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Why Do Knots at the Superior Labrum Cause Problems during Superior Labrum Anterior to Posterior Repair?

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Since Snyder et al.'s[1] first report published in 1990, arthroscopic superior labrum anterior to posterior (SLAP) repair has been a widely applied procedure.[2,3] However, the pathogenesis and pathology associated with SLAP was not understood well.

Recently, arthroscopic SLAP repair has become less common. This is because of reports that SLAP repairs did not produce good results for atheletes[4] or older individuals.[5] The numbers of SLAP repairs are also decreasing as a result of complaints of sustained pain, aggravated stiffness, or low return to sports activities.

An article by Jeong et al.,[6] "Do knot matter in superior labrum anterior to posterior repair? 'Knotache' in symptomatic recurred SLAP lesion" studied by analyzed failed SLAP repair cases and found 12 shoulders in which SLAP repair had failed as indicated by sustained pain or symptoms after the procedure. Among these, nine shoulders were repaired with a knot-tying suture anchor and three were repaired with a knotless anchor. During the revision arthroscope, the remaining knot was found to be impinged at the abduction or external rotation position in all nine of the knot-tying cases. Moreover, the knots were covered with hypertrophied synovial tissue and inflammatory tissue, suggesting that the knot problem might be the cause of postoperative pain following arthroscopic SLAP repair. Katz et al.[7] found that 71% of patients with a poor outcome after SLAP repair were dissatisfied with conservative treatment. Therefore, once a patient has a poor outcome after SLAP repair, there is a high chance of conservative treatment failure.

A few reports have analyzed the knotless anchor for SLAP repair. Yang et al.[8] reported better postoperative pain visual analogue scale and range of rotational motion of the shoulder joint in a horizontal mattress repair group that received knotless anchor for SLAP repair compared to a group that received conventional vertically oriented knot-tying.

As described in the discussion section, some SLAP cases that were repaired using a knot-tying suture anchor had good results, while others experienced sustained postoperative pain and stiffness. The sustained postoperative pain or symptoms might have occurred because of missed pathologies, misdiagnosis, unhealed SLAP lesions, or postoperative changes in biomechanics.[9] Additionally, insertion of more lateral or medial anchors into the glenoid or knot-tying techniques might also affect the symptoms.

In the gleno-humeral joint space, knot-tying anchors are used at the anterior, posterior and superior glenoid without such complications. Currently, the reasons for problems caused by the knot-tying anchor of this SLAP repair are not known. However, there are some anatomical differences between the anterior and superior labrum, and a peel-back motion of the superior labrum normally occurs during the abduction-external rotation position of the arm.[10] Additional studies investigating differences in the location and number of anchor insertions, knot-tying techniques, and motion of the superior labrum using special magnetic resonance imaging (MRI) (abduction-external rotation MRI, ABER MRI)[11] of patients with good and bad results would provide more information.

Currently, we cannot draw any conclusions regarding this topic. Nevertheless, the present study demonstrates the possibility of knot-related problems so that changes or modification of repair techniques can be considered.

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