

**Clavicular tunnel widening after acromioclavicular joint reconstruction:
comparison between single and double clavicular techniques.**

ABSTRACT

Introduction:

Acromioclavicular joint (ACJ) reconstruction using artificial ligaments is a common surgical treatment for Rockwood grade III or higher injuries. These techniques use bone tunnels in the clavicle and coracoid to insert the Tightrope implants.

Materials and Methods:

This multicenter retrospective study compares long term radiographic follow up of clavicular tunnel widening in two groups of patients with high-grade ACJ injury who underwent reconstruction using two different surgical techniques. The first group of 23 patients underwent an arthroscopic single clavicular tunnel ACJ reconstruction. The second group of 23 patients underwent an open double clavicular tunnel reconstruction. Inclusion criteria are Rockwood grade III or higher injury and minimum 18 months of follow-up. Exclusion criteria are distal clavicle fracture and additional stabilization techniques. Radiographic results were measured on anteroposterior shoulder radiographs taken at the first and last follow-up.

Results:

Clavicular tunnel widening is the main outcome measurement. Secondary outcomes are heterotopic ligament calcifications, migration of buttons, tunnel fracture and loss of acromioclavicular reduction. The mean clavicular tunnel widening in the single clavicular tunnel technique is 1.91 mm. In the double clavicular tunnel technique, the widening of the medial tunnel is 2.52 mm and 3.59 mm in the lateral tunnel. The difference in widening between the single tunnel and the lateral tunnel is significant ($p=0.003$). A very clear observation on all follow-up X-rays was a reorientation of the clavicular tunnels towards the coracoid.

Conclusion:

The double clavicular tunnel technique has more tunnel widening in both tunnels compared to the single bundle technique.

Key words: Trauma, Shoulder, Acromioclavicular Joint, Tunnel widening, Surgical Treatment