Bidirectional arthroscopic-assisted stabilization of acute high-grade AC joint dislocation - Single Low-Profile TightRope vs. Double TightRope

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INTRODUCTION: The optimal stabilization procedure for acute high-grade AC joint dislocations should be constantly improved. Therefore, the aim of this study was to evaluate the clinical and radiological outcome as well as the revision rate of arthroscopic-assisted stabilization of acute high-grade AC joint dislocation using a Single Low-Profile TightRope (LPTR) in comparison to stabilization using a Double TightRope (DTR). To adress horizontal instability an additional percutaneous AC-cerclage was added to both procedures.

METHODS: Male patients with acute high-grade AC joint dislocation (Rockwood type V) were included in this retrospective cohort study. The clinical evaluation included subjective (SSV) and objective (Taft Score; ACJI Score) shoulder-specific scores. Radiological evaluation of CC-distance and -difference, ossification status of the CC-ligament structures and osteoarthritis were assessed on bilateral a.p. stress radiographs. Bilateral Alexander views were obtained to evaluate dynamic horizontal instability. The revision rate due to implant conflict was reported.

RESULTS: After a mean FU of 34 months, 28 patients [mean age 36.9 years (22-54)] were included in the LPTR cohort and 28 patients [mean age 36.4 years (22-55)] in the DTR cohort. The mean timing of surgery was 7.6 days after trauma. The LPTR group achieved significantly higher patient satisfaction (SSV) than the DTR group (93.2% vs. 81.9%; $p<0.005$). The Taft (10.3 vs. 10.6; $p=0.682$) and ACJI score (81.6 vs. 87.0; $p=0.204$) had no significant differences. A significant reduction of the mean CC-difference from pre- to postoperative assessment was reported in both groups (LPTR: 12.2 to 2.6mm; $p<0.001$; DTR: 11.7 to 2.5mm; $p<0.001$). At the final FU no significant difference was found in comparison of the two groups ($p=0.562$). A horizontal stable situation was achieved in 71.4% of the DTR group and in 67.9% of the LPTR group ($p=0.303$). No significant differences were observed in comparison of osteoarthritic joint conditions (28.6% vs. 14.3%; $p=0.262$) and the ossification status (92.9% vs. 85.71%; $p=0.065$). The overall revision rate was 7% in the DTR group and 0% in the LPTR group.

DISCUSSION AND CONCLUSION:

Bidirectional arthroscopic-assisted stabilization of acute AC joint dislocations shows predominantly good to very good clinical and radiological results in both groups. The overall revision rate due to implant conflict was lower in the LPTR group. High rates of implant irritation are frequently observed after treatment with Endobutton/TightRope. The significantly higher SSV score in favor of the LPTR cohort and the lower revision rate due to implant conflict suggest less hardware irritation due to the knotless Low Profile TightRope device. Based on these results and the easier implementation, the LPTR technique is preferable.