Patient specific and radiographic factors for the outcome after acute, bidirectional, arthroscopically assisted acromioclavicular joint stabilization

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Introduction:
Factors for the outcome after arthroscopically assisted stabilization of acute, high-grade acromioclavicular joint (ACJ) dislocations remain under-researched, especially for bidirectional stabilization. In a preceding study[1], additional horizontal stabilization (used in 52% of cases) and intraoperative overreduction were associated with favorable outcomes, but the status of additional horizontal stabilization introduces confounding.
The aim was to identify patient-specific and radiographic predictive factors for the outcome of bidirectional, arthroscopically assisted stabilization of acute, high-grade ACJ dislocations

Materials & Methods:
For this retrospective bicentric case series, patients that had undergone a bidirectional arthroscopically assisted ACJ stabilization using a modern low-profile suture button device and a tape cerclage for acute (maximum 21 days time-to-surgery interval, TTS), high-grade ACJ dislocations (Rockwood type V) and a minimum follow-up of two years were included. Patient specific and radiographic parameters were assessed and tested in their relationship with the postoperative radiographic outcome, defined as recurrent vertical instability [side-comparative coracoclavicular (CC) distance] (univariate regression, and, if significant, multivariable regression) and recurrent horizontal instability (Dynamic posterior translation, DPT) (multivariable logistic regression: no DPT vs. partial/complete DPT). Next, the association between radiographic results and clinical results was tested (regression analysis, group comparison and frequency analysis).

Results:
Sixty-three male patients (mean age 38.6 ± 10.4 years) with a mean follow-up of 31.6 ± 8.6 months were included.
Recurrent vertical instability (mean side-comparative CC distance: 2.1± 2.5 mm) was associated with three parameters in a univariable model: manual labor ($p=0.032$), longer TTS ($p=0.011$) and no intraoperative overreduction ($p<0.001$). In a multivariable model, only intraoperative overreduction remained significant ($p=0.027$).
There was no DPT in 57% of cases, partial DPT in 35% of cases, and complete DPT in 8% of cases. Intraoperative overreduction was the only factor associated with DPT ($p=0.003$), with an odds ratio of 11.3 (95% confidence interval, 2.2 to 57.4).
Patients reporting pain on the TF had a higher CC difference (4.0 ± 1.9mm vs. 1.8 ± 4.6mm; $p=0.016$). Reported pain was more common in patients with DPT according to the Taft score ($p=0.008$) and ACJ instability score ($p=0.014$).

Discussion:

Using a bidirectional arthroscopically assisted technique, intraoperative overreduction and patient specific factors play a role for the outcome after ACJ stabilization.

Reference:

1. Maziak N, Audige L, Hann C, Minkus M, Scheibel M. Factors Predicting the Outcome After Arthroscopically Assisted Stabilization of Acute High-Grade Acromioclavicular Joint Dislocations. Am J Sports Med. 2019 Sep;47(11):2670-2677. doi: 10.1177/0363546519862850.