

Acromioclavicular and Coracoclavicular Ligament Reconstruction by Endobutton: A Surgical Technique

*Gregoire Thuerig, MD; Nermine Habib, MD; Paolo Fornaciari, MD; Mauro Maniglio, MD;
Moritz Tannast, MD; Philippe Vial, MD
University of Fribourg, Fribourg, Switzerland*

Purpose: Acromioclavicular (AC) joint reconstruction is a frequently performed procedure. Recent scientific interest has led to a drive to develop surgical techniques that more reliably restore horizontal stability. Many of these techniques were associated with high failure rates. We have therefore adopted a modified surgical technique. We questioned: (1) efficacy of the reconstruction; (2) clinical function in terms of the American Shoulder and Elbow Society Score (ASES), Oxford Shoulder Score (OSS), and visual analogue scale (VAS), and (4) return to work.

Methods: This was a retrospective analysis of patients with acute AC dislocation (Rockwood type III-V) from 2015 to 2019. 19 patients, with an average age of 41 years, had a clinical and/or radiological average follow-up of 20 months. This technique consists of drilling a 2.5-mm coracoid tunnel in a 30° angle from posterosuperior to anterolaterally with a 20° medial tilt, which is then widened by a 3.5-mm drill. The coracoid button is mounted with 2 FiberTapes and passed through the tunnel. Three clavicular tunnels are done using a 2.5-mm drill: two posterior tunnels and one anterior tunnel. The posterolateral (PL) and posteromedial (PM) tunnels are drilled from posterosuperior to anteroinferior in a 20° angle, and the anterolateral (AL) tunnel is created from anterosuperior to posteroinferior in a 0° to 5° angle. The PL tunnel is then overdrilled using a 3.5-mm drill. One FiberTape is passed through the PM and PL and the other FiberTape through the PL from inferior to superior and then through the AL from superior to inferior.

Results: The difference in coracoclavicular (CC) distance was significant between the preoperative and postoperative radiographs (17.2 vs 7.6 mm; $U = 7.000$, $P < 0.0001$) respective to the last made conventional radiographs (17.2 vs 9.9 mm; $U = 40.500$, $P < 0.0001$). In the most recent conventional radiographs, the CC distance had increased significantly to 9.9 mm (± 3.64 ; $U = 77.000$, $P = 0.002$) compared to the postoperative control. The clinical function was restored in all of the patients, with a median ASES of 98.3, OSS of 48, and VAS 0. At 6 weeks, 41.2% of the patients returned to work. At 12 weeks, a total of 78.9% of the patients had returned to their previous jobs, and at 20 weeks, all of the patients were back to work. Three patients showed a secondary displacement > 5 mm, of whom 2 patients were treated conservatively due to clinical stability in asymptomatic patients. The third patient showed persistent anteroposterior instability, and a secondary reconstruction was done using a palmaris longus graft.

Conclusion: The study describes a surgical open technique for a three-point anatomical reconstruction of the CC ligaments. All patients could regain their professional activity in a timely manner. It has shown promising clinical results and potential benefits. However, long-term studies are needed to show socioeconomic and clinical benefits.