Clinical Assessment of the Dynamic Shear Test for SLAP Lesions
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BACKGROUND

The clinical diagnosis of superior labrum anterior-posterior (SLAP) lesions of the shoulder remains a diagnostic challenge for physicians, in part due to the multitude of physical examination tests which have been found to have low clinical utility.

The “dynamic labral shear test” was first described in 2007 to be diagnostic of SLAP lesions.

To date only two studies have assessed the clinical utility of this test for SLAP lesions with one reporting a likelihood ratio of 1.1 and the other 31.6. These contradictory results leave the usefulness of this test for SLAP lesions uncertain.

PURPOSE

The goal of this study was to determine the clinical utility (sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), likelihood ratio (LR), and diagnostic accuracy (DA)) of the dynamic shear test for making the diagnosis of SLAP lesions.

HYPOTHESES

We hypothesized that (1) the dynamic shear test would have a low clinical utility for making the diagnosis of SLAP-only lesions, (2) that the clinical utility of this test would decrease in shoulders that have SLAP lesions with concomitant shoulder pathology, and (3) the clinical utility of the combination of the dynamic shear test and other tests for the detection of SLAP lesions would not increase the utility of this test.

METHODS

This study was of a consecutive case series of patients who were studied prospectively between 2007 and 2013 (N=674). The study group included patients with a variety of diagnoses including AC arthritis (n=48), rotator cuff tear (n=381), stiffness (n=26), instability (n=148), biceps pathology (n=12), and SLAP lesion (n=49).

All patients had a thorough preoperative physical examination that included the dynamic shear test, a relocation test for pain, and an active compression test.

All patients underwent subsequent diagnostic arthroscopy by the senior author. Only Type II through V SLAP lesions were considered positive for a SLAP tear. A type I tear was considered a degenerative lesion and included in the control group.

For statistical analysis, the patients were divided into three groups: a control group (n = 528) consisting of patients with no SLAP lesion but with other pathologies, an isolated SLAP lesion group (n = 7), and a concomitant SLAP lesion group (n = 139) who had a SLAP tear and some other shoulder pathology such as a rotator cuff tear or instability of the shoulder.

Statistical analysis was performed by a biostatistician using SPSS.

RESULTS

The dynamic shear test was positive for 242 (45.6%) control patients, 6 (85.7%) patients with isolated SLAP lesions, and 79 (56.8%) of the concomitant SLAP patients.

For isolated SLAP tears the dynamic shear test had a sensitivity of 85.7, specificity of 51.9, PPV of 1.8, NPV of 99.7, LR of 6.4, and DA of 54.4. In comparison, the LR for the active compression test was 0.7 and for the relocation test was 1.5.

For patients with combined SLAP lesions with other pathologies, the dynamic shear test had a sensitivity of 58.2, specificity of 54.2, PPV of 35.9, NPV of 82.4, LR of 1.5, and DA of 55.0.

Combining all three tests did not improve the LR for either isolated SLAP lesions or lesions with concomitant pathology.

CONCLUSIONS

This study found that the dynamic shear test has clinical utility only for patients with isolated SLAP lesions, that its usefulness in patients with concomitant lesions is limited and that its combined use with other tests does not increase its clinical utility. These results suggest that the dynamic shear test has limited usefulness when examining patients with multiple possible diagnoses.

LIMITATIONS

• Isolated SLAP lesions are rare, and most SLAP lesions occur with concomitant pathology
• Primary diagnosis for each patient was determined by a single physician (senior author), who was not wholly blinded to the pre-operative physical examination
• Our study only included patients who had arthroscopic surgery, not nonsurgical patients who may have had SLAP lesions

IMPLICATIONS

• These findings help to elucidate the significance of the dynamic shear test in clinical practice.
• Directly impacts the routine physical examination of the shoulder during patient visits
• Physicians will have a better understanding of the dynamic shear test and be better equipped to make a more informed decision about primary diagnoses prior to operation