



ELSEVIER

ORIGINAL ARTICLE

Extensive soft tissue lesions in redislocated after simple elbow dislocations

Lars E. Adolfsson, MD^{a,b}, Jens O. Nestorson, MD^{a,b}, Johan H. Scheer, MD, PhD^{a,b,*}

^aDepartment of Orthopedic Surgery, Linköping University, Linköping, Sweden

^bDepartment of Medical and Health Sciences, Linköping University, Linköping, Sweden

Background: The majority of simple elbow dislocations (no associated fractures) can be treated nonoperatively with a short period of immobilization followed by guided aftercare. This case series describes the soft tissue injuries in a rare subset of patients in whom the elbow redislocated despite adequate immobilization.

Methods: During a 6-year period, 8 patients were identified. They were all treated with reduction and casting in 90° of flexion or more. At 1 week of follow-up, redislocation had occurred in all patients and open soft tissue repair was performed. The injuries were documented and the patients were followed up clinically and with radiographs.

Results: Extensive soft tissue injuries, including both collateral ligament injuries and muscle origin avulsions from either or both sides, were found in all patients. The functional result at follow-up was satisfactory in all patients.

Conclusion: Vast soft tissue injuries including both collateral ligaments and muscle origins should be expected in the event of early severe instability of a dislocated elbow joint.

Level of evidence: Level IV; Case Series; Treatment Study

© 2017 Journal of Shoulder and Elbow Surgery Board of Trustees. All rights reserved.

Keywords: Simple elbow dislocation; medial ulnar collateral ligament; lateral ulnar collateral ligament; elbow surgery; redislocation; common extensor origin; common flexor origin

The vast majority of simple posterior elbow dislocations (no associated fractures) in adults can be treated nonoperatively,^{5,7,10} usually with a short period of immobilization followed by guided functional aftercare.^{2,19} There are, however, patients in whom the elbow is grossly unstable following reduction, despite the absence of significant skeletal injury. In this situation, immobilization in more than 100° of flexion combined with pronation of the forearm has been recommended,

based on the assumption that this should tighten the soft tissues enough to allow the joint to be kept reduced in a splint.¹³

Although rare, chronic instability can develop after a simple elbow dislocation.¹ Whether this can be prevented by early repair has not been demonstrated, and no factors predicting the risk of long-term instability, to our knowledge, have been described.²² Post-reduction ulnohumeral joint space widening—the drop sign—is probably benign and related to delayed return of muscle tone¹⁷ and is not an absolute indication for surgical intervention. We have found that in patients with a simple dislocation of the elbow that redislocated during immobilization in a splint, the soft tissue lesion was so extensive that incomplete healing and residual chronic instability or even chronic dislocation appeared likely.

The regional board for medical ethics approved this study (Dnr 2010/171-31). The patients presented in this article constitute a subgroup of patients examined for elbow function after surgery to treat elbow trauma.

*Reprint requests: Johan H. Scheer, MD, PhD, Department of Orthopedic Surgery, Linköping University Hospital, SE-581 85 Linköping, Sweden.

E-mail address: johan.scheer@regionostergotland.se (J.H. Scheer).

The purpose of this retrospective study was to describe the characteristics of the patients, soft tissue injuries, and results of early repair in a series of patients who had a redislocation of the elbow within a week of the primary closed reduction despite immobilization in a cast.

Methods

During a 6-year period, 8 patients (7 women and 1 man), with a median age of 54 years (range, 30-86 years), were treated with closed reduction and immobilization in a plaster splint for a simple elbow dislocation. Of the dislocations, 4 were posterolateral and 4 were posteromedial (Figs. 1, 2). Two women, aged 31 and 44 years, had fallen from horseback, indicating trauma with relatively high energy. The remaining 6 patients all had fallen in the same plane on an outstretched arm. In 2 patients, the radiographs revealed small bony fragments at the medial aspect of the joint, presumably avulsions from the tip of the medial epicondyle, but no other fractures were found in any of the patients.

The attending emergency department physicians commented on the elbows being severely unstable during reduction, and according to protocol, the elbows were all immobilized in 90° of flexion or more in a dorsal plaster slab from the axilla to the metacarpophalangeal joints. Immediate post-reduction radiographs all showed

reduced joints, but in 4 of 8 patients, the drop sign was noted on the lateral projection. At first follow-up with control radiographs after 5 to 7 days, all elbows had redislocated in the plaster. All patients were operated on within 12 days of the initial trauma.

Surgical technique

Surgery was undertaken with patients under general anesthesia. In 7 of 8 patients, a posterior incision, slightly laterally curved around the olecranon, was used. The incision was sharply continued down to the fascia, and flaps of skin and subcutaneous tissue were raised, exposing the medial and lateral condylar regions. The ulnar nerve was identified, decompressed under the proximal edge of the flexor carpi ulnaris muscle, and protected during the procedure. In 1 patient, it was assumed that the main injury was lateral, and only a lateral incision to expose the lateral condyle was used.

Soft tissue avulsions diagnosed on either or both sides of the joint were repaired using osteosutures, through two or three 2-mm drill holes, taken out and tied on the proximal aspect of the respective epicondyle or in combination with suture anchors. The collateral ligament complexes were attached first, using nonresorbable No. 2 sutures in 7 cases or suture anchors in 1, followed by repair of the muscular origins with No. 1 resorbable sutures. The repairs were protected by immobilization in a posterior plaster slab in 70° to 80° of flexion for 3 weeks. After removal of the sutures and splint, active exercises were begun and full weight bearing was allowed 6 weeks after the operation.

Results

All patients with bilateral exposure had extensive soft tissue avulsions from one or both epicondyles including both ligaments and muscle origins. The findings are listed in Table I. The patients with posteromedial dislocations all had severe soft tissue avulsions from the lateral condyle including the collateral ligament complex, the common extensor origin, and parts of the extensor carpi radialis longus; in 3 of 4 patients, the anconeus muscle was also involved. In addition, 2 patients had a subtotal rupture of the flexor muscle origin on the medial side. Three patients with posterolateral dislocations in whom the medial side was explored had avulsions of the medial collateral ligament complex and two-thirds of the flexor origin from the medial epicondyle. In the one patient with a posterolateral dislocation in whom only a lateral incision was used, the entire extensor origin and collateral ligament were found detached from the lateral epicondyle. Figure 3 shows the bilateral lesions in patient 5. In common flexor origin lesions, the ulnar head of the flexor carpi ulnaris muscle and most of the pronator teres remained intact whereas the rest of the musculature was ruptured and displaced 2 to 3 cm distally.

At follow-up by the operating surgeon 6 to 14 months after surgery, all elbows were clinically and subjectively stable and pain free. Questions regarding symptoms possibly indicating instability (eg, ulnar nerve symptoms, catching, or giving way) were asked, and examination of laxity was performed according to the method of Morrey and An¹² but with the



Figure 1 Posterolateral dislocation in case 5.

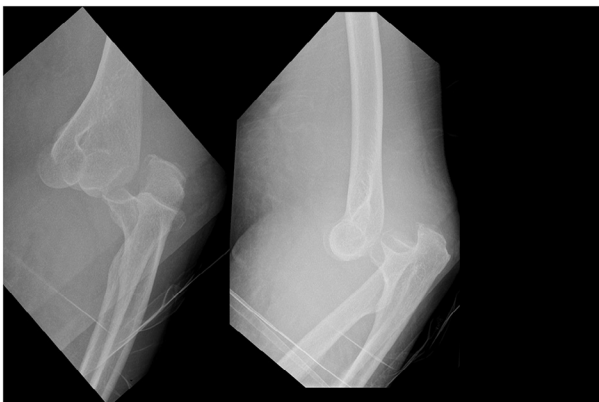


Figure 2 Posteromedial dislocation in case 6.

Download English Version:

<https://daneshyari.com/en/article/5710193>

Download Persian Version:

<https://daneshyari.com/article/5710193>

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