Objective: The objective of this case is to educate athletic trainers regarding radial nerve injury in a throwing athlete. Background: The athlete is a 22 year-old collegiate baseball pitcher with complaints of right upper arm pain after pitching. His past medical history is significant for right sub-acromial impingement requiring surgical decompression two years earlier. The pain was described as sharp and stabbing. Symptoms are localized to the distal, lateral third of the humerus. Visual inspection is unremarkable. His pain cannot be reproduced during ROM or resistive testing, with the exception of strength testing for the brachialis muscle. The athlete demonstrates no strength or sensory deficits throughout the right upper extremity. All special tests for the shoulder and cervical spine are negative for reproduction of pain.

Differential Diagnosis: Differential diagnosis includes ruling out pathology of the cervical spine or throwing shoulder that might refer pain to the anterior, lateral upper arm. Additional considerations include stress fracture of the humerus and isolated injury to the brachialis muscle. The athlete underwent a course of conservative treatment that included modalities for pain and inflammation control. He completed strengthening for the right upper extremity with emphasis on right shoulder, scapular and upper arm musculature. The athlete was referred for orthopedic examination. Plain radiographs and MRI were negative and the physician could not offer an explanation for the athlete’s pain.

Treatment: The athlete was given NSAIDs, continued rehabilitation and pitched with pain through the remainder of the 2004 season. At the conclusion of the season, he was removed from all activity for 4 weeks and was treated with rest, anti-inflammatory medication and therapeutic modalities. Following four-weeks of rest, the athlete reported no pain. He began an aggressive rehabilitation program focusing on upper extremity strengthening. After four weeks of pain-free rehabilitation, he was allowed to begin an interval throwing program, which was completed without incident. Immediately upon initiating pitching in the fall of 2004, the athlete reported intense right upper arm pain in the same location. He was referred to two orthopedists for examination. Again, all clinical and diagnostic tests failed to determine the cause of the athlete’s pain. The athlete was then referred to hand specialist. An EMG and NCV test demonstrated decreased conductivity in the radial nerve. The physician concluded that the athlete was suffering from a radial nerve entrapment. The athlete received an injection to the area which resulted in no pain relief. He subsequently underwent surgery to remove a fibrous band of tissue in the upper arm that was compressing the radial nerve. Post-surgical rehabilitation again included strengthening exercises, cross friction massage of the scar site and modalities as needed. The athlete completed an interval throwing program and has returned to pitching during the 2005 baseball season.

Uniqueness: Radial nerve injury in throwing athletes is unusual in itself. The most common site for injury is at the Arcade of Frohse superior to the supinator muscle and just distal to the elbow. Typical signs and symptoms include sensation deficits in the radial nerve distribution and a loss of wrist and finger extension strength. This athlete’s sole complaint was pain localized in the distal third of the upper arm. Conclusion: It was determined that repeated supination and pronation of the forearm required to throw breaking pitches was placing increased stress on the tissue compressing the radial nerve. This resulted in the athlete experiencing pain only when pitching from the mound. Key Words: Radial Nerve Entrapment, Supinator Syndrome.