

## Case Report

# Unusual Combination of Postero-Lateral Elbow Dislocation and Ipsilateral Diaphyseal Radial Fracture: A Case Report and Review of Literature

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## Abstract

The combination of a radial diaphysis fracture and ipsilateral elbow dislocation is a rare lesion. Only a few similar cases have been reported in the literature.

Such injuries need a concentric reduction of the dislocation and an anatomical fixation of the radius for optimal functional outcomes.

The radial fracture and ipsilateral dislocation of the elbow were probably caused by forearm hypersupination with extension of the elbow.

Closed reduction of the elbow and operative stabilization of radial fracture were done with good clinical, radiological and functional outcomes in 8 months follow-up period.

We discuss through a clinical case of a radial shaft fracture unusually associated with postero-lateral elbow dislocation and through a review of the literature the clinical aspects, the mechanism, treatment and the evolving profile of this particular lesion.

**Keywords:** Elbow dislocation; Radial fracture; Ipsilateral

## Introduction

Fracture of the radial shaft is a frequent entity, it may be isolated or associated with fracture of the ulna or a dislocation of the distal radio-ulnar joint. The combination of a radial diaphysis fracture and ipsilateral elbow dislocation is a rare lesion, only a few similar cases have been reported [1,2].

The aim of our work is to discuss in the light of a clinical case of a fracture of the radial shaft associated with ipsilateral elbow dislocation and through a literature review the mechanism of this infrequent association, its therapeutic modalities and its evolving profile.

## Case Presentation

A 36-year-old-man presented to our emergency department after falling down and landing on his outstretched right hand. The patient complained about acute pain and inability to use his right upper member. The right elbow and forearm were grossly deformed.

Clinical examination showed a deformation of both elbow and ipsilateral forearm and did not reveal any open wound or neurovascular abnormality.

Plain radiographs showed a postero-lateral elbow dislocation with an ipsilateral oblique shaft radial fracture, without distal radio-ulnar dislocation (Figure 1).

Under general anaesthesia, a closed reduction of the elbow dislocation was performed, followed by open reduction and internal fixation of the radius shaft fracture, using a compression plate (Figure 2). The elbow was stable after reduction. Postoperatively, the patient



**Figure 1:** Plain radiographs showing a postero-lateral elbow dislocation associated with ipsilateral fracture of radial diaphysis.

was put in an above- elbow cast at 90 degrees of flexion, with the forearm in neutral position for two weeks. This was followed by physiotherapy.

At 8 months, the patient had regained full active range of motion of elbow, forearm and hand. Plain radiographs showed solid union at the radius.



**Figure 2:** Plain radiograph showing internal fixation of the radial fracture with a compression plate.

## Discussion

Simple elbow dislocation refers to those elbow dislocations that do not involve an osseous injury. A complex elbow dislocation refers to an elbow that has dislocated with an osseous injury. Osseous injuries associated with elbow dislocation commonly involve the radial head, the olecranon, and the coronoid process [3].

The classic mechanism for simple elbow dislocation is a fall on an outstretched arm. The classic mechanism proposed for a typical posterolateral elbow dislocation is an elbow that has been loaded axially in a valgus position with the forearm supinated [4]. In the case of the association with a forearm bone fracture, it is believed that the most probable sequence of injury would be axial loading on the radius with hypersupination, leading first to a proximal radio-ulnar dislocation followed by dislocation of the humero-ulnar joint with fracture of one or two bones of the forearm [1,5].

We believe that the sequence of events leading to the pattern of injury seen in our case might have been in the following order: dislocation of the extended elbow followed by a fracture of the radius shaft resulting from hyper-pronation and transmission of the force from the wrist towards the shaft with the elbow extended.

In managing such injuries consideration should focus on restoration of joint congruity, skeletal stabilization and ligamentous stabilization.

After an elbow is reduced, the treating clinician must decide if the elbow is stable or unstable. If following the reduction it is believed that the elbow is stable through the reasonable arc of elbow flexion and extension, and the radiographs show a congruent joint, then the patient may be placed in a sling and advanced to an active rehabilitation program after open reduce and fixation of forearm fractures. There is limited research about immediate motion following posterior dislocations of the elbow and this approach requires a very compliant patient [1,6]. A period of immobilization is probably mandatory for soft-tissue healing and to reduce the risk of recurrent elbow instability, with the risk however of elbow stiffness [1].

## Conclusion

The association between an elbow dislocation and a forearm fracture is an infrequent lesion. We have discussed the possible mechanism of injury. After elbow reduction, the forearm bone fractures should be fixed. An immobilization followed by a rehabilitation program is important to obtain solid bone consolidation and full elbow active range of motion.

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