Acute Subscapularis Tendon Rupture Due to Arm Wrestling Injury

Amy Farkas, MD: David Ray, MD: Kathryn Nutter, MD

CASE SUMMARY

A 39-year-old was referred to an orthopedic surgeon for evaluation for acute onset pain shoulder pain following an arm-wrestling match. The patient had felt a pop in his arm during the match and immediate pain thereafter. Since the match, he had experienced clicking and catching in his shoulder joint. On physical examination, the patient was tender to palpation over the acromioclavicular joint. He had 4/5 strength in his supraspinatus muscle and 4/5 strength in external rotation.

IMAGING FINDINGS

Axial PD MR image of the shoulder (Figure 1) demonstrates retraction of the subscapularis tendon, with increased signal and thickening of the tendon. There is fluid signal surrounding the long head of the biceps tendon in the bicipital groove, which appears intact. There is a hyperintense bone lesion in the humeral head, compatible with an incidental enchondroma.

Sagittal PD MR image (Figure 2) demonstrates increased signal of the subscapularis tendon at its insertion on the lesser tuberosity. There is moderate acromioclavicular joint osteoarthritis.

Coronal PD MR image (Figure 3) demonstrates thinning and irregularity of the supraspinatus tendon with increased signal along the undersurface, compatible with partial tear of the supraspinatus tendon at the humeral attachment.

DIAGNOSIS

Acute subscapularis tendon rupture

DISCUSSION

Arm-wrestling injuries are well-documented in the sports medicine literature. The most common injury associated with arm wrestling is a spiral fracture of the shaft of the humerus, due to excessive torque in an arm-wrestling match.[1] Medial epicondyle fractures are also frequent and occur due to a sudden blow to the elbow as a result maximum lateral deflection of the hand of the loser.[1] There is a single case report of a proximal biceps rupture from an arm wrestling injury, but no documented cases of rotator cuff tear tendon tear due to the sport.[2]

The subscapularis muscle functions as the internal rotator of the shoulder. Tears of the subscapularis tendon typically occur due to forced external rotation, and patients present with pain in the anterior shoulder. Physical examination maneuvers to test for subscapularis tears include the lift-off and belly-press tests. Eliciting increased passive external rotation is an additional indication of subscapularis tendon tear. The most common associated injury with subscapularis tendon tear is biceps tendon subluxation or tear.[3]

Acute and traumatic full-thickness subscapularis tendon tears necessitate repair. Our patient underwent arthroscopic debridement and repair of his rotator cuff. Intraoperative findings included an acute appearing complete tear of the subscapularis tendon. Interestingly, there was no associated biceps injury. However, chronic near-complete supraspinatus and infraspinatus tendon tears were present. Rotator-cuff tears are more commonly the result of chronic degeneration from bony impingement of the cuff with humeral motion than acute traumatic tendon rup-

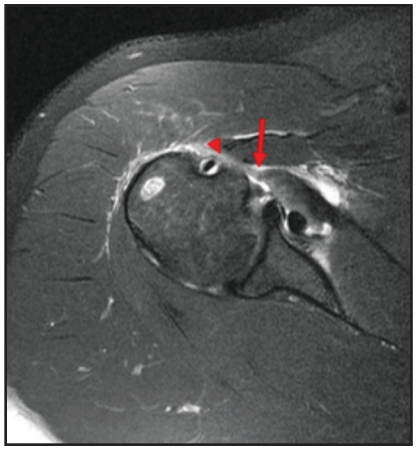

FIGURE 1. *Axial proton density (PD) MR image demonstrates a focal defect with increased signal in the subscapularis tendon and 1.5 cm of retraction of torn fibers, compatible with acute tear.*

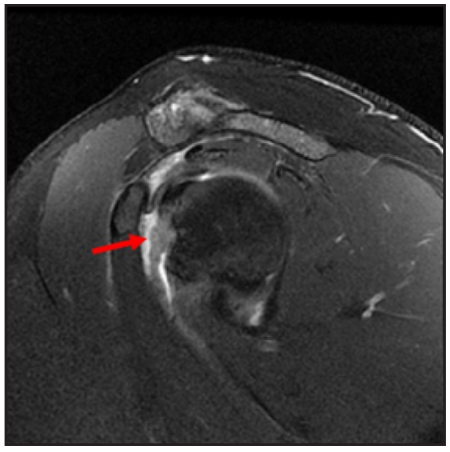

FIGURE 2. *Sagittal PD MR image demonstrates the tear involving the full thickness of the subscapularis tendon.*

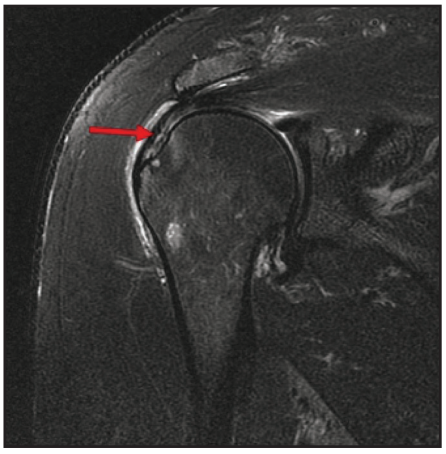

FIGURE 3. *Coronal PD MR image demonstrates high-grade partial thickness tear at the articular surface of the supraspinatus tendon.*

ture or avulsion. But, interestingly, our patient exhibits both chronic and acute components of rotator cuff injury.

CONCLUSION

Typical arm-wrestling injuries include spiral fractures of the humerus and medial epicondyle fractures. We report a case of an acute subscapularis tendon tear due to an arm wrestling injury. Forced external rotation is the typical mechanism of a subscapularis tear, which suggests the patient was struggling and perhaps losing the match at the time of the tendon tear.

REFERENCES

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Affiliations: University of Mississippi Medical Center, Jackson, MS (Drs Farkas and Nutter), and Johns Hopkins Hospital, Baltimore, MD (Dr Ray).