

Bilateral Elbow Dislocation Without Fracture After Minor Trauma in a Healthy Adult Man

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Abstract

The elbow is the second most frequently dislocated major joint in adults. Elbow dislocation is a common traumatic injury, occurring in approximately 20% of all joint dislocations. Falling onto an outstretched hand is the most prevalent cause of elbow dislocation. Simultaneous bilateral elbow dislocation is a rare presentation, and reports of similar injuries are very limited. A 21-year-old male patient was brought to the emergency department after landing on both hands with flexed elbows from a height of one meter while doing home decoration work. The posterolateral dislocations were detected in both elbows without a fracture on the plain radiographs. The patient's elbows were reduced under procedural sedation analgesia in the emergency department. The patient's splints were removed in the orthopedics outpatient clinic after a 2-week follow-up, and he had no complications. It should be noted that serious bilateral dislocations can occur even in minor traumas like this. Procedural sedation not only prevents the delay of the procedure and the occurrence of complications, especially during the treatment of such multiple dislocations, but also increases patient comfort.

Keywords: bilateral elbow dislocation, elbow dislocation without fracture, minor trauma, work accident

Introduction

The elbow is the second most frequently dislocated major joint in adults. Elbow dislocation affects 6 out of every 100,000 people in their lifetime (1). Elbow dislocation is a common traumatic injury, occurring in approximately 20% of all joint dislocations (2). Falling onto an outstretched hand is the most prevalent cause of elbow dislocation (3). Posterior or posterolateral dislocations constitute 90% of elbow dislocations (1). Sporting activities account for approximately 40% of all elbow dislocations (4). A study conducted in The United States showed that elbow dislocations were most common in football, wrestling, and basketball for male, while gymnastics and skating were the most common for female (5) with use of the National Electronic Injury Surveillance System (NEISS).

Simultaneous bilateral elbow dislocation is a rare presentation, and reports of similar injuries are very limited. In this article, we presented a case of bilateral elbow dislocation without fracture caused by low-energy trauma at work.

Case Report

A 21-year-old male patient was brought to the emergency department after landing on both hands with flexed elbows from a height of one meter while doing home decoration work. The patient complained of pain in both elbows and limitation of joint movements. The patient had no history of dislocation or joint laxity and no known chronic medical disease. The patient's clinical examination showed swelling in both elbows, tenderness on palpation, deformity, and severe limitation in joint range. The bilateral radial pulse was clear and equal. While the patient had no neurological deficit in the right upper extremity, there was a slight decrease in sensation in the fifth finger in the left upper extremity in accordance with the distribution of the ulnar nerve. Other systemic examinations revealed no other pathological findings. The posterolateral dislocations were detected in both elbows without a fracture on the plain radiographs of the patient (figure 1).

Firstly, procedural sedation analgesia (75 mcg of fentanyl followed by 40 mg of propofol) was administered. After the patient was relaxed and sedated, the following

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Figure 1. Radiograph of both elbows of the patient before reduction (bilateral posterolateral dislocation)

steps were followed to maneuver with the emergency and orthopedic physician: The patient's elbow was brought to traction, slightly rotated, and closed reduction was completed by flexing it after a gentle manipulation. Then, both elbows were stabilized with a splint at 90 degrees of flexion. The patient was re-applied to radiography, and the reduction was found to be successful (figure 2). Moreover,



Figure 2. Radiograph of both elbows of the patient after reduction (successful reduction)

joint computed tomography (CT) was performed to evaluate for intra-articular or minor nondisplaced fracture, and no fracture was observed. After the patient had been observed in the emergency department for a while and had recovered from the sedation effect, a control examination was performed, and no neurovascular deficit was found. The patient was discharged with recommendations for elevation, cold application, analgesic, and orthopedic outpatient control, since his general condition was good and he had no fractures. The patient's splints were removed in the orthopedics outpatient clinic after a 2-week follow-up, and he had no complications.

Discussion

Elbow dislocations can be classified as simple or complex. A simple dislocation involves injury to the capsular or ligamentous structures only. A complex dislocation involves fractures of the surrounding bone structure. These fractures usually occur in the radial head, coronoid process, olecranon, distal humerus, and medial or lateral epicondyle of the humerus (6). Although there was bilateral elbow dislocation in our case, there was no displaced or nondisplaced fracture. During an elbow dislocation, soft-tissue structures can also be harmed. Soft tissue deterioration that starts laterally and progresses anteriorly and posteriorly to the medial side with increasing degrees of subluxation is known as the "circle of Horii" (7) "mendeley": {"formattedCitation": "(7)."

Cases of bilateral elbow dislocation have more powerful energy mechanisms than cases of unilateral elbow dislocation (8). Mechanisms such as falling off a cross-country bike, falling from a broken ladder, and sports injuries have been documented in the literature (9). A gymnast with hyperlaxity is also among the reported cases (10). Furthermore, the mechanism in our case is not falling on an outstretched hand, unlike most elbow dislocations, but falling forward while both elbows are flexed. Consequently, our patient is a rare case in terms of both low energy and mechanism.

The second-decade group is responsible for approximately half (43.5%) of elbow dislocations. Dislocations are also more common in males than in females (3). In this regard, our case is consistent with the literature.

Closed reduction is usually the first line of treatment and is generally performed in the emergency department. Intravenous sedation is generally recommended in the emergency department for adequate relaxation during reduction. Sedation has been shown to reduce the length of stay in the emergency department and improve patient satisfaction (3). Re-evaluation of the neurovascular system is advised to ensure that the reduction has not resulted in any arterial or nerve damage (6).

Patients could continue nonsurgical treatment after adequate reduction with a stable joint, usually with a

posterior long-arm splint at 90 degrees of flexion. After two weeks, if the joint is stable, the splint can be removed, and physical therapy is initiated using range-of-motion exercises to prevent loss of terminal extension (3). It is often beneficial to begin a supervised range of motion in order to avoid prolonged immobilization (1).

Conclusion

In the medical literature, bilateral elbow dislocation is a rare condition. This case is even rarer due to the mechanism of occurrence. Emergency department physicians must be experienced in the management of elbow dislocations. It should be noted that serious bilateral dislocations can occur even in minor traumas like this. In addition, procedural sedation not only prevents procedure delays and complications, especially when treating multiple dislocations, but it also improves patient comfort.

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