

ORIGINAL ARTICLE

Elbow dislocation with ipsilateral fracture of the distal radius associated with a brachial artery injury: A new pathological condition of traumatic origin[☆]



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KEYWORDS

Elbow dislocation;
Distal radius fracture;
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Abstract Elbow dislocation associated with ipsilateral fracture of the distal radius and a brachial artery injury is an uncommon traumatic entity. The two references of this injury combination appeared in 2015, although both authors did not realise that they were the first two cases published in the medical literature. Although mentioned in the text of the articles, no mention was made of the fracture of the distal radius in the titles.

The purpose of this paper is to present three cases with this new traumatic pathological entity, explaining its pathogenetic mechanism, the treatment used, and the results obtained.
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PALABRAS CLAVE

Luxación codo;
Fractura extremo
distal radio;
Lesión arteria
braquial

Luxación de codo con fractura ipsilateral del extremo distal del radio asociada a lesión de la arteria braquial. Una nueva entidad patológica de origen traumático

Resumen La luxación de codo asociada a fractura ipsilateral del radio distal y lesión de la arteria braquial constituye una patología traumática infrecuente. Las 2 referencias de esta asociación de lesiones aparecieron en 2015, aunque en ambas, los autores no advirtieron que

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constituían los 2 primeros casos publicados en la literatura médica; incluso en el título de sus artículos, no se hizo mención de la fractura del extremo distal del radio, pero sí en sus textos.

El objeto de este trabajo es dar a conocer 3 casos con esta nueva entidad patológica traumática, explicar su posible mecanismo patogénico, el tratamiento utilizado y los resultados obtenidos.

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Introduction

Elbow dislocation associated with ipsilateral fracture of the distal radius¹⁻⁵ or with a brachial artery injury on the same side⁶⁻⁴⁷ are very rare conditions of traumatic origin, although they are known and reported in the literature. However, elbow dislocation with ipsilateral fracture of the distal radius associated with a brachial artery injury on the same side is a new entity. The only two references of this injury combination appeared in 2015, although both authors did not realise that they were the first two cases to be published in the medical literature. Although mentioned in the text of the articles, no mention was made of the fracture of the distal radius in the titles.^{48,49}

The purpose of this paper is to present three cases with this new traumatic pathological entity, explaining its pathogenetic mechanism, the treatment used, and the outcomes obtained.

Material and method

During the period between January 2007 and December 2015, 3 cases of elbow dislocation with ipsilateral fracture of the distal radius associated with a brachial artery injury on the same side were diagnosed and treated in our Orthopaedic and Trauma Surgery Service, corresponding to 1.8% of all simple and complex elbow dislocations which we have attended to throughout these last 8 years.

Case 1

Male, 36 years of age, who had an accidental fall from a height of 2 metres, supporting the palm of his left hand against the ground. On admittance, a bruised injury was observed at ante-ulnar fossa level from where the distal end of the radius protruded (Fig. 1). The ipsilateral wrist had also been deformed. Physical examination revealed the absence of a radial pulse, but sensitivity had been maintained. An X-ray showed posterior elbow dislocation and a type A2 (AO classification) fracture of the distal radius (Fig. 2). After reduction of dislocation under general anaesthetic, an examination of the vascular injury was made, which showed complete transection of the brachial artery, proximally to its bifurcation into radial and ulnar arteries, respectively. After controlling bleeding, by using vessel loops, the collateral ligaments of the elbow were reinserted and the artery was repaired by means of an autogenous reversed

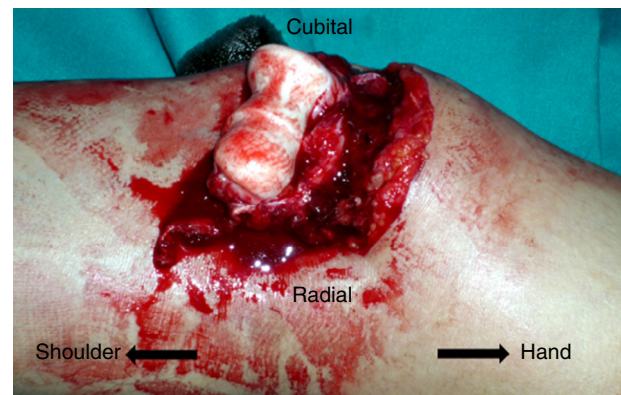


Figure 1 Clinical image of open elbow dislocation. Observe the exposure of the entire humeral palette through the skin.

saphenous vein bypass. Finally, closed fasciotomy of the anterior compartment of the forearm was performed. Given that the elbow had good stability after reduction, it was immobilised with a brachial-ante-brachial dorsal plaster cast. One week later and after confirming correct perfusion of the extremity, with preventative ischaemia, we proceeded to carry out open reduction and internal fixation (ORIF) of the distal radius fracture with volar plating. Two weeks after this secondary surgery the cast was removed and a rehabilitation programme was pursued, assisted by a physiotherapist.

Six months following intervention, the patient was free from pain and had complete movement of elbow and wrist. Two years later, as a consequence of hospital admittance for pneumonia, the extremity was reassessed, confirming excellent clinical evolution, that it was pain free and the patient was able to carry out active unrestricted working and sports activities.

Case 2

Male aged 35 who had suffered an accident at work, with his right forearm being trapped in a roller press. On admittance to the emergencies department his elbow and ipsilateral wrist were severely deformed and he also presented with major inflammation of the forearm. Physical examination revealed the absence of radial and ulnar distal pulses, and hypoesthesia of the thumb and index finger. An X-ray showed the presence of posterior dislocation of the elbow with a Morrey type II coronoid process fracture and a type A2 (AO

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