Risk Factors for the Occurrence of Superior Labrum Anterior and Posterior Type V in Athletes with Anterior Instability and/or Dislocation of the Shoulder Joint

Keisuke Nakayama, Hirotaka Nakashima[1], Yoichi Murata[1], SHINICHIRO TAKADA, Hokuto Fukuda, Takahiro Negayama, Akinori Sakai[2], Soshi Uchida[3]

[1]Wakamatsu Hospital For University of Occupational, [2]University of Occupational and Environmental Health, [3]Wakamatsu Hospital of the University of Occupation

INTRODUCTION: Superior labrum anterior to posterior (SLAP) is well known as one of the most common causes of shoulder pain. Most SLAP lesions were shown to have occurred with concomitant shoulder pathologies. Modified Snyder's classification is commonly used in clinical practice, and SLAP type V is classified as an anterior–inferior Bankart lesion that continues superiorly to include separation of the biceps tendon. SLAP type V was observed in approximately 30-40% of previous reports. Good clinical outcomes of arthroscopic repair for SLAP type V have been reported. These studies reported that there were no significant differences in clinical outcomes between SLAP type V and Bankart groups. However, a recent study reported that SLAP type V results in a lower return to play compared to only Bankart lesions after surgery. However, recent literature lacks a clear understanding of what are predictors for SLAP type V. The purpose of this study was to identify risk factors for SLAP type V.

METHODS: A total of 125 shoulders (119 patients) who underwent surgical treatment for anterior instability and/or dislocation of the shoulder joint from March 2015 to April 2019 were retrospectively reviewed in this study. All patients were in the athletic population. Patients with previous ipsilateral shoulder surgery (revision surgery) were excluded. SLAP lesions and other intra-articular findings were assessed based on arthroscopic findings. After evaluation, surgical treatments such as arthroscopic Bankart repair, SLAP repair, and Bristow were performed as needed. The participants were divided into two groups (the SLAP type V group and the non-SLAP type V group) according to whether SLAP type V was present. The preoperative demographic and imaging variables of patients belonging to the SLAP type V and non-SLAP type V groups were compared. For demographic evaluation, age at surgery, age at first dislocation, sex, involved side, body mass index (BMI), sports (collision, contact, overhead or other sports), and number of dislocations were assessed. For imaging evaluation, Hill-Sachs lesions, bony Bankart lesions, bony defects at the glenoid, capsular tears, and rotator cuff tears (RCTs) were assessed. Hill-Sachs lesions and bony Bankart lesions were evaluated by radiography and computed tomography (CT). The bony defect at the glenoid was evaluated by CT. Capsular tears and RCTs were evaluated by magnetic resonance imaging (MRI). Statistical analysis was performed to compare the SLAP type V and the non-SLAP type V groups and identify the predictors for SLAP type V. The Mann–Whitney U test was used to compare the SLAP type V and the non-SLAP type V groups, except for the qualitative variables that were compared using the chi-squared test or Fisher's exact test. Multiple logistic regression analysis was performed to identify the predictors for SLAP type V. All statistical analyses were performed using same software. The level of statistical significance was set at p value < 0.05.

RESULTS:

A total of 120 shoulders (114 patients: 84 men, 30 womens) were included in this study (Figure 1). Five shoulders were excluded because of a history of previous surgery. The mean age was 19.8 ± 5.9 years, and the mean BMI was 25.1 ± 4.0 kg/m^2. In 120 shoulders, Bankart lesions were observed in 120 shoulders, and SLAP tears were observed in 43 shoulders. Thus, SLAP type V was observed in 43 shoulders (Figure 2). The preoperative patient demographic variables in both groups are described in Table 1. There were significant differences regarding age at surgery, age at first dislocation and number of dislocations. There were no significant differences regarding sex, involved side, BMI, or sports between the groups.

Preoperative imaging (radiography, CT, and MRI) variables are also described in Table 1. The rates of Bony Bankart lesions and capsular tears were significantly higher in the SLAP type V group than in the non-SLAP type V group. There were no significant differences regarding Hill-Sachs lesions, bony defects at the glenoid, or RCTs between the groups. The risk factors for SLAP type V were investigated using multiple logistic regression analysis. Bony Bankart lesions (odds ratio 5.638, 95% CI 2.258–14.077, p<0.001) and age at surgery (odds ratio 1.096, 95% CI 1.013–1.186, p=0.022) were predictors of SLAP type 5. Age at first dislocation, number of dislocations and capsular tear were not statistically significant risk factors.

DISCUSSION AND CONCLUSION:

The presence of bony Bankart lesions and older age at surgery are predictors for the occurrence of SLAP type V. Although arthroscopic management for SLAP type V is promising, caution is suggested for those with aforementioned risk factors.