



Case Report

A SCITECHNOL JOURNAL

Floating Dislocated Elbow in adults: A Case Report

Ricardo Monreal*

Abstract

Floating elbow associated with a dislocation of the ulnohumeral joint or floating dislocated elbow is uncommon in adults. We present a rare case of floating dislocated elbow associated with open radio-ulnar fracture and injury of the radial nerve.

Keywords

Floating elbow; Rehabilitation; Radial nerve; Dislocation; Fracture

Introduction

A characteristic pattern of the elbow injury represented by forearm fracture and ipsilateral humeral supracondylar fracture was reported for the first time by Stanitsky and Micheli [1] in children and named “floating elbow” but in adults is uncommon. When a “floating elbow” is associated with a dislocation of the ulnohumeral joint the term used to describe this lesion is “floating dislocated elbow”

The present article discusses the emergency treatment for the “floating dislocated elbow” associated with open radio-ulnar fracture and injury of the radial nerve.

Case Report

A 24 years old male patient attended at the emergency department after a fall from a height of 4 meters had a severe fracture dislocation of the right elbow associated with an open fracture type III-A [2] of the bones forearm is presented (Figure 1). After the clinical assessment where paresthesia of the right hand and limitation of the finger extension movement were found, radial nerve lesion was suspected. Initial X-rays (Figure 2) showed fracture of the distal humerus, fracture of the midshaft of the forearm bones and posterolateral dislocation of the ulnohumeral joint. The patient underwent surgical debridement and internal fixation with intramedullary Kirschner pins of forearm open fracture. The humerus fracture was stabilized by external fixator and the ulnohumeral joint was relocated in anatomic position (Figure 3). Non-operative wait-and-see policy for the radial nerve deficit was advised.

After surgery a program of rehabilitation including exercises for muscle strengthening, preservation on joint range motion



Figure 1: Exposure of the muscle tendinous and osseous tissue.



Figure 2: Radiography of the patient showed a fracture of the distal extremity of the humerus, and fracture of the radius and ulna with posterolateral dislocation of the elbow.

and neurostimulation of the radial nerve palsy was scheduled. At postoperative day 35 it was found complete and spontaneous reversal of the radial paresis.

Four weeks postoperatively, the first signs of radial nerve function recovery were already observed. The fracture healed was observed at three months postoperatively and at the seventh month of follow-up, the radial motor and sensory deficit had fully recovered, and the normal range motion of the elbow was regained.

*Corresponding author: Ricardo Monreal, MD, Clinicas Maison de Sante, Ave. Chorrillos 171, Chorrillos, Lima, Peru; Tel: +619 6000; E-mail: rmonreal59@yahoo.es

Received: August 23, 2017 Accepted: February 09, 2018 Published: February 16, 2018



Figure 3: Radiological control after reduction and osteosynthesis of the different injuries.

Discussion

Dislocation of the elbow associated with shaft fractures of both bones of the ipsilateral forearm is a rare injury. Goni et al. [3] reported a case of elbow dislocation with fracture of the lateral condyle of the humerus along with fractures of shafts of the radius and ulna in a 44-year-old female treated by closed reduction of the elbow and surgical stabilization of the fractures with good functional outcomes.

Floating elbow is an injury pattern involving a fracture of the humerus and a fracture of both the radius and the ulna in the same extremity which was reported for the first time in children by Stanitsky and Micheli [1] and later, Rogers [4] used the same term for the equivalent injury in adults, which were an ipsilateral diaphyseal humerus, radius and ulnar fracture.

This injury may be associated with an elbow dislocation in patients who sustain high-energy injuries and the spectrum can vary greatly, depending on the force dissipated [5].

Intra-articular fractures and fractures with associated dislocations of the elbow that can functionally act, such as floating elbow, have been described previously and they are called “variants” [4,6,7] therefore there is no exists an universal classification.

When a “floating elbow” is associated with a dislocation of the ulna humeral joint or floating dislocated elbow, De Carli et al. [8] proposed a classification of different variants.

The treatment of these injuries is dictated by the condition of the soft tissues and neurovascular bundle in the affected extremity.

The floating elbow is an infrequent injury, with limited descriptions in the literature relating it to associated injuries, like the case reported herein, which included fracture of the radius, ulna and humerus, as well as injury to the radial nerve and ipsilateral elbow dislocation.

In this reported unusual case of dislocated floating elbow, the patient was properly managed by means external fixation of the humerus fracture, intramedullary Kirschner pins for the forearm bones fracture, and reduction of the dislocated elbow without early surgical exploration of the radial nerve injury.

Humeral shaft fractures even coexist with radial nerve injury are treated mostly conservatively because the nerve usually suffers neuropraxia and function usually returns spontaneously [9-11].

The literature supports the conservative treatment of most closed fractures of the humerus associated with the radial nerve palsy, including Holstein-Lewis fractures [12,13]. The surgery of the radial nerve is thus reserved for cases in which there was no recovery of nerve function after three to four months or even after 6 months.

Conclusion

Floating elbow fracture and its variants are considered severe injuries. Reduction and surgical stabilization of the displaced fractures is the main indication of treatment. Most closed fractures of the humerus associated with radial nerve palsy should be treated conservatively because the nerve usually suffers neuropraxia and function usually returns spontaneously.

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