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Galeazzi Fracture-Dislocation Concomitantly With Radial Head Fracture, A Case Report and Suggest the Mechanism of Production of This Rare Injury

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Abstract

Galeazzi fracture-dislocations and radial head fractures are not exceptional lesions separately. However, the association between those conditions is extremely unusual. This is the second case reported in literature depicting a Galeazzi fracture-dislocation and radial head fracture concomitantly. We present a case and suggest the mechanism of production of this rare injury.

Keywords: Galeazzi fracture; Radial head; Internal fixation

Introduction

The high-energy trauma can cause rare injury. The association described here has been reported only at once time. In this paper we present a case and propose a mechanism of injury that may explain the presence of both fractures.

Case Presentation

We report the case of a 47 years old man who arrived at our emergency room following a motorbike accident complaining about local tenderness and deformity in his right forearm and elbow. No elbow instability was found. Loss of function was presented in his right elbow and wrist as well. No initial neurovascular alterations were found through examination. The patient did not mention any prior medical history.

Plain X-rays were made showing a Mason type II radial head fracture and a Galeazzi type II fracture-dislocation (Figure 1). The patient was admitted to our hospital and open reduction and internal fixation (ORIF) of the radial head were performed through a Kocher approach using two 2.0 mm cortical screws. By a Henry approach, ORIF of the radius fracture were made with a 3.5 mm LC-DCP plate and a Kirschner wire to lock the distal radioulnar joint (Figure 2).

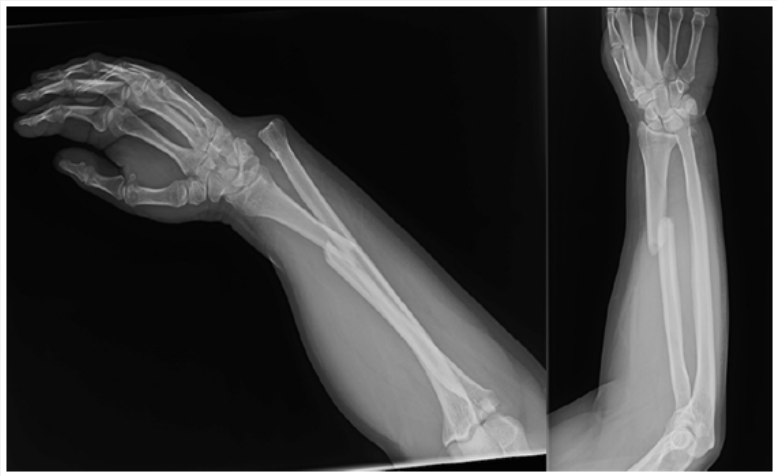

Figure 1: Radiographic exam, showing a type 2 Galeazzi fracture-dislocation and the radial head fracture.

Figure 2: Postoperative radiographic exam.

Results

No instability of the elbow was found after the fixation or of the radioulnar joint. Finally, the extremity was immobilized with a long-arm posterior splint. The splint and wire were removed following 3 weeks and the patient was sent to physiotherapy. After 2 month of the patient recovered a range of motion (ROM) of 55 degrees of forearm pronation-supination and 170-30 degrees of elbow flexoextension (Figure 3). Currently, at 6 month of follow-up, the patient is pain free and carries out his daily living activities.

Figure 3: Range of motion of the patient after 2 months of the surgery.

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Discussion

Galeazzi fracture-dislocation associated to a radial head fracture is an extremely rare injury. Only one case has been reported in literature to our knowledge, describing a man who suffered a height fall and consequently a similar injury to ours, except for a comminuted radial head fracture and a type 1 fracture-dislocation [1]. Thus, ours would be the second lesion reported in literature. Galeazzi fracture-dislocations can be classified in two subtypes of injuries depending on the mechanism: type I fracture, characterized by dorsal displacement of the distal fragment of the radius and volar dislocate of the distal ulna (axial loading of the hypersupinated forearm) and type II fracture which presents volar displacement of the distal radial fragment an a dorsal dislocation of the distal ulna (hyperpronated forearm) [2]. Ours would be a type II Galeazzi fracture-dislocation.

The radial head fracture would be caused by an axial loading over an outstretched wrist, pronated forearm and a valgus force. In this point, if a rotational force is applied which move the arm to a position of supination, a posterolateral rotatory subluxation of the elbow may appear [3]. However, other combinations of Galeazzi fracture-dislocation together with elbow dislocation have been reported [4-9]. In the article published by Asadollahi et al. [10], in which Galeazzi fracture-dislocations concomitantly with elbow dislocations are reported, a mechanism of injury is described. The lesion would be the result of a forceful axial loading of the hyperpronated forearm, a radial shaft failure and consequently the axial loading force would be transmitted only trough the ulna, which finally causes the elbow dislocation. We believe that this could be a logical explanation to the final elbow dislocation in Galeazzi fracture-dislocations.

Our case does not present an elbow dislocation or injury to the ligaments of the elbow because it would be a different mechanism. To assess this issue, we suggest that the lesion would consist of two different consecutive phases. Firstly, based on the mechanism described for the radial head fractures, an axial force is applied with the forearm in hyperpronation, causing the elbow fracture. In this point, there is no rotational force. Hyperpronation position is maintained while still acting the axial load, causing the type 2 Galeazzi fracture-dislocation. The case previously described explained a different mechanism of injury although it was a type 1 fracture-dislocation [1].

Conflict of Interest

None.

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