

Soft tissue Pathology about the Hip

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Symptoms relating to the hip joint are common. Pain can be related to intra- or extra-articular processes and can be due to osseous or soft tissue abnormalities. MRI of the hip allows a more specific diagnosis for acute and chronic hip pain. This session will focus on intra- and extra-articular soft tissue abnormalities for which MRI can be helpful in the workup of the painful hip.

Intra-articular structures and related abnormalities that will be discussed include:

- articular cartilage
- acetabular labrum
- joint capsule and synovium
- plicae

Extra-articular structures and related abnormalities that will be discussed include:

- bursae
- muscles around the hip joint
- ischiofemoral impingement

If intra-articular abnormalities such as labral tears or cartilage lesions are suspected, MR arthrography is the modality of choice. For extra-articular abnormalities, non-enhanced MRI using a unilateral or bilateral hip protocol is often sufficient. In the case of inflammatory conditions or tumor, intravenous injection contrast is indicated.

Lesions of the articular cartilage are a common cause of hip pain and are often associated with morphologic abnormalities such as hip dysplasia or femoroacetabular impingement, resulting in early osteoarthritis. Synovial plicae are reflections of the synovial membrane. The main function of the plicae is production of synovial fluid, transmission of neurovascular structures, and joint stabilization. Plicae can also be the cause of hip pain. Several hip plicae exist and familiarity with the anatomy and appearance is important to distinguish them other from intra-articular pathology that can be associated with hip pain. Muscle injuries involving the hip and pelvis are common and can present as myotendinous injuries, tendon avulsions, and muscle contusions. Abductor abnormalities are a common cause of greater trochanteric pain and typically involve the tendons of the gluteus medius and minimus, which can demonstrate tendinopathy, partial or complete tears, or avulsion from the osseous attachment. Trochanteric bursitis is another cause of greater trochanteric pain and is difficult to distinguish from abductor tendon abnormalities clinically. MRI is the imaging technique of choice in evaluating myotendinous injuries and differentiating them from bursitis. Ischiofemoral impingement has been recently described as a cause of hip pain. It is associated with narrowing of the ischiofemoral space and edema or partial tear of the quadrates femoris muscle.

Suggested Reading:

- 1) Blankenbaker DG, Tuite MJ. The painful hip: new concepts. *Skeletal Radiol* 2006; 35:352-370.
- 2) Mengiardi B, Pfirrmann CWA, Hodler J. Hip pain in adults: MR imaging appearance of common causes. *Eur Radiol* 2007; 17:1746-62
- 3) Torriani M, Souto SCL, Thomas BJ, Ouellette H, Bredella MA. Ischiofemoral impingement syndrome: an entity with hip pain and abnormalities of the quadrates femoris muscle. *AJR* 2009; 193:186-190
- 4) Bancroft LW, Blankenbaker DG. Imaging of the tendons about the pelvis, *AJR* 2010; 195:605-617
- 5) Synovial plicae of the hip: evaluation using MR arthrography in patients with hip pain. Bencardino JT, Kassarian A, Vieira RL, Schwartz R, Mellado JM, Kocher M. *Skeletal Radiol* 2010 [*Epub ahead of print*]