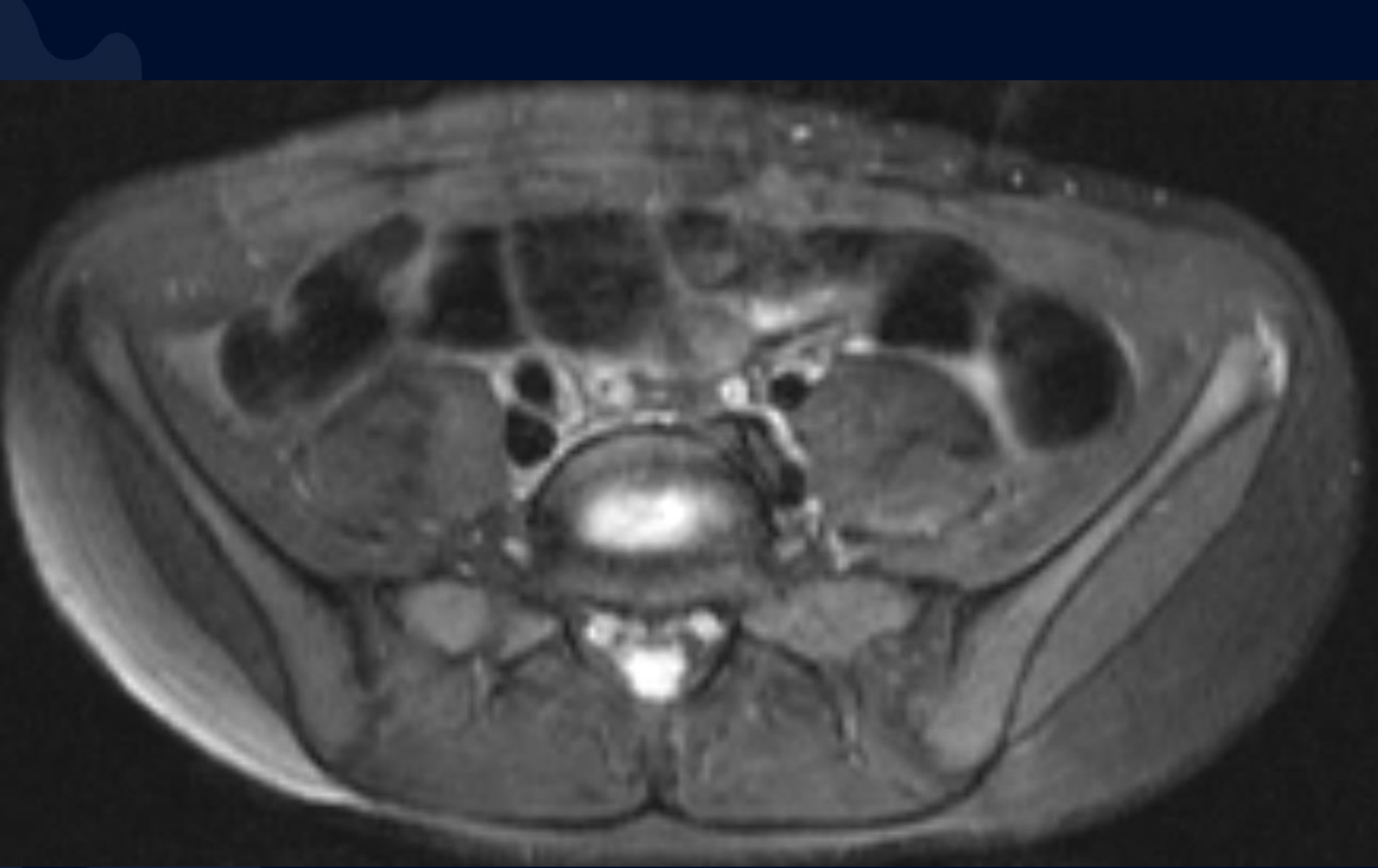


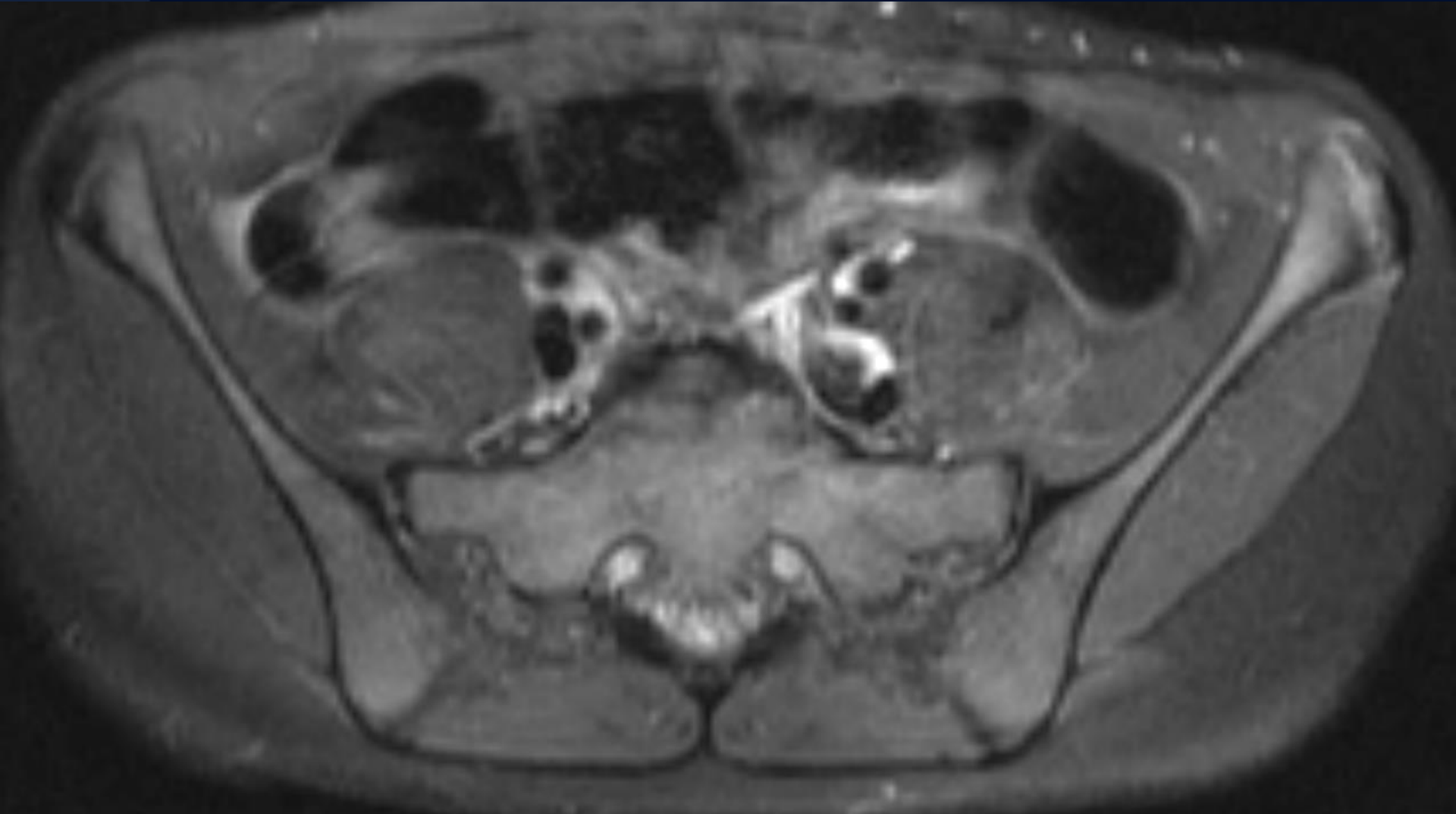
15 year-old female with 10-week
history of pain over the left “hip”.

Ryan Joyce, MD



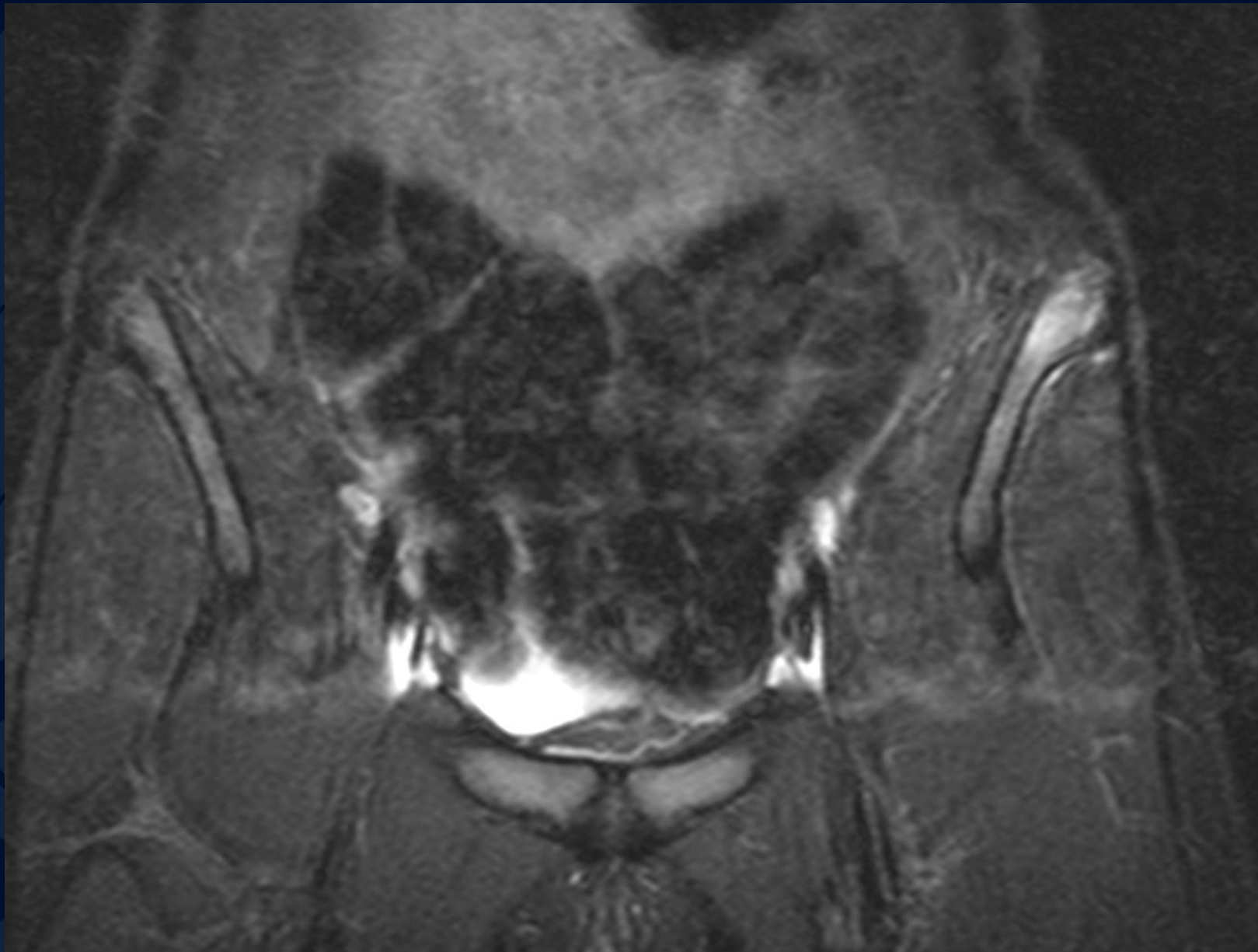








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RADIOLOGY

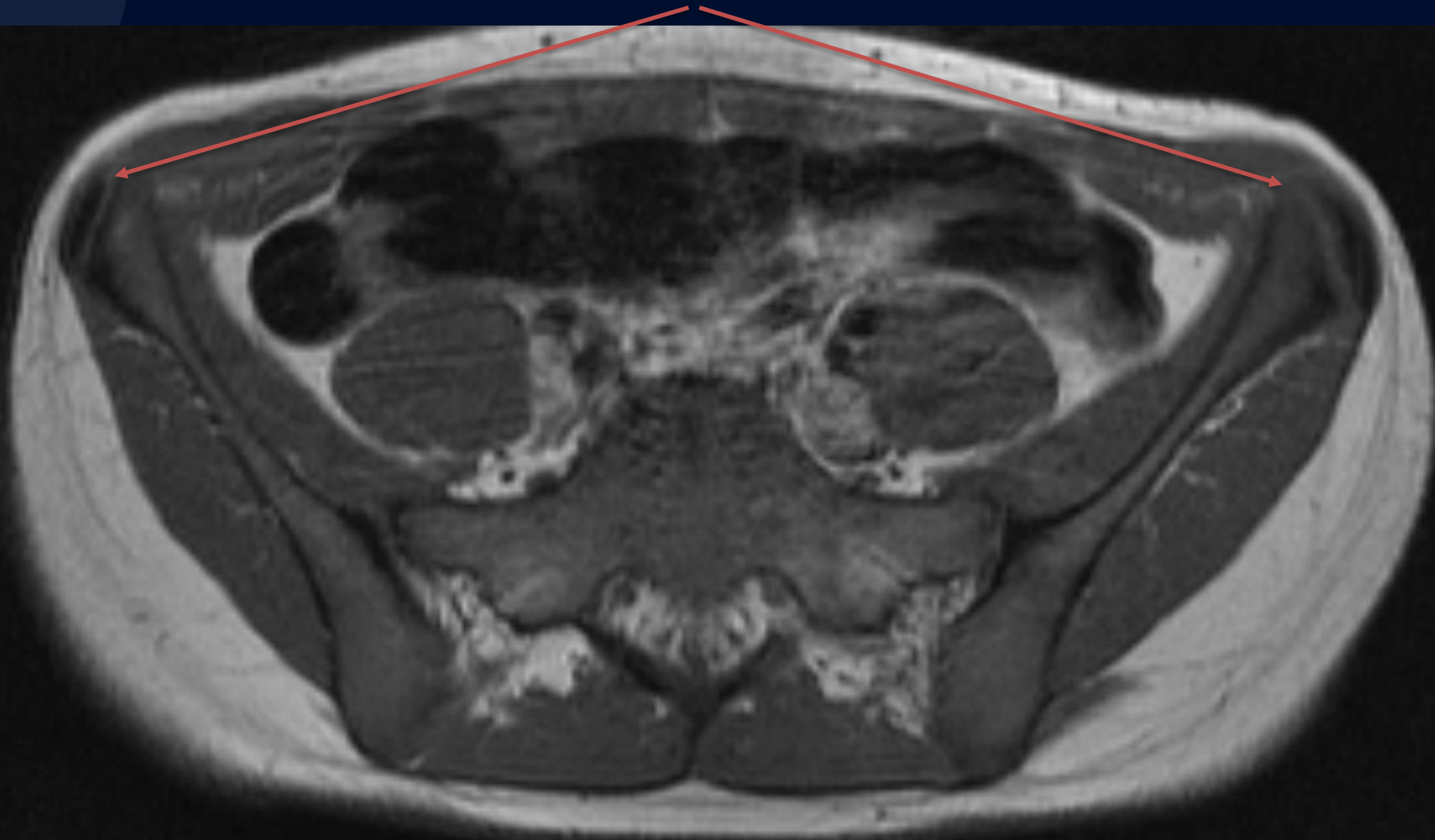


A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. It features detailed vein patterns and a lobed edge.

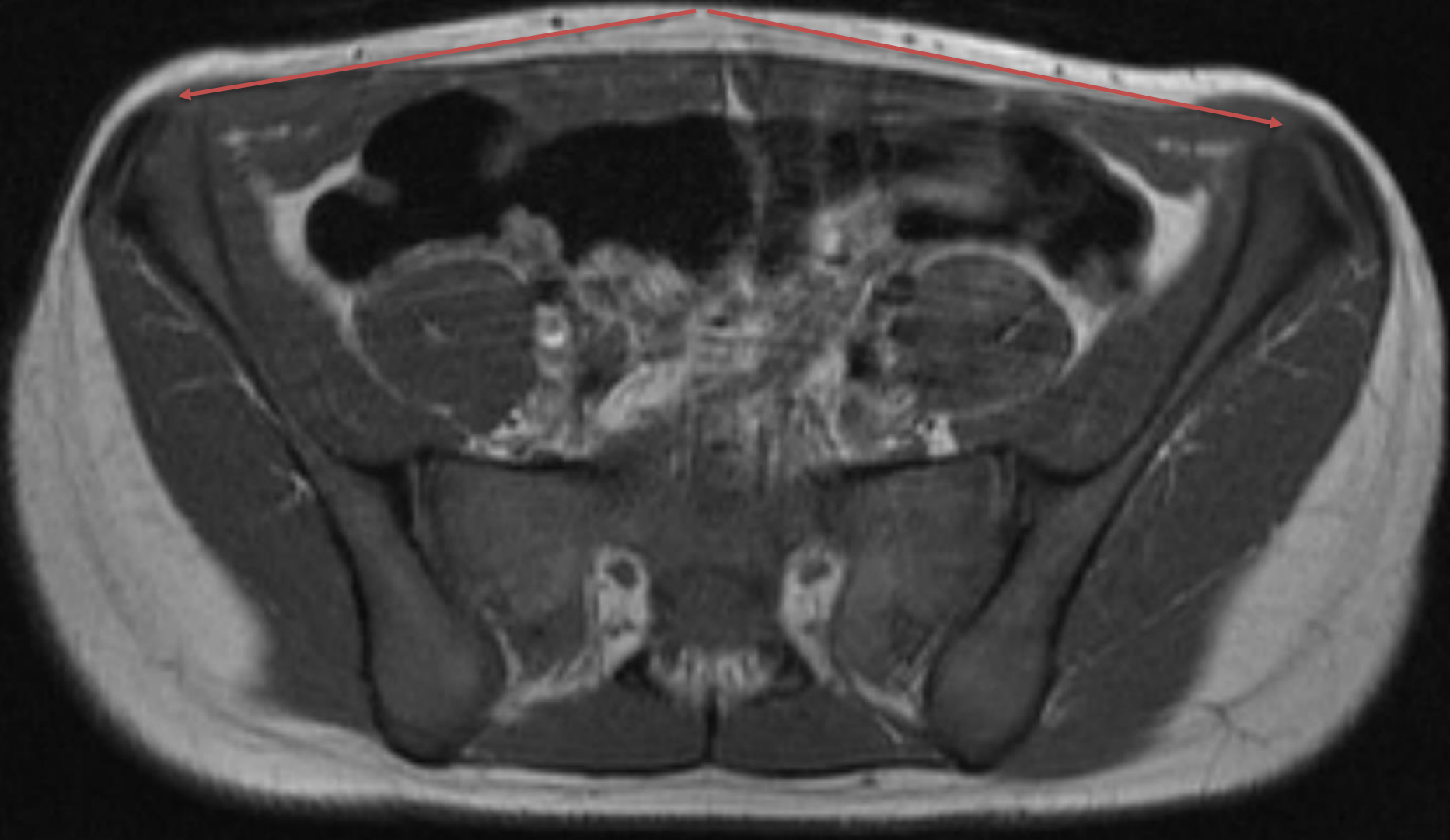
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Apophyseal avulsion of the iliac crest

Subtle widening of the left iliac crest physis when compared to the right



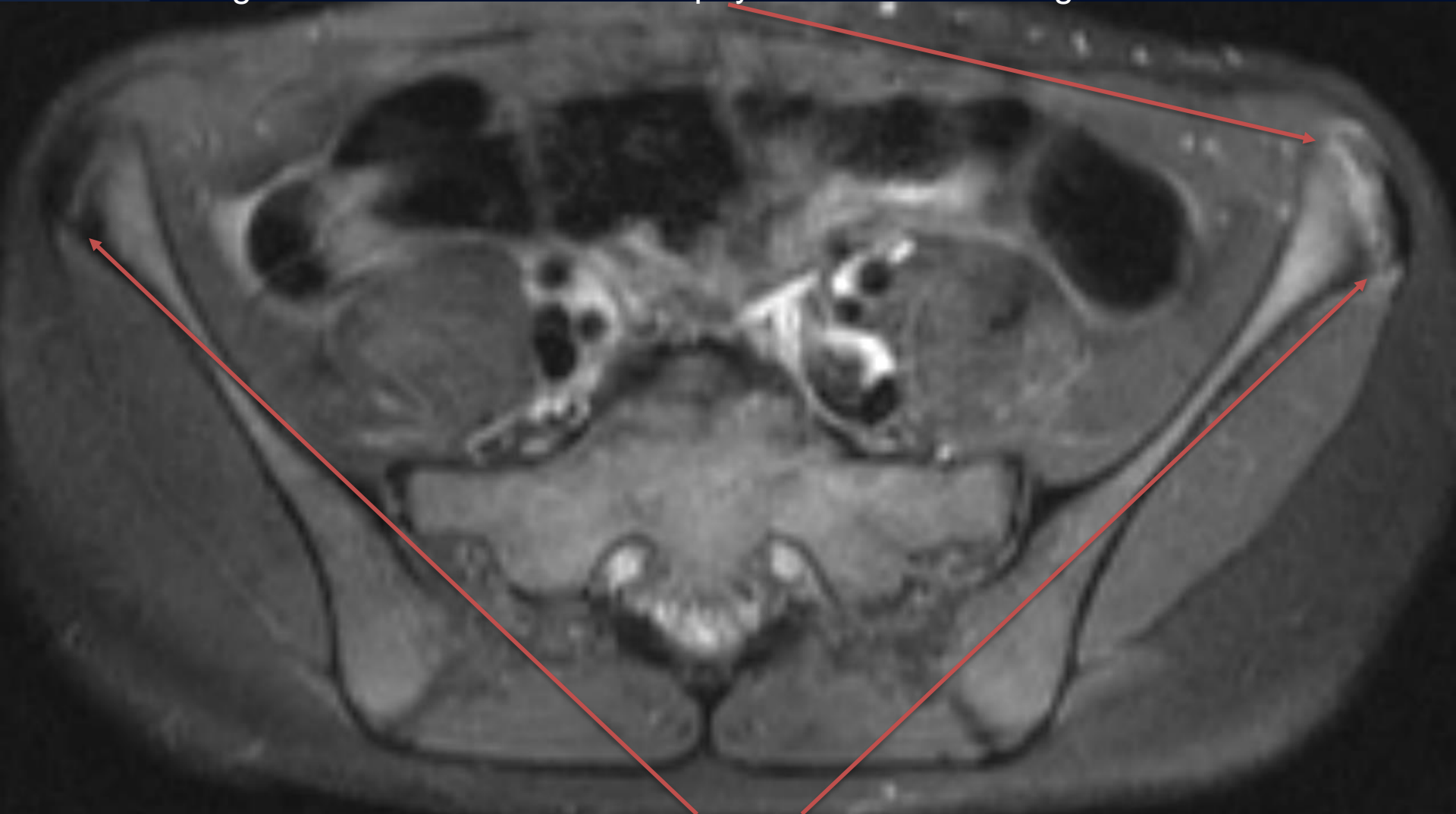
Subtle widening of the left iliac crest physis when compared to the right



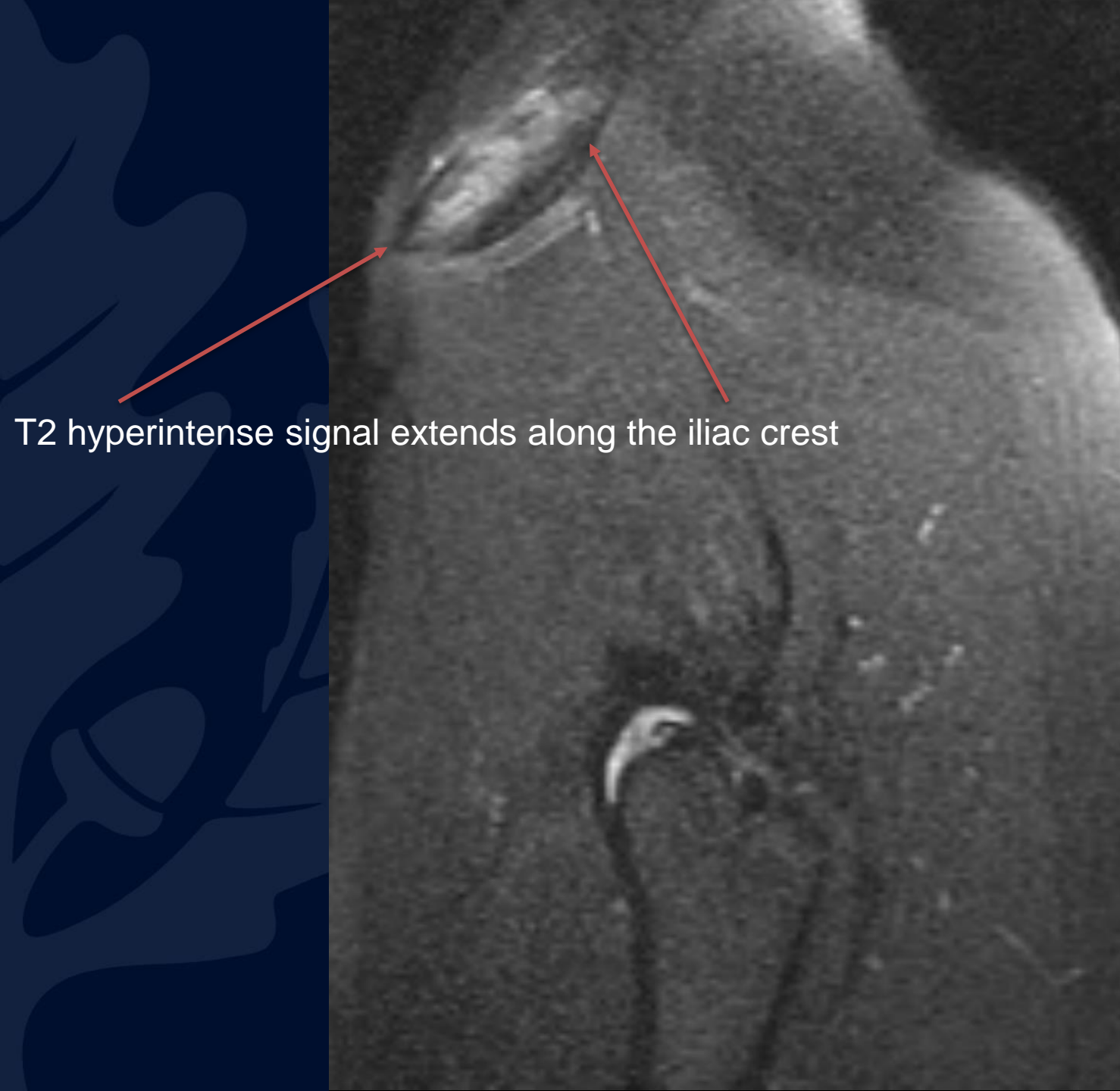
Fluid signal within the left iliac crest physis with surrounding marrow edema



Fluid signal within the left iliac crest physis with surrounding marrow edema

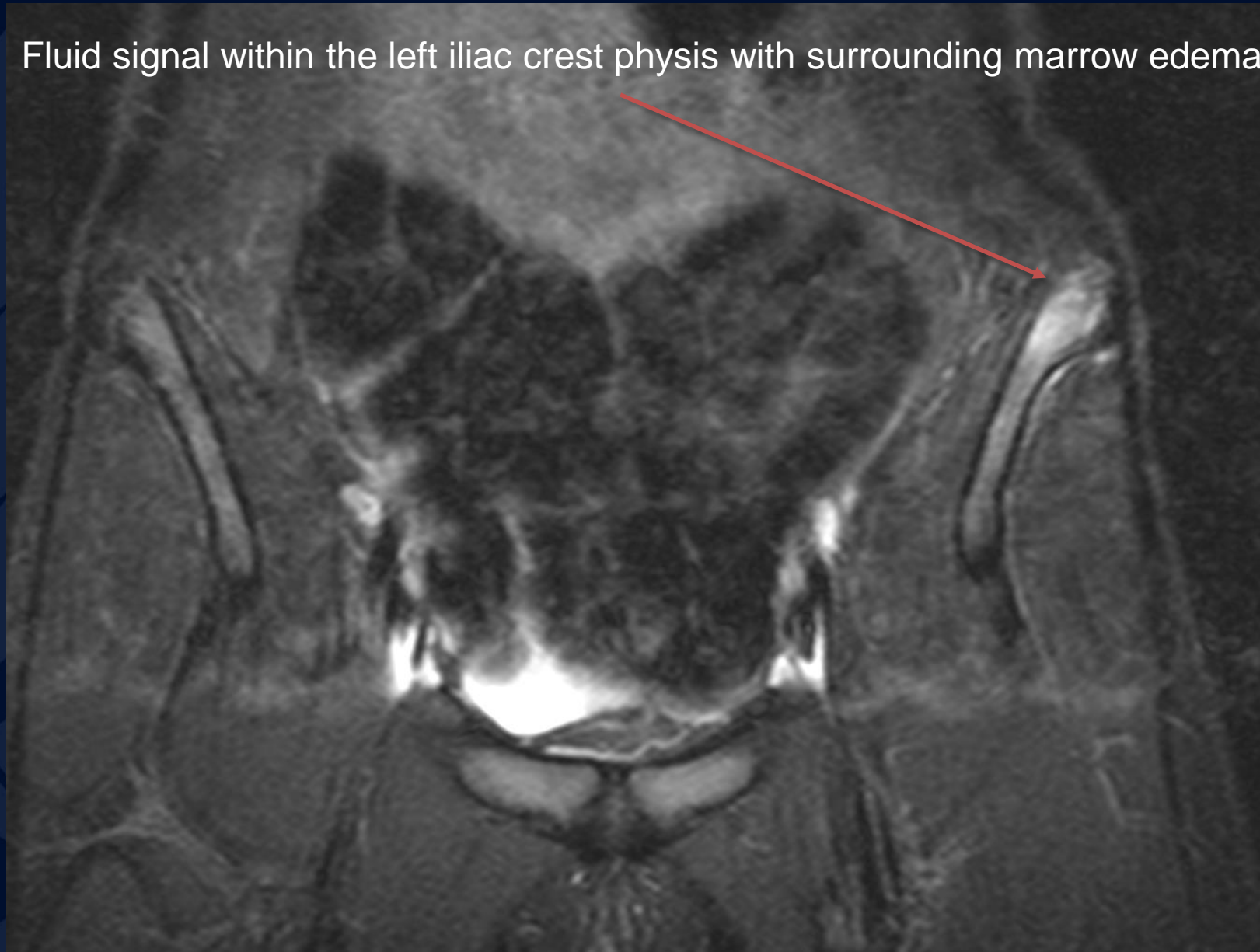


Subtle widening of the left iliac crest physis when compared to the right



T2 hyperintense signal extends along the iliac crest

Fluid signal within the left iliac crest physis with surrounding marrow edema



Apophyseal avulsion of the iliac crest

Apophyseal avulsion fractures of the pelvis (and hips) are common injuries among physically active adolescents and young adults.

Seen with frequency in soccer, ballet, and running, lesser so in football, baseball, and track.

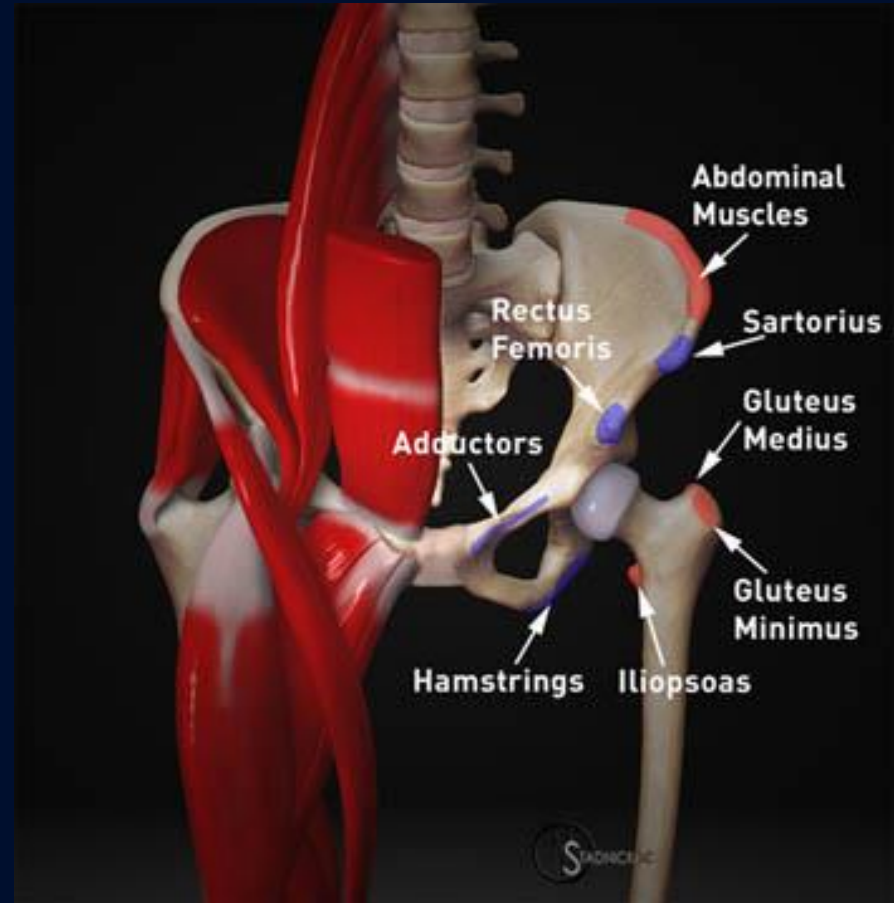
Typically the result of sudden, forceful muscular contraction which pulls the apophysis away from the growth plate, as the physis is the weakest biomechanical structure in the muscle-tendon-bone unit in these skeletally immature individuals. Weakest point in young adults = myotendinous junction. Weakest point in older adults = tendon.

Patients present with pain, weakness, altered gait, and point tenderness.

Radiographs may show a displaced apophysis, but if minimally displaced or non-displaced, MRI has been shown to be extremely sensitive.

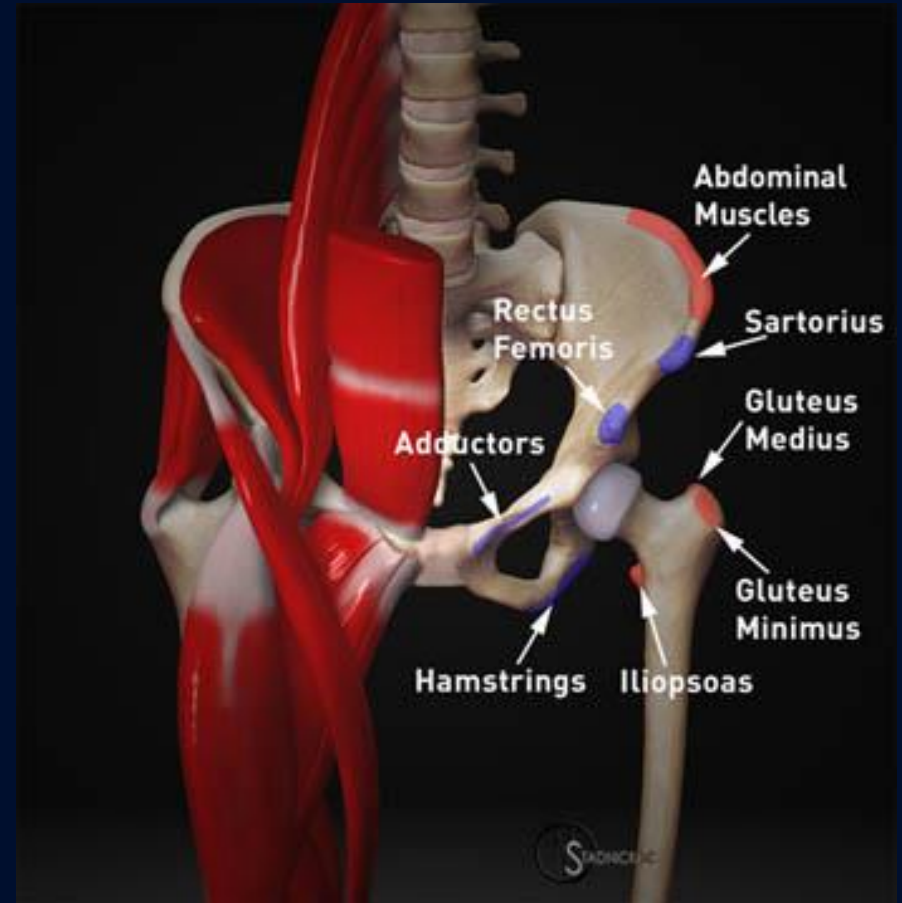
Apophyseal avulsion of the iliac crest

- At the pelvis, occur at 5 different sites, listed in order of their relative frequency:
 - Ischial tuberosity (hamstring attachments)
 - Anteroinferior iliac spine (straight head of rectus femoris attachment)
 - Anterosuperior iliac spine (sartorius and TFL attachments)
 - Superior angle of pubic symphysis (gracilis, adductor longus and brevis attachments)
 - Iliac crest (external oblique, internal oblique, and transversus abdominis attachments)
 - Avulsion of iliac crest is RARE.



Apophyseal avulsion of the iliac crest

- At the hip, there are 2 different sites:
 - Greater trochanter (hip rotator cuff)
 - Lesser trochanter (iliopsoas attachment)



Apophyseal avulsion of iliac crest

Usually treated with a conservative management trial of non-weight bearing rest, NSAIDs, and 2-4 weeks time to allow healing.

If improving, gradual introduction of low-impact physical activity is advocated.

After 8 weeks, usually return to non-competitive sport activity, and after 12 weeks, should be able to return to pain-free competitive sport activity.

If the patient has persistent pain despite conservative measures (rarely), surgery may be indicated. It is important the patient does not return to sport activity prematurely, which could worsen the injury and prevent healing.

One indication for early surgical intervention is high-degree of fragment displacement (>3 cm).

References

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2. Stevens MA, El-Khoury GY, Kathol MH et al. Imaging features of avulsion injuries. Radiographics 1999;19(3):655-672.
3. Rossi F, Dragoni S. Acute avulsion fractures of the pelvis in adolescent competitive athletes: prevalence, location and sports distribution of 203 cases collected. Skeletal Radiol 2001;30(3):127-31.
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