

Functional Examination More Accurate than MRI in Predicting Glenoid Labral Tears

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In this day of high tech body evaluation, it made my day when I read a recent article stating that a physical examination for a glenoid labral tear proved to be more accurate than an MRI evaluation. I experienced the same feeling when the Russian chess champion recently beat a chess computer programmed with 64 million moves.

Liu, Henry, and Nuccion et al.,¹ evaluated 54 patients with unstable shoulders (without rotator cuff lesions) who did not respond to conservative care. They compared the results of a shoulder physical examination for instability, versus the MRI findings which were subsequently confirmed by arthroscopy. The MRI produced a sensitivity of 59 percent and a specificity of 85 percent while the physical examination produced a sensitivity of 90 percent and a specificity of 85 percent.

The glenoid labrum is a rim of fibrous and elastic tissue attached to the margin of the glenoid articular cartilage. Its function is to deepen the glenoid cavity, adding to stability of the humeral head and also provide attachment for the glenohumeral ligaments.² Patients usually 35 years or younger with anterior shoulder pain during throwing or overhead activities (tennis, etc.) with palpable clicking are thought of as suffering from a labral tear.³ The clicking or popping usually occurs in full abduction or flexion. The clicking sound that occurs with subluxation of the shoulder is often due to a defect in the posterolateral humeral head riding over a torn labrum and/or anterior glenoid rim.⁴

The labral attachment is weaker in younger patients and over time increases in strength.⁴ Evaluating a patient for instability is crucial, especially for a subtle or "functional" instability that the patient may not be aware of. The increased humeral head translation during overhead activities, such as repetitive overhead use, acts as a stress on both the dynamic rotator cuff and static capsuloligamentous structures. Treatment of a rotator cuff syndrome will eventually fail unless the instability is treated, usually with strengthening exercises to the cuff and parascapular muscles and limitation of exacerbating activities.

The authors of this paper¹ used specific tests, looking primarily for clicking and instability. The two tests used for clicking were the load and shift test and the "crank" test. In the load and shift test the patient is seated and the examiner stabilizes the scapula with one hand. The other hand grasps the proximal humerus, holding the patient's arm in 20° of abduction and forward flexion. The examiner compresses the humeral head medially into the glenoid and translates the head anterior and posterior. While many use the load and shift test for proving instability, Conway feels that this test does not really test the inferior glenohumeral ligament, which is the most frequent site for instability. He feels that the load and shift test stresses only the superior glenohumeral ligament and posterior capsule.⁵

The second test they used for clicking was a "crank" test with the patient supine. The examiner places the patient's arm in maximum abduction and forward flexion, holding the wrist above the patient's head, elbow flexed 90° with one hand and the patient's arm with the other hand. While holding the arm, an axial load directed down along the humerus is performed. While maintaining the axial load, the forearm is rotated in internal and external rotation to elicit a "click."

They used the apprehension, relocation, crank and sulcus tests for instability. In testing for instability, patients with recurrent anterior dislocation problems usually test with immediate apprehension and pain; patients with mild anterior subluxation will exhibit discomfort and possible clicking, rather than severe pain and apprehension.⁶ The authors¹ felt that the most sensitive test for instability and clicking was the crank test. Six patients with positive crank test all had labral tears and no patient with a negative crank test had a labral tear.

The authors give an example of a 31-year-old recreational athlete with a five year history of right shoulder subluxation. Examination showed increased anterior translation on the load and shift test, and positive apprehension and relocation tests without a sulcus sign. The insurance carrier did not approve of surgery because an MRI proved to be negative. After four more months of pain, surgery was approved and they found detachment of the capsulolabral complex extending from the anterosuperior to anteroinferior glenoid.

Reference

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