Right Groin Pain

A 19-year-old male basketball player presented with a several-month history of groin pain and a pubic ramus stress fracture. He failed to improve with rest. Axial T2-weighted (A) and coronal T1- (B) and T2-weighted (C) magnetic resonance images are provided. What would you do?

J. W. Thomas Byrd, MD:
As with any stress fracture, it is important to look for an underlying cause. Among athletes, the most common causes are overtraining, such as that seen in military recruits and during preseason conditioning, or insufficiency stress fractures, such as those associated with the female athlete triad (ie, osteoporosis, amenorrhea, and eating disorder). The underlying etiology must be treated in addition to managing the stress fracture.

In the presented case, osteopenia would seem unlikely, and thus treatment would normally be active rest, specifically modifying activities below the threshold of symptoms in anticipation that the bony injury would recover with time. As in this case, failure of the stress fracture to subside with normal conservative treatment should cause one to look further toward the underlying etiology.

Beyond these general comments, I would be reticent to make too many specific clinical observations in the absence of plain radiographs. Even with increasingly sophisticated imaging, radiographs are still the most important first study to obtain and should consist of a properly centered anteroposterior pelvic radiograph and a lateral hip radiograph of the affected side.

Much discussion exists about the ideal lateral hip radiographs, but at my center, frog lateral is the standard, mostly because of the ease with which a consistently reproducible image can be obtained. Dunn views, crosstable lateral views, and false profile images may all have a place but are generally not necessary for screening evaluations of hip disorders.

Stress fractures are sometimes found to accompany hip joint problems, especially femoroacetabular impingement (FAI). Reduced hip joint range of motion due to the bony architecture may be a causal factor in these surrounding stress fractures and should be considered as part of the differential diagnosis, especially for fractures that fail to heal as expected.

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This athlete’s magnetic resonance imaging shows features at least suggestive of potential problems with FAI. First, on the coronal T2-weighted images, evidence can be seen of asymmetric, slightly supra-physiologic fluid in the right hip ipsilateral to the ramus stress fracture. Any asymmetric fluid can be a significant indirect sign of substantial joint pathology. Because of the non-compliant capsule, little effusion may be present with a hip joint problem compared with a knee or shoulder with a more capacious capsule.

These axial images also suggest the presence of a bump on the anterior head-neck junction, indicative of underlying cam morphology. The term cam morphology is used instead of cam pathology because sometimes these bumps may be present as an incidental finding. Before relying too heavily on these imaging findings, it is important to note that, on the coronal T2-weighted image, more worrisome subchondral changes of the lateral acetabulum seem to be present in the left hip.

It is common for athletes to present with symptoms more from the compensatory disorders that can accompany FAI than from the underlying FAI itself. Ganz termed cam FAI the silent killer of the hip because the joint damage is often substantial by the time it becomes symptomatic. This observation is consistent with our finding that grade III and IV acetabular articular damage is present in 90% of athletes undergoing arthroscopic treatment for FAI.

It is fun detective work to try to put the pieces of the puzzle together, but, more than anything else, remember to get radiographs first.

Christopher M. Larson, MD: Several considerations should be taken into account when managing this young basketball player. The groin pain could be the result of intra-articular hip pathology, such as FAI or labrochondral pathology; secondary to extra-articular hip pathology, such as the pubic stress reaction; or the result of athletic pubalgia. The magnetic resonance imaging (MRI) clearly shows cam-type morphology, a labrochondral separation, and stress changes in the superior pubis ramus. A thorough physical examination should help clear up the primary sources of pain.

If lower abdominal and adductor related pain are present with resisted sit-ups, resisted adduction, and palpation of the associated structures (and this reflects a significant portion of this athlete’s presenting complaints), athletic pubalgia surgery might be considered as part of the overall management. If pain primarily exists with hip range of motion and hip impingement testing, then an FAI corrective procedure with management of associated labral and chondral pathology would be considered. If both are symptomatic, then an intra-articular anesthetic injection followed by provocative testing can help identify the primary pain generators.

However, it is important to understand that FAI and associated labral pathology, as well as pubalgia and myotendinous pathology, are relatively frequent findings in asymptomatic athletes. The history and physical examination need to confirm the imaging findings, and this athlete has findings similar to FAI on the left asymptomatic side.

Based on the MRI, I believe that this athlete likely suffers from FAI, and the pubic ramus stress reaction may be more of a compensatory injury related to increased extra-articular stresses from hip range of motion limitations. Limited hip range of motion can lead to compensatory injuries about the hip and pelvis, such as osteitis pubis, athletic pubalgia, sacroiliac joint pain, pelvic stress reactions, and low back pain, as well as other issues that can occur along the kinetic chain.

Timing with respect to where the athlete is in his season and functional status are 2 important factors to identify prior to considering surgical management, if indicated. A corticosteroid injection could be considered to get this athlete through the current season, depending on the level of sport and the amount of time remaining in the season. However, if the athlete is not able to participate after a period of nonsurgical measures, surgery can be considered. The surgery would likely entail a FAI corrective procedure, and the athlete should expect a 4- to 6-month period of recovery prior to returning to basketball-specific activities. If athletic pubalgia were also present and a significant limiting factor, a concomitant or staged procedure might be considered as we have shown this to result in a more predictable return to athletic activity.

REFERENCES

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