Assessment and Treatment of Hip Pain in the Adolescent Athlete

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KEYWORDS

• Hip • Pain • Adolescent • Sports • Groin • Femoroacetabular impingement
• Physeal injury • Acetabular labrum

KEY POINTS

- A thorough history can often uncover important clues about the etiology of pain, and a well-directed interview is crucial to understanding primary versus secondary pain generators in the hip and pelvis.
- The clinician treating hip pain in the adolescent athlete should become familiar with performing a thorough hip examination and interpreting radiographic images. The physician should recognize that a comprehensive hip examination includes evaluation of gait, the spine, abdominovisceral structures, and other musculoskeletal regions.
- Hip pain in the adolescent athlete often reflects a number of concomitant pathologies, and a thorough awareness of the distinct characteristics of each is important to establishing a proper diagnosis and treatment strategy.
- Biomechanical relationships between the hip joint, periarticular soft tissue envelope, and central pelvic structures must be understood to distinguish between primary pathologies and compensatory injury patterns.
- Underlying systemic, rheumatologic, or oncologic conditions should always be considered in the young athlete, even when the injury seems to reflect a musculoskeletal etiology.

INTRODUCTION

Establishing an accurate diagnosis for the adolescent athlete with hip pain can be challenging. Complex pathomechanical interactions within the hip joint, compensatory extra-articular injuries, and the central watershed location of the hip often result in an obscure clinical picture without a clear singular diagnosis. Open physes among

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athletes of this age group are prone to overuse enthesopathies, or traumatic avulsions in higher-energy injuries. Morphologic alterations in the proximal femur or acetabulum can result in anatomic conflict during dynamic activities, and may result in debilitating chondral and labral injuries as a young athlete develops. In addition to physeal injuries and femoroacetabular impingement, repetitive microtrauma, or isolated traumatic events can lead to a number of other soft tissue and bony abnormalities that may contribute to hip pain.

HISTORY

An accurate diagnosis for an adolescent athlete with hip pain can usually be gained through a focused clinical history. Of primary concern is whether the onset of symptoms was acute and caused by a single traumatic event, related to repetitive athletic activities, or unrelated to athletic endeavors altogether. Higher-energy athletic injuries to the hip and pelvis frequently involve the biomechanically vulnerable physes and surrounding soft tissues, rather than deeper intra-articular structures. Young elite-level athletes are under increasing pressure to commit to a single sport at a young age, and train throughout the year to optimize their performance in that sport. The literature is replete with the unfortunate consequences of multiple exposure hours to the skeletally immature athlete.[1] Attritional injuries to the acetabular labrum or articular cartilage, stress reactions/fractures, and injuries to the surrounding myotendinous envelope are injury patterns that are linked to repetitive overuse. Fluctuations of symptoms with a diurnal pattern may reflect an underlying inflammatory, systemic, or rheumatologic condition. Pain that is not reproducible with strenuous activities, is not reported with a predictable pattern, and is associated with other vague constitutional symptoms should prompt concern for an underlying systemic etiology (**Figs. 1** and **2**). Inquiring about age at symptomatic onset and development of secondary sex characteristics can yield valuable information about the state of skeletal maturity and certain age-specific cues that may aid in making an accurate diagnosis. Legg Calve Perthes (LCP) and slipped capital femoral epiphysis (SCFE) are 2 conditions that have characteristic age associations and may demonstrate many clinical features similar to

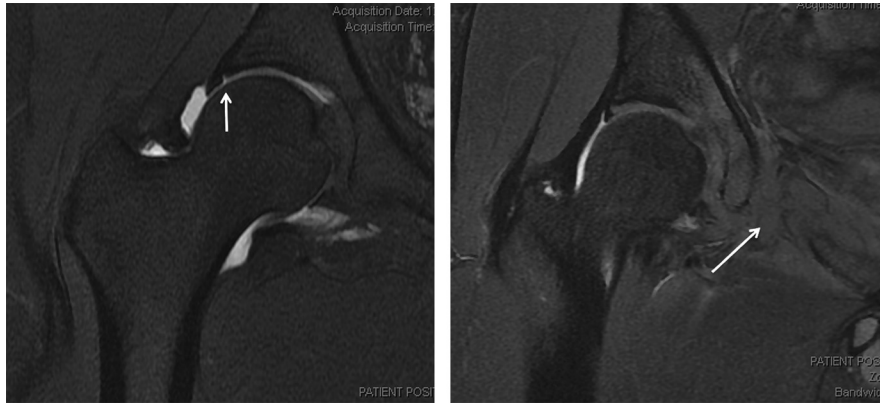

Fig. 1. 17-year-old lacrosse player with groin pain, diagnosed with superior acetabular labral tear. Tear pattern and clinical characteristics were not typical for symptomatic labral pathology, so repeat MRI with intravenous (IV) contrast was obtained 1 month later demonstrating Ewing sarcoma (*white arrow*).