Arch Orthop Trauma Surg (1986) 104:371–373

Archives of Orthopaedic and Traumatic Surgery

The Operative Treatment of Fresh Ruptures of the Acromioclavicular Joint (Tossy III)

U. Heitemeyer, G. Hierholzer, G. Schneppendahl, and J. Haines

Berufsgenossenschaftliche Unfallklinik Duisburg-Buchholz (Director: Prof. Dr. G. Hierholzer), Großenbaumer Allee 250, D-4100 Duisburg-Buchholz, Federal Republic of Germany

Summary. We give a preliminary report of ten patients with fresh dislocations of the acromioclavicular joint (Tossy III). All ten were operated with suture of the torn ligaments and indirect fixation of the acromioclavicular joint with a monocerclage wire passed around the coracoid process and the clavicle. Removal of metal was done 8 weeks later. None of the wires broke, and there were no problems with wound healing. Control X-rays under stress revealed stable acromioclavicular joints in all cases.

In a Tossy III traumatic dislocation of the acromioclavicular joint, the acromioclavicular and coracoclavicular ligaments were completely torn, making the joint unstable.

The aims of treatment are painless loading capacity of the shoulder girdle combined with congruity in the acromioclavicular joint. Conservative treatment does not give satisfactory results [3]. A freshly ruptured acromioclavicular joint (Tossy III) is today undoubtedly an indication for operative treatment. The high rate of complications reported for the various recommended operative methods [1] give reason for further clinical investigation to find the optimal operative policy.

Material and Methods

From October 1984 to March 1985 ten freshly dislocated acromioclavicular joints (Tossy III) were operated on at the Accident Clinic, Duisburg-Buchholz. The operations were performed 1–7 days after injury.

Offprint requests to: U. Heitemeyer (address above)

Operative Procedure

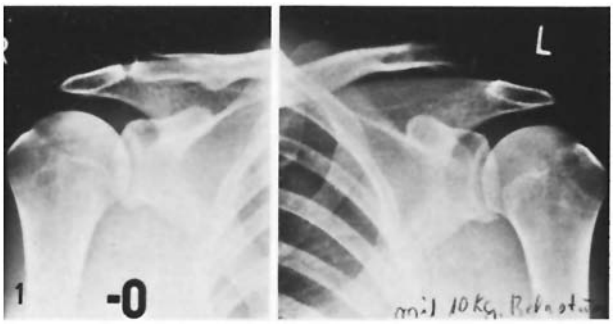
The skin incision is made below the lateral third of the clavicle. Sutures are first inserted into the ruptured coracoclavicular ligaments but left untied. A 1.2-mm cerclage wire is passed around the coracoid process and the clavicle. The passage of the wire corresponds to the anatomical course of the coracoclavicular ligament. The displaced acromioclavicular joint is now reduced anatomically and held by twisting of the cerclage wire. The previously placed sutures are tied, after which the torn acromioclavicular ligament is sutured. A severely damaged articular disc should be removed. Postoperative immobilizing dressings are not applied. On the third postoperative day swinging exercises are begun. After wound healing, elevation of the arm up to 90° is permitted. In all ten patients the metal was removed after 8 weeks.

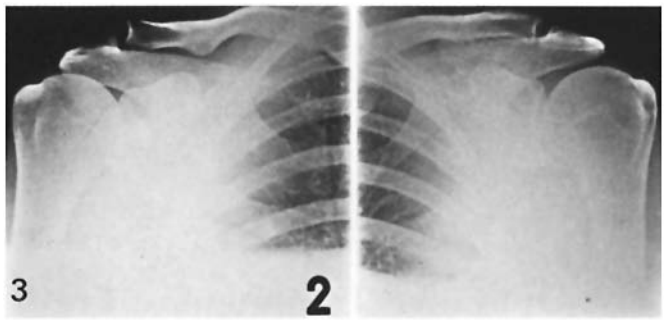
Results

The wounds healed primarily in all ten patients. None of the wires broke. After the wires had been removed and the wounds had healed, a panorama X-ray of the shoulder girdle was performed, with 7.5 kg stress of each arm. This revealed a stable acromioclavicular joint on both sides in all ten cases. In seven cases the adjacent shoulder joint moved freely without pain (Figs. 1–4); three patients showed slightly restricted movement of the shoulder joint.

Discussion

Fresh dislocation of the acromioclavicular joint (Tossy III) is an indication for operative treatment. The operation includes reconstruction of the torn ligaments and a temporary fixation of the reduced dislocated acromioclavicular joint to relieve the sutured ligaments. Several methods to temporarily





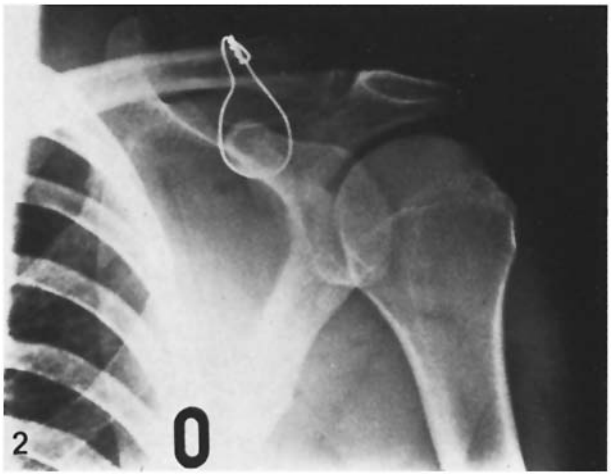
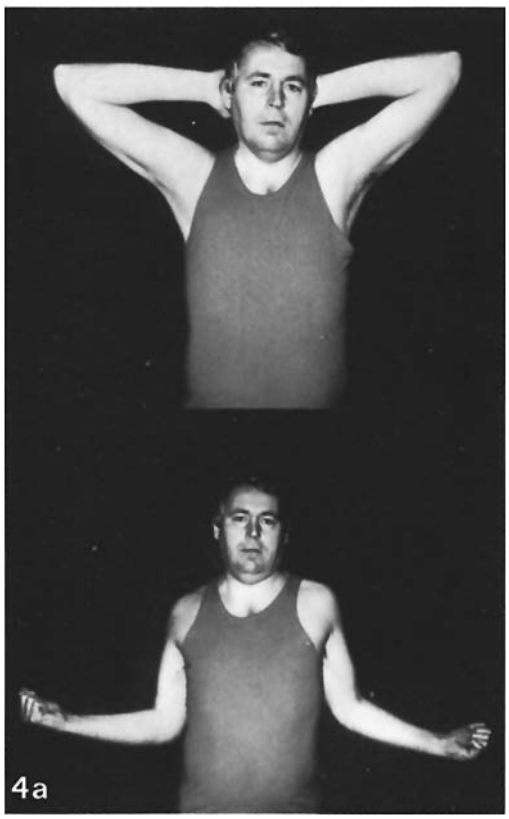


Fig. 1. Fresh dislocation of the acromioclavicular joint (Tossy III)

Fig. 2. Situation after operative treatment

Fig. 3. Situation after removal of metal, X-ray with stress



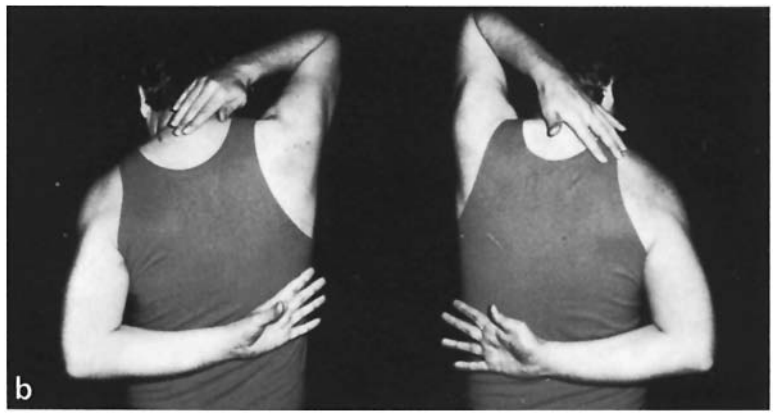


Fig. 4. a, b. Functional result

stabilize the acromioclavicular joint are recommended [1]. The most commonly used technique is the direct fixation of the acromioclavicular joint with K-wires and cerclage [2]. This technique is ambitious: the rate of technical errors is high, and the incidence of delayed wound healing is also considerable [4]. Furthermore torsion and bending forces acting on the acromioclavicular joint can cause the metal to break. However, a cerclage placed around the clavicle and the coracoid process, following the antomical course of the coracoclavicular ligament, will only be loaded with tension forces that are not biomechanical disadvantage [5]. Our preliminary clinical investigations indicate that the indirect fixation of the acromioclavicular joint with a monocerclage wire is adequate, and that in combination with suture of the ruptured ligaments it will give a stable acromioclavicular joint after 8 weeks. This technique is easy to perform and has few complications. However, a final judgement will have to await long-term results.

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