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Methodical Approach to the History and Physical Exam of Athletic Groin Pain

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A methodical approach to the history and physical of patients with hip disease will expedite diagnosis and treatment. Two approaches are presented: a position directed exam and an anatomic directed exam. Along with the other articles in this issue, this article helps the clinician identify the etiology of hip pathology.

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Hip pathology is common among athletes, and there is a high rate of prevalence in sports such as hockey, soccer and football.^{1,2} Many athletes suffer with hip and groin pain for prolonged periods as a result of the complex hip anatomy and broad differential diagnosis. Some experts³ estimate that 60% of intra-articular injuries are initially misdiagnosed as extra-articular. The delay to diagnosis is typically 7 months. More recent research has demonstrated that young patients with labral pathology within the hip had an average delay in diagnosis of 21 months by 3.3 health care providers.⁴ The challenge for the sports diagnostician is to differentiate the significant pathology from the common ones.

When treating an athletic patient with groin pain, knowledge of the differential diagnoses and a high level of suspicion are crucial. As Nobel Laureate Henri Louis Bergson said, "The eye sees only what the mind is prepared to comprehend." The articles in this issue provide an essential knowledge base to diagnose common hip disorder in athletes. A standard algorithm for the history and physical can make diagnosis timely and less dramatic for the physician and the athlete. The orthopedist must approach groin pain with a comprehensive differential, which includes an "all-systems" perspective beyond the musculoskeletal, including neurologic, gynecologic, gastrointestinal, vascular, and musculoskeletal causes. It is also beneficial to use an anatomic diagnostic approach based on the 5 hip compartments, as described by Dr. Meyers.

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Differential Diagnosis

Once referred etiologies of hip pain have been ruled out (spine, genitourinary, gastrointestinal, vascular) the majority of hip pain can be separated into either intra-articular or extra-articular sources.

Intra-articular sources of hip pain include the following:

- labral pathology;
- chondral pathology;
- injuries to the ligamentum teres;
- capsular laxity;
- adhesive capsulitis;
- femoroacetabular impingement;
- loose bodies;
- benign intraarticular tumors
 - synovial chondromatosis and pigmented villonodular synovitis (ie, PVNS).

Extra-articular sources are more common and include:

- hip tendonitis / avulsion injuries;
- snapping hip (internal–iliopsoas; external, ITB);
- trochanteric bursitis;
- abductor tears (gluteus medius or minimus);
- osteitis pubis;
- athletic pubalgia;
- a variety of nerve compression pathologies
 - meralgia paresthetica (lateral femoral cutaneous nerve compression)
 - piriformis syndrome and
 - compression of the ilioinguinal, iliohypogastric, and genitofemoral nerves

Lateral hip pain virtually eliminates extra-articular pathology medial to the joint. Pain medial to the joint often radiates to the groin and medial thigh but seldom to the lateral thigh.

Osteitis pubis, or injury to the articulation of the pubic rami, is painful when the patient engages in weight-bearing activity. Patients often present with chronic symptoms of pain but may also report weakness, clicking, or difficulty navigating over uneven surfaces. Physical examination is characterized by tenderness directly over the symphysis.

Medial pain from intra-articular pathology, sports hernias, or adductor injuries is distinct from chronic lateral hip pain. Lateral hip pain is not eliminated by intra-articular injection. Patients describe a pain with ambulation that is worse when lying on that side. Differential includes trochanteric bursitis, abductor tears, and external snapping hip.

Extra-articular etiologies of groin pain include orthopedic, gynecologic, urologic, gastrointestinal, and oncologic. Making the correct diagnosis is a challenge. Inguinal hernias are recognized with standard physical examination and imaging.

Iliopsoas snapping hip or Coxa Saltans is a tight iliopsoas that makes an audible sound moving over an anterior hip structure. Most of the anterior structures the iliopsoas passes can produce the sound. Going from the "FABER," or flexed abducted and externally rotated, to the extension and internal rotation position reproduces the sound and pain. Pain relief with local anesthetic injection into the iliopsoas bursa can confirm the diagnosis.

External snapping hip is caused by an iliotibial band that snaps over the trochanter when going into hip flexion. The patient can reproduce the snapping in the office with ambulation. The Ober test may show tightness of the iliotibial band; however, it is not always positive in patients with external snapping hip.

Sports hernias is a group of diagnoses that localize to the inguinal region immediately surrounding the inguinal canal, rectus abdominis and adductor origin. They can be subdifferentiated into the adductor syndromes and the inguinal injuries or true sports hernias. Recently, authors have proposed that the primary defect in sports hernias is a deficiency of the posterior wall of the inguinal canal. Certainly this would correlate with relief of symptoms in patients treated with mesh enhancement of the posterior wall.⁵

History is key to selecting operative sports hernia patients. Pain is exacerbated only by activity and is relieved with rest. It is aggravated by any movement that increases the stress on the inguinal canal including kicking, abdominal crunches, and increasing intra-abdominal pressure, such as the Valsalva maneuver. As opposed to adductor syndromes inguinal injuries rarely improve with physical therapy.⁶

Physical examination of patients with suspected sports hernias should focus on tenderness and reproducing the movements that cause pain. Awareness of the maneuvers that increase force on the inguinal canal is helpful. Unfortunately, pain with resisted adduction does not differentiate sports hernias from adductor syndromes. Referral to a general surgeon familiar with sports hernias is helpful in suspected cases as examination of the inguinal region is not in the typical orthopedists' armamentarium.

History Algorithm

Many orthopedic surgeons have a standard list of questions to elucidate the history of an athletic injury as below.

Was there an injury?

Sport?

Is the athlete able to play at their best level with the pain?

Is there a specific move that recreates the pain?

Does the athlete avoid the pain with certain maneuvers?

Associated symptoms:

Clicking/popping/snapping

Instability

Locking/catching

Is there difficulty with the following?

Walking

Running

Stairs

Sitting with the hip flexed

Twisting

Lying on the affected side

Pain:

Duration

Location

C-Sign: The thumb is held posterior to the greater trochanter with the fingers in the groin.

Type

What makes pain better? Worse?

Severity

Subjective pain assessment should be obtained on all patients to better quantify treatment efficacy. Traditionally, the Modified Harris Hip Score has been used; however, more nonarthritic questionnaires, including the Non-Arthritic Hip Score⁷ and the Hip Outcomes Score,⁸ have begun to be used.

Intra-articular problems are often painful upon deep hip flexion, prolonged hip flexion, flexion under load (uphill walking), and with internal and external rotation of the hip. Straight-line activities are less symptomatic. The neurologic pathways of lower quadrant pain are multiple.

Studies show that the obturator, femoral, and sciatic nerves have articular branches.^{9,10} The most common localization of pain is to the anterior groin. The L3 nerve root is the principal sensory nerve root and pain is often referred to that dermatome. However, posterior groin, lateral trochanter, and buttocks are all possible because of the variable innervation. If one of the variable innervation patterns is suspected, elimination of pain with intraarticular injection of anesthetic can verify the diagnosis.

Physical Examination: General

Optimally, a clinical examination should be performed in a systematic and reproducible fashion so that accurate diagnoses and treatment recommendations can be made. Complete examination of surrounding structures is necessary to fully evaluate athletes presenting with hip pain. During the

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