

# Rare Case of Lateral Dislocation of the Elbow without Distinct Radiological Signs

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## Abstract

While the elbow joint dislocation is one of the most common dislocations, lateral dislocation of elbow is so rare. In this study, we described a 65-year-old woman with lateral elbow dislocation referred to Akhtar Hospital. With full range of motion in supination, pronation, and extension, as well as 60° flexion, the most important finding with this case was that the radiographic findings could not help surgeon to diagnose the lateral dislocation. Therefore, CT-scan was performed. After confirmation, closed reduction was done via a standard maneuver. The patient was followed up for 2 weeks and physiotherapy was ordered. According to this case, when there was an elbow trauma with unusual radiograph without any specific finding to confirm the lateral dislocation, it is recommended to perform CT-scan. The closed reduction and following physiotherapy also are essential for management of this condition.

**Keywords:** Elbow joint, lateral dislocation, closed reduction, radiography

## Introduction

After shoulder joint, the elbow joint is a most common joint to dislocate among adults with an incidence of 5 to 6 cases per 100,000 persons per year.<sup>1</sup> These types of dislocations are notably categorized as a simple (without a fracture) or complex (with fracture) injury based on the presence of fracture following injury.<sup>2</sup> Classification of elbow dislocations according to the position of the ulna and radius in association with the humerus include medial, lateral, anterior, posterior and divergent types.<sup>3</sup> Among different types, posterior or posterolateral dislocations with no relevant osseous lesions (~90%) are the most common dislocations of the elbow joint.<sup>4</sup> Simple lateral elbow dislocation is rare and often associated with neurovascular complication with difficulty in performing closed reduction.<sup>5</sup> This case report presents a rare lateral traumatic elbow dislocation with a difficult diagnosis.

## Case Report

A 65-year-old woman after falling down on her left was referred to department of emergency, Akhtar Hospital due to left elbow pain and limitations of joint movements. She felt sudden severe pain on her elbow joint. In the physical exam, the range of motion of supination and pronation were full. Although the normal range of motion in extension movement was seen, the range of motion in flexion was 60°. Clinically, her elbow was deformed. We could not palpate the olecranon in its anatomic location. In the palpation, the olecranon fossa was palpable and it was empty. The radial pulse was detected. In neurological examination, there was no nerve involvement. In the initial paraclinical studies, the lateral (Fig. 1A and 1B) and anteroposterior (Fig. 1C) radiographies were seemed to be normal or there was no evidence to confirm the lateral dislocation.

For more investigations, CT-scan was performed. After confirmation of lateral elbow dislocation, the patient was scheduled for surgery. Under general anesthesia, closed reduction was attempted after providing an informed consent.

Along the deformity of the forearm, one assistant gave a gentle longitudinal traction and counter-traction applied by another assistant by holding the arm. After the first try was unsuccessful, the surgeon was applied a medial force to the forearm and a lateral force to the arm until an audible clunk of reduction was felt by the surgeon after few attempts. The accuracy and concentricity of the reduction was confirmed via an X-ray photograph (Fig. 1D) and CT-Scan was done to be confident about the results (Fig. 2C and 2D). After 2 weeks, physiotherapy was done for patient to regain range of motion.

## Discussion

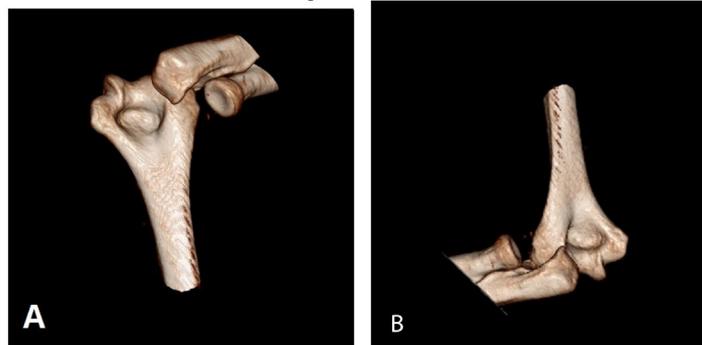
In this case report study, we described an unusual case of lateral dislocation of elbow without nerve involvement. Notably, the normal movements of elbow in supination, pronation, and extension was reported. In radiographic studies, there was no distinct sign to confirm the lateral dislocation. To confirm this type of dislocation, we used CT-scan. As this type of dislocations are rare, the results of this study confirm that some cases with lateral dislocations can be misdiagnosed. In the limited studies, the lateral dislocation of elbow was reported. Recently, a systematic review of the literature showed three cases of lateral dislocation and one case of anterolateral dislocation were reported among 342 patients with dislocated elbows.<sup>6</sup> Linscheid and Wheeler (1965) reported 1 lateral/110 elbow dislocations.<sup>7</sup> Similarly, one case of this injury was reported in 60 elbow dislocation cases by Kini (1940).<sup>8</sup> In some cases, the lateral dislocation is accompanied by involvement of ulnar nerve injury.<sup>9,10</sup>

After diagnosis, patient underwent closed reduction. The reduction of pure lateral elbow dislocation is a difficult procedure due to the high risk of soft tissue damages, such as swelling and soft tissue interposition, such as anconeus and brachialis muscle, and involvement of ulnar nerve, or subsequent fractures.<sup>11</sup> The reduction can be applied via several maneuvers.<sup>12</sup> For example, reduction verified by the image intensifier was suggested to be a reliable technique.<sup>13</sup> In this case, physiotherapy was applied after 2 weeks to allow patient to regain the normal range of motion of the elbow. It was



Fig. 1 Radiographs of the elbow joint for diagnosis of dislocation. (A) & (B) Lateral radiographs and (C) anteroposterior radiograph showed no distinct signs of lateral dislocation of the left elbow, (D) Lateral radiograph of elbow after closed reduction.

### Preprocedure



### Post-procedure



Fig. 2 CT-scan of elbow (A) & (B) before closed reduction, and (C) & (D) after closed reduction.

recommended that immobilization of elbow joint for long time after elbow dislocation or (more than 14 days) can lead to stiffness of joint.<sup>14</sup>

## Conclusion

This report is a rare case of lateral dislocation of the elbow joint with no specific findings to confirm the diagnosis. The results of radiography should be in doubt by surgeon, when

there was a case of elbow trauma with unusual radiographs of elbow. The closed reduction and following physiotherapy had excellent functional outcomes in management of lateral elbow dislocation.

EVs for cartilage repair and experimental OA.

## Conflicts of Interest/Competing Interests

The authors declare that they have no conflicts of interest. ■

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