

Clinical case

Bilateral radiocarpal dislocation with fracture of the radial styloid. A case report

Orozco V,* Orozco A**

Clínica Magisterial Siglo XXI, Caborca Unit

ABSTRACT. Introduction: Radiocarpal dislocation is a rare injury and thus the number of cases described is limited. The course of the injury is favorable when the treatment provided is appropriate. **Clinical case:** A 21 year-old male patient who sustained radiocarpal dislocation and fracture of the radial styloid process in both wrists. He was treated with closed reduction and external fixation. The evaluation at 3 months showed favorable results. **Discussion:** This case is one of the few similar cases reported because it is an uncommon pathology and it is even less frequent because the injury involves both wrists.

Key words: hand, dislocation, fracture, scaphoid bone, radius.

RESUMEN. Introducción: La luxación radiocarpiana es una lesión poco común por lo que los casos descritos son limitados. Por lo general el curso de la lesión con tratamiento adecuado es favorable. **Caso clínico:** Se presenta un paciente masculino de 21 años de edad quien sufre luxación radiocarpiana y fractura de apófisis estiloides radial de ambas muñecas. Se trató con reducción cerrada y fijación externa. La evaluación a 3 meses con resultados favorables. **Discusión:** El presente caso corresponde a uno de los pocos casos reportados similares por ser patología poco común y aún menos frecuente por tratarse de lesión en ambas muñecas.

Palabras clave: mano, dislocación, fractura, hueso escafoides, radio.

Introduction

Radiocarpal dislocations are very rare lesions that represent only 0.2% of all dislocations,¹ with the most common ones in that area being the intercarpal, distal radioulnar, metacarpophalangeal and interphalangeal dislocations. They may occur with or without fractures of the styloid process of the radius and/or ulna and, occasionally, with marginal radius fractures (Barton's fractures). These are usually injuries associated with high impact

trauma in which the patient generally cannot define the exact mechanism of injury.²

Since they are associated with high impact trauma, the few reported cases correspond to male patients,^{3,4} although currently both men and women are subject to the same type of trauma: motor vehicle accidents (MVA).⁵⁻⁷

A literature review was carried out and very scarce information was found on this specific topic. Most commonly, reports referred to radioulnar, intercarpal and other hand injuries.⁸ Also, a review was made of the reported cases, which were very few.^{3-5,9} None of the reported cases involved injury of both wrists.

Level of evidence: V (Act Ortop Mex, 2010)

* Head of Orthopedics, Clínica Magisterial Siglo XXI, Caborca Unit.

** Staff physician, Orthopedics Service, Clínica Magisterial Siglo XXI, Caborca Unit.

Please address all correspondence to:

Víctor Orozco

E-mail: drvictororozco@gmail.com

Clinical case

This is a male, 28 year-old patient, blue collar worker, without any remarkable medical history.

The condition began 2 hours before he was seen for the first time, when he was pushing a car uphill and applied an excessive load to his wrists, which were in extension. He suddenly had deformity of both wrists, severe pain and functional disability, which were the reasons for seeking care.

Este artículo puede ser consultado en versión completa en <http://www.medigraphic.com/actaortopedica>

During the initial physical exam a «dinner fork» deformity was seen in both wrists, increased temperature, color changes of an ischemic type in both hands, severe pain and functional disability.

AP and lateral wrist X-rays of the wrists were taken, which showed dorsal radiocarpal dislocation and fracture of the radial and ulnar styloid process in both wrists (*Figures 1, 2, 3, and 4*).

The patient was rushed to the operating room. Under balanced general anesthesia he underwent traction and counter-traction maneuvers for the closed reduction of both dislocations. The local temperature and color conditions improved and then percutaneous fixation of both radial styloid processes with a Kirschner nail was performed and the wrists

were immobilized with external fixators (*Figures 5, 6, 7, and 8*).

The fixators and the Kirschner nails were removed at 6 weeks (*Figures 9 and 10*). He later began a physical therapy and rehabilitation program to improve the ranges of motion and was assessed at the end of this program.

Twelve weeks after the injury, the patient has full ranges of motion and no pain. He resumed his daily activities without any restrictions.

Discussion

Wrist dislocations are usually defined as those encompassing the intercarpal injuries, given that the radiocarpal



Figure 1. Preoperative anteroposterior X-ray of the right wrist.



Figure 2. Preoperative lateral X-ray of the right wrist.



Figure 3. Preoperative anteroposterior X-ray of the left wrist.



Figure 4. Preoperative lateral X-ray of the left wrist.



Figure 5. Postoperative anteroposterior X-ray of the right wrist.



Figure 6. Postoperative lateral X-ray of the right wrist.



Figure 7. Postoperative anteroposterior X-ray of the left wrist.



Figure 8. Postoperative lateral X-ray of the left wrist.



Figure 9. X-ray of the right wrist when removing the fixation.



Figure 10. X-ray of the left wrist when removing the fixation.

dislocation is really rare and the injury of both wrists is even more unusual. Pure dislocations as well as fracture dislocations are almost always the result of high-energy traumatic events in which the patient does not know what the exact mechanism of injury was, but this does not apply to the case presented herein. Dislocations are usually dorsoulnar, as in the case described herein. The type of dislocation depends on the position of the wrist at the time of the injury; it may be in maximum flexion or extension and then undergo an excessive stress and a high energy injury.¹⁰

Vascular and neurologic compromise may occur, so the emergency treatment of the dislocation is indicated, even if the stabilization of the fracture, if the latter is present, is performed at a second stage.

The treatment usually consists of closed reduction and percutaneous stabilization of the fracture if the latter is present. The wrist is immobilized in flexion or extension, according to the dislocation. Most of the time a cast is used for immobilization purposes; in this case an external fixator was used in both wrists. Both radial styloid fractures were fixed percutaneously.

This type of injuries may occur together with intercarpal injuries (type 2). The case we present herein only had injury of the radiocarpal joint (type 1) with fracture of the ulnar and radial styloid.¹¹

It has been observed that when radial styloid process fractures or Barton's marginal fractures occur, instability increases considerably, so proper fracture fixation is an essential part of the treatment and it improves the functional prognosis.

In none of the reports reviewed were there any ulnar styloid process fractures. We provided conservative treatment.

References

1. Dunn EW: Fractures and dislocations of the carpus. *Surg Clin North Amer* 1972; 52: 1513.
2. Bucholz RW, Hechman JD: Fracturas en el adulto. Rockwood and Greens. Quinta edición. Madrid España, Marbán libros SL, 2003; 2: 749-66.
3. Bilos J, Pancovich AM, Yelda S: Fracture dislocation of the radiocarpal joint. *J Bone Joint Surg* 1977; 59A: 198.
4. Weiss C, Laskin RS, Spinner M: Irreducible radiocarpal dislocation. A case report. *J Bone Joint Surg* 1970; 52A: 562-4.
5. Fahey JH: Fractures and dislocations about the wrist. *Surg Clin North Amer* 1957; 37: 19-40.
6. Rosado AP: Dislocation of the wrist: A case. *J Bone Joint Surg* 1966; 48A: 504-6.
7. Le Nen D, Riot O, Caro P, Le Fevre C, Courtois B: Luxation-fractures of the radiocarpal joint. Clinical study of 6 cases and general review. *Ann Chir Main Memb Super* 1991; 62(4): 397-8.
8. Terry C, Daugherty K, Jones L: Campbell cirugía ortopédica, décima edición, Madrid España, Elsevier España SA, 2004; 4: 3543-601.
9. Böhler L: Verrenkungen der Handgelenke. *Acta Chir Scand* 1930; 67: 154-77.
10. Gomar F: Traumatología. Miembro superior. Valencia, 1980: 1441-71.
11. Moneim MS, Bolger JT, Omer GE. Radiocarpal dislocation. Classification and rationale for management. *Clin Orthop* 1985; 192: 199-209.