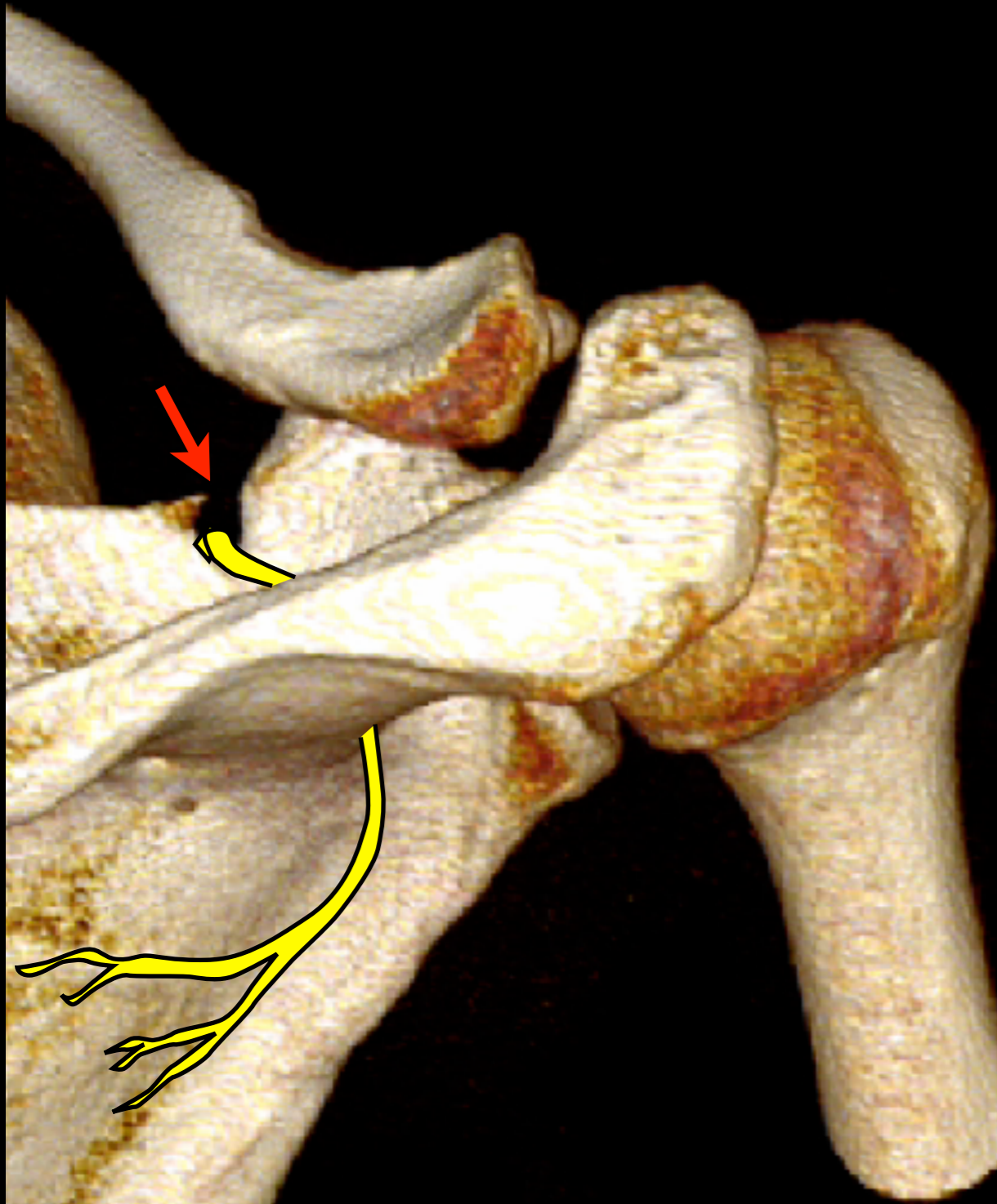


suprascapular notch

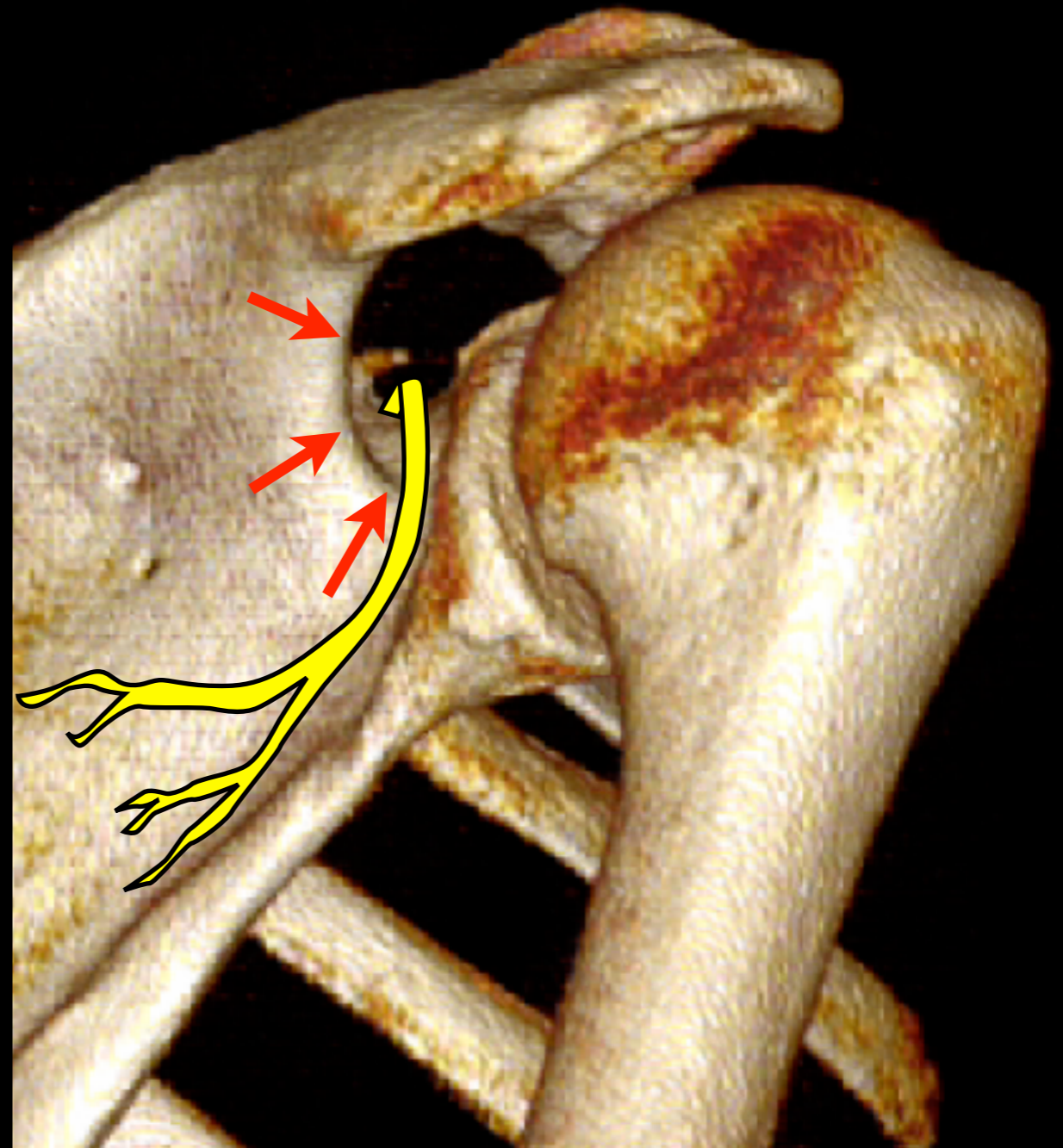


spinoglenoid notch

Suprascapular nerve

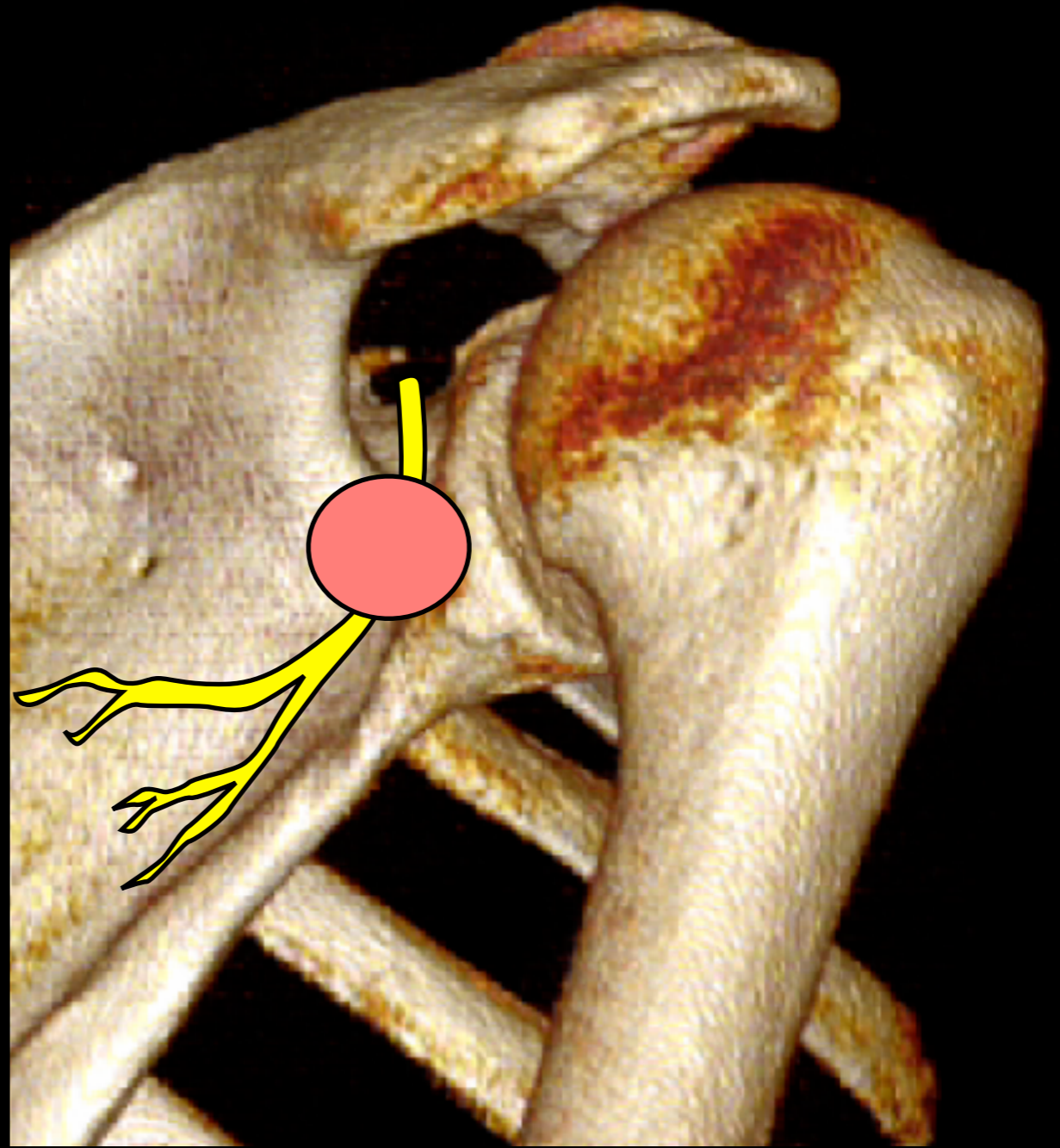
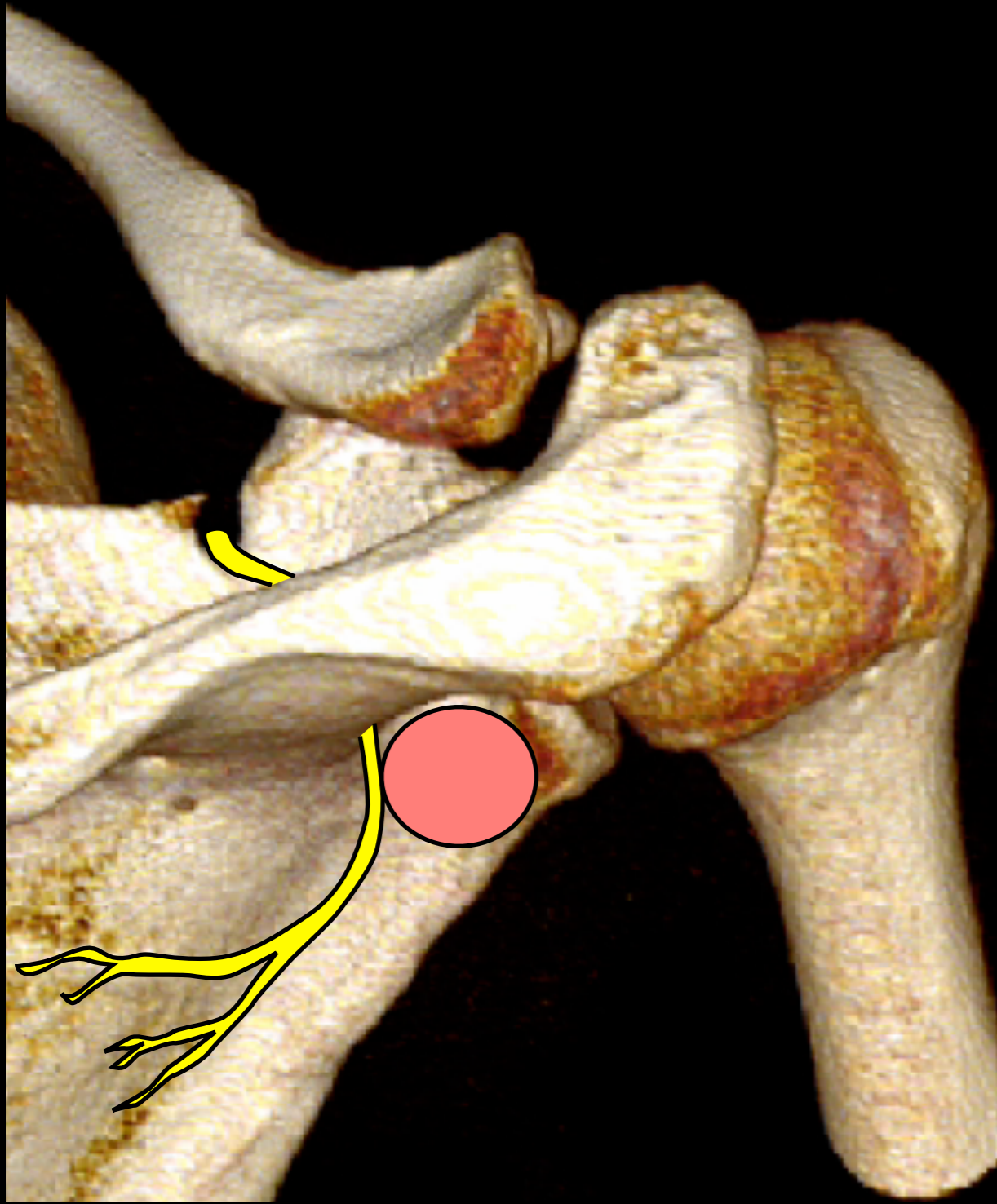


suprascapular notch



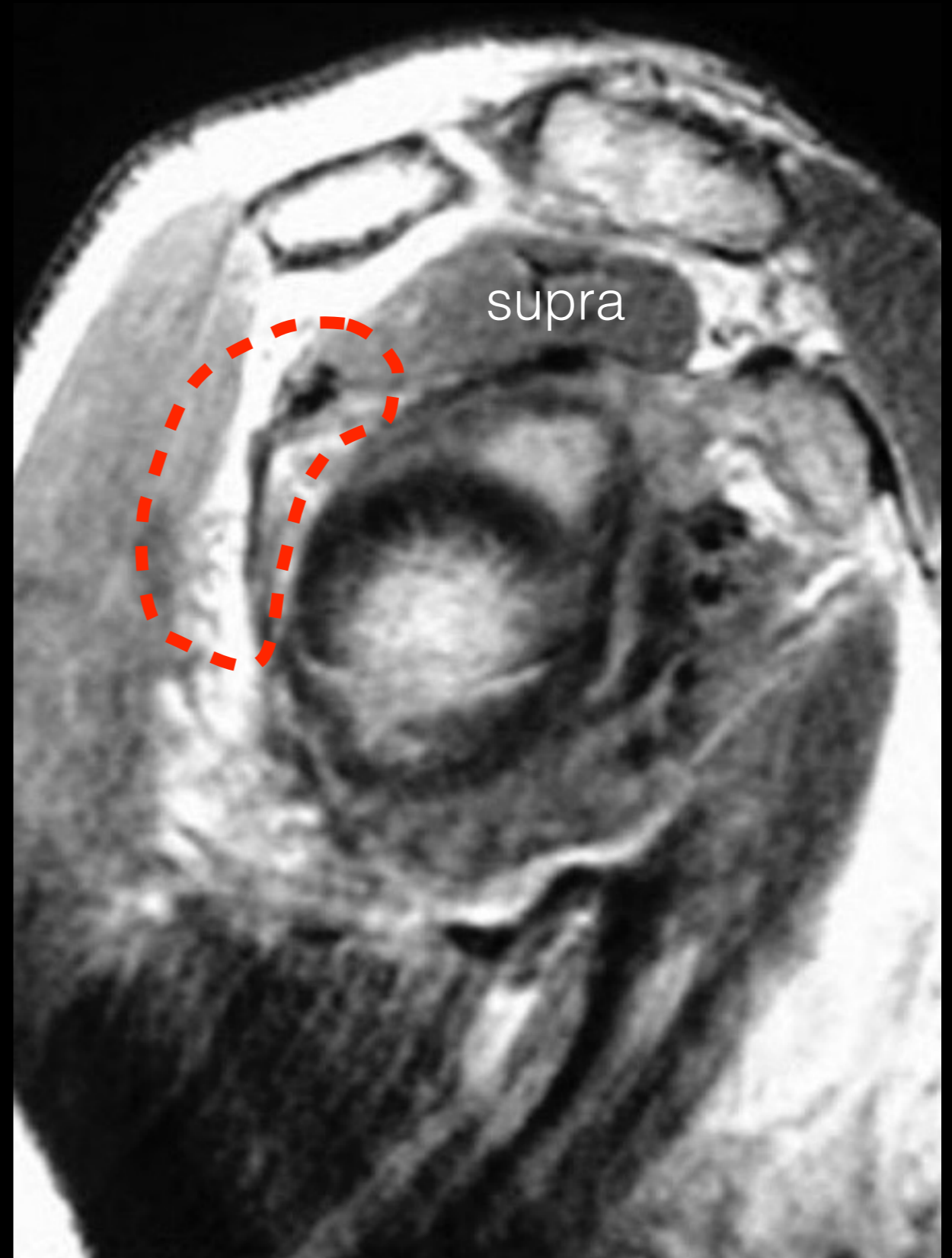
spinoglenoid notch

Paralabral ganglion cyst

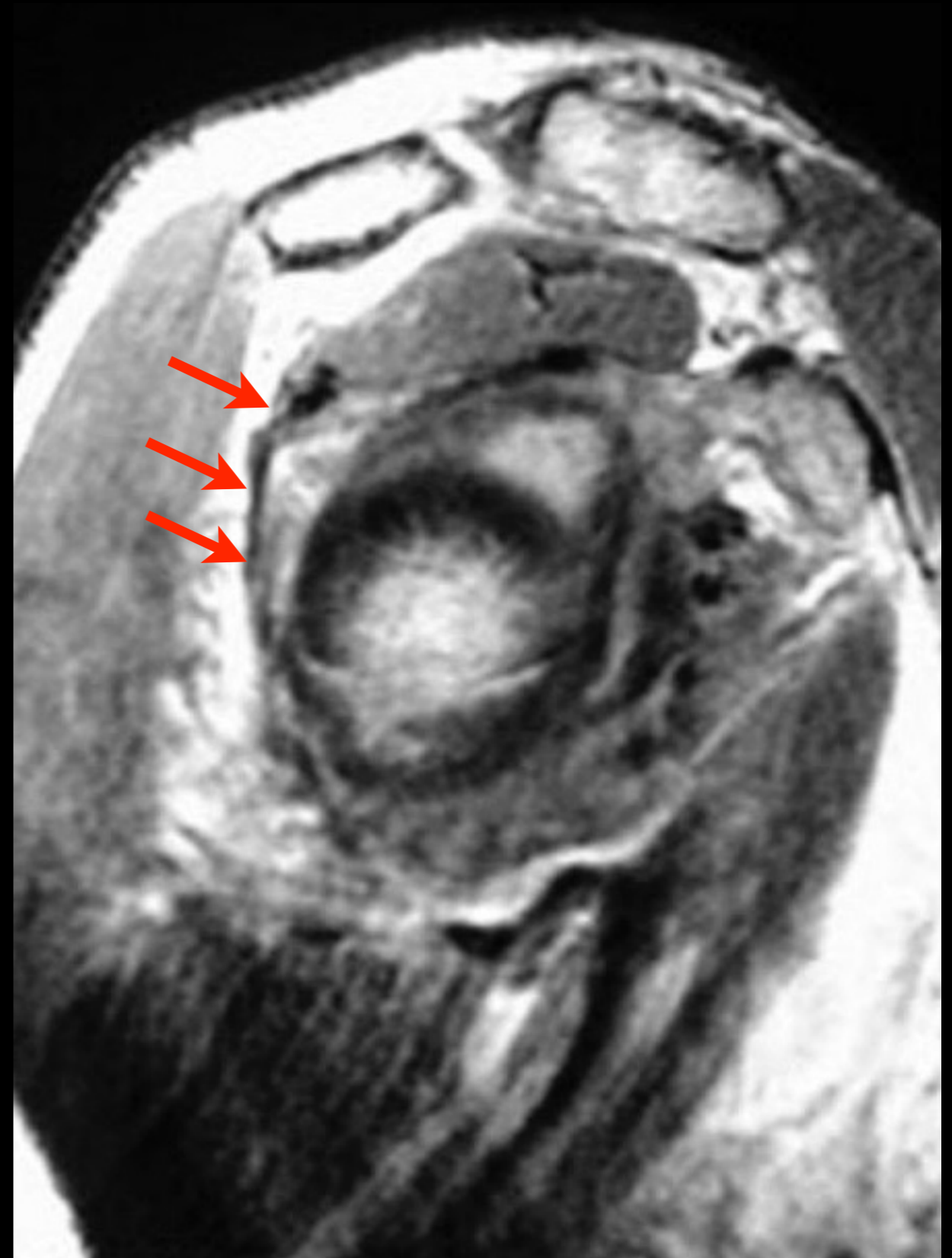




Spinoglenoid notch cyst with infraspinatus denervation atrophy



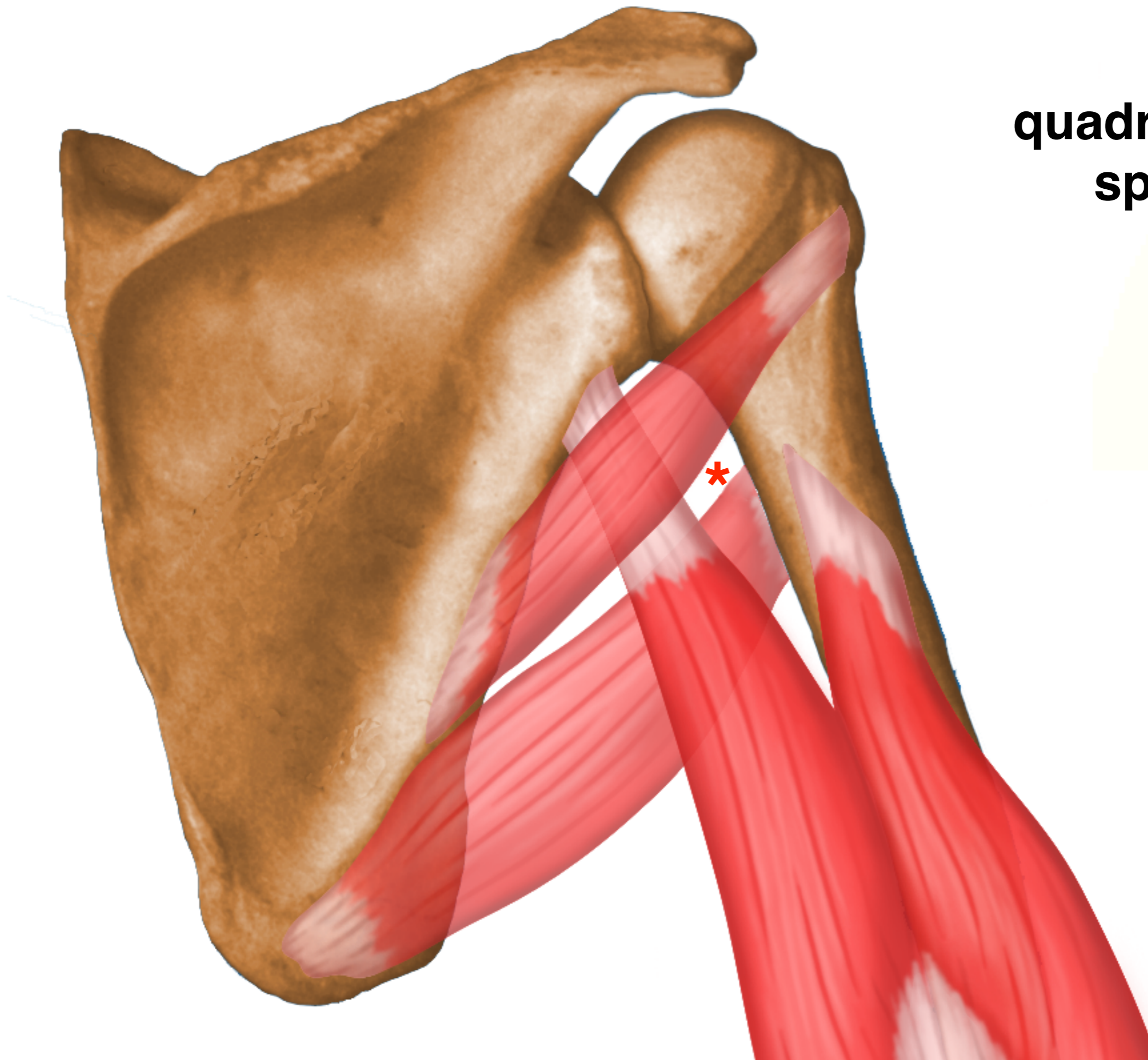
Spinoglenoid notch cyst with infraspinatus denervation atrophy



Spinoglenoid notch cyst with infraspinatus denervation atrophy

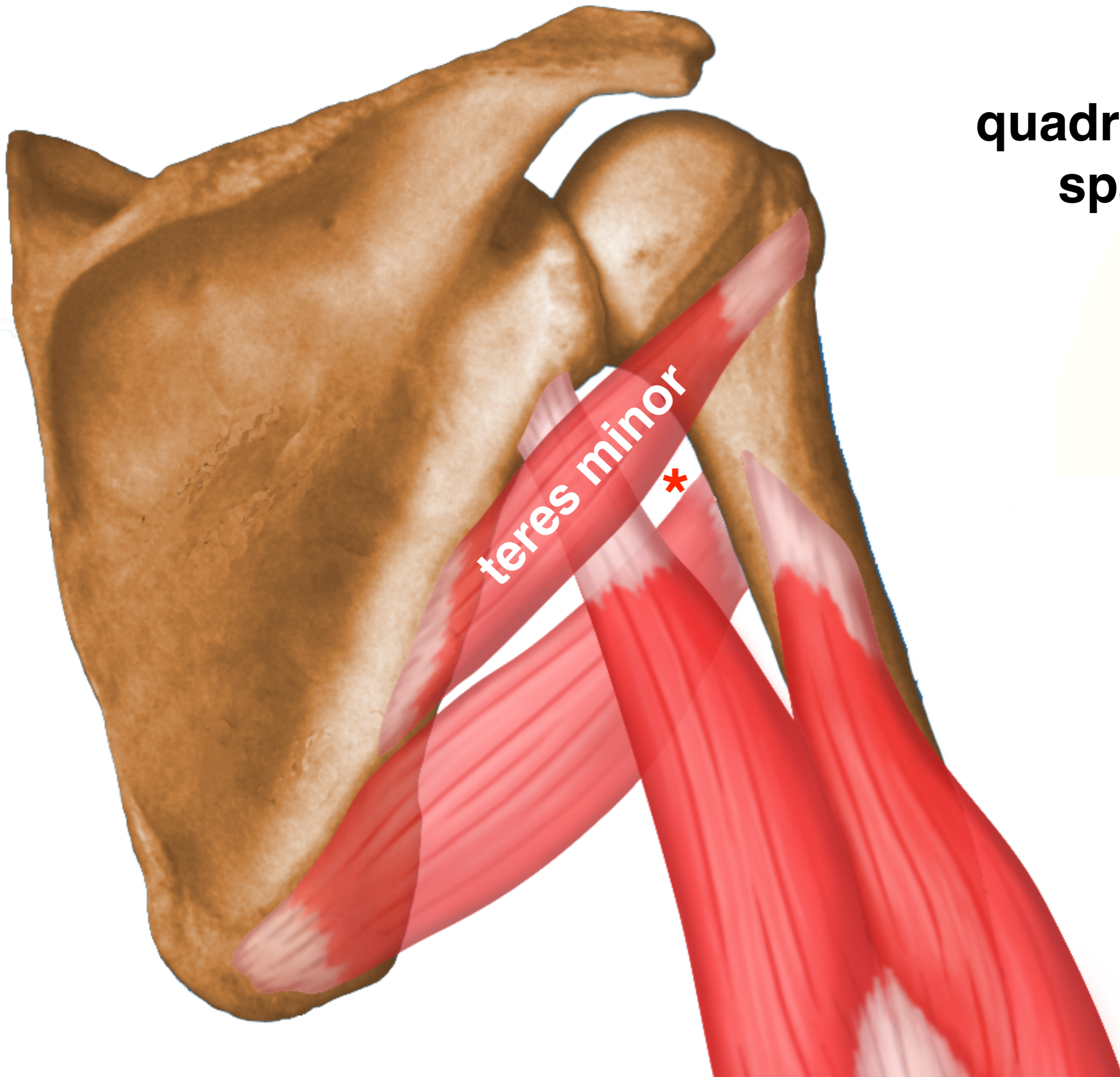
pattern 3.

**quadrilateral
space**



**quadrilateral
space**

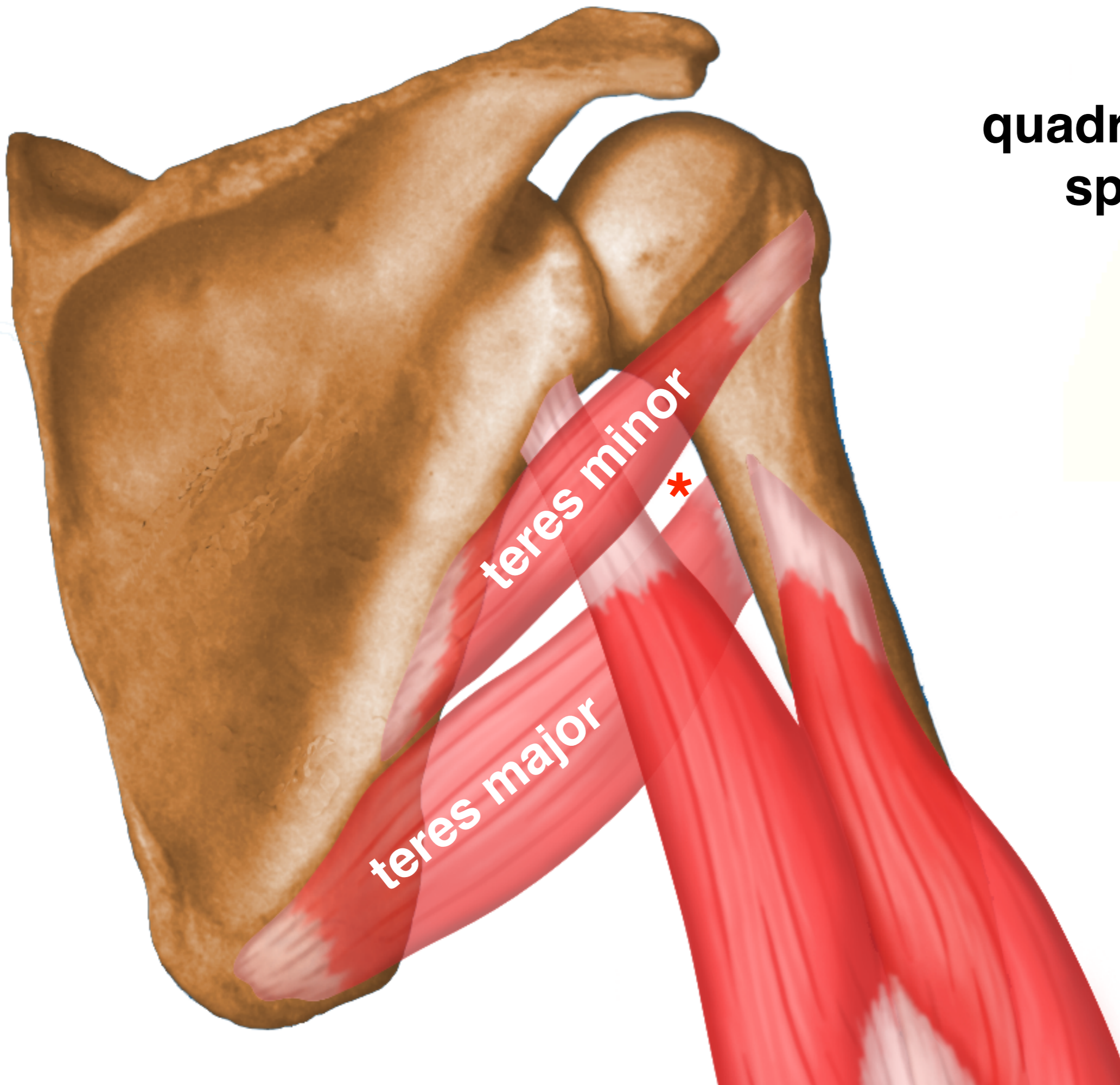
teres minor *



**quadrilateral
space**

teres minor *

teres major

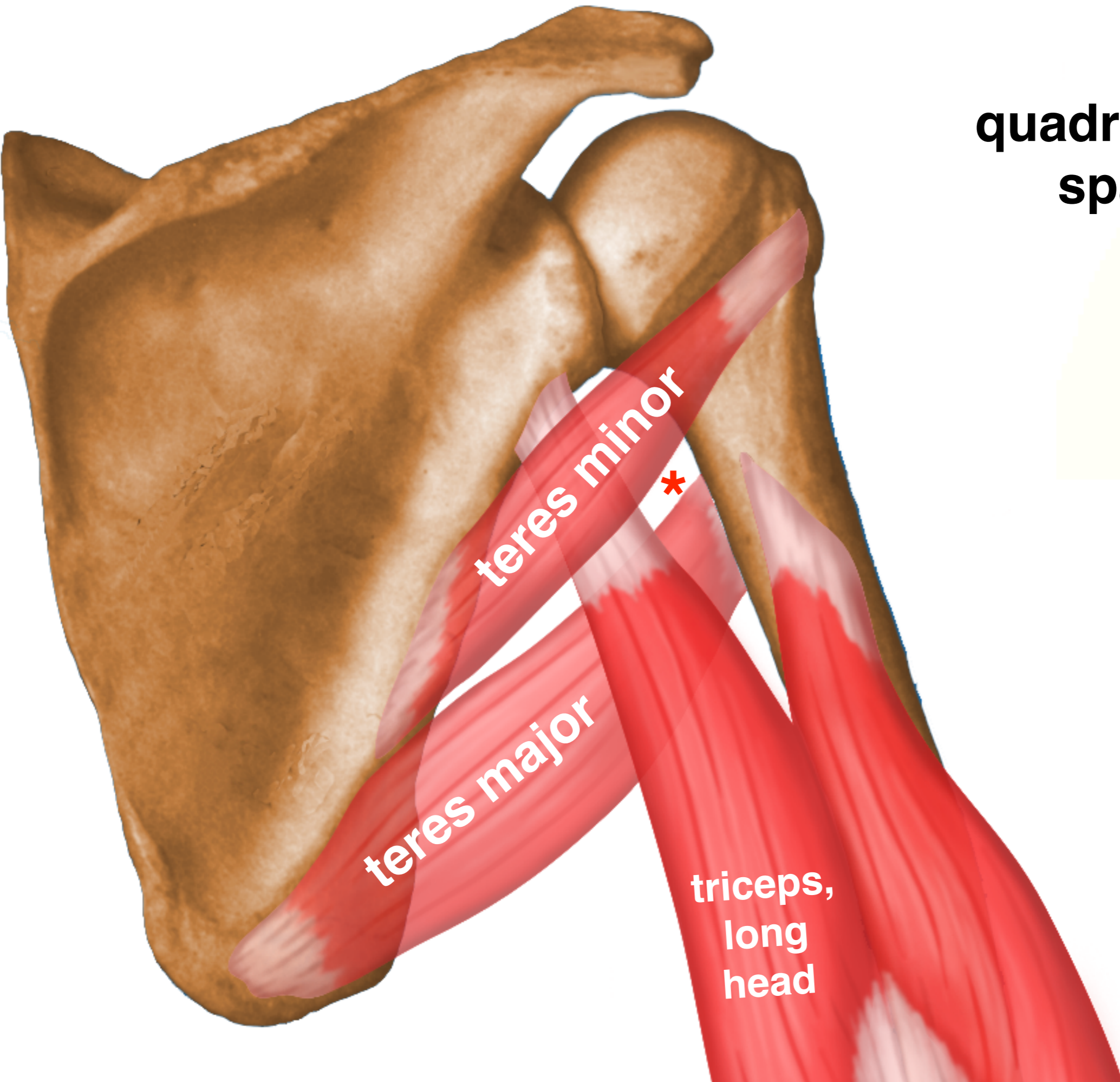


**quadrilateral
space**

teres minor *

teres major

**triceps,
long
head**



**quadrilateral
space**

teres minor

humerus

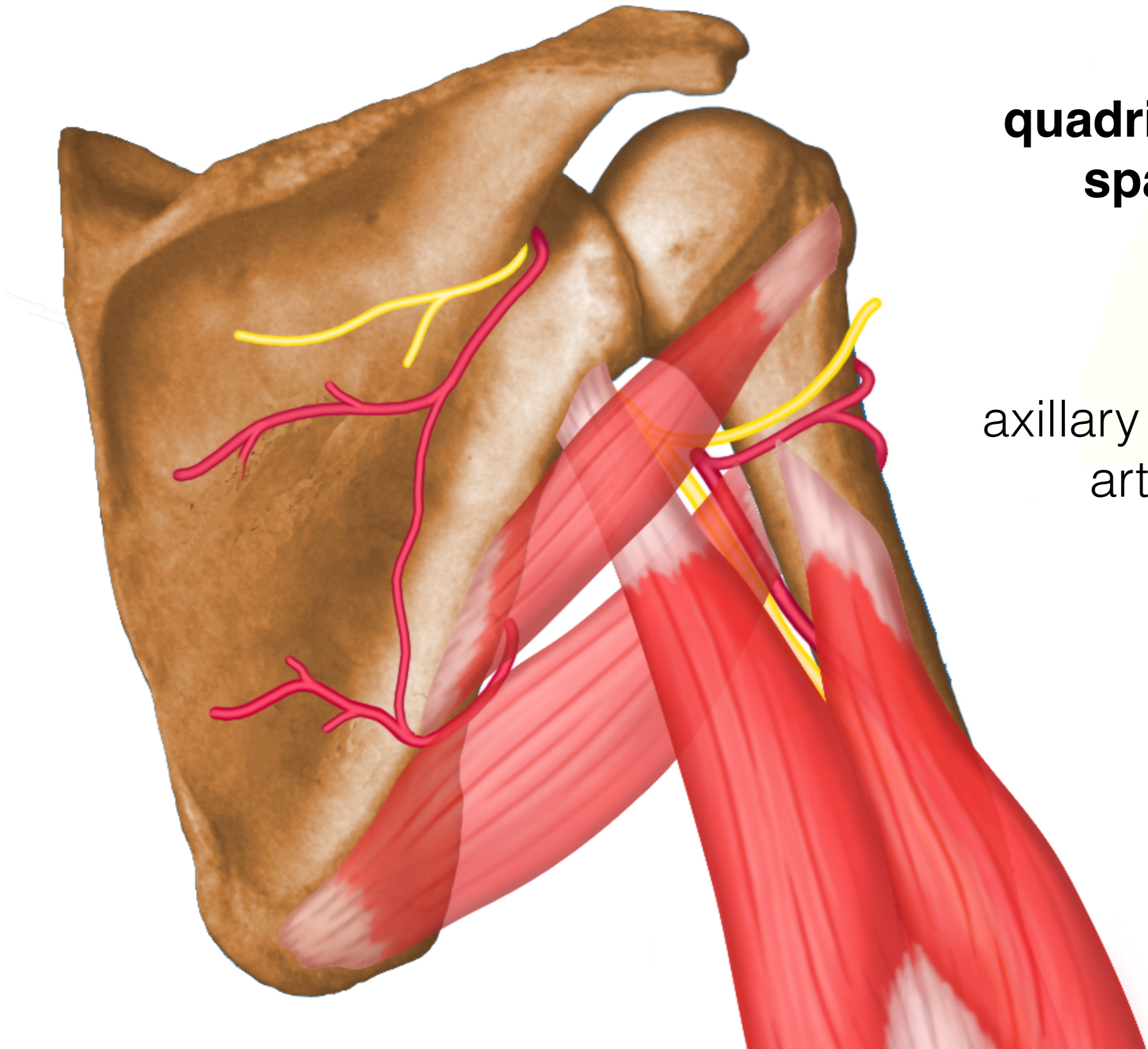
teres major

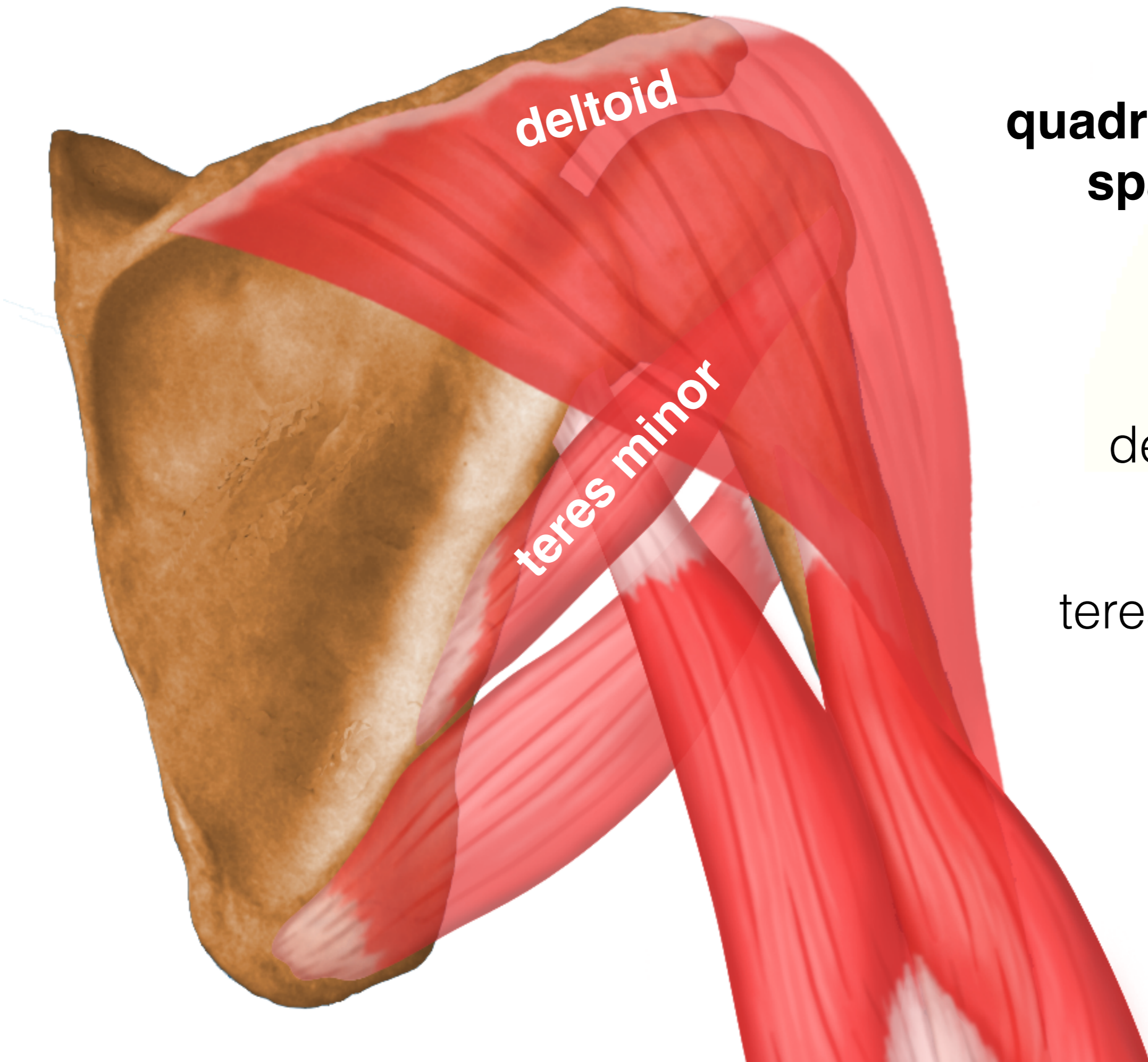
**triceps,
long
head**



**quadrilateral
space**

axillary nerve &
artery





deltoid

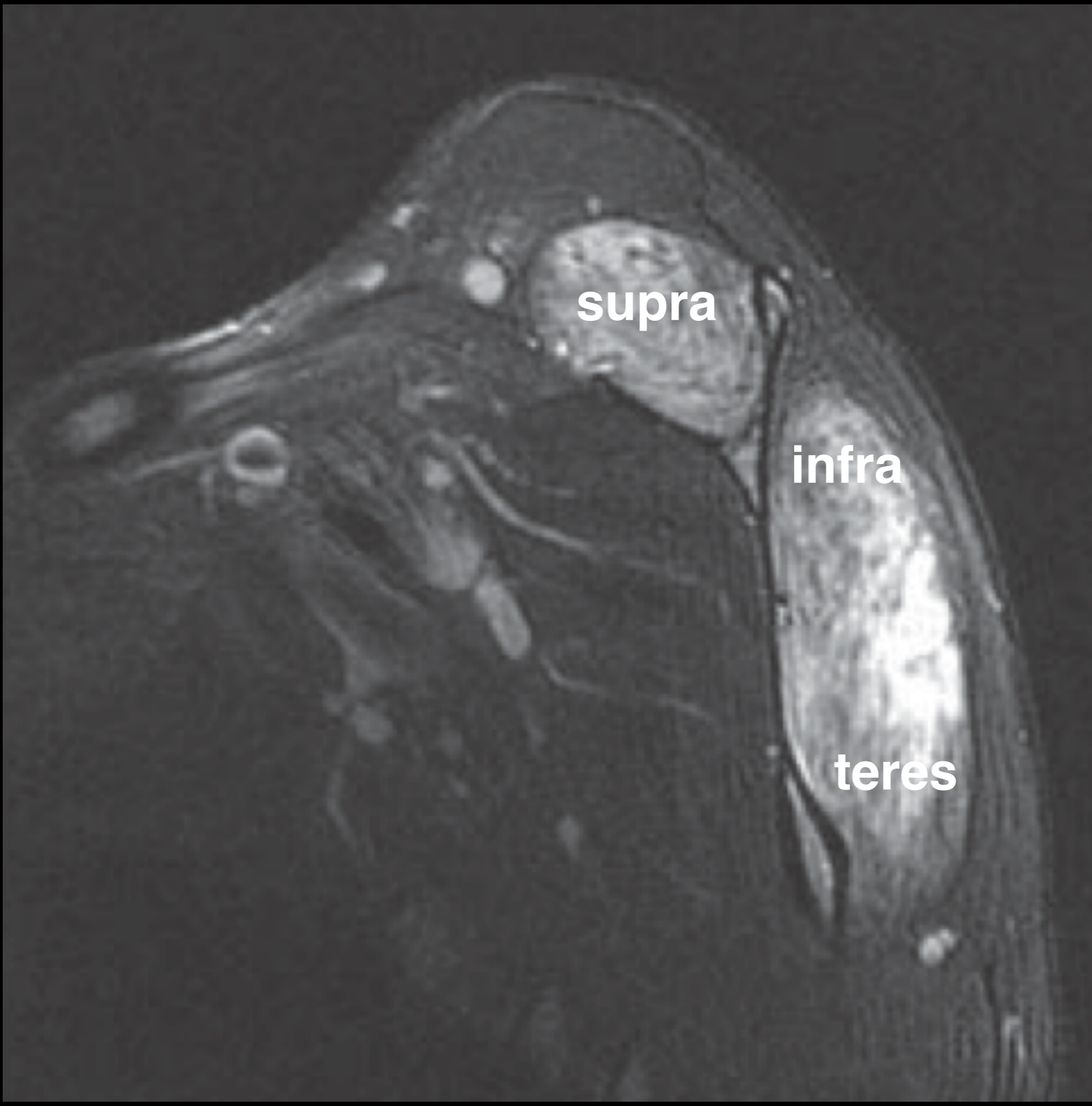
teres minor

**quadrilateral
space**

deltoid

teres minor

pattern 4.



Parsonage-Turner syndrome

no logical pattern

Case 8

37 F

2 months of
swelling in
right lateral
lower leg

T1W

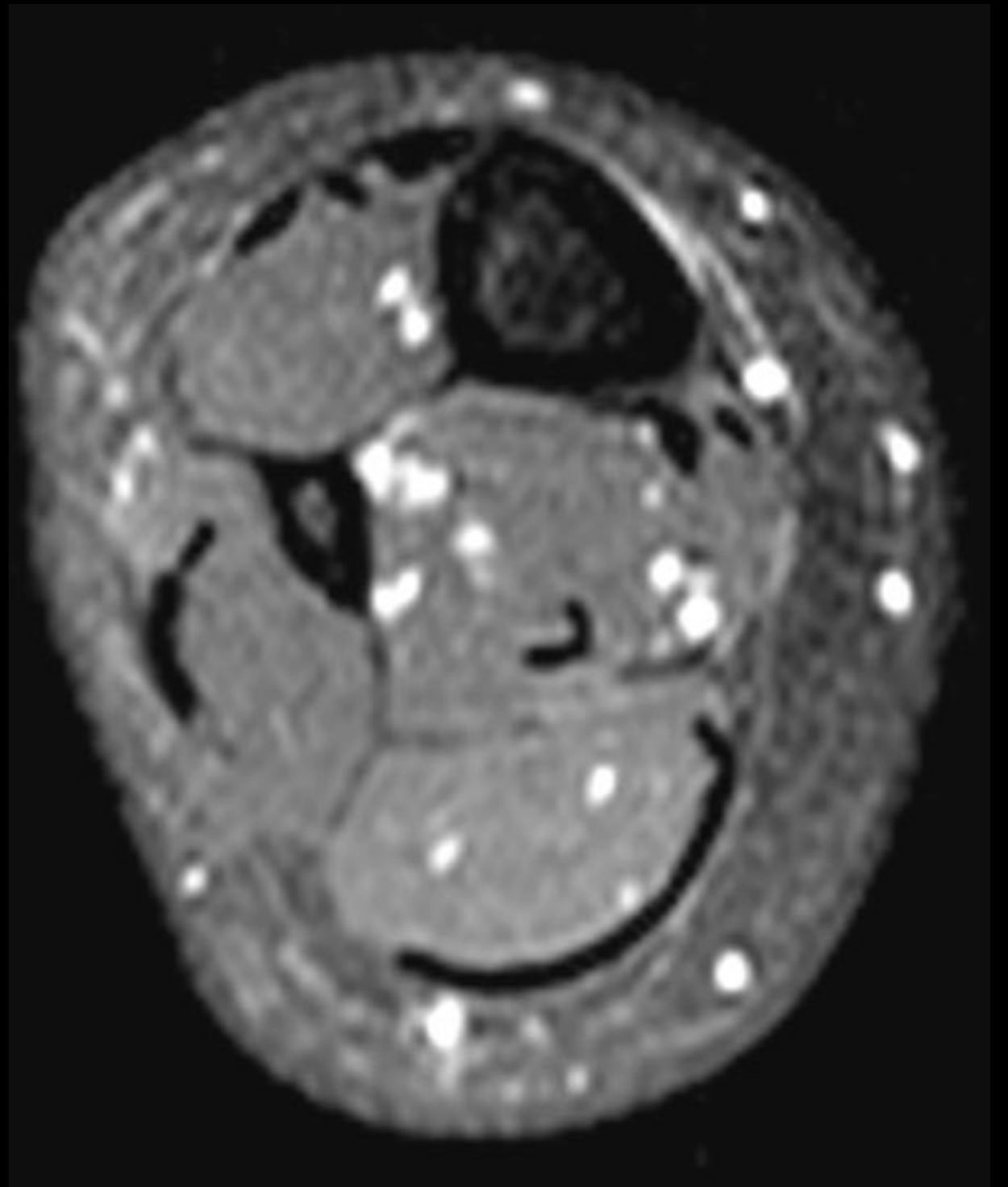


STIR





T1 fat sat



T2 fat sat

37 F

2 months of
swelling in
right lateral
lower leg

?

T1W



STIR



37 F

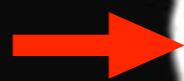
2 months of swelling in right lateral lower leg

?

a hint

T1W

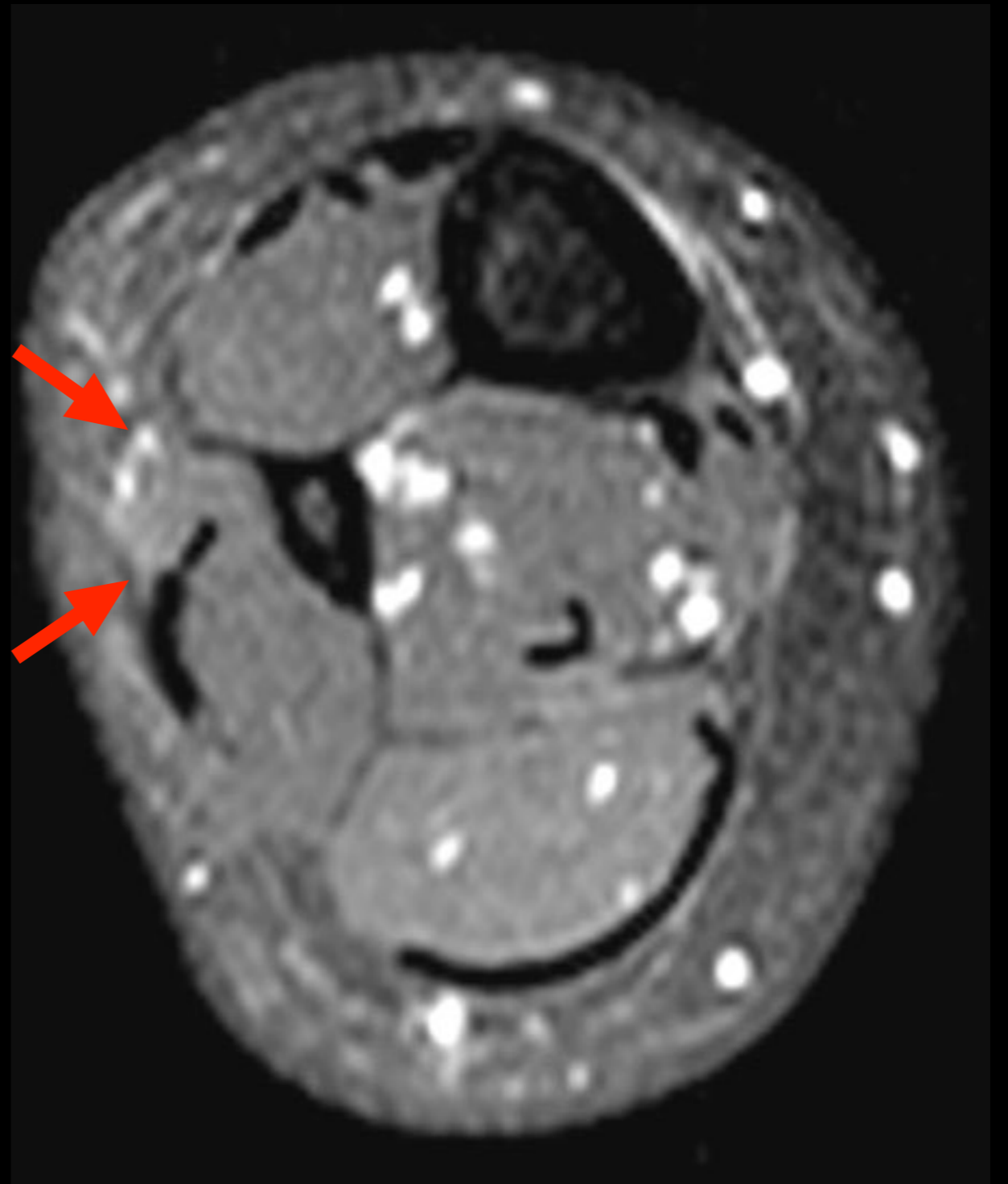
STIR



another hint



T1 fat sat



T2 fat sat

Mellado et al.
Skeletal
Radiol.
1999 Aug;
28(8):465

muscle
herniation in
peroneus
longus

T1W



STIR



usually seen
in athletes &
soldiers in
lower
extremity



T1W



STIR

usually seen
in athletes &
soldiers in
lower
extremity

tibialis ant

t. dig. longus

peroneus brevis
& longus

gastroc



T1W



STIR

usually seen
in athletes &
soldiers in
lower
extremity

tibialis ant

ext. dig. longus

peroneus brevis
& longus

gastroc

T1W



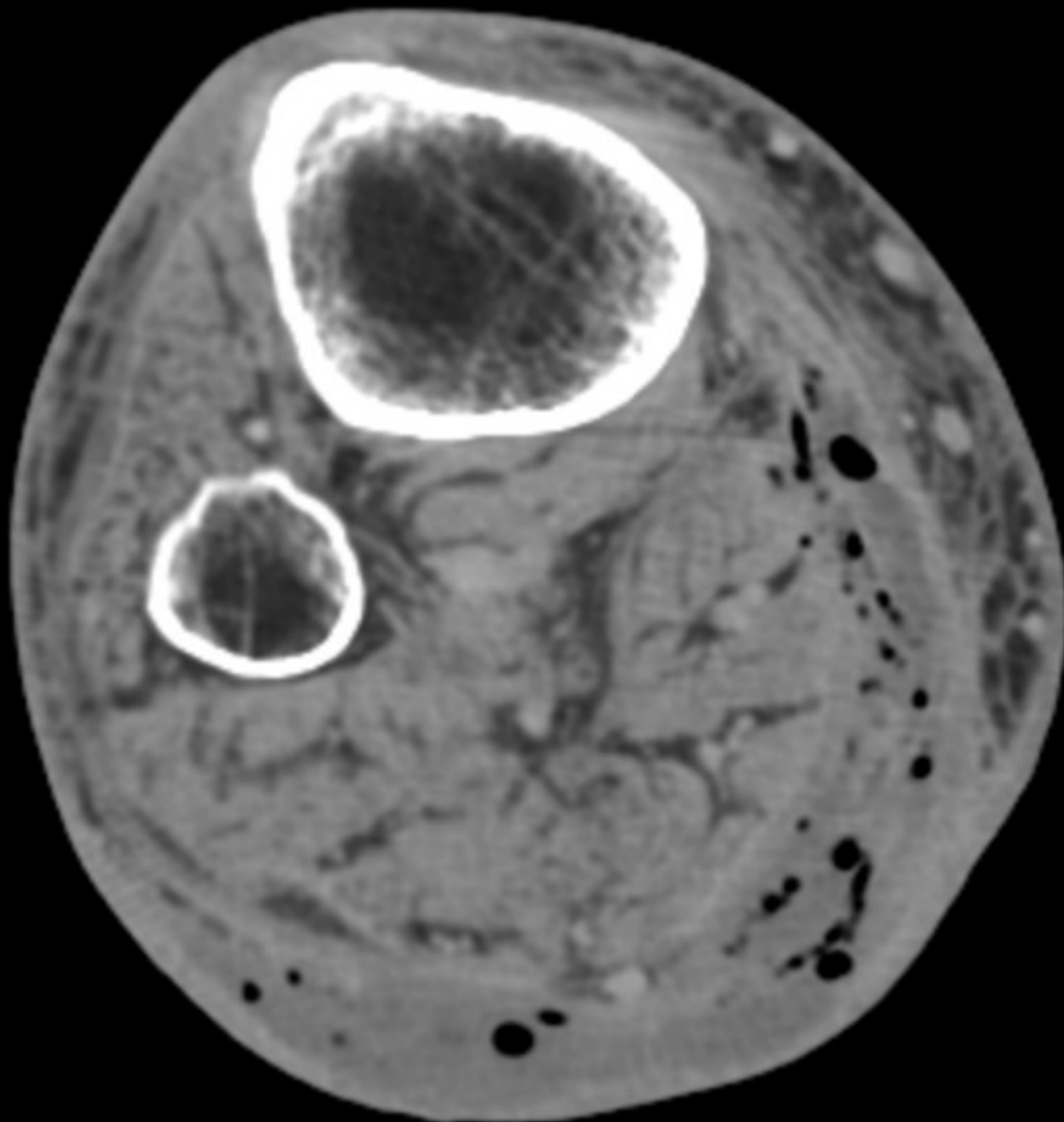
STIR



Case 9

49 M

pain after
dog bite





sagittal

This is a sagittal MRI scan of a human leg. The image shows the femur at the top, the knee joint, and the tibia and fibula at the bottom. The muscles of the leg are clearly visible, showing their orientation and texture. There is a bright, circular artifact in the upper part of the leg, likely from a metal object. The overall appearance is that of a healthy leg with some minor artifacts.



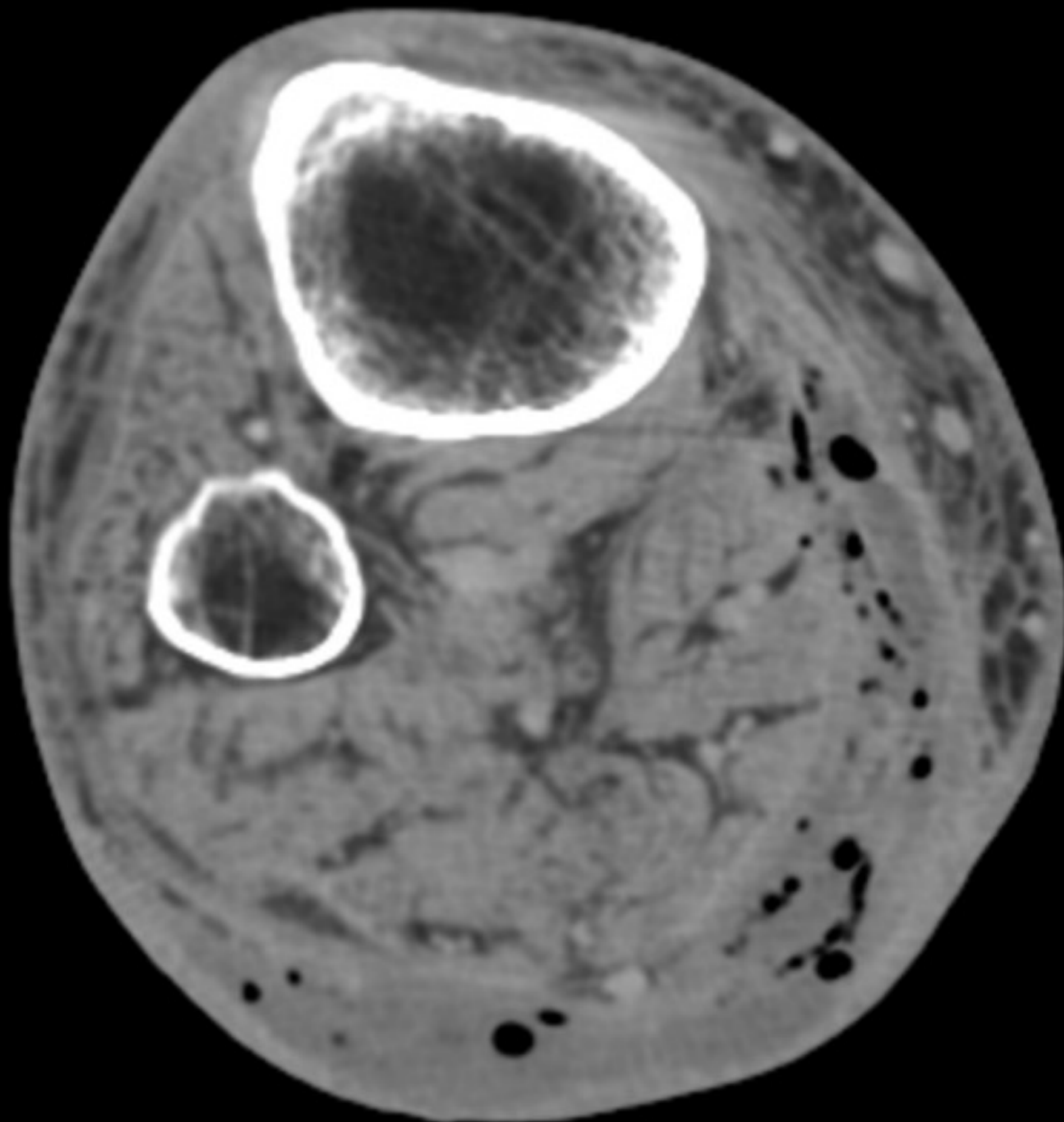
coronal

This is a coronal MRI scan of a human leg. The image shows the femur and tibia/fibula from a front-to-back perspective. The muscles are arranged in a more organized, parallel fashion compared to the sagittal view. There is a bright, vertical artifact in the lower part of the leg, likely from a metal object. The overall appearance is that of a healthy leg with some minor artifacts.

49 M

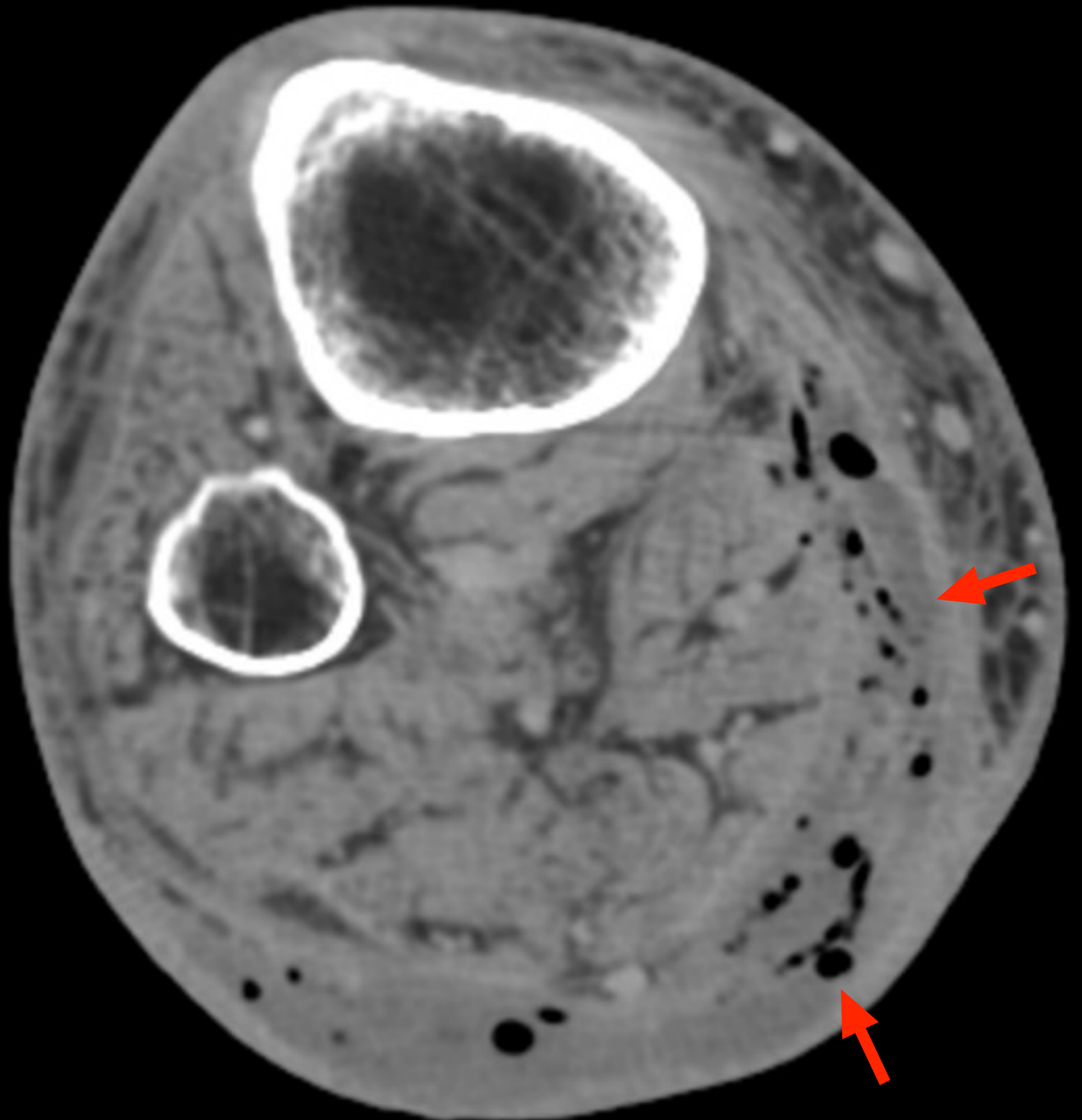
pain after
dog bite

?



49 M

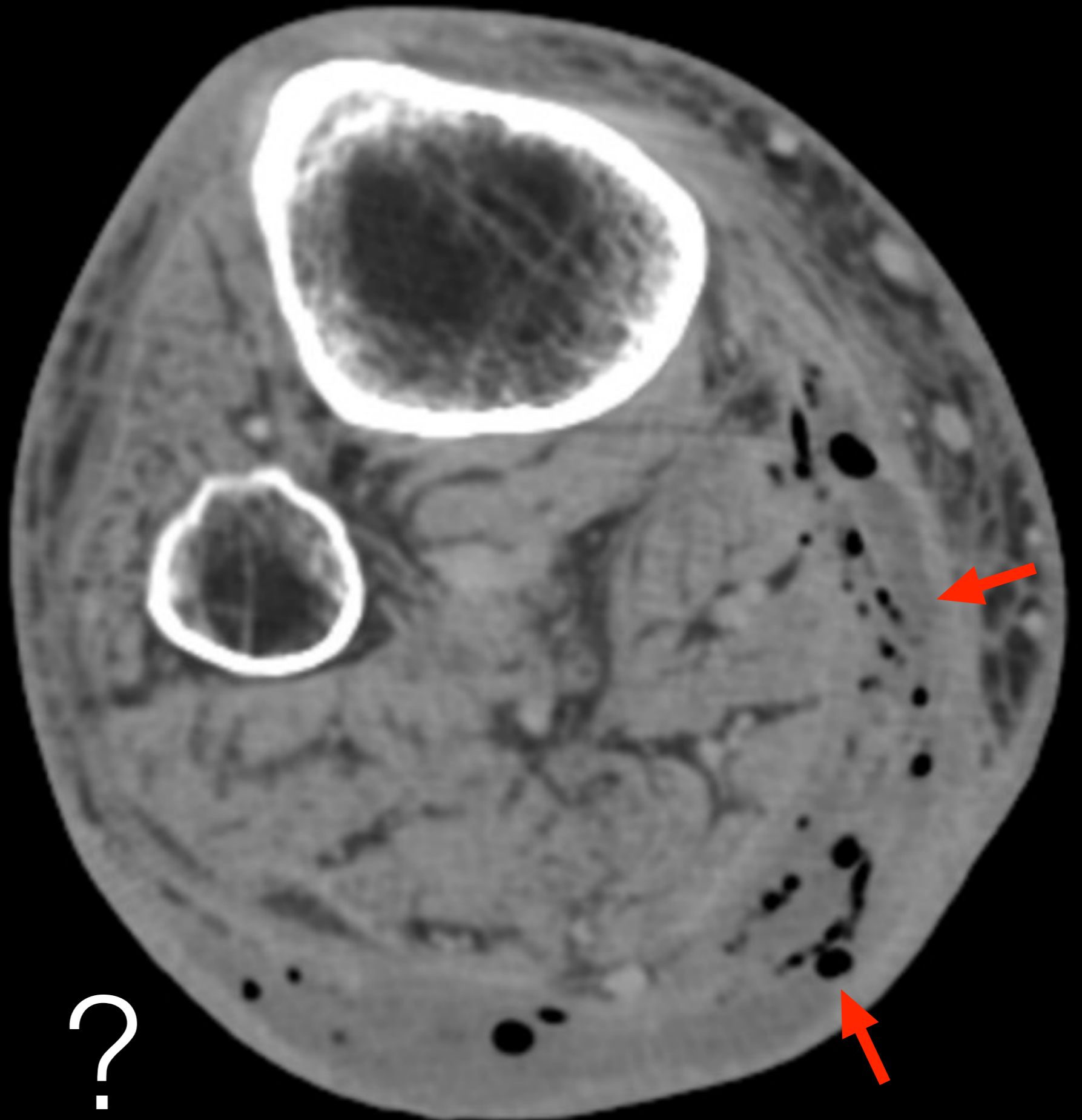
pain after
dog bite



necrotizing
fasciitis

49 M

pain after
dog bite



necrotizing
fasciitis

predisposing
causes??

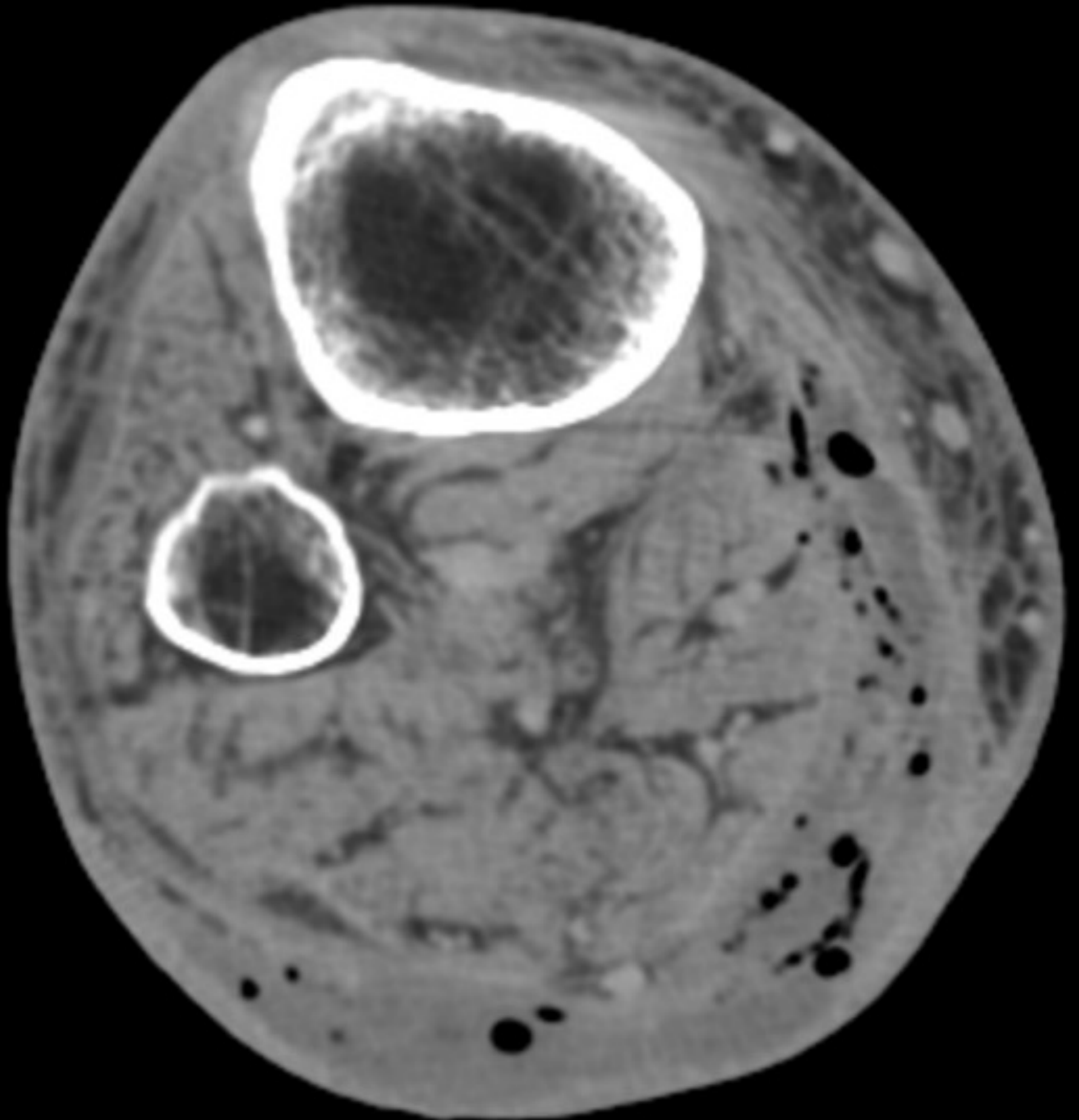
?

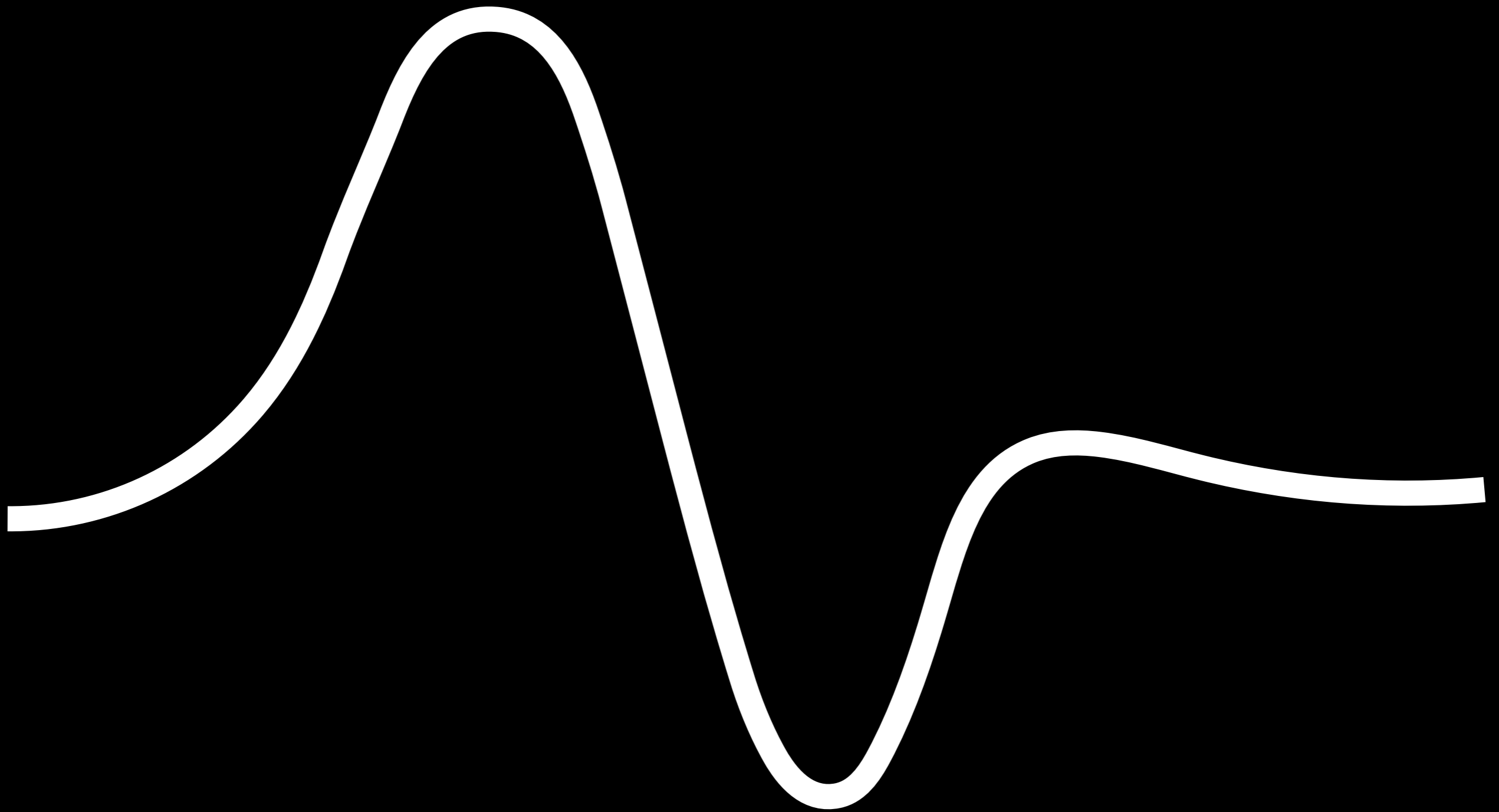
most
appropriate
workup to

“R/O nec fasc”

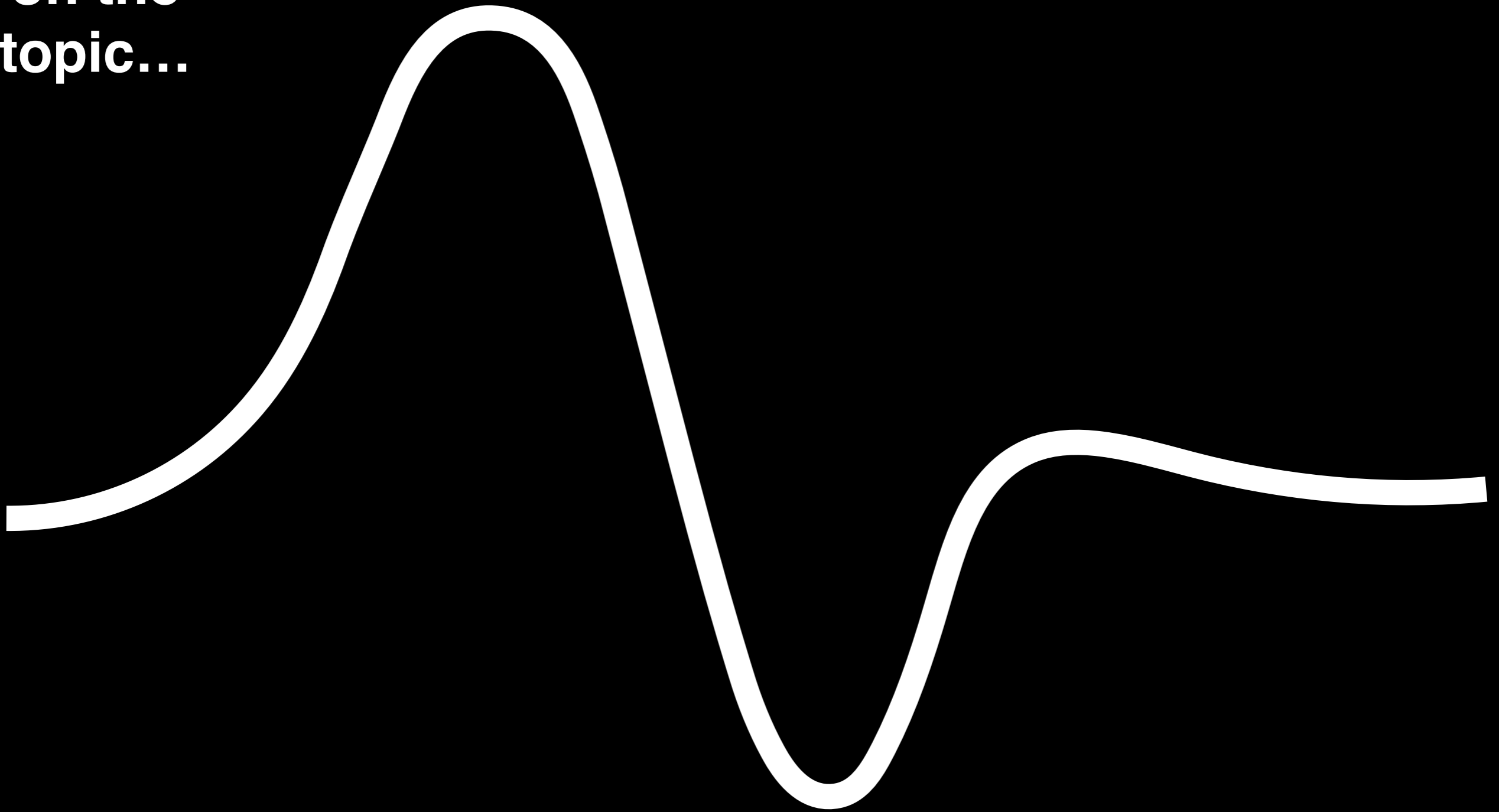
?

necrotizing
fasciitis



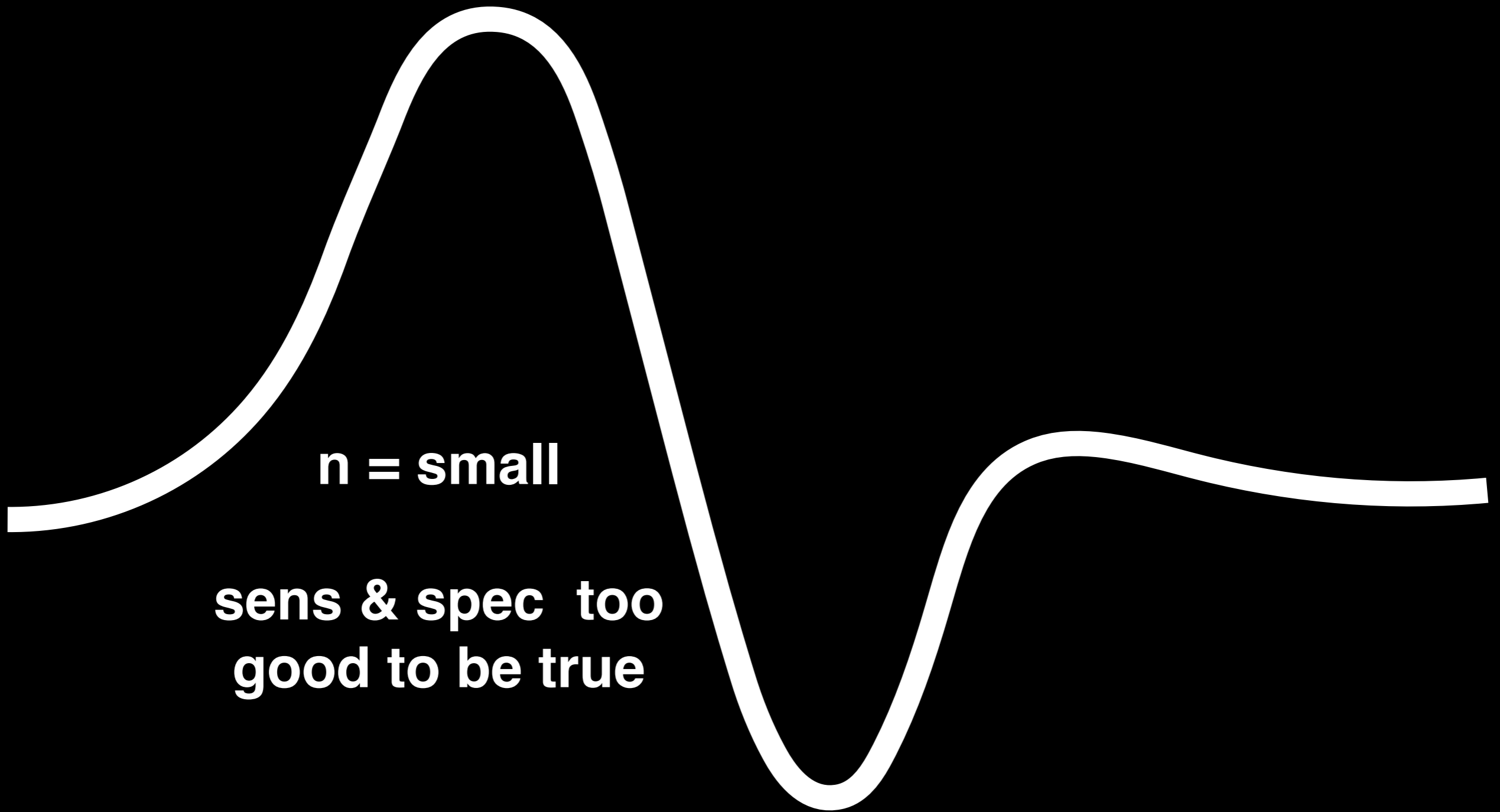


**no
literature
on the
topic...**



A thick white wavy line starts on the left, rises to a peak, falls to a trough, and then rises to a smaller peak before leveling off. A blue speech bubble with a tail pointing to the start of the line is on the left. The text inside the bubble is white.

MR
that?
Really??

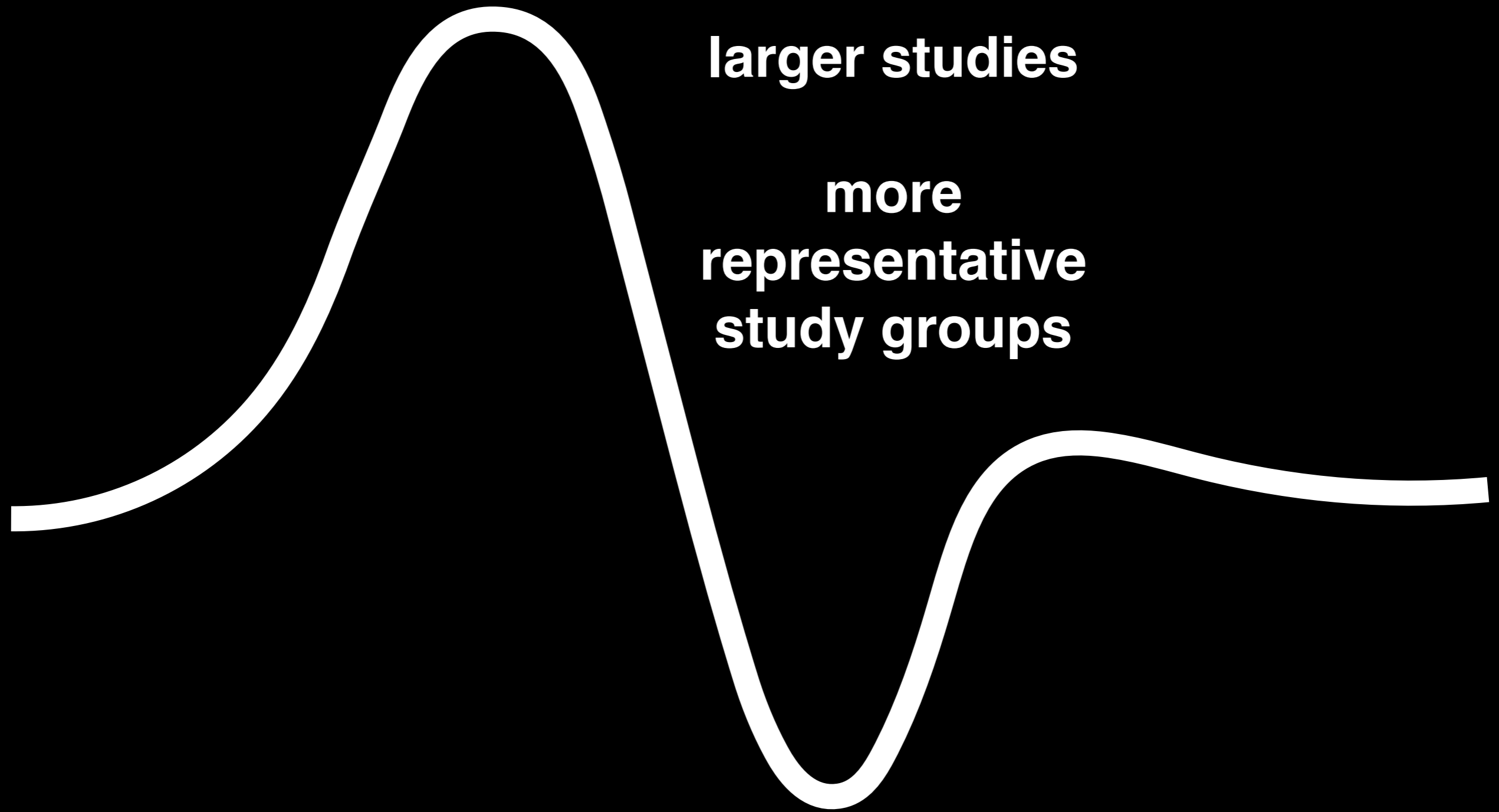




MR is
awesome!!!

n = small

**sens & spec too
good to be true**



larger studies

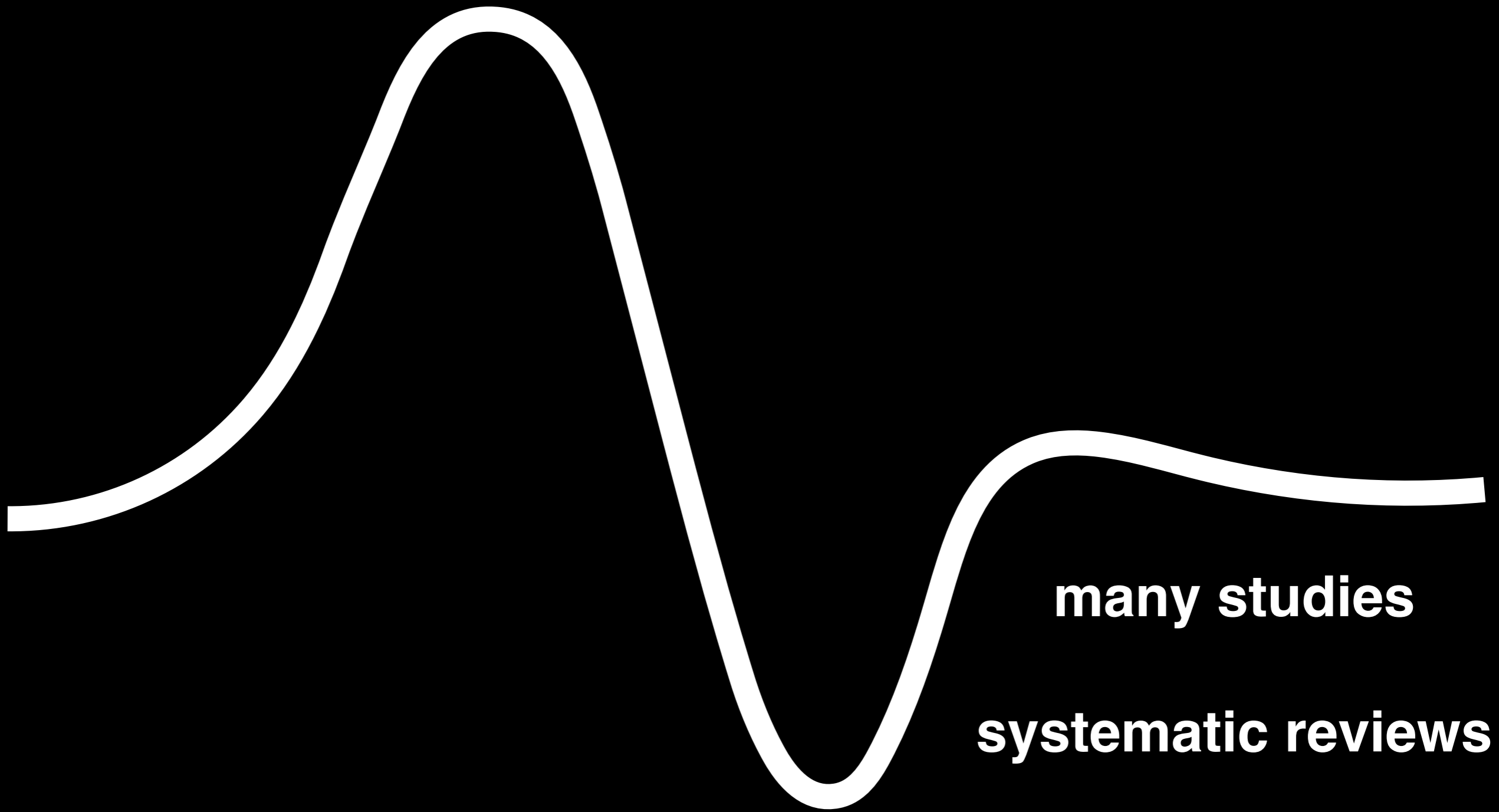
**more
representative
study groups**



larger studies

**more
representative
study groups**

MR is
awful!!



many studies

systematic reviews

meta-analyses



In the right group of patients, MR does not **completely** suck...

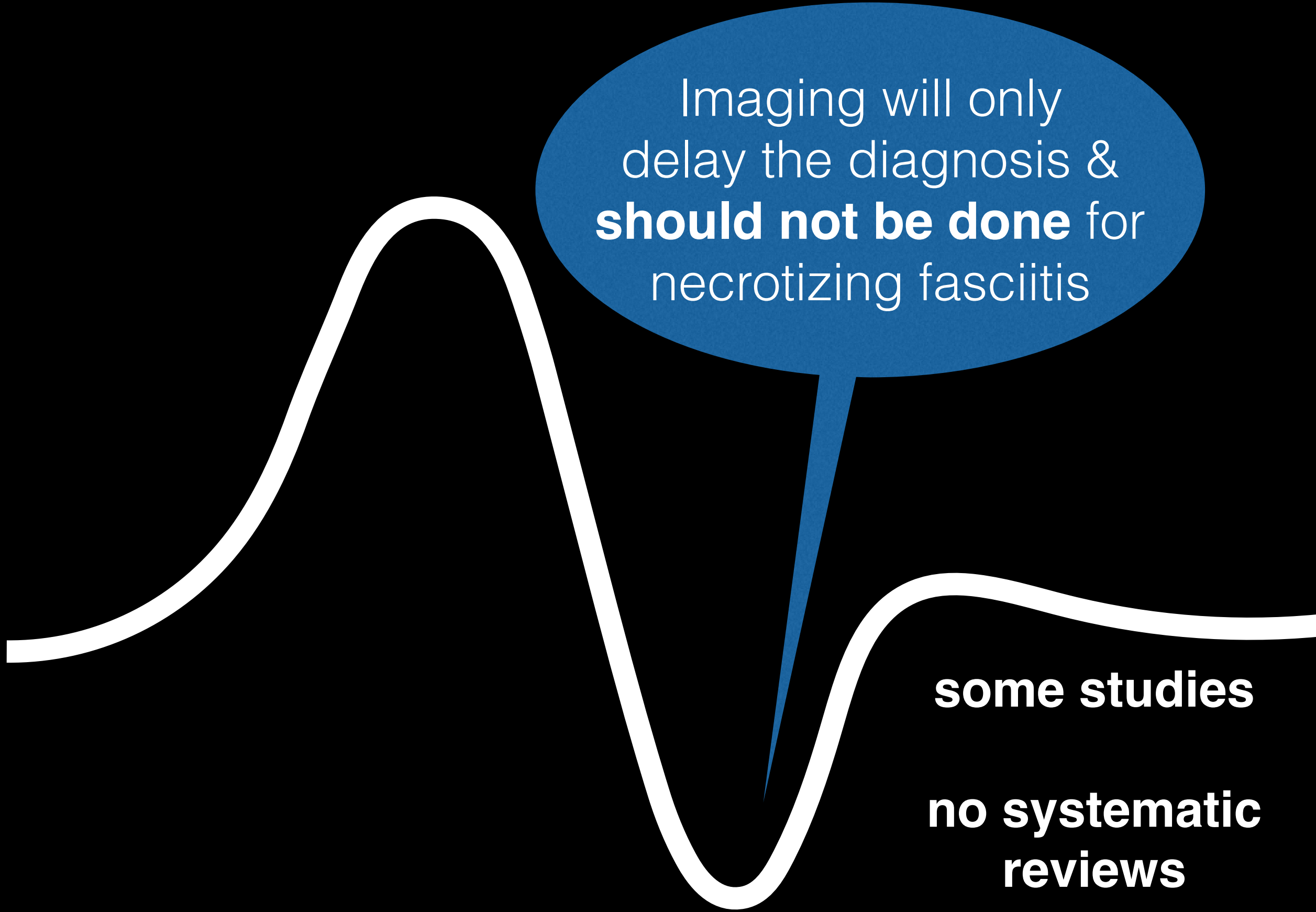
many studies

systematic reviews

meta-analyses



**where are we
today?**



Imaging will only
delay the diagnosis &
should not be done for
necrotizing fasciitis

some studies

**no systematic
reviews**

no meta-analyses



surgical debridement
is still the gold standard for
diagnosis

some studies

**no systematic
reviews**

no meta-analyses

Case 10

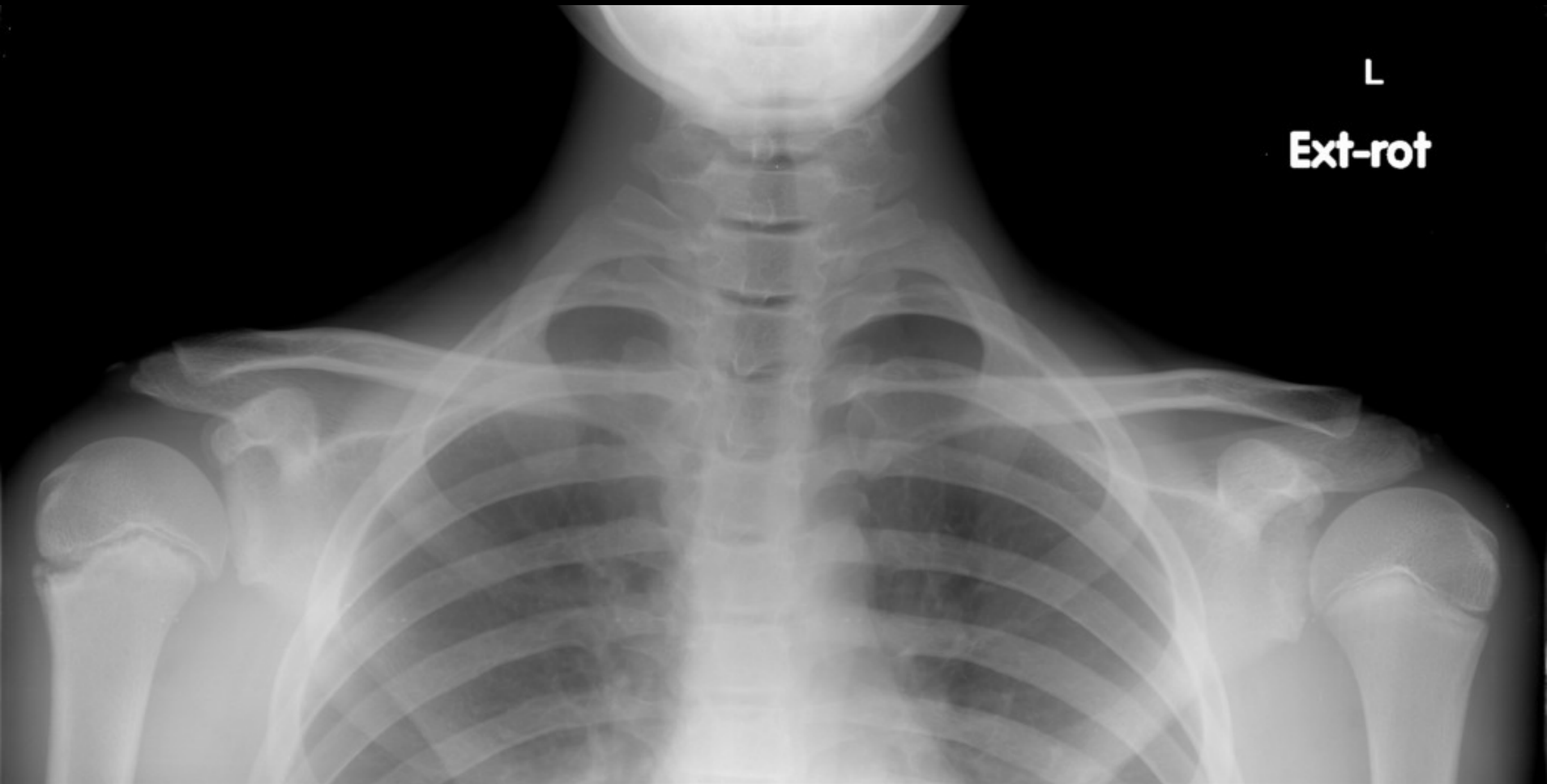
13 M

right
shoulder
pain

?

L

Ext-rot



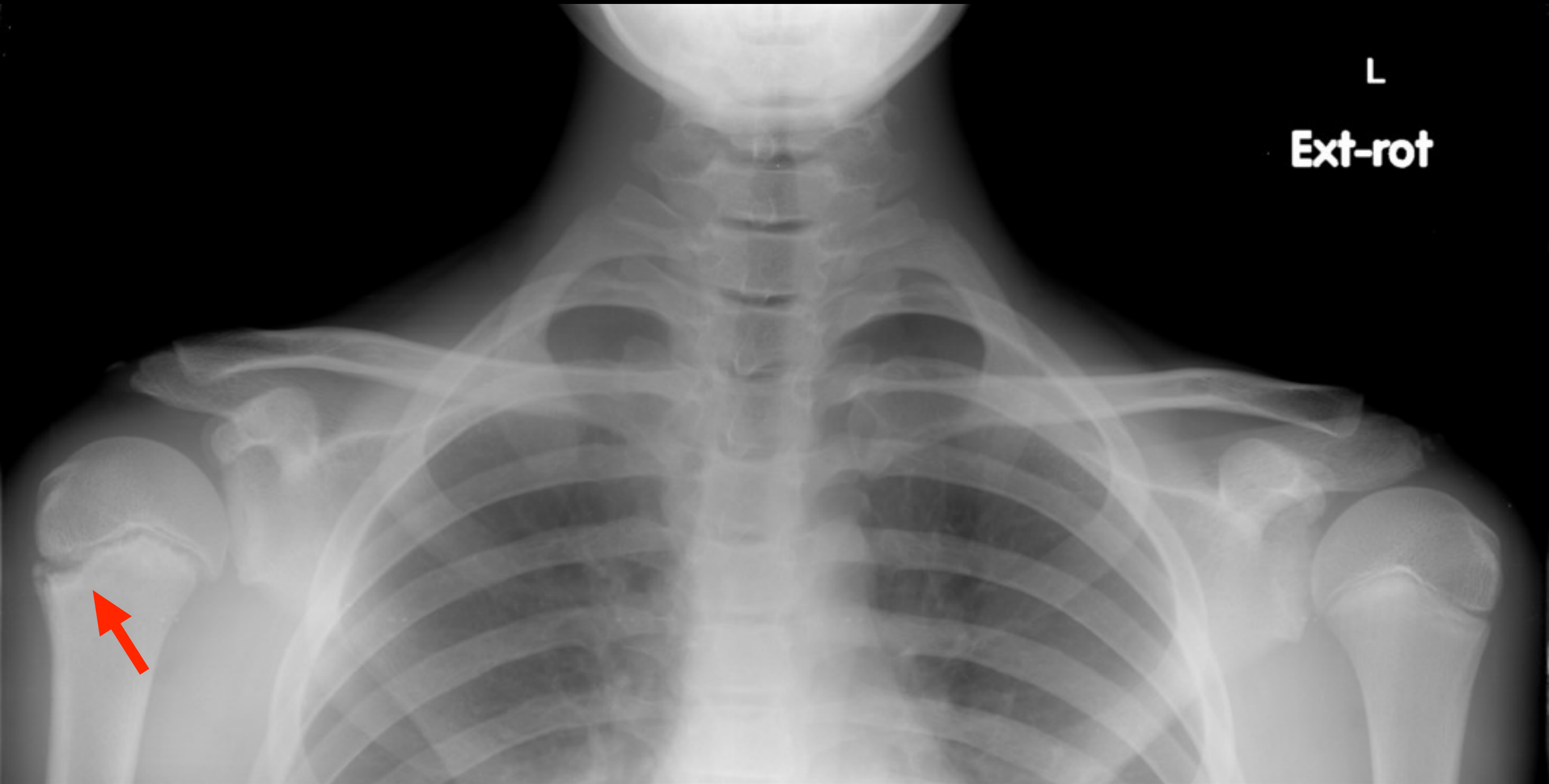
13 M

right
shoulder
pain

?

L

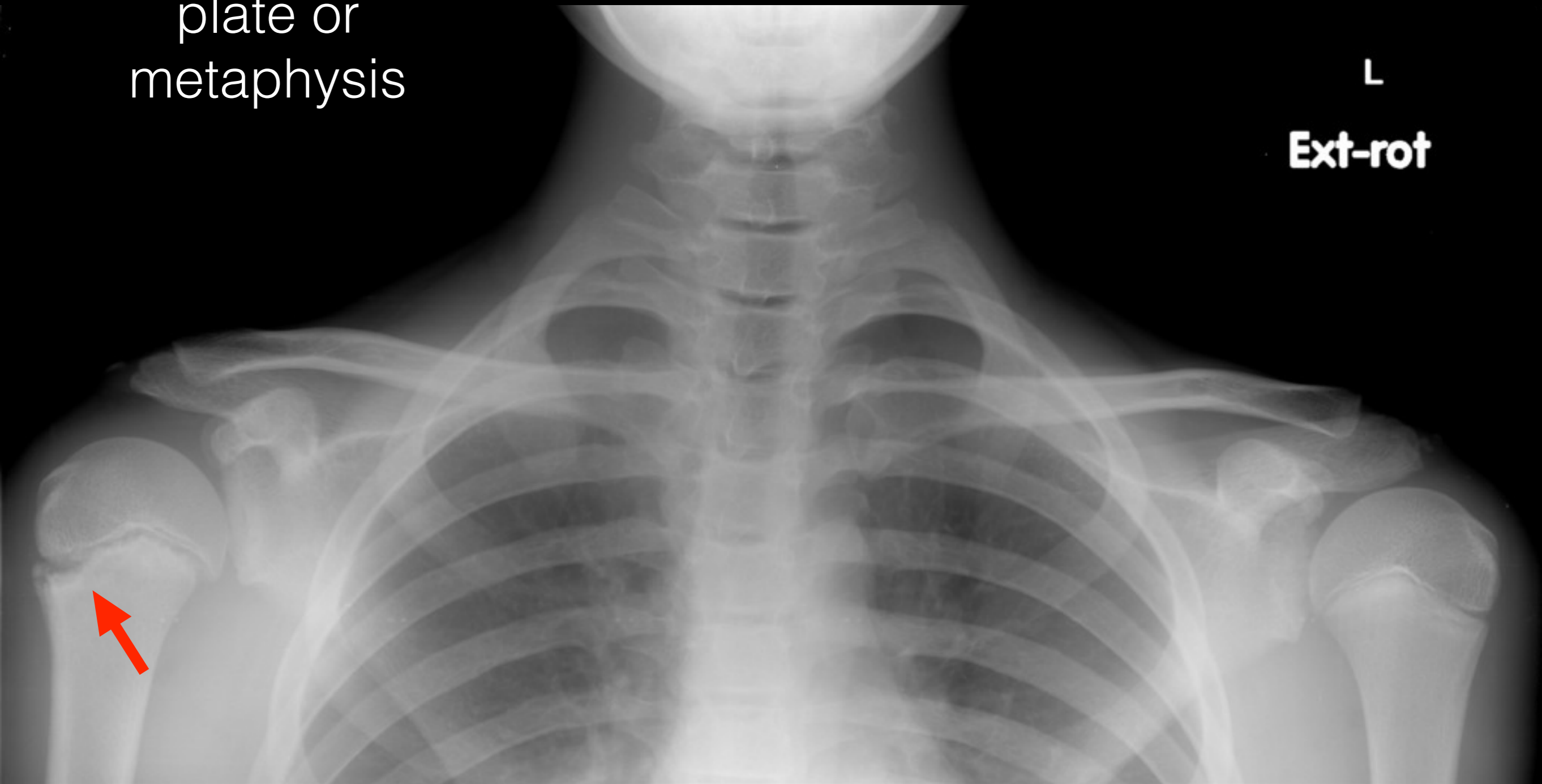
Ext-rot



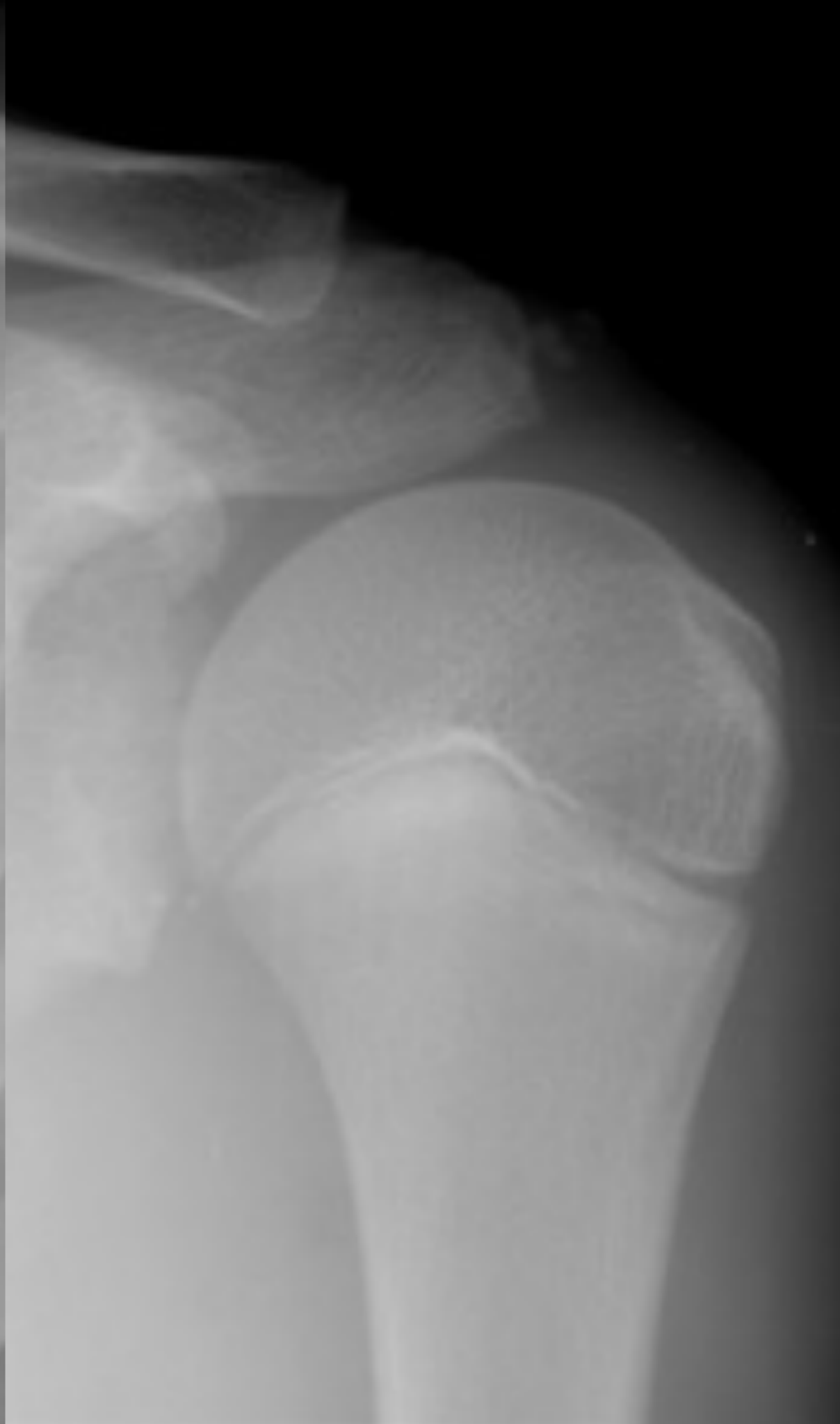
“Little League shoulder”

overuse or stress
injury of growth
plate or
metaphysis

Anton et al.
Pediatr Radiol.
2010 Oct
23;40(S1):54.



- physeal widening
- fragmentation
- sclerosis



- usually in 13-16 year-old boys



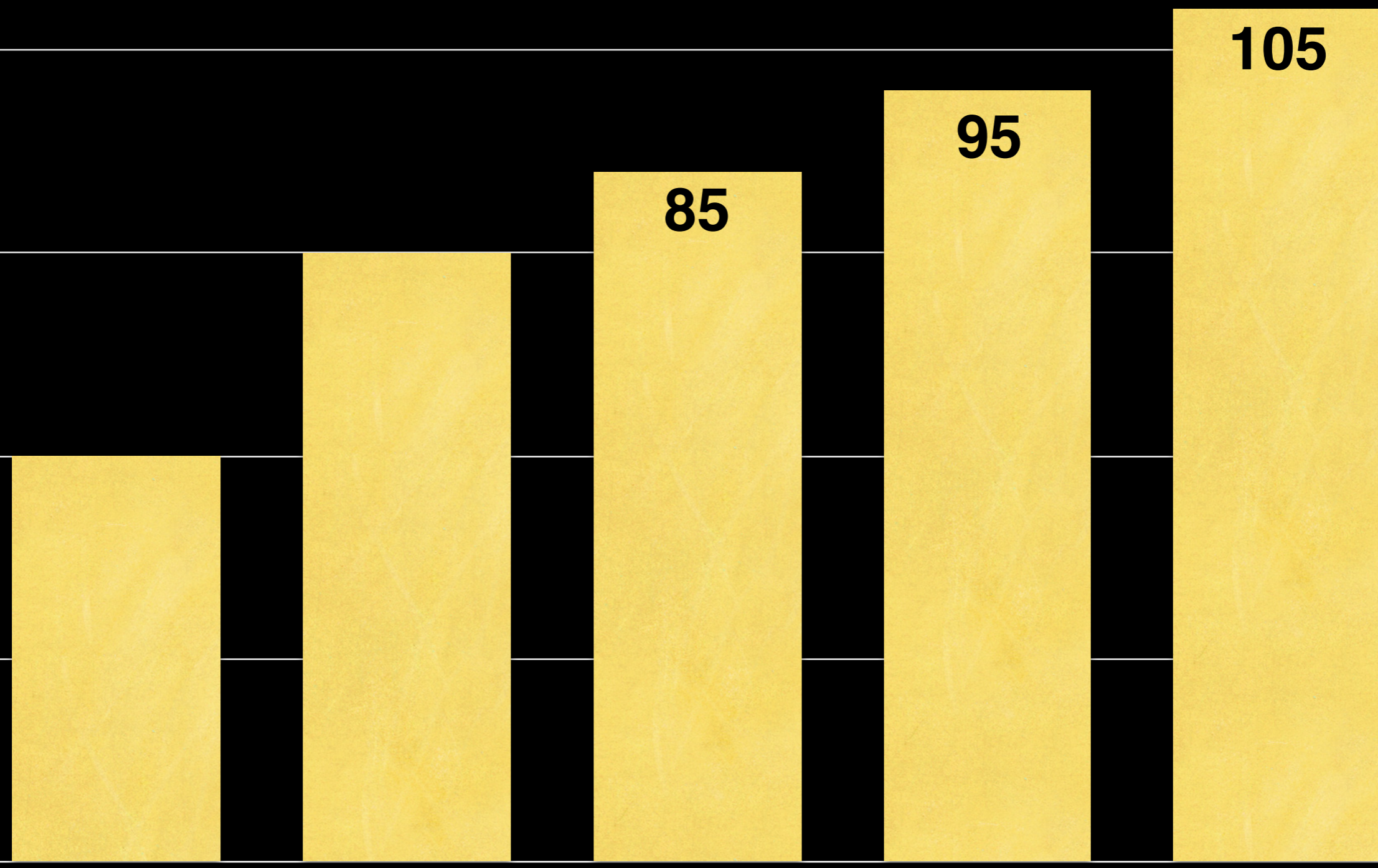
littleleague.org

maximum pitches / day

125
100
75
50
25
0

7-8 9-10 11-12 13-16 17-18

Age



- rest
- PT
- limit activity



handout at:

uwmsk.org/

[msktrauma2015.pdf](http://uwmsk.org/msktrauma2015.pdf)