Long-Term Effectiveness and Outcome-Determining Factors of Arthroscopic Bankart Repair for Recreational Sports Population: An Assessment of 100 Patients with a Mean Follow Up of 12.7 Years

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INTRODUCTION:

Arthroscopic Bankart repair (ABR) has been the treatment of choice for anterior shoulder instability for a few decades. However, reported long-term outcomes have demonstrated a relatively high recurrence rate. In addition, the definition for surgical failure after ABR varies. In particular, the clinical impact of recurrent instability without redislocation in the recreational population has not been widely reported.

Several studies have reported risk factors for failure after ABR, and the concept of on- and off-track has been recognized as an important factor recently, but its long-term impact has not been reported. While other surgical procedures have shown favorable outcomes, concerns regarding complication rates and the lack of long-term studies highlight the importance of evaluating risk factors to select the most appropriate surgical procedure for anterior shoulder instability.

Therefore, the aim of this study is to report the long-term clinical outcomes following ABR in a recreational sports population and identify the risk factors that influence the final instability status.

METHODS:

A retrospective study was performed in patients treated with ABR from 2007 to 2013 by a single senior surgeon. The exclusion criteria were bony Bankart lesion, posterior or multidirectional instability, rotator cuff tear, and revisional surgery. Demographic data, MRI measurements of bone loss and the glenoid track, intra- and perioperative factors were analyzed. After a minimum follow up of 10 years, patient-reported outcomes including the Western Ontario Shoulder Instability Index (WOSI) score, the Rowe score, the Visual analog scale for pain and function (PVAS, FVAS), the American Shoulder and Elbow Surgeons (ASES) score, and sports activity were assessed.

The current instability status was classified into three groups: Stable, patients without any symptoms of instability; Apprehensive, patients with subjective feeling of instability without redislocation event; and Redislocated, patients reported redislocation event requiring a reduction. These groups were statistically compared with respect to outcomes and risk factors.

RESULTS:

A total of 100 patients with a mean age of 22.4 ± 5.5 years and a mean follow up of 151.1 ± 26.9 months were included. Thirty-eight patients (38%) showed recurrent instability: 19 patients (19%) with subjective feeling of instability; 19 patients (19%) with redislocation including 10 patients (10%) with revision surgery. Redislocations occurred within 2 years in 31.6%, between 2-4 years in 36.8%, 4-10 years in 15.8%, and over 10 years in 15.8% after ABR.

At the final follow up, the Redislocated group showed the lowest patient-reported outcomes and return to sports (all $P<0.001$). The Apprehensive group also showed lower WOSI ($P=0.011$), Rowe ($P=0.003$), ASES ($P=0.027$), and return to sports ($P=0.005$) than the Stable group.

The participation in contact sports (*OR, 2.74; 95% CI, 1.14-6.77; P = 0.026*), the size of glenoid bone loss (*OR, 1.15; 95% CI, 1.05-1.28; P = 0.005*), the size of Hill-Sachs lesion (*OR, 1.19; 95% CI, 1.05-1.36; P = 0.009*), and the off-track lesion (*OR, 3.03; 95% CI, 1.24-7.61; P = 0.016*) were associated with the recurrent instability, whereas age < 20 (*OR, 3.84; 95% CI, 1.38-11.4; P = 0.012*), the participation in contact sports (*OR, 4.81; 95% CI, 1.70-14.2; P = 0.003*), and the off-track lesion (*OR, 2.94; 95% CI, 1.03-8.37; P = 0.042*) were associated with the redislocation.

DISCUSSION AND CONCLUSION:

ABR has been reported in the literature to be associated with favorable clinical outcomes, high levels of patient satisfaction, and a high rate of return to sports. However, despite being the most recent result among the reported long-term studies, the redislocation rate of 19% remains relatively high, emphasizing the need for careful consideration when performing surgery on patients with ABR alone.

It was observed that redislocations continued to occur throughout the follow-up period of over 10 years. This suggests that treating patients with various factors solely with soft tissue procedure like ABR may have inherent limitations. In this study, it was also observed that after the mid-term follow-up period of 4 years, the occurrence of redislocation during daily life activities increased (66.7%). This finding suggests that the effectiveness of ABR in preventing dislocation may decrease over time, particularly after the mid-term period.

The patient-reported outcomes according to the instability status showed a gradual decrease. Particularly, the Apprehensive group had significantly lower levels of return to sports, WOSI, Rowe, and ASES score compared to the Stable group. This finding suggests that even in young and active patients who are not athletes, there are noticeable differences in activity and function, when comparing those with persistent feelings of instability to those without.

Based on results of this study, it can be concluded that any type of bone loss could be associated with recurrent instability. However, the patients who have bipolar bone loss (off-track lesion), who are younger than 20 years at the time of surgery, and who participate in contact sports are at a higher risk of redislocation. The authors of this study are implementing the treatment algorithm depicted in Figure 1 for the management of instability based on these results.

In recreational sports population, ABR demonstrated favorable outcomes in anterior shoulder instability. However, 19% of patients reported a feeling of instability, and 19% experienced redislocation, leading to a gradual decline in clinical outcomes and sports activity. Therefore, considering risk factors including off-track lesion, age<20, and participation in contact sports, appropriate surgical procedures should be chosen.