Stress Fracture of the Olecranon Process in a Baseball Pitcher

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Excessive valgus stress and extension overload that occurs at the elbow during overhand throwing can cause a variety of acute and chronic injuries. Stress fractures to the olecranon process are rare; very few cases have been reported in the literature. The few reported cases of olecranon stress fractures have involved pitchers and javelin throwers.

The subject of this case review is a college baseball pitcher. His history and symptoms closely mimicked the pathologies typical of elbow pain such as medial epicondylitis, medial triceps tendonitis, or an ulnar collateral ligament sprain. Consistent with the literature, a proper diagnosis was not made until stress roentgenographs and tomograms were taken.

History

The athlete, a 21-year-old right-handed baseball pitcher, had no history of severe or chronic elbow pain. His dominant pitches at the time of injury were a split-finger fastball and a slider. Early in the season he was throwing approximately 130 to 140 pitches a game and averaging 2 games a week.

There was generalized pain about the medial olecranon, ulnar collateral ligament, medial triceps tendon, and wrist flexor origin proximal to the epicondyle of the humerus. There were no limitations in range of motion, although the athlete had an approximate 5° flexion contracture which, as noted during preseason screening, was normal for him. He had normal strength of the elbow muscles and no signs of neurological involvement.

Roentgenographs taken at the time were unremarkable. The condition was treated conservatively with various therapeutic modalities, NSAIDS, and decreased throwing. Four weeks later the athlete had minimal complaints and treatment was discontinued.

Onset of Injury

While pitching in a game 2 weeks after his full return to baseball, the athlete suffered an acute episode of elbow pain. During the 3rd inning he felt a “pop” and immediate pain. He was taken out of the game and evaluated.

Pain and tenderness was diffuse about the posterior medial joint. There was moderate swelling within 10 minutes and the athlete was unable to extend the elbow. The elbow was iced and the arm placed in a sling.

The following day he was seen by the team orthopedist. The elbow, forearm, and hand were moderately swollen, with most of the pain at the ulnar collateral ligament and medial triceps insertion. Regular oblique-view roentgenographs were taken but again were unremarkable.

Stress-view roentgenographs were also

Figure 1 Stress x-ray.
The immobilization phase was followed by a 2-week period in which the athlete was allowed moderate use of the arm while he worked at regaining normal range of motion. He was still not allowed any activities involving repetitive contraction of the triceps.

The athlete was released to gradually return to weight training and begin a progressive throwing program 12 weeks postinjury. At 6 months postinjury he returned to pitching at full capacity, experiencing only normal postgame soreness.

Discussion


It is speculated that an oblique stress fracture through the body of the olecranon in an adult athlete is not the result of pure traction. It is more likely to be caused by a combination of compression and bending of the olecranon during valgus stress, and traction from the triceps during acceleration.

Athletes involved in high-velocity throwing activities are susceptible to stress related injuries of the olecranon. Persons providing health care to injured athletes may be overlooking this pathology because the symptoms typically mimic common medial elbow syndromes.

In most cases the conservative management of the soft tissue injury may resolve the stress injury. For cases in which the athlete experiences chronic medial elbow pain or repeated episodes of medial elbow trauma, stress roentgenographs, tomograms, or a bone scan may be necessary to rule out an olecranon stress fracture.

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