



Primary Fixation of Acromioclavicular Joint Disruption [☆]

Sepp Braun, MD, Andreas B. Imhoff, MD, and Frank Martetschlaeger, MD

Acromioclavicular (AC) joint separations are frequently seen injuries and may lead to severe impairment of shoulder function. Numerous treatment options have been proposed in the literature. Although low-grade injuries (types I and II) should be initially managed nonsurgically, surgical management is typically recommended for high-grade lesions (types IV through VI). Surgery is suggested for type III lesions in heavy laborers or high-level athletes. Owing to the relatively high complication rates of modern anatomical double-tunnel AC reconstruction techniques, the authors present a preferred single-tunnel technique with additional AC joint suture cord cerclage for improved horizontal stability. This technique allows the combination of small drill hole diameter with ultra-high-strength suture tape material and large cortical fixation buttons.

Oper Tech Sports Med 22:221-226 © 2014 Published by Elsevier Inc.

KEYWORDS acromioclavicular instability, AC joint, AC joint reconstruction

Introduction

Approximately 12% of all acute shoulder injuries affect the acromioclavicular (AC) joint. Particularly in young and active men, even higher incidences can be found.¹ Participation in high-impact sports, such as soccer, American football, rugby, also skiing, snowboarding, and road or mountain biking frequently leads to this injury of the shoulder girdle owing to a direct blow to the shoulder with the arm adducted.

Appreciation of the anatomical structures that provide the AC joints stability is vital for successful and sustainable treatment. There are 2 ligamentous main structures that stabilize the AC joint in vertical and horizontal directions. The coracoclavicular (CC) ligaments primarily prevent the lateral clavicle from dislocating superiorly, whereas the AC ligaments mainly contribute to horizontal stability of the AC joint. The native joint allows motion of the lateral clavicle of up to 4-6 mm superiorly and rotation with moving up the arm of

up to almost 10°.² The anteromedially located conoid and the posterolateral trapezoid ligament build the CC ligament complex, spanning from the clavicle to the knuckle of the coracoid process. Anatomical and biomechanical studies showed that the conoid ligament is the primary restraint to superior displacement and rotation of the clavicle.^{2,3} The superior and posterior portions of the AC ligaments mainly stabilize posterior translation.³ Reconstruction for separations of the AC joint should restore both superior and horizontal stability for favorable outcomes.

Classification

The Rockwood classification of AC joint separations is internationally used and widely accepted. It is based on the acknowledgment of the anatomical structures, the injury mechanisms and clinical observations. Type VI injuries are typically not seen in clinical routine (Fig. 1).

The classification considers exclusively x-ray studies for grading the injury in types I-VI. However, there is a lively discussion on how to accurately distinguish Rockwood type III from type IV injuries. For this reason, most surgeons presently include clinical examination and dynamic instability of the distal clavicle and special x-ray imaging in their decision-making algorithm.

Department for Orthopaedic Sportsmedicine, Technical University of Munich, Munich, Germany.

*Conflict of Interest: All authors (S.B., A.B.I., and F.M.) receive financial and material research support from Arthrex Inc, Karlsfeld, Germany; A.B.I. S.B. are consultants to Arthrex Inc, Karlsfeld, Germany.

Address reprint requests to Sepp Braun, Abt. für Sportorthopädie, Technische Universität München, Klinikum rechts der Isar, Ismaninger Str. 22, 81675 München, Germany. E-mail: sebra16@mac.com

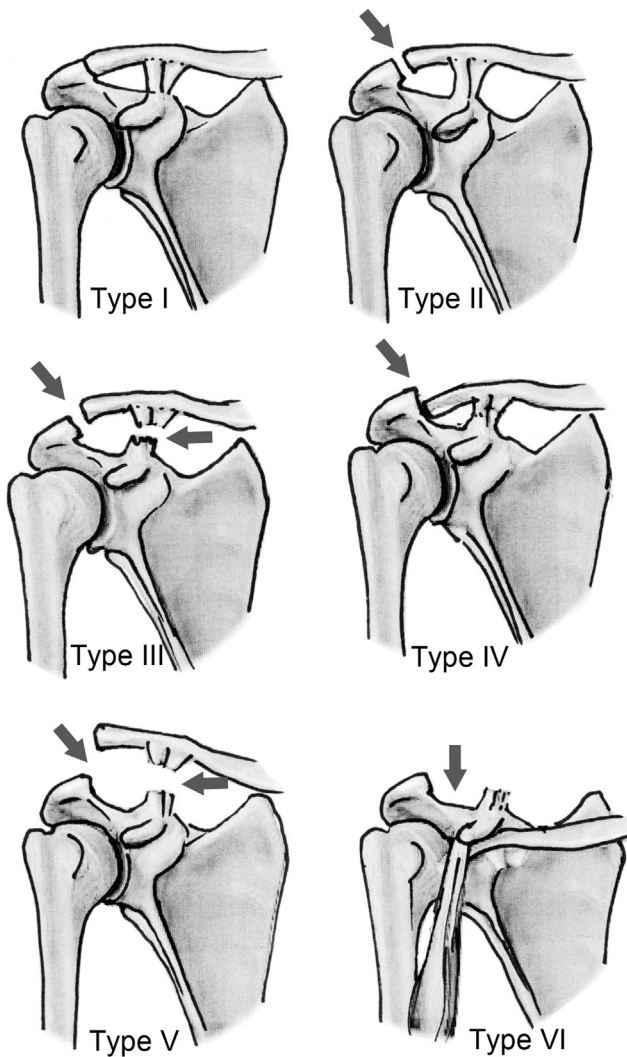


Figure 1 Rockwood's classification of AC joint separations based on radiographic findings.

Diagnosis

Clinical Examination and Symptoms

In almost all cases, the patient complains about acute shoulder pain with a history of trauma. This trauma typically is described as a direct blow to the lateral aspect of the shoulder. The pain usually is indicated right at the AC joint, and sometimes it is reported to radiate to the neck.^{4,5}

Inspection of the acutely injured shoulder girdle frequently unveils skin abrasions and a visible prominence of the distal clavicle that results from inferior displacement of the scapula. Tenderness to palpation is found in the acute setting. The direction of instability can be evaluated clinically with attention to posterior displacement and if the AC joint is reducible. Pain frequently limits range of motion.⁶⁻⁹ Anterior-superior shoulder pain may be localized with clinical tests for the AC joint pathology (eg, O'Brien and cross-body), which are particularly helpful for detecting low-grade injuries (types I and II) without palpable deformity.^{1,5}

High-grade AC separations (types III-VI) frequently occur with concomitant intra-articular injuries. Therefore, a thorough examination and review of magnetic resonance imaging scans is needed.⁸ In carefully selected cases, an AC joint injection with lidocaine may be helpful in discriminating AC joint pain from other pathologies causing anterior or superior shoulder pain.

Imaging

Standard imaging series for accurate diagnosis of acute AC injuries include plain x-ray, with anteroposterior (AP) view, Y view, axial view, and Alexander or Zanca studies (Fig. 2). The AP view allows the surgeon to identify vertical displacement of the distal clavicle, whereas the Alexander view clearly visualizes displacement in posterior direction as the arm is put in flexion

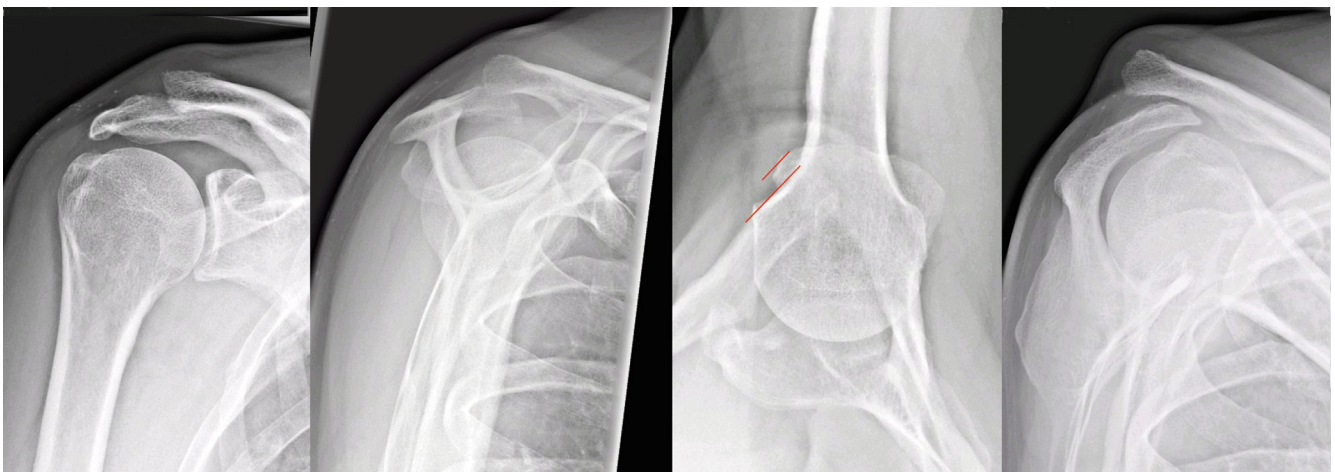


Figure 2 Radiographic studies of an acute AC joint injury. From left to right, the images show a true AP and Y view without significant dislocation of the distal clavicle. The axial view shows a minimal posterior displacement of the clavicle (marked with red lines). In the very right image, the Alexander view visualizes the posterior instability of the distal clavicle as the arm is adducted. (Color version of figure is available online.)

Download English Version:

<https://daneshyari.com/en/article/4079600>

Download Persian Version:

<https://daneshyari.com/article/4079600>

[Daneshyari.com](https://daneshyari.com)