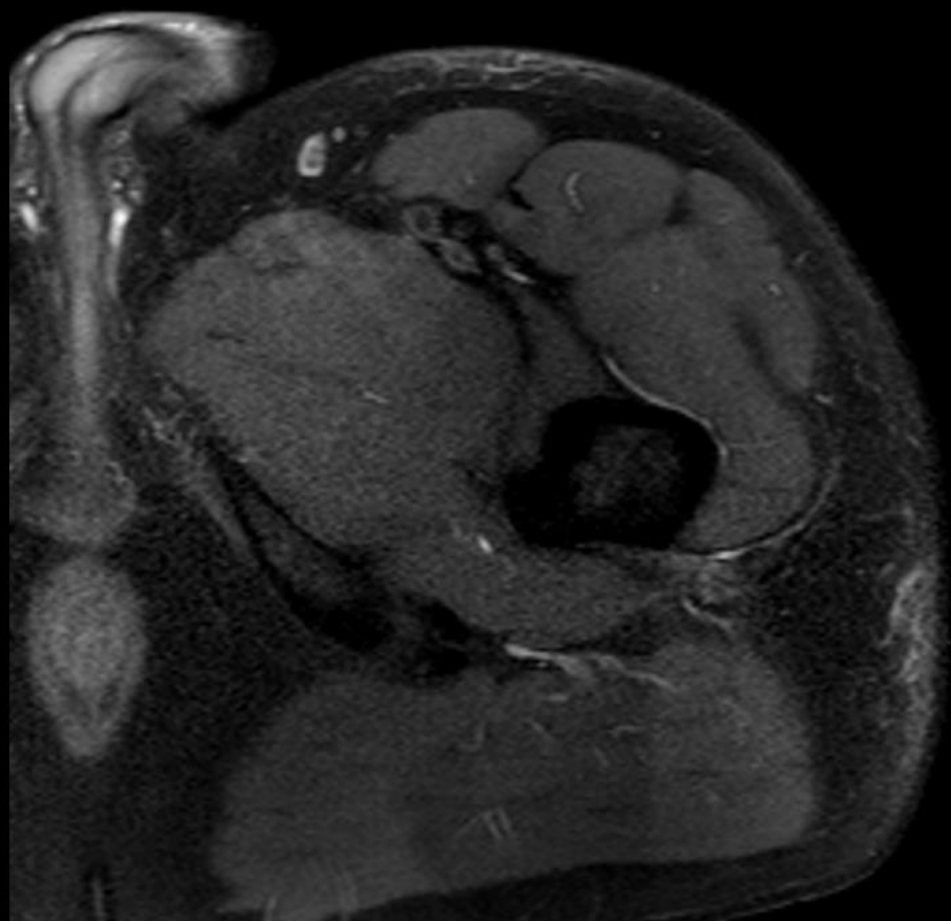
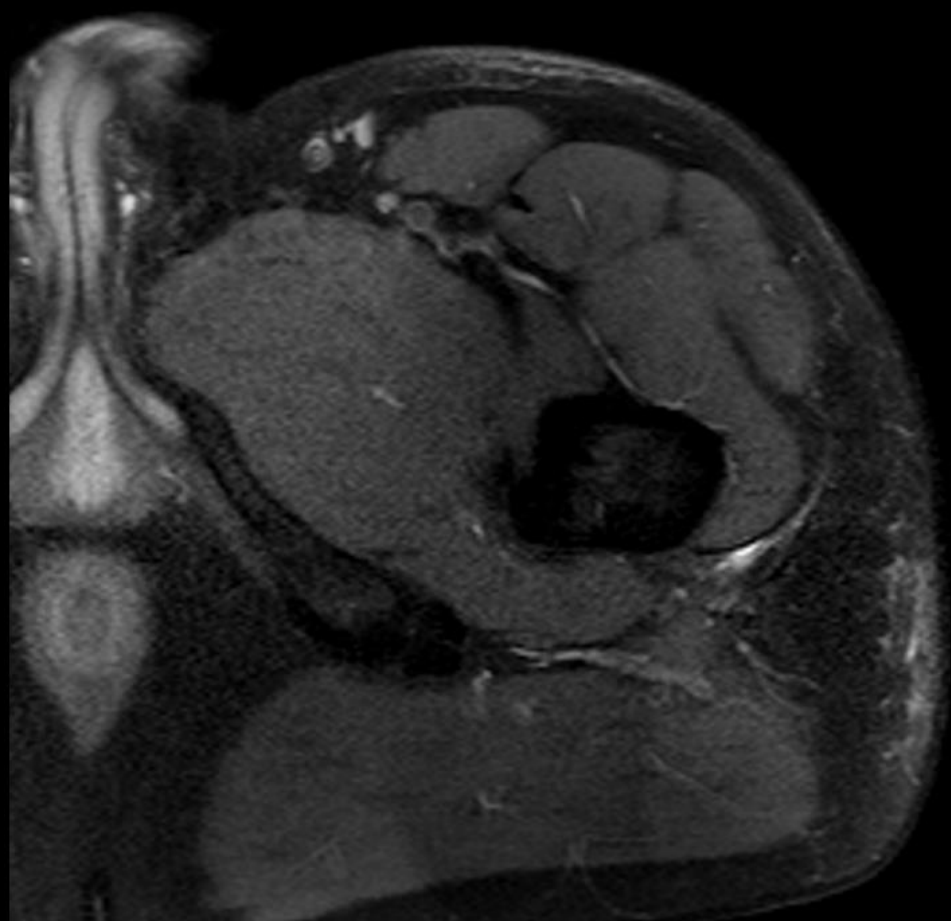
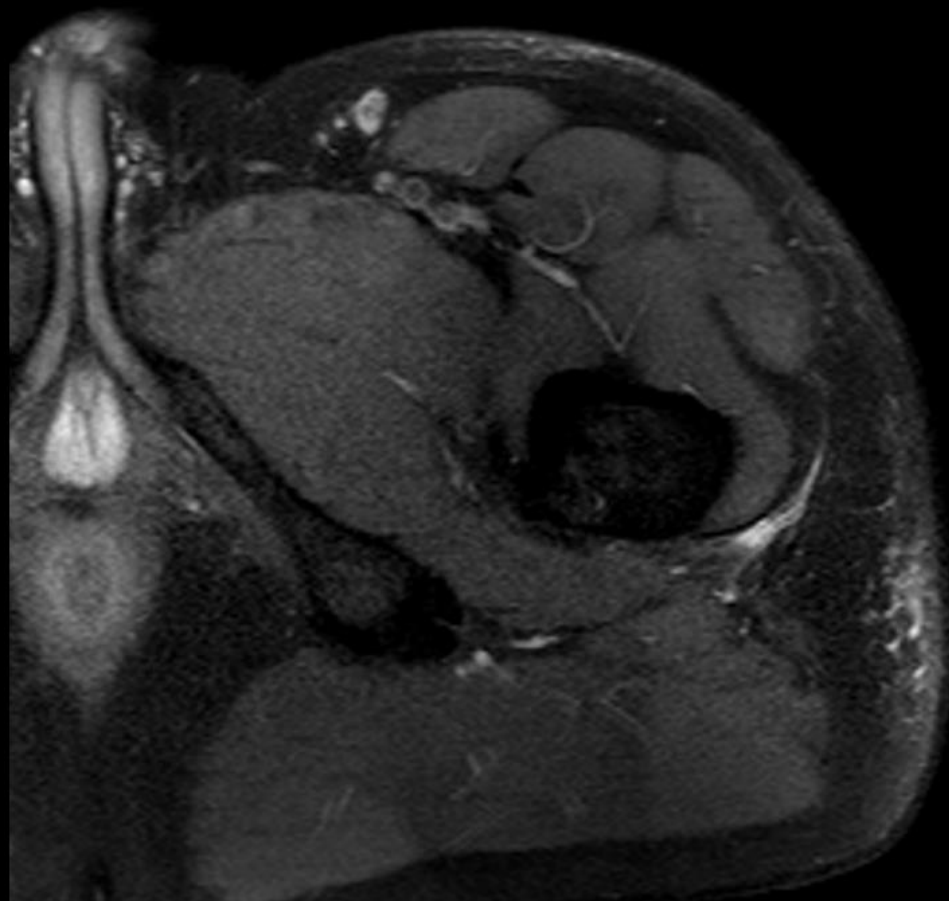


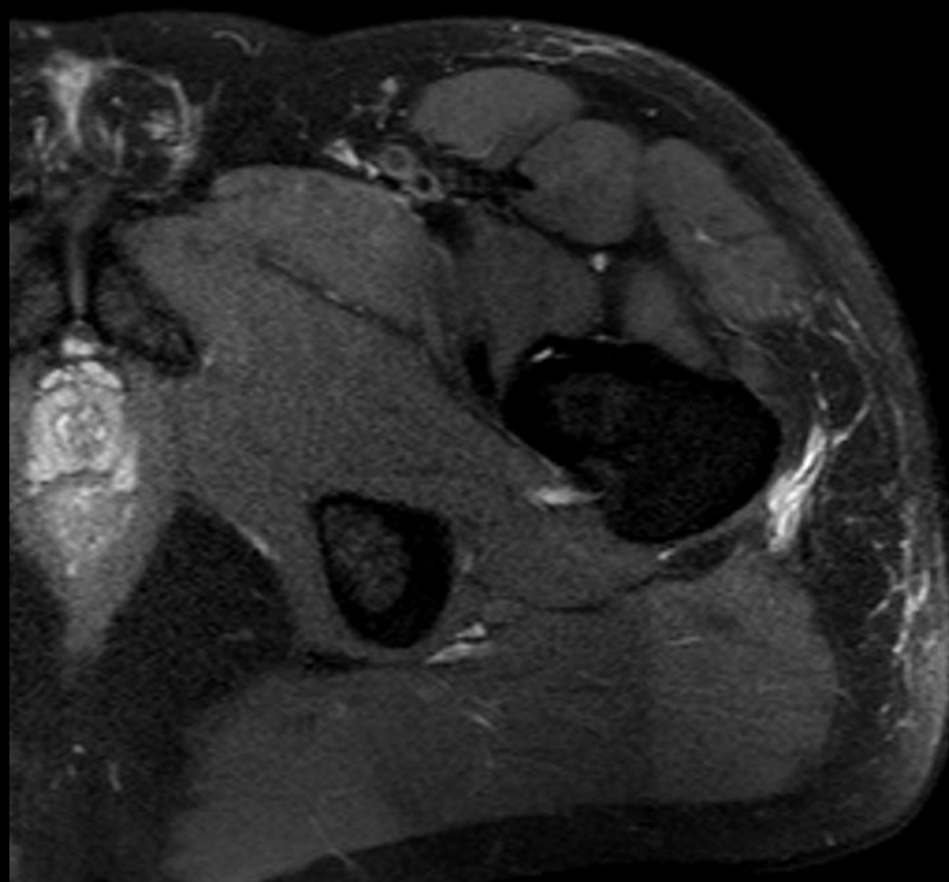


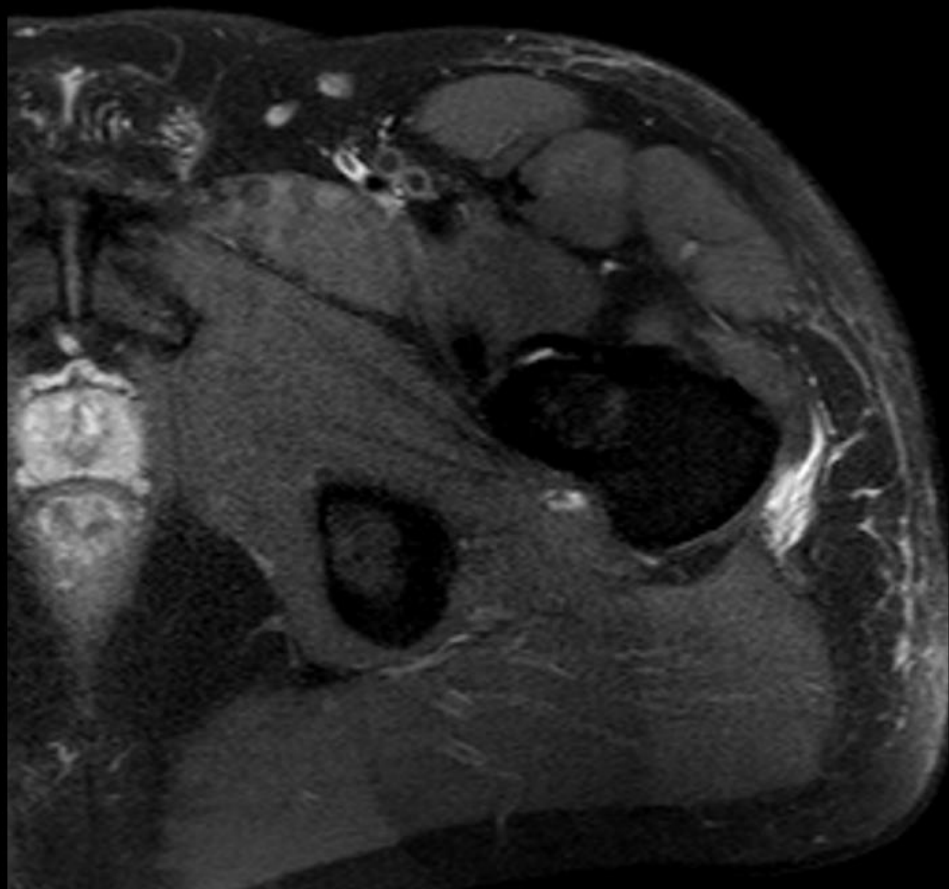
45year old male with left hip pain,
popping, abductor injury

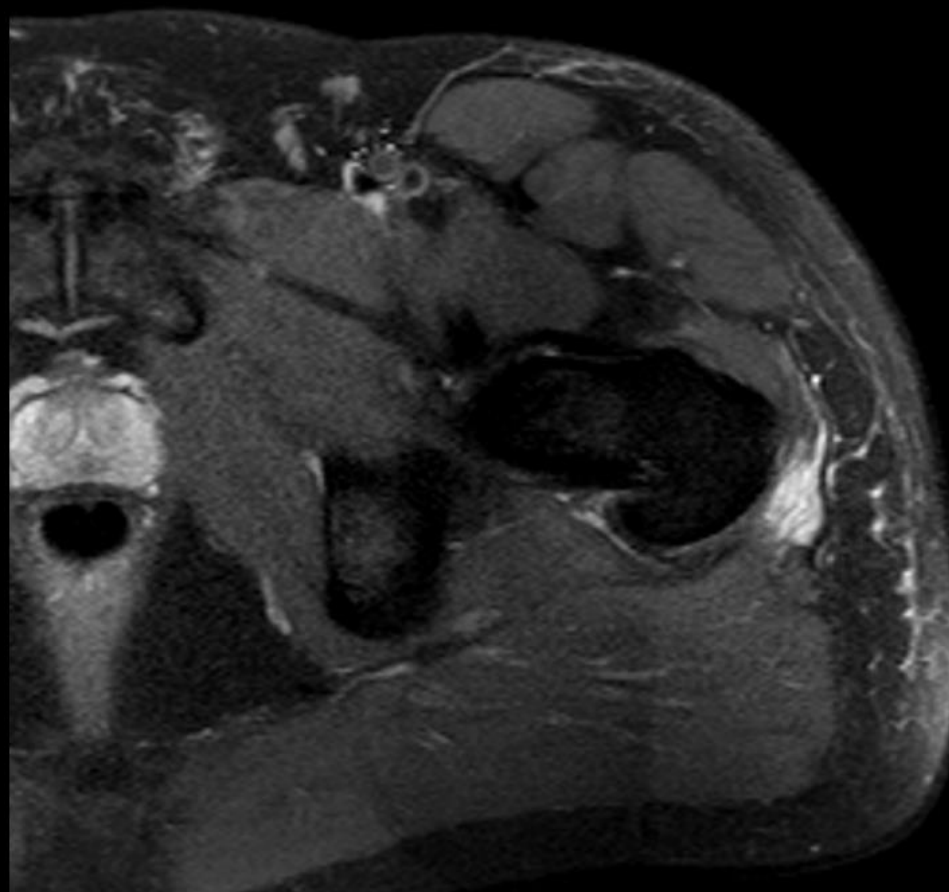


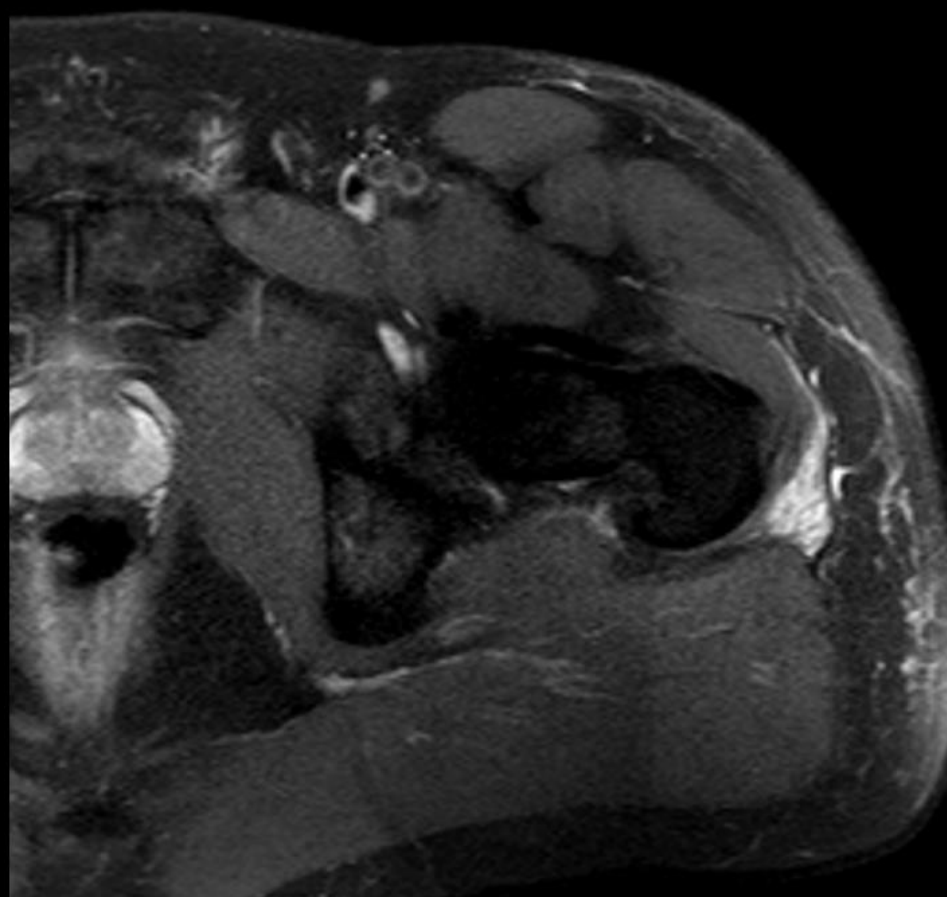


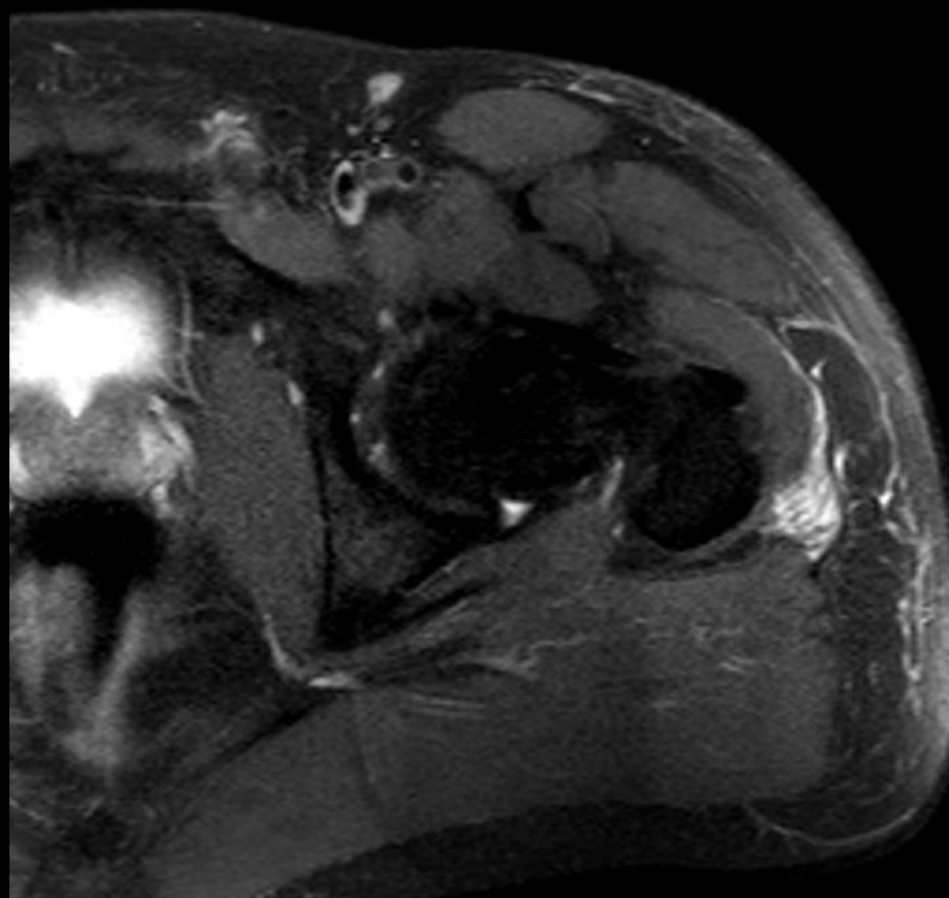


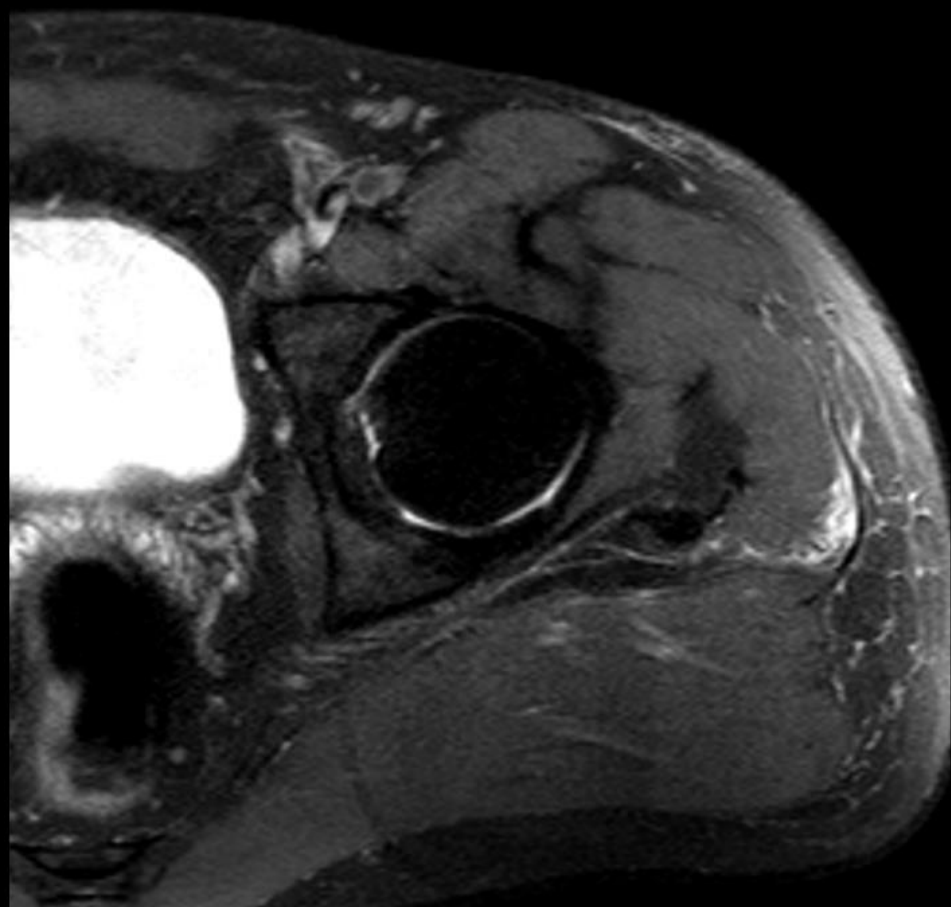


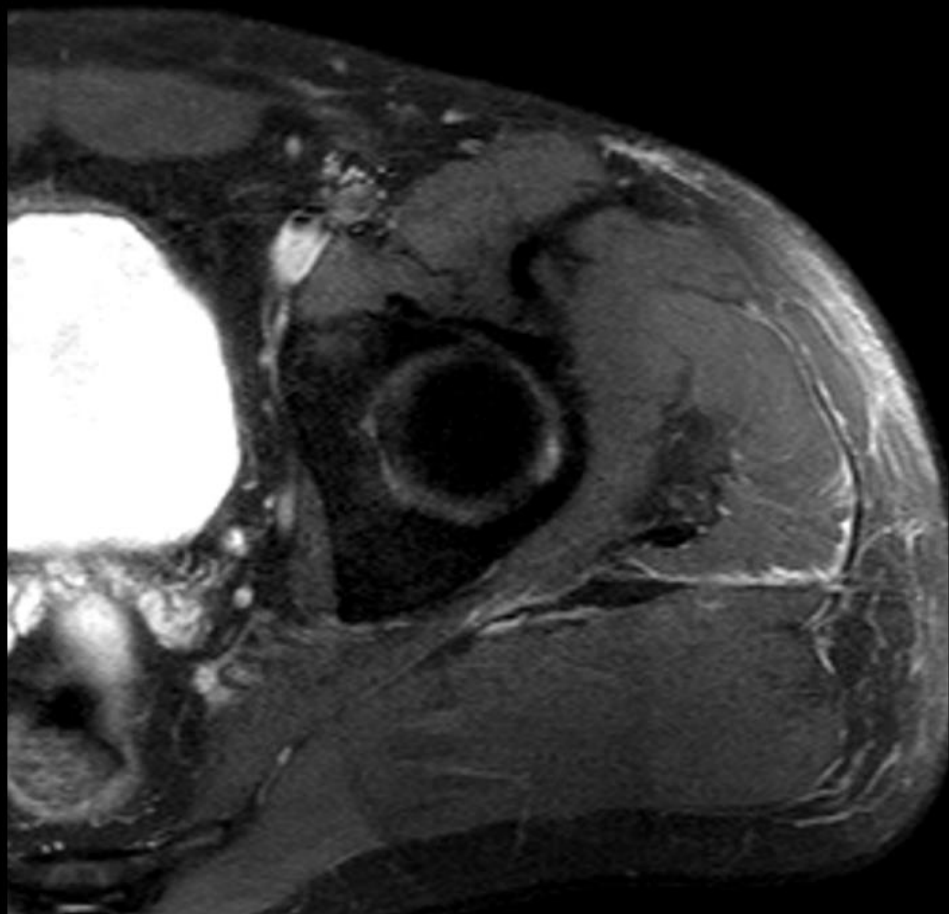


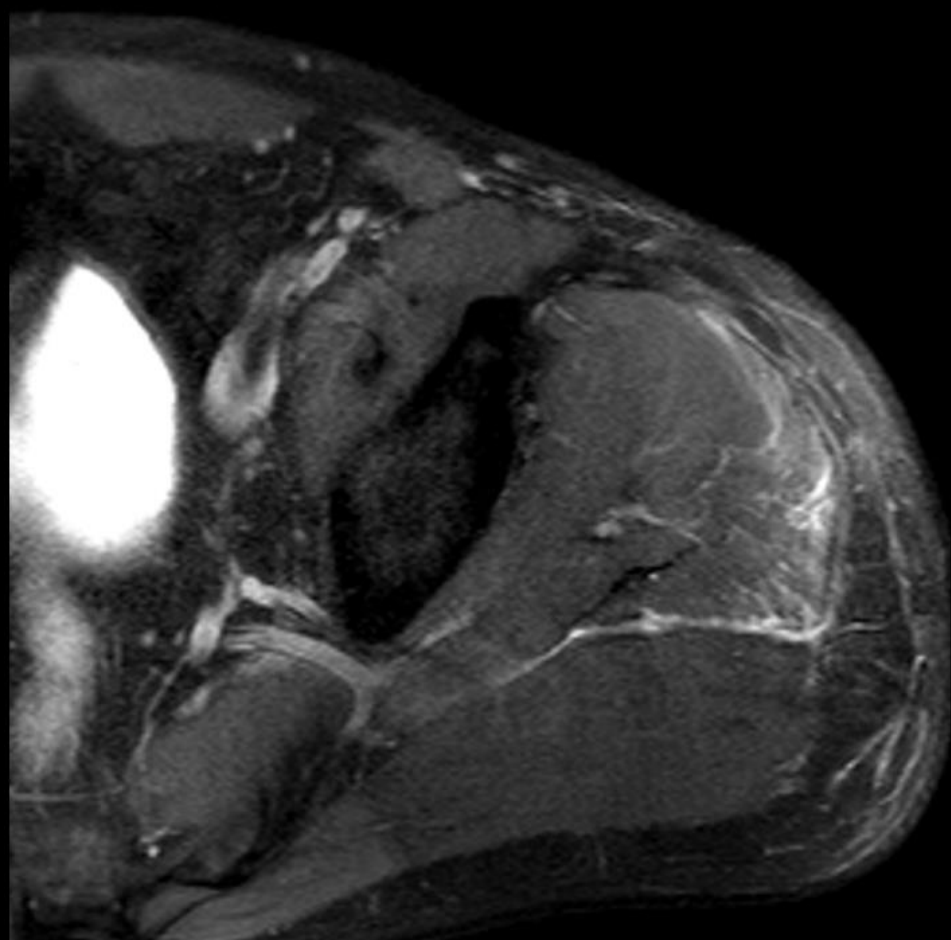


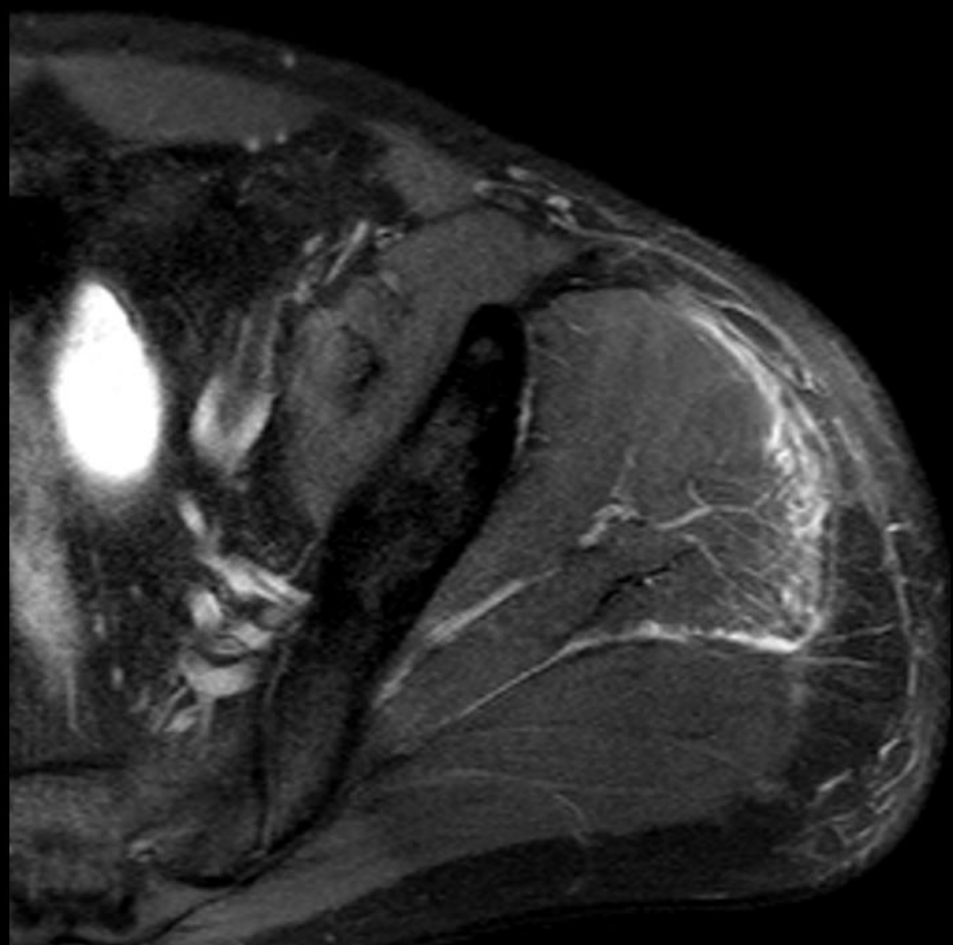


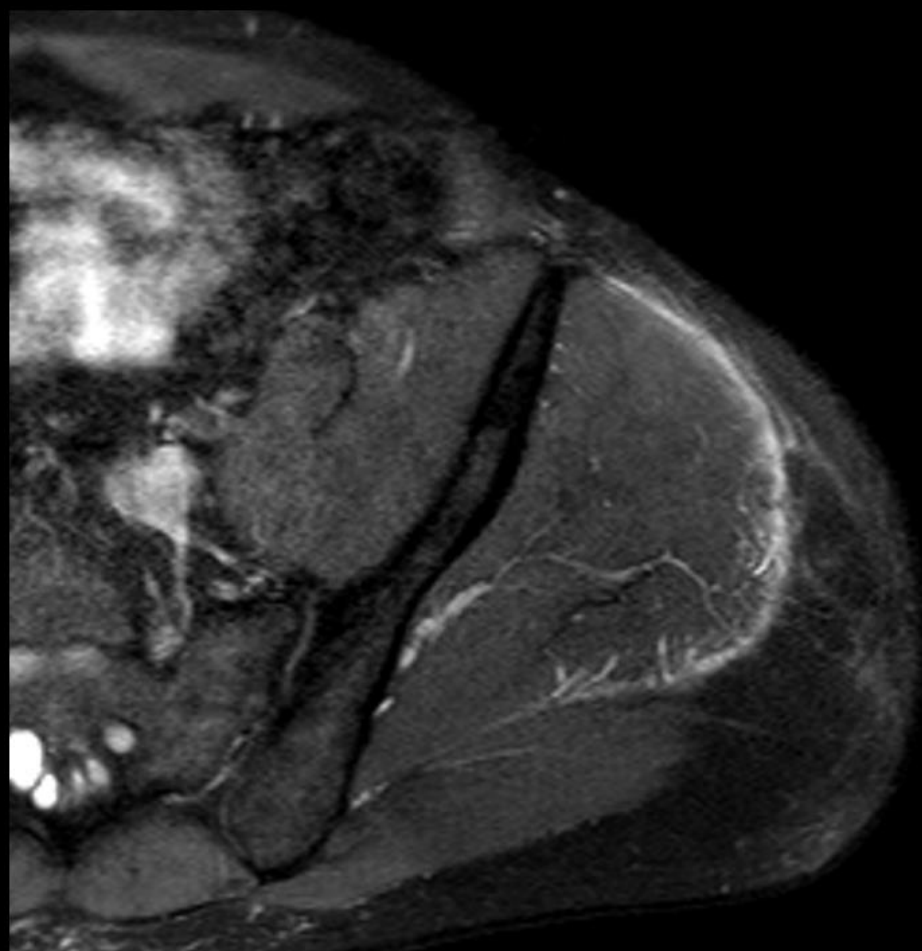




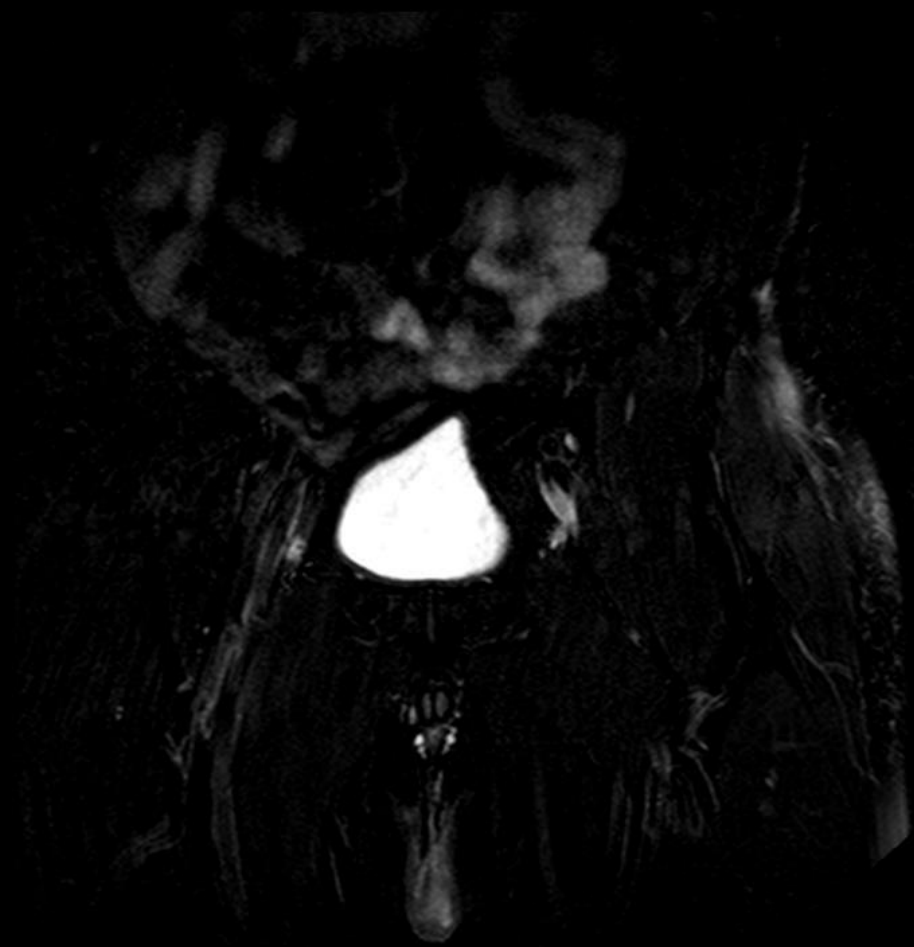
















- Multiple small tears of the fascia of the iliotibial band with an associated myotendinous injury of the gluteus medius tendon where it merges with the fascia
- surrounding reactive edema about the gluteus medius muscle and fascia



Injury of the Gluteal Aponeurotic Fascia and Proximal Iliotibial Band: Anatomy, Pathologic Conditions, and MR Imaging¹

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Deep Fascia of thigh = Fascia Lata

- broad continuum of fibrous tissue about the buttock, hip, and thigh
 - contributions from aponeurotic fascia covering the gluteus medius muscle posteriorly
 - laterally located iliotibial band (ITB).
- ITB consists of three layers that merge at the lower portion of the tensor fasciae latae muscle.
- The gluteal aponeurotic fascia and ITB merge at the buttock and hip before extending inferiorly to the Gerdy tubercle at the anterolateral tibia.

4 primary categories of disease

- overuse injuries
- traumatic injuries
- degenerative lesions
- inflammatory lesions

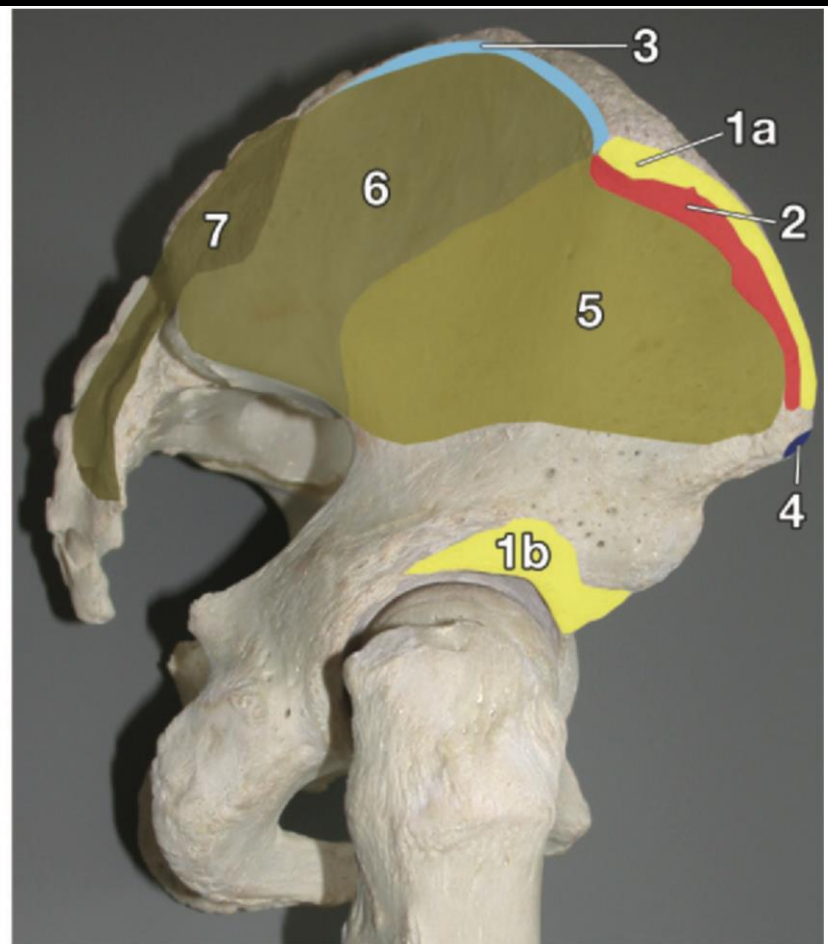
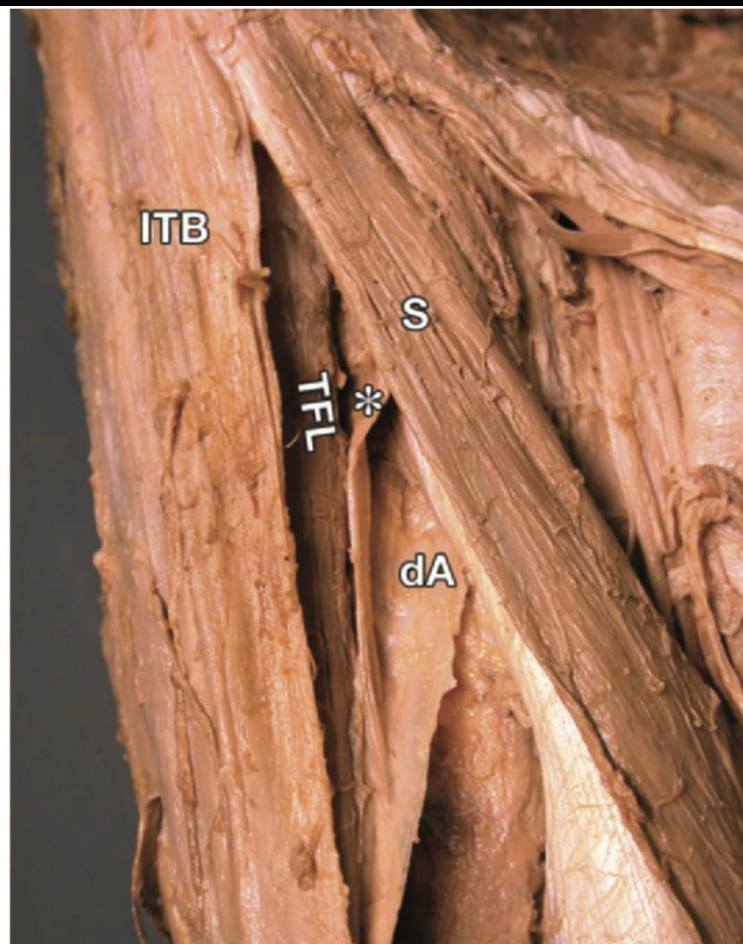


Figure 1. (a) Photograph (anterior view) of a dissected right thigh shows the three layers of the ITB. Note the covering of the TFL by the superficial fibers (*ITB*) and intermediate fibers (*) of the ITB and the distal part of its deep anchor (*dA*). The close relationship of the sartorius (*S*) and TFL muscles is apparent. (b) The origin of relevant muscles and other structures on the iliac bone is illustrated (right lateral view). *1a* = origin of the superficial layer of the ITB, *1b* = origin of the deep layer (deep anchor) of the ITB, *2* = origin of the TFL, *3* = attachment of the GA fascia, *4* = origin of the sartorius, *5* = origin of the gluteus minimus, *6* = origin of the gluteus medius, *7* = origin of the gluteus maximus.

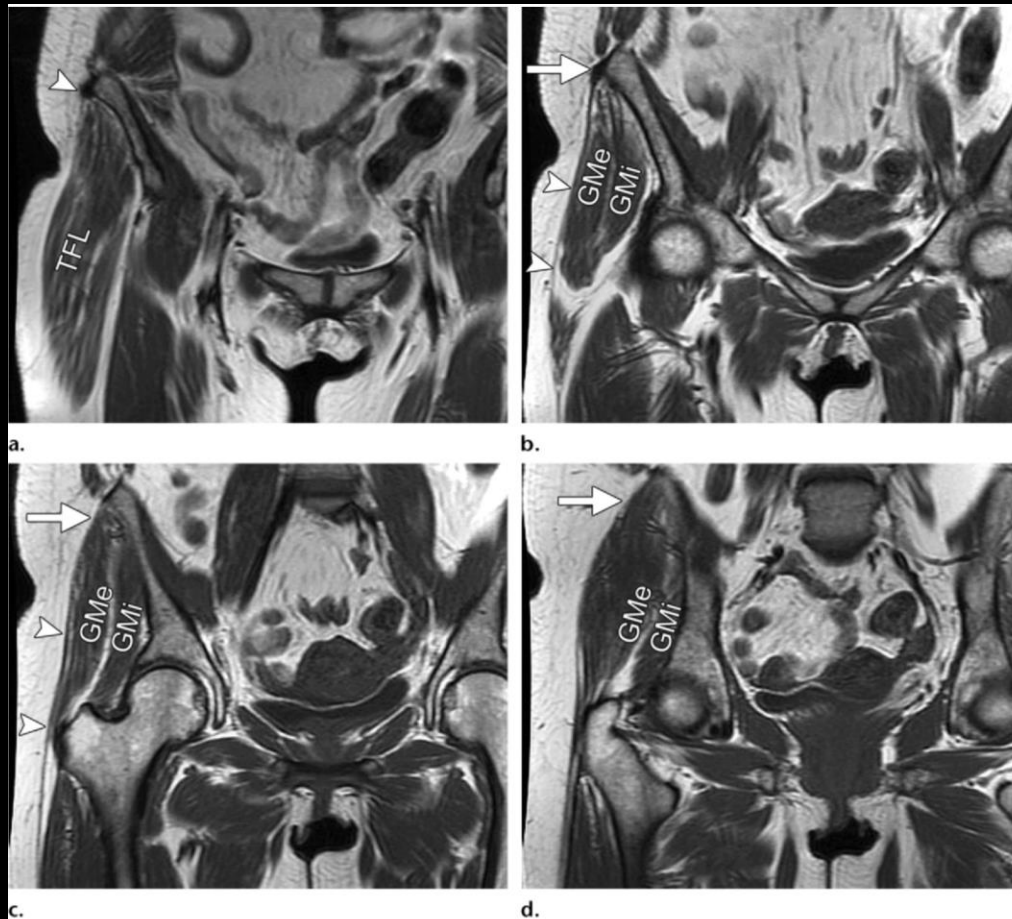


Figure 3. Coronal T1-weighted MR images (repetition time msec/echo time msec = 516/13) of the right hip in an asymptomatic volunteer show the attachment of the FL and its contributions from anterior to posterior. **(a)** The origin of the TFL, seen at the iliac crest, is covered by the ITB at the outer lip (arrowhead) of the iliac crest. **(b)** The more posterior portion of the ITB is well demonstrated at the iliac tubercle (arrow), as is the remainder of the ITB as it descends laterally along the thigh (arrowheads). Deep to the ITB are the gluteus medius (*GMe*) and gluteus minimus (*GMi*). **(c, d)** At the level of the hip joint, some fat separates the ITB from the gluteal muscles, which helps define the ITB at radiography. Posteriorly, the GA fascia (arrow) covers the upper part of the lateral surface of the gluteus medius—also giving rise to the gluteus maximus at its inferior border—and blends with the posterior fibers of the ITB (arrowheads in **c**).

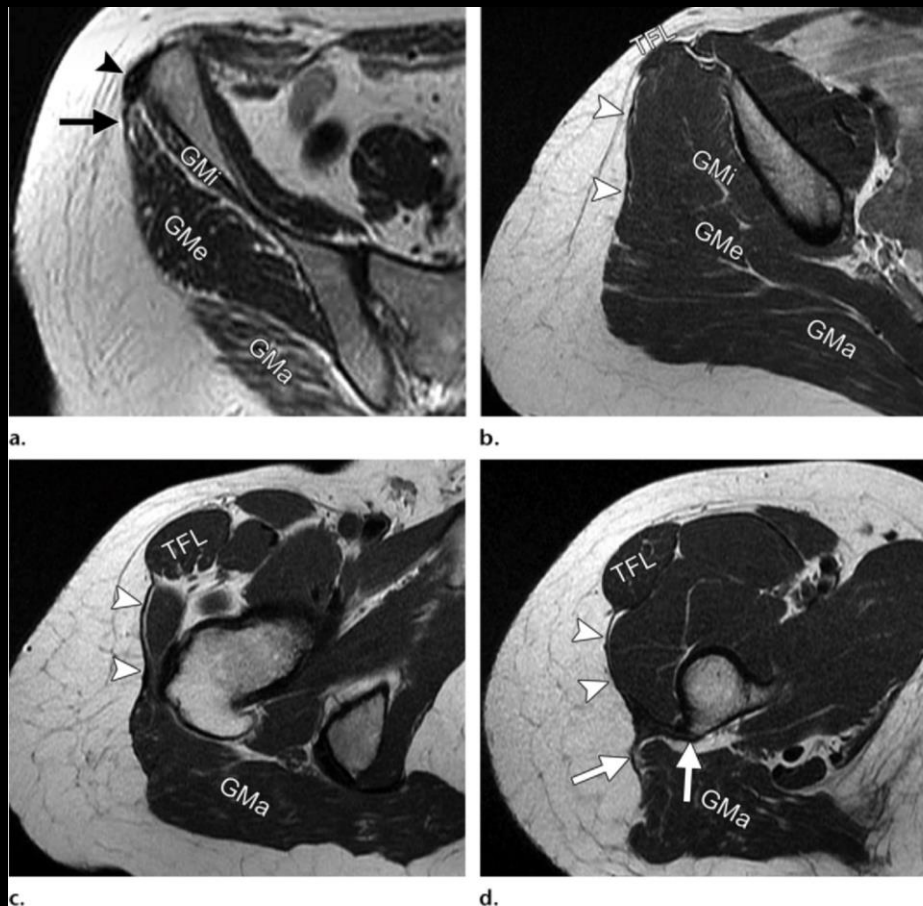


Figure 4. Axial proton-density (PD)-weighted images (2467/34) of the right hip show the relationships of the ITB and its contributions from anterior to posterior. **(a)** The proximal attachment of the ITB and the origin of the TFL (muscle belly not shown) appear together at the outer lip of the iliac crest (arrowhead). The GA fascia (arrow) covers the gluteus medius (*GMe*) and is adherent to the posterior fibers of the ITB. The gluteus minimus (*GMi*) and gluteus maximus (*GMa*), with origins from the ilium, are also seen. **(b)** More inferiorly, the proximal-most portion of the TFL is now identified, with its lateral border covered by the superficial fibers of the ITB (arrowheads). *GMa* = gluteus maximus, *GMe* = gluteus medius, *GMi* = gluteus minimus. **(c)** At the level of the greater trochanter, the ITB (arrowheads) appears as an aponeurotic structure covering the TFL anteriorly and the greater trochanter laterally and receiving insertional tendon fibers from the gluteus maximus (*GMa*). **(d)** In the subtrochanteric region, the ITB (arrowheads) continues toward the knee, with superficial fibers from the gluteus maximus (*GMa*) tendon inserting on it and with deep fibers of the tendon inserting on the gluteal tuberosity of the proximal femur (arrows). Tendinous fibers of the gluteus maximus also insert on portions of the lateral intermuscular septum in this region.

Pathologic Conditions

- 1) Overuse: athletes

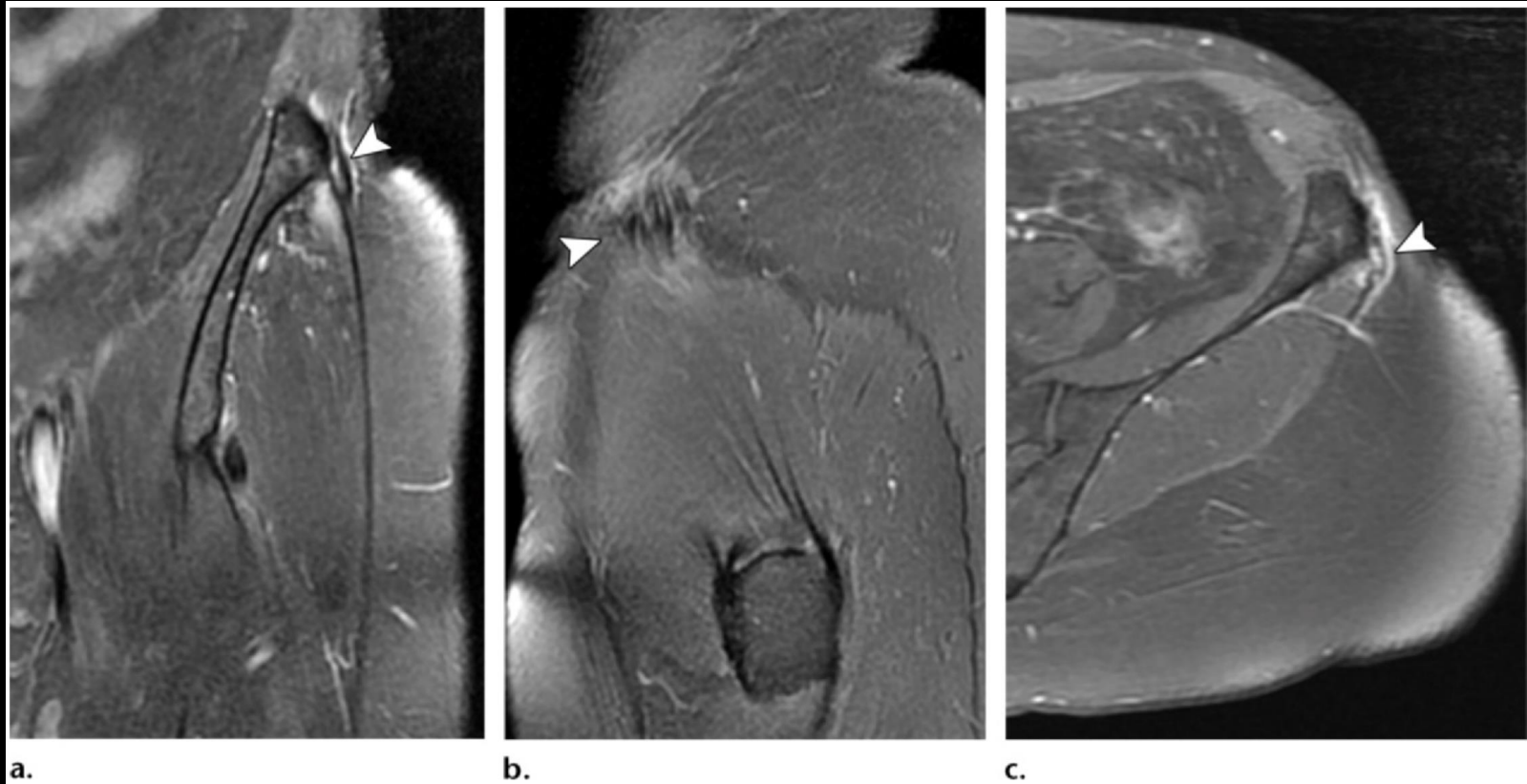


Figure 7. Lateral hip pain in a 33-year-old female runner. Coronal (**a**), sagittal (**b**), and axial (**c**) PD-weighted images (2570/14) show hyperintense intrasubstance signal in the ITB at its proximal attachment to the iliac tubercle (arrowhead), a finding indicative of partial tearing. Surrounding soft-tissue edema is also seen. No associated enthesophyte or marrow edema is noted in the iliac tubercle.

- 2) Traumatic Injury

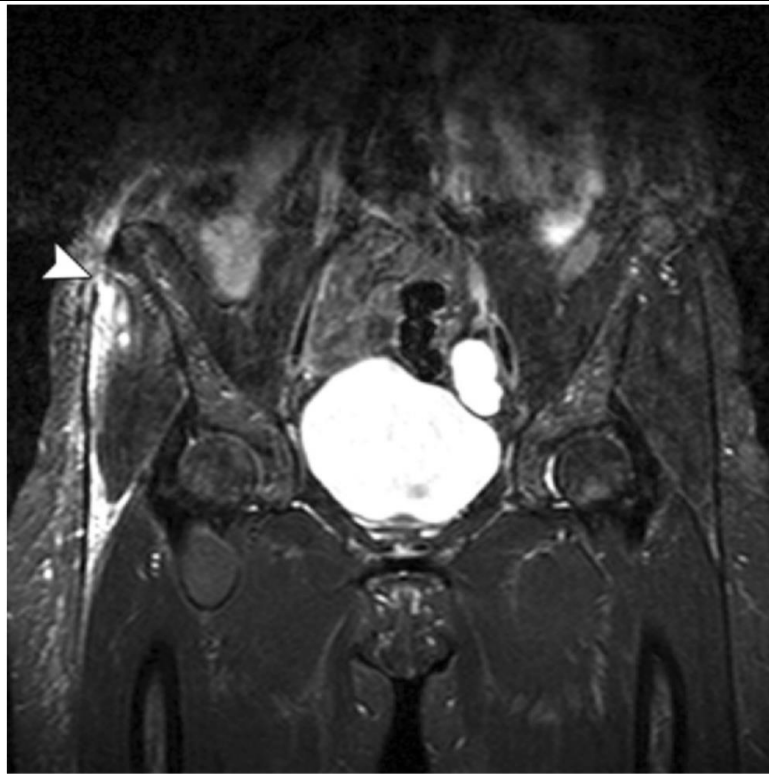


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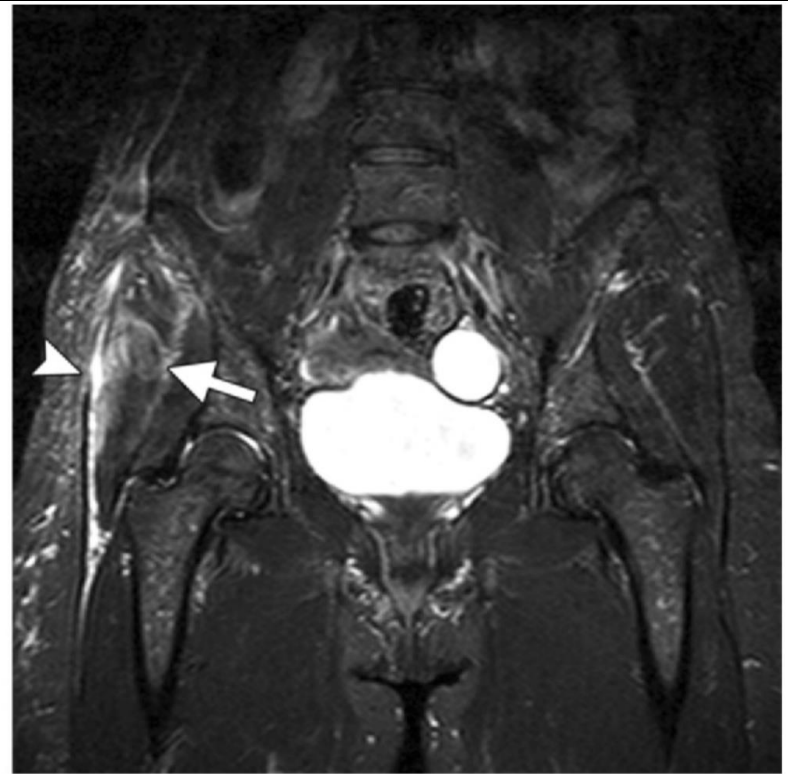
b.

Figure 10. Traumatic injury in a 54-year-old alcoholic man after multiple falls over the previous few days. **(a)** Conventional radiograph of the left hip shows a greater trochanteric fracture (arrowhead). MR imaging was performed to exclude intertrochanteric extension of the fracture. **(b)** Coronal T2-weighted image (2833/73) of the pelvis shows tearing of the ITB and GA fascia at the iliac attachment (arrow), with extensive intramuscular edema within the gluteus medius (arrowhead).

- 3) Degenerative

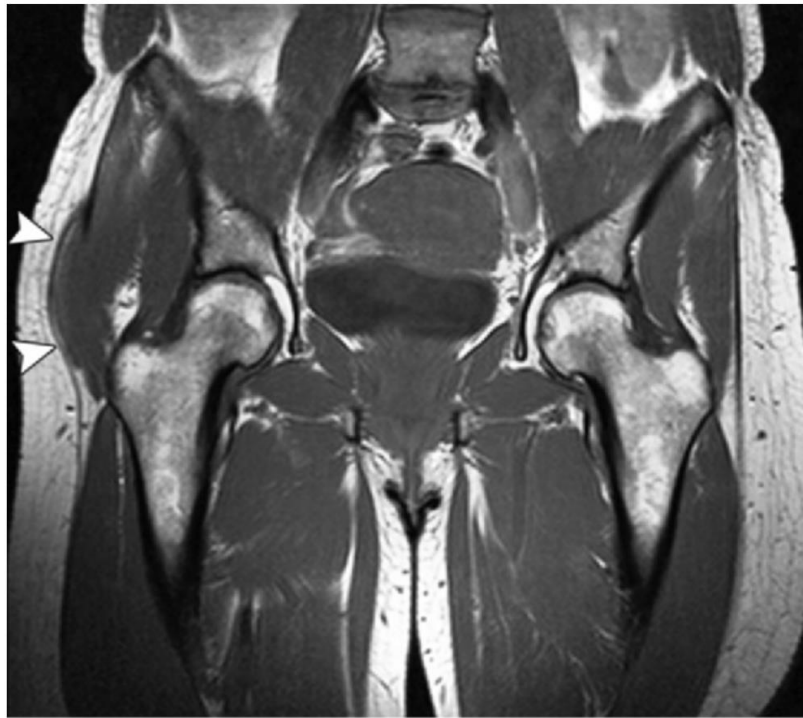


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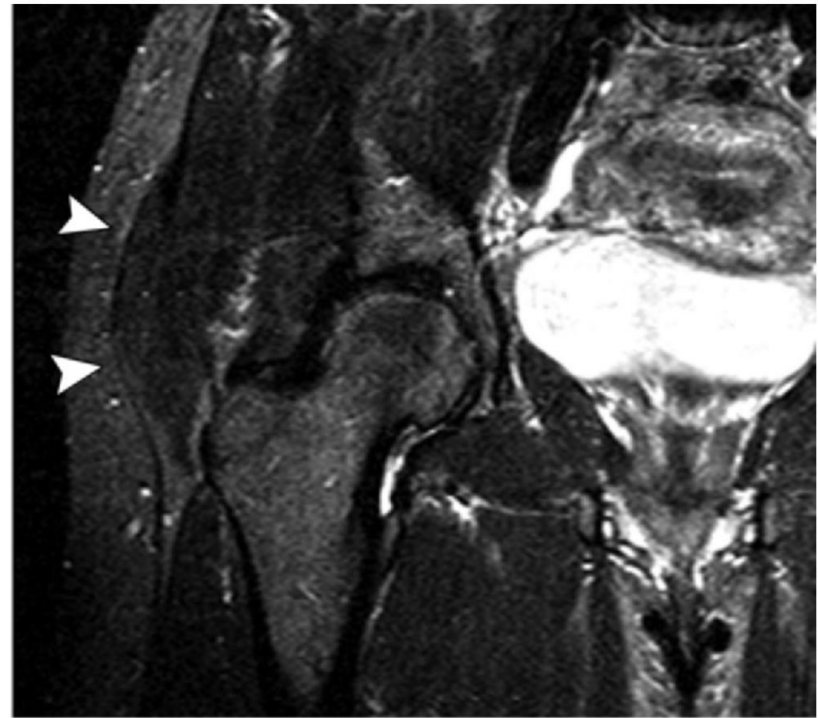


b.

Figure 13. Degenerative tearing in a 45-year-old woman with acute onset of severe nontraumatic right hip pain after she danced at a wedding 3 days earlier. **(a)** Coronal TIRM image (6410/56; inversion time, 160 msec) shows soft-tissue edema primarily deep to the ITB, with focal tearing and separation from its attachment at the iliac tubercle (arrowhead). **(b)** A more posterior image shows that the tearing is extensive, involving the GA fascia and extending to the midway point between the iliac crest and the greater trochanter (arrowhead). Adjacent edema of the gluteus medius (arrow) is also seen.



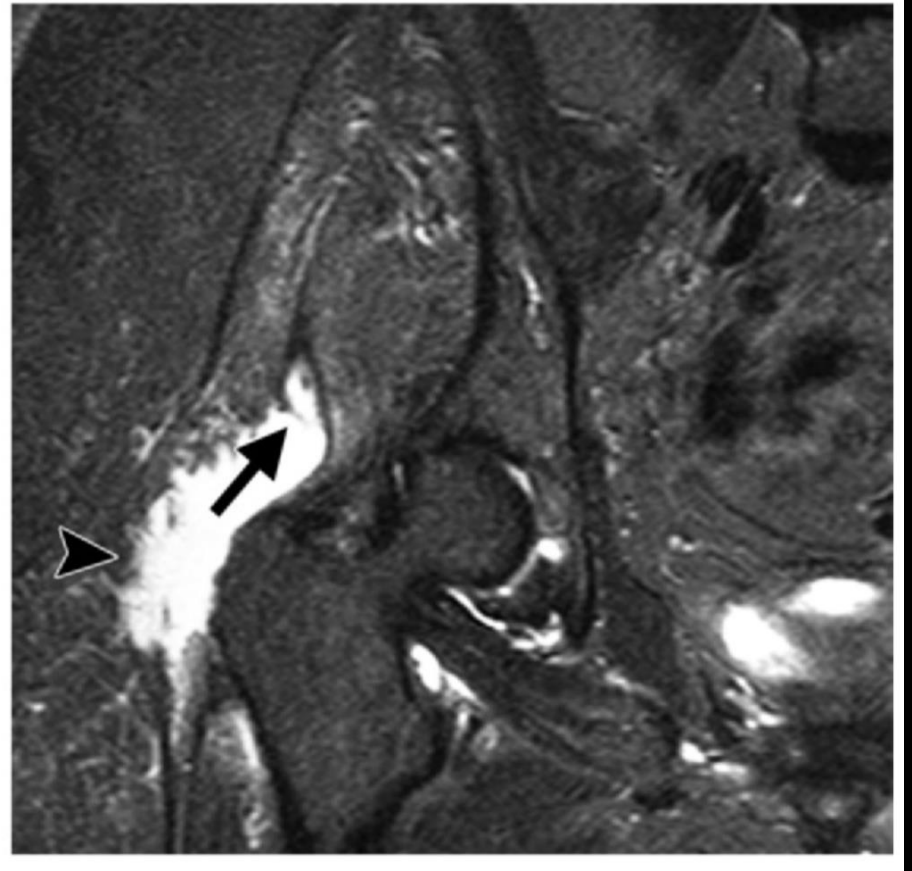
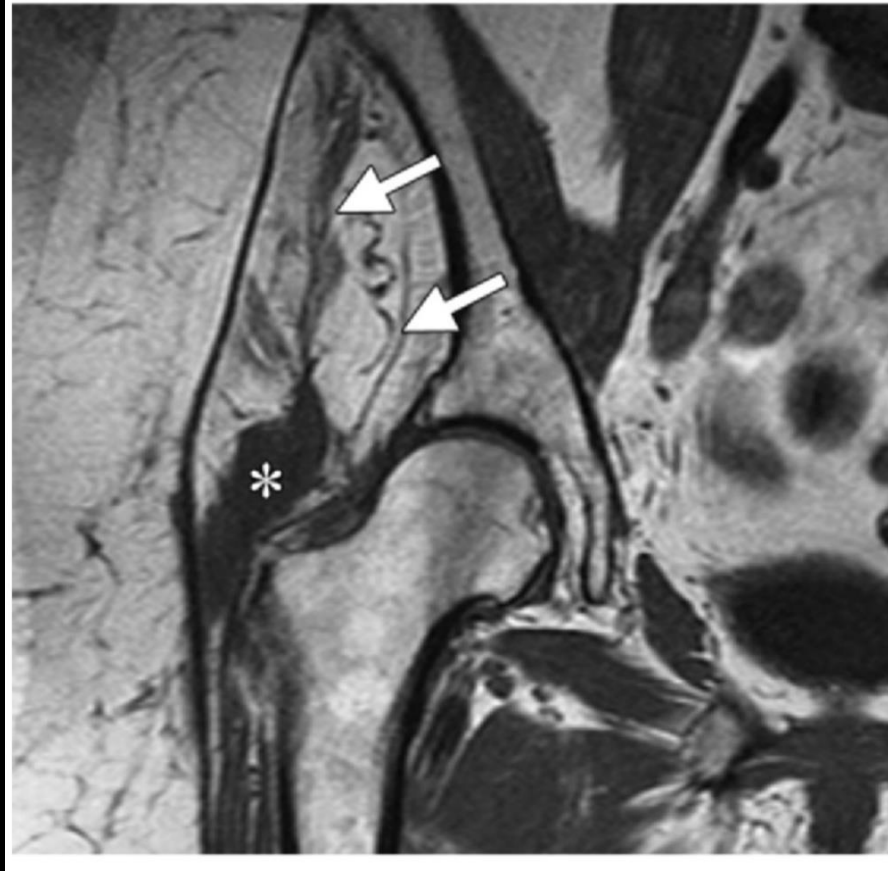
a.



b.

Figure 14. Muscle herniation through a chronic tear of the FL in an active 50-year-old woman who experienced a muscle “strain” 6 months earlier during exercising. The patient continued to have deep gluteal pain on the right side without palpable tenderness in any particular location. **(a)** Coronal T1-weighted image (677/10) of the pelvis shows a fascial defect of the right ITB just above the level of the greater trochanter, with herniation of the lower portion of the gluteus medius through the fascial defect (arrowheads). The proximal attachment is normal. **(b)** Coronal TIRM image (8310/51; inversion time, 160 msec) shows no perifascial or intramuscular edema about the ITB (arrowheads), a finding compatible with the clinical history of a chronic injury.

- 4) Inflammatory



Huang, B et al. *Radiographics* 2013; 33:1437–1452

Conclusion

- 1) Overuse injury: edema and partial tearing of the ITB at the iliac attachment
- 2) Traumatic injuries: any portion of the FL from the iliac crest to the proximal femur with fascial tears, muscle contusions or strains, and muscle bulges or herniations.
- 3) Degenerative lesions: minor activity, middle-aged women, along any portion, similar findings with traumatic injuries
- 4) Inflammatory: greater trochanteric bursitis, gluteal tendon tears, and gluteal muscle atrophy

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- Huang, B et al. **Injury of the Gluteal Aponeurotic Fascia and Proximal Iliotibial Band: Anatomy, Pathologic Conditions, and MR Imaging. Radiographics 2013; 33:1437–1452**
- Sher I, Umans H, Downie SA, Tobin K, Arora R, Olson TR. Proximal iliotibial band syndrome: what is it and where is it? Skeletal Radiol 2011;40(12): 1553–1556.