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Presentation and physical exam findings of acute biceps tendon rupture

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Visual case discussion

A 73-year-old male with a history of hypertension, hyperlipidemia, diabetes mellitus, coronary artery disease, and prostate cancer s/p prostatectomy presented with left shoulder pain after heavy lifting 3 days ago. Physical exam was remarkable for the classic “Popeye” deformity of the left biceps muscle with tenderness over the bicipital groove, consistent with a proximal biceps tendon rupture. He was discharged with NSAIDs for pain control and orthopedics follow-up and has been successfully managed non-operatively. As in this case, the majority of biceps tendon injuries occur in elderly patients, and more commonly in men. Biceps tendon ruptures are most often proximal, with a small minority being distal. It should also be noted that bicipital tenosynovitis is present in most cases. Other important risk factors include, but are not limited to, smoking, steroid use, and fluoroquinolone use (Figs. 1 and 2).

Fig. 1. Appearance of normal biceps (right) and ruptured biceps (left) in extension.

Fig. 2. Classic "Popeye" deformity seen with proximal biceps tendon rupture.

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Questions

1 Question 1: What is the gold standard for diagnosing biceps tendon rupture?
   a Arthroscopic evaluation
   b Ultrasound
   c Physical exam
   d MRI
2 Question 2: What is a common presenting complaint for proximal biceps tendon rupture?
   a Elbow pain
   b Inability to flex the elbow
   c Anterior shoulder pain
   d Inability to abduct the arm

Answers

1 Answer: a, Arthroscopic evaluation. Explanation: The diagnosis is usually made primarily based on clinical findings, which can be difficult, as obesity can mask biceps deformity on exam, and tests such as Speed's and Yergason's have limited sensitivity and specificity. MRI and ultrasound also have low sensitivity, therefore the most accurate diagnostic modality is direct visualization with arthroscopy.
2 Answer: c, anterior shoulder pain. Explanation: The short head of the biceps tendon originates from the tip of the coracoid process, and the long head originates from the supraglenoid tubercle of the scapula, both structures in the shoulder joint, therefore leading to anterior shoulder pain. The brachialis and brachioradialis are also responsible for elbow flexion, and the supraspinatus and deltoid are responsible for abduction.[1,2,3]

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2019.100642.

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