

# A 13-year-old Boy with Right-sided Elbow Pain

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**A**n athletic, right-handed, 13-year-old boy presented with right-sided elbow pain, decreased range of motion, and decreased throwing strength. No history of trauma was noted. Physical exam revealed point tenderness over the medial aspect of the distal humerus, but there was no swelling.

Initially, radiographs of the right elbow were obtained. The frontal view demonstrated widening of the physis between the medial epicondylar ossification center and the medial humeral condyle (see Figure 1).

Magnetic resonance imaging (MRI) was performed 2 days later to obtain additional information about the radiographic abnormality, including possible ligamentous or tendonous injury (see Figure 2, page 16). Signal abnormality, consistent with edema, was seen within the abnormal physis, as well as within the adjacent bone marrow of the medial epicondyle and medial humeral condyle. Surrounding soft tissue edema was also seen.



Figure 1. Frontal radiograph of the right elbow showing widening of the physis (white arrows) between the medial humeral condyle and the epicondylar ossification center.

For diagnosis, see page 16.

*Editor's note: Each month, this department features a discussion of an unusual diagnosis in genetics, radiology, or dermatology. A description and images are presented, with the diagnosis and an explanation of how the diagnosis was determined following. As always, your comments are welcome.*

DIAGNOSIS

Medial epicondylar apophysitis  
("Little Leaguer's elbow")

DISCUSSION

Chronic repetitive stress of the elbow is a common problem in young athletes. In fact, up to 58% of adolescent pitchers report elbow pain.<sup>1,2</sup> Medial epicondylitis or medial epicondylar apophysitis is one of the better known repetitive stress injuries and is frequently referred to as "Little Leaguer's elbow."

In this type of injury, valgus stress from the overhead throwing motion is transmitted from the muscles that insert on the medial epicondyle to the physis.<sup>3</sup> These stresses result in repetitive microtrauma, eventually manifested by physeal widening, essentially a Salter-Harris type I stress fracture. Typically, the athlete will present with pain and decreased throwing velocity.<sup>4</sup> Because of similar throwing mechanics, participants in other sports such as tennis, football, and javelin, can also present with Little Leaguer's elbow.<sup>5</sup>

Imaging of the elbow usually consists of radiographs, with MRI if necessary. The initial description of this injury was by plain film radiography, describing separation and fragmentation of the medial epicondyle.<sup>5</sup> MRI may demonstrate more subtle physeal abnormalities, associated bone-marrow and soft-tissue edema, and possible ligamentous and tendonous abnormalities.

In adults, medial epicondylitis has the eponym "golfer's elbow." As the physes are fused in adulthood,

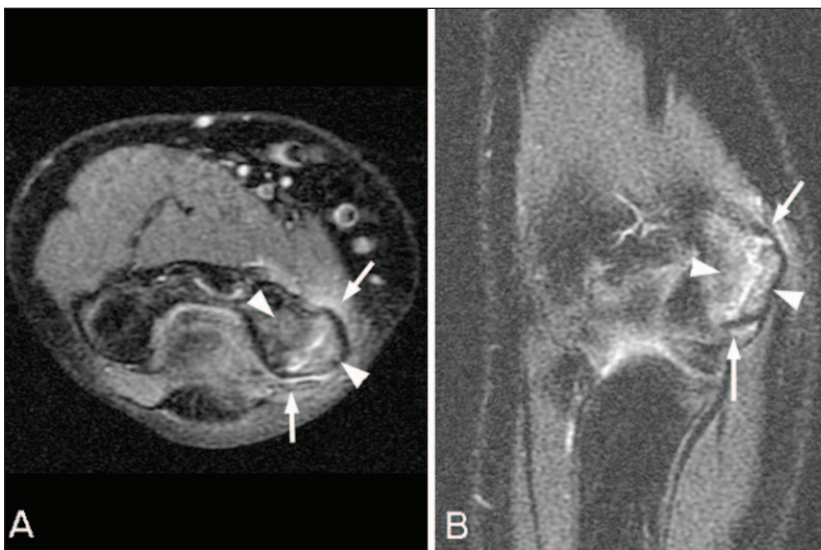


Figure 2. MRI of the right elbow including axial T2-weighted fat saturated (A) and coronal proton density fat saturated (B) images, showing increased signal (edema) within the medial epicondylar physis (linear high signal between the white arrows). Edema is also seen in the bone marrow of the condyle and epicondyle, adjacent to the physis (arrowheads).

this term generally refers to injury to either the tendonous insertions onto the medial epicondyle or the ulnar collateral ligament complex.<sup>6,7</sup>

The mainstay of treatment is rest, with cessation of throwing activity for at least 6 weeks, followed by a slow return to activity only when symptoms have completely resolved.<sup>4</sup> Prevention consists primarily of limiting the number and type of pitches thrown by the young athlete. Recommendations have been made for a maximum numbers of pitches per game by age group, with a higher risk of injury being noted with higher pitch counts.<sup>1,2</sup> Consequently, some youth baseball programs have instituted rules regarding the number of pitches that can be thrown.<sup>8</sup> Interestingly, it is the slider that is associated with increased rates of elbow pain, not the curveball, as has been historically implicated.<sup>2</sup>

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