

Hip Pain in Athletes — When It is Not the Labrum

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Abstract

Hip pain is a relatively common complaint in sports. It is tempting to blame the athlete's symptoms on labral pathology. However, there is a high incidence of asymptomatic labral disease. Therefore, even when a labral tear is present, it may not be the underlying cause of the patient's pain. Clinicians should familiarize themselves with the large differential diagnosis for hip and pelvis pain to include nonmusculoskeletal pathology. This article reviews nonlabral causes of hip pain in athletes. For ease of classification, the hip is divided into anterior, lateral, and posterior regions.

serves to review extraarticular causes of hip and pelvis pain in athletes.

Approach to the Athlete with Hip Pain

Evaluation of hip and pelvis pain is often seen as a quagmire. Yet with a systematic history and physical examination, the etiology can be made more apparent. Age, skeletal maturity, sex, systemic symptoms, gastrointestinal complaints, genitourinary symptoms, back

pain, and neurologic complaints are essential historical factors. A history of multiple joint involvement is a clue for possible autoimmune etiology. Determining pain patterns or provocative and alleviating factors also will assist in narrowing the differential diagnosis. If the pain is acute, mechanism of injury should be sought. For subacute and chronic pain, the training regimen and occupational exposures should be examined. In addition, nutritional and menstrual histories also may be important. Imaging should be considered to confirm suspected diagnoses. However, relying on imaging alone may result in inadequate treatment and continued pain (18,30). As we further discuss nonlabral causes of hip pain, the hip will be divided into anterior, lateral, and posterior etiologies to ease classification.

Introduction

Hip and pelvis pain are relatively common presenting complaints in athletic individuals, comprising 5% to 6% of adult sports injuries (5,11) and 10% to 24% of pediatric sports injuries (4). The differential for hip and pelvis pain in athletes is quite broad and includes intraarticular and extraarticular musculoskeletal pathology as well as referred pain from lumbosacral, intraabdominal, and intrapelvic origin (Tables 1 and 2). Recently, the diagnosis and management of acetabular labral injury has gained enormous popularity in musculoskeletal literature.

However, even when there is a confirmed labral tear, it may not be the cause of the individual's pain. This was recently highlighted in a study of asymptomatic collegiate and professional ice hockey athletes, which found labral tears in 56% of the study participants (30). After 4 years of follow-up, none of the athletes missed time due to the labral pathology (18). This highlights the importance of not losing an appreciation of the numerous other diagnoses that can result in pain in this region. As such, this article

Anterior Hip/Pelvis Pain

Adductor strain/tendon injury Adductor strains are the most common cause of hip and groin pain in athletes, with the adductor longus being the most frequently injured (8). Typical activities in which acute injuries occur include sprinting, cutting, forced external rotation of an abducted leg, and a sudden, external abduction force on an actively adducted leg. Adductor injuries are frequently seen in ice hockey and soccer. Acute or chronic overuse injuries are frequently present. In soccer players, the reinjury rate is reported to be as high as 18% (14). A prior history of previous groin injury doubles the risk of a new groin strain (15). An additional risk factor is adductor weakness (15,33). However, inflexibility of the adductor group does not appear to impact injury rate (34).

Athletes with an acute injury typically complain of a sudden onset of sharp groin pain, swelling, and sometimes

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1537-890X/1405/373-379

Current Sports Medicine Reports

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Table 1.
Differential diagnosis of musculoskeletal causes hip and groin pain in athletes

Hip/Pelvis	Thigh	Low Back	Abdomen
Femoral neck stress fracture	Muscle strains	Sacroiliitis	Lower abdominal wall muscular strain (<i>e.g.</i> , rectus abdominis)
Pubic ramus stress fracture	-Adductors	Sacroiliac dysfunction	Nerve entrapment — ilioinguinal or iliohypogastric
Osteitis pubis	-Rectus femoris	Sciatica	Inguinal dysfunction/sports hernia
Snapping hip	-Iliopsoas	Lumbar nerve root impingement	
Acetabular labral tear	-Sartorius	Degenerative disk disease	
Bursitis (trochanteric, iliopsoas, ischial)	-TFL	Lumbosacral strain	
Avascular necrosis	-Hamstring		
Osteoarthritis	Meralgia paresthetica		
Synovitis or capsulitis			
Hip dislocation			
Femoroacetabular impingement			
Gluteal strain/contusion			
Piriformis syndrome			
Coccygeal injury			
Iliac crest contusion			
Muscular strains			
Apophyseal injury			
Peripheral nerve entrapment			

bruising. Athletes often report an inability to continue the sporting activity. On examination, there may be tenderness at the musculotendinous junction of the injured muscle and/or tendon. In cases of tendon avulsion, there will be tenderness at the tendon origin on the pubic rami. Pain is reproduced with passive abduction or resisted active adduction. The diagnosis is usually made by clinical presentation but can be confirmed with musculoskeletal ultrasound (MSKUS) or magnetic resonance imaging (MRI) if necessary. If a tendon avulsion is suspected, additional testing is necessary.

Treatment of acute and chronic adductor injury includes relative rest, ice, short-term nonsteroidal anti-inflammatory drug (NSAID) medications or acetaminophen for pain control, and compression shorts. Physical therapy with strengthening of the adductors combined with pelvic stabilization has proven to be effective for approximately 80% of athletes (20). The exception to this is the acute tendon avulsion of the bone. These are generally better treated with surgical reattachment. Those who fail to respond to conservative therapy may benefit from MSKUS-guided platelet-rich plasma (PRP) injection, with one pilot study showing significant patient improvement (9). Other percutaneous modalities such as prolotherapy and autologous blood injection needle tenotomy also may be considered; however, evidence-based studies evaluating these techniques for adductor tendinopathy are lacking. In cases of chronic insertional tendinopathy, selective adductor longus

release has been shown to be highly effective for recalcitrant cases, with 42 of 43 professional athletes returning to preinjury sport level (27).

Rectus femoris strain/tendon injury The rectus femoris injury at the hip is most frequently seen in running, jumping,

Table 2.
Nonmusculoskeletal etiologies of hip and groin pain in athletes

Abdomen	Pelvis	Scrotum
Inguinal hernia	Pelvic inflammatory disease	Testicular torsion
Appendicitis	Sexually transmitted infections	Epididymitis
Diverticulitis	Ovarian cyst	Orchitis
Abdominal aortic aneurysm	Ectopic pregnancy	Sexually transmitted infections
Inflammatory bowel disease	Femoral hernia	Tumor
Nephrolithiasis	Tumor	
Tumor	Metastatic disease	
	Pelvic congestion syndrome	

skating, and cycling sports. The typical mechanism of injury is a heavy eccentric load. Patients will complain of pain with resisted hip flexion, passive hip extension, and direct palpation of the tendon and/or anterior inferior iliac spine (AIIS). In adults, myotendinous junction pathology is the most common site of injury, whereas in the skeletally immature, apophyseal injury of the AIIS is more likely. As such, radiographs with comparison views are recommended for those with open physes. However, in adults, imaging is rarely needed.

Treatment includes relative rest, ice, compression, and short-term NSAID or acetaminophen for pain control. Short-term non-weight bearing may be required, depending on the level of pain. Rehabilitation begins with gentle range of motion (ROM) and quadriceps sets and gradually progresses from concentric to eccentric exercises. Those who fail to respond to conservative therapy should be further evaluated with advanced imaging (MSKUS or MRI). MSKUS-guided PRP, autologous blood prolotherapy, or needle tenotomy can be considered in recalcitrant cases, but there are currently no evidence-based studies to determine their efficacy.

Iliopsoas strain/tendinopathy and bursitis The iliopsoas is a confluence of the iliacus and psoas muscles and inserts on the lesser trochanter of the femur. The most common mechanism of injury is when active hip flexion is prevented by a posteriorly directed force, such as when the leg is blocked when attempting to kick a soccer ball. Overuse injuries are seen in settings of repetitive uphill running, weight training, sit-ups, and kicking. Athletes will complain of deep groin pain that worsens with active hip flexion against resistance. Additional complaints may include vague low back discomfort. On examination, patients often exhibit a forward lumbopelvic tilt. There is pain with active hip flexion as well as passive hip extension or external rotation. Hip flexion will be weak and painful during strength testing. Tenderness to deep palpation of the anterior hip and a positive Thomas test are common. In the skeletally immature, the lesser trochanter will be tender as apophyseal injury is more likely in this age group. When apophyseal injury is suspected, bilateral hip radiographs are warranted.

Treatment includes rest from aggravating activity, ice, NSAID for pain control, and compression shorts. Physical therapy is instituted to restore ROM and regain strength, flexibility, and endurance. Core and pelvic stabilization is typically included (32). In the skeletally mature, imaging is often unnecessary. However, in those that fail to respond to the above conservative measures, MSKUS or MRI is obtained to evaluate for bursitis, tendinopathy, or partial or complete tears (28). If iliopsoas bursitis is confirmed, MSKUS-guided aspiration and injection can be performed. For persistent tendinosis, some clinicians will perform prolotherapy, autologous blood injection, PRP, or needle tenotomy although efficacies have not been studied. Surgical tenotomy also may be considered. This is now often performed through arthroscopy.

MSKUS also is helpful in the evaluation of extraarticular causes of anterior snapping hip. During dynamic evaluation, the iliopsoas tendon can be seen catching on the iliopectineal eminence, the tendon may have an irregular rolling motion within the muscle belly, or the psoas tendon may snap against

the medial iliacus (6,12,35). MSKUS-guided anesthetic injection can confirm that the patient's pain complaint is arising from the snapping. In cases of iliopsoas snapping that is refractory to conservative measures, including physical therapy and corticosteroid injections, arthroscopic release can be performed.

Sartorius strain/tendinopathy The sartorius originates from the anterior superior iliac spine (ASIS) and inserts upon the anteromedial tibia as part of the pes anserine tendon group. Injury will typically occur during forceful contraction during hip extension with knee flexion (e.g., leg blocked at the beginning of kicking motion). In the skeletally mature, injury will be at the myotendinous junction, whereas those with open growth plates will usually affect the apophysis (23). On examination, there is tenderness to palpation at the ASIS and resisted hip flexion with external rotation will reproduce the pain. Radiography with an anteroposterior pelvis view is only required in the skeletally immature to evaluate for apophyseal injury. Treatment is conceptually analogous to the previously mentioned hip flexor tendon injuries; however, there is a paucity of data in the medical literature concerning treatment of isolated sartorius injuries.

Stress fracture Stress fractures of the hip and pelvis occur when the rate of bony resorption exceeds that of bone formation. The typical history is of sudden increased activity, poor recovery, inadequate nutrition, and/or hormonal imbalance. Femoral neck stress fractures are relatively uncommon, but they require a high index of suspicion due to the potential for displacement of the fracture with subsequent possible avascular necrosis. On examination, the patient will complain of groin pain that is worse with weight-bearing. The examination will demonstrate positive log roll and Stinchfield tests. If there is a concern for femoral neck stress fracture, the patient should be immediately made non-weight bearing and sent for radiographs. If the radiographs are not diagnostic, an urgent bone scan or MRI should be performed.

Femoral neck stress fractures are classified as tension (superior) or compression (inferior) sided. Indications for surgical referral include tension-sided fractures and compression-sided fractures involving greater than 50% of the femoral neck. A less substantial compression-sided fracture can be managed conservatively. The patient is started non-weight bearing on crutches. Weight bearing can begin when the patient is pain free, and this can then progress as long as the patient remains pain free. Gentle pain-free ROM is begun immediately. Progressive strengthening can begin after the patient has normal ROM and has a normal pain-free gait. This generally does not happen until at least 8 wk after initial presentation.

Pubic ramus stress fractures are less common than femoral neck stress fractures. They tend to be found in distance runners who will complain of groin pain with passive abduction or resisted adduction. There is tenderness to palpation of the pubic ramus and with single leg stance on the affected side. Radiographs should be obtained, but MRI may be required to confirm the diagnosis. If the patient has pain with ambulation, then a period of non-weight bearing will be required as above. Rehabilitation should work on hip ROM, strengthening, and pelvic stabilization.

For both femoral neck and pubic ramus stress fractures, a slow, supervised return-to-sport program is then instituted. The treatment should include evaluation and correction of any nutritional, hormonal, or training regimen deficiencies.

Osteitis pubis Osteitis pubis is a chronic inflammatory condition associated with sports requiring running, cutting, twisting, side-to-side, and multidirectional motion. The inflammation affects the pubic symphysis and may involve the tendons that insert around it. The athlete will complain of deep groin pain that often radiates to the abdomen, proximal medial thigh, hip, scrotum, perineum, and/or suprapubic region. The pain is described as sharp or burning. It is worsened by kicking, running, striding, twisting, leg raises, and stairs. Patients may report pubic symphysis clicking with certain activities. The athlete should be questioned about systemic symptoms, as infectious etiologies, though rare, have been reported in the literature (36).

On examination, there will be tenderness directly over the pubic symphysis and possibly the proximal adductors or distal rectus abdominis. Pain is increased with passive hip abduction and active hip flexion or adduction. Other findings include a positive lateral compression test, a forward flexed gait, and pelvic obliquity due to associated muscle spasm.

In advanced disease, anterior-posterior radiographs will show sclerosis and bony resorption of the pubic rami on both sides of the pubic symphysis. MRI will demonstrate symmetric inflammation of the pubic symphysis and rami, which differentiates this condition from pubic ramus stress fracture. Various treatment methods have been reported in the literature to include activity modification, physical therapy with core/pelvic stabilization, ice, NSAID, corticosteroid injection, prolotherapy, and surgery. Unfortunately, no randomized controlled trials have been performed to compare the above in terms of efficacy or speed of return to sport (7).

Inguinal disruption/sports hernia Sports hernia is a controversial hip syndrome involving disruption of the core musculature. Tears of the transverse abdominis muscle, conjoint tendon, internal oblique muscle, rectus abdominis muscle, adductor origin, and external oblique aponeurosis have been implicated. In addition, disruption of the posterior wall of the inguinal canal and ilioinguinal nerve entrapment also have been listed as possible etiologies (26,29). The term inguinal disruption is currently the preferred nomenclature, as no true hernia is present (29). The syndrome is most common in sports that require fast cutting and twisting, such as soccer, ice hockey, football, and rugby. Athletes will complain of activity-related unilateral groin pain. Pain is exacerbated by sudden movements, sit-ups, and Valsalva maneuver. In chronic cases, activities of daily living also may be affected. Unlike traditional hernias, no abdominal wall defect is outwardly palpable. However, there may be tenderness to palpation over the conjoint tendon, pubic tubercle, and/or mid-inguinal region. MRI or ultrasound can assist in confirming the diagnosis (25,26).

Initial treatment involves relative rest, core and pelvic stabilization, NSAID, and ice. If conservative measures fail, referral for surgical exploration and repair is recommended. There are several surgical treatments described in the

literature, with multiple interventions often performed simultaneously (13). The Manchester Consensus Statement recommends that surgery include release of abnormal tension in the inguinal canal and reconstruction of posterior canal weakness with mesh (29).

Nerve entrapment Entrapment of the nerves about the hip and pelvis produce pain, which variably presents as aching, burning, or sharp and stabbing. Paresthesias also may be present. Entrapment of the genitofemoral, iliohypogastric, ilioinguinal, obturator, or pudendal nerves may cause anterior hip/groin pain. A positive Tinel's sign over the nerve can assist in making the diagnosis. A peripheral anesthetic block of the nerve provides further confirmation. Alleviating the cause of compression is curative. If related to muscle hypertrophy, adjusting the training regimen will be effective. In other cases, ultrasound-guided corticosteroid injection, ultrasound-guided percutaneous neuroplasty (24), surgical release, or neurectomy may be required. Because of the overlapping pain patterns in this region, nerve conduction study is recommended before surgical intervention. However, in cases of intermittent compression, nerve conduction studies may not be diagnostic, even in the case of true nerve compression.

Lateral Hip Pain

Gluteal tendinopathy and greater trochanteric bursitis The hip abductors include the gluteus medius and minimus. They insert upon the greater trochanter, where a bursal complex overlies the bony prominence. The bursa is actually made up of three separate bursae — gluteus maximus, gluteus medius, and gluteus minimus bursae. The bursa can become inflamed and painful from tightness of the iliotibial band (ITB), snapping of the tensor fascia lata (TFL) over the greater trochanter, hip abductor weakness, or leg length discrepancy. The patient will complain of pain over and sometimes posterior to the greater trochanter. This may radiate to the gluteal region and/or down the lateral thigh. On physical examination, there will be tenderness over and posterior to the greater trochanter. The patient will complain of lateral hip pain during the FABER test, resisted abduction, and passive adduction. The Trendelenburg and Ober tests are typically positive. Hip abductor tendinopathy may be present with or without greater trochanteric bursitis, and the two cannot be differentiated without the use of MSKUS or MRI.

Treatment should consist of hip abductor strengthening, correction of functional leg length discrepancy, stretching of the ITB, and ice. NSAID can help with pain control. Individuals who have too much pain to do therapy may benefit from corticosteroid injection of the bursa. Most cases will respond well to conservative measures. When this fails, ultrasound-guided PRP, autologous blood injection, prolotherapy, or needle tenotomy versus open or endoscopic surgical intervention may be performed.

TFL tendinopathy The TFL serves as a hip abductor and combines with fibers of the gluteus maximus to form the ITB. It is common in runners and cyclists who often report an abrupt change in their training program, such as the addition of hills. In cyclists, improper bike fit has been implicated (2). Athletes will complain of the gradual onset of

anterolateral hip pain that may progress to snapping as the TFL slides over the greater trochanter. On examination, there will be tenderness of the TFL, tightness of the ITB, and possibly snapping of the TFL over the greater trochanter when the hip is moved from flexion to extension. The snapping can sometimes be demonstrated dynamically with MSKUS. TFL tendinopathy, greater trochanteric bursitis, and abductor tendinopathy often occur together. As such, therapy is similar to that of greater trochanteric bursitis. Additionally, adjustment of the training regimen and proper bike fit are beneficial (2).

Iliac crest contusion Iliac crest contusions, known as hip pointers, are the result of direct trauma to the iliac crest causing a periosteal hematoma. It is most frequently seen in contact-collision sports including football and ice hockey. The athlete will complain of pain with lateral side bending and/or rotation away from the affected side. If the hematoma compresses the lateral femoral cutaneous nerve, the athlete also will complain of pain along the lateral aspect of the hip and thigh. On examination, there will be tenderness on and superior to the iliac crest with fullness over the hematoma (19). If symptoms are prolonged, radiographs are obtained to rule out avulsion fracture. Ice, compression, activity modification, and short-term acetaminophen or NSAID are recommended for pain. MSKUS can readily demonstrate the hematoma and can assist in guidance of aspiration. In addition, it can demonstrate muscle disruption, signifying a tear. After pain is controlled, a hip abductor and core strengthening program is recommended (21). An anesthetic and corticosteroid injection has been suggested as a mode of speeding return to play; however, this is controversial as corticosteroids may slow the healing process. When the athlete returns to sport, extra padding over the region is recommended to prevent recurrent injury.

Meralgia paresthetica Meralgia paresthetica is caused by compression of the lateral femoral cutaneous nerve. It is most common with obesity, tight pants, belts, and girdles. In athletes, prolonged flexion, weight training, and compressive clothing are contributing factors (16). The patient will complain of pain, burning, numbness, or tingling in the anterolateral thigh. On examination, there may be a positive Tinel's sign 1 cm medial and 1 cm inferior to the ASIS. The diagnosis can be confirmed with anesthetic nerve block. The treatment includes adjustment of clothing, NSAID, physical therapy, and local corticosteroid injection. In recalcitrant cases, nerve conduction study should be obtained to confirm the diagnosis before referral for surgical decompression. However, in cases of intermittent compression, nerve conduction studies may not be diagnostic, even in the case of true nerve compression. An alternative to surgical decompression is ultrasound-guided percutaneous neuroplasty (24).

Posterior Hip/Pelvis Pain

Hamstring strain/tendinopathy The semimembranosus, semitendinosus, and biceps femoris tendons originate from the ischial tuberosity. Collectively, they function to extend the hip and flex the knee. As the muscle-tendon unit spans two joints, there is a high susceptibility to injury, with the biceps femoris most commonly affected (28). In adults, the

injury is typically longitudinal through the muscle. However, in the skeletally immature, the ischial apophysis may be affected. Injury typically occurs during sprinting or jumping and is more likely with concomitant hip girdle muscle imbalance, leg length discrepancy, inflexibility, and history of prior injury (28).

Patients will report feeling an acute pop or pulling sensation in the gluteal region or proximal posterior thigh. On examination, there will be swelling, and in large tears, a palpable defect. Bruising may be apparent if the injury is superficial. There will be pain with passive hamstring stretch, resisted hip extension, and resisted knee flexion. If there is tenderness at the ischial tuberosity, radiographs should be obtained to rule out ischial spine avulsion. In muscle belly injuries, imaging is unnecessary. If confirmation is required, MSKUS or MRI can be utilized. MSKUS may be more beneficial in detecting more subtle defects with the addition of dynamic evaluation (10). If an acute avulsion of the ischial tuberosity is suspected, further study with MSKUS or MRI should be done. If a complete avulsion is confirmed, surgical reattachment is recommended.

Initial treatment includes ice, compression, and short-term acetaminophen or NSAID for pain control, and off-loading of the area for sitting. If the injury is severe, a short period of non-weight bearing may be required. As pain improves, physical therapy is required to improve ROM. Frequent hamstring flexibility exercises and correction of movement dysfunction have been shown to speed return to play and prevent recurrence in elite athletes (22). Eccentric training programs appear to be superior to those that emphasize only concentric exercises (1). For those who fail to respond to conservative measures, an ultrasound-guided anesthetic injection can help confirm that the proximal hamstring group is the pain generator. If this proves successful, more invasive treatments can then be attempted. A preliminary study with MSKUS-guided PRP injection for chronic tendinopathy appears hopeful (10). In a retrospective case series of 17 athletes with chronic tendinopathy, surgical partial tenotomy was successful in returning all to the previous sporting level (3).

Piriformis syndrome The piriformis is an external rotator of the hip that originates from the sacrum and inserts on the greater trochanter and upper femoral shaft. It lies deep to the gluteus maximus. The sciatic nerve can have a variable course but is typically deep to the muscle. Because of this variable relationship, spasm of the piriformis can cause sciatic nerve compression, producing neuropathic symptoms of classic sciatica. The piriformis can be injured through direct trauma or by twisting of the hip during cutting movements. Spasm can occur from overuse and sacroiliac joint dysfunction.

Physical examination will demonstrate tenderness with palpation of the muscle. There is buttock pain with passive hip flexion with internal rotation pain and piriformis testing. Treatment includes ice, deep tissue massage, stretching, physical therapy modalities, NSAID, and MSKUS-guided trigger point injections. Core and pelvic stabilization exercises while concomitantly correcting underlying sacroiliac dysfunction may help prevent recurrence (28). In recalcitrant cases, piriformis release may be required.

Sacroiliac dysfunction Sacroiliac joint (SIJ) sprain or dysfunction can acutely occur during a fall producing a direct blow to one side of the gluteal region when the hip is in flexion during a fall. Sudden, excessive contraction of the muscles that attach to the pelvis such as the hamstrings or piriformis also have been implicated. Sports with repetitive unilateral pelvic shear (skating, hockey, soccer, and gymnastics) are at risk for overuse pathology. In addition, rheumatologic disease can cause inflammation of the SIJ, and these etiologies should be considered in the differential.

On physical examination, there will be tenderness to palpation of the affected SIJ, and signs of SIJ dysfunction — positive FABER test, functional leg length inequality, and pelvic obliquity. Osteopathic manipulation may help to improve symptoms. This should be followed by physical therapy to correct any muscle imbalances that may have contributed to the pathology. NSAID, ice, and heat can assist with pain control. Sacroiliac belts may assist in patients with SIJ pain until the pelvic stabilizers are strengthened. Patients failing to respond to conservative measures should be evaluated for sacral stress fracture (31). If a stress fracture is not discovered, recalcitrant SIJ pain may benefit from corticosteroid injection, which should be performed under fluoroscopic or ultrasound guidance (17). If a diagnostic injection confirms the SIJ as the pain generator and other conservative measures have failed, surgical fusion of the SIJ may be considered. However, a recent systematic review of the literature found a wide variation of success rates from 18% to 100% (37). As such, the effectiveness of fusion is questionable.

Nonmusculoskeletal Causes of Hip/Groin Pain

As previously stated, the hip is an area of overlapping pain patterns. There are many potential etiologies that are not musculoskeletal (Table 2). Failure to recognize non-orthopedic diagnoses can have dire consequences for the athlete. Intraabdominal pathology such as appendicitis, diverticulitis, inguinal hernia, and nephrolithiasis may present as groin pain. Similarly, hip pain may be the presenting complaint of a patient with a pelvic disorder, such as ectopic pregnancy, pelvic inflammatory disease, pelvic congestion syndrome, psoas abscess, psoas hematoma, or femoral hernia. Scrotal disorders that can similarly be labeled as “hip pain” include testicular torsion, orchitis, epididymitis, inguinal hernia, and varicocele. Additionally, the hip and pelvis are potential sites for primary tumors and metastatic disease. Acute traumatic pelvic organ injuries can present with lower abdominal/groin pain. Thus, the importance of a thorough history and consideration for the physical examination to include the abdomen, pelvis, and scrotum is highly recommended.

Summary

The differential diagnosis for the athlete with hip or groin pain is quite broad. The diagnosis can be extremely challenging. This requires a thorough assessment of the presenting history and mechanism of injury. Most life-threatening problems are not musculoskeletal related. It is important to rule those out first, before embarking on treatment for suspected musculoskeletal injuries. Most musculoskeletal injuries about the hip and groin area will

respond well to nonoperative treatments. The exceptions to this may be the acute avulsions of the bone and those selective patients that do not respond to appropriate nonoperative measures.

Acknowledgment

The authors declare no conflicts of interest and do not have any financial disclosures.

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