



Radiocarpal Dislocation Associated with Enucleation of the Semilunar: A Clinical Case Report

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Abstract

Introduction: The association of radiocarpal dislocation with enucleation of the semilunate remains a rare injury. It often occurs following violent trauma.

Observation: A 25-year-old right-handed patient presented with open trauma to the left hand and wrist. His hand had been forcibly trapped by a car door. Examination revealed a linear wound on the dorsal surface of the hand and a wound on the anterior surface of the wrist. Active bleeding along the radial artery was noted. Radiographs of the wrist and hand showed radiocarpal dislocation associated with enucleation of the lunate. The dislocations were trimmed surgically and reduced with pins. At 3 months' follow-up, functional results were satisfactory according to the Green O'Brien score. **Conclusion:** Radiocarpal dislocation is a rare lesion, especially when associated with enucleation of the semilunate. Algodystrophy and semilunar necrosis are the main complications.

Subject Areas

Orthopedics Traumatology

Keywords

Radiocarpal Dislocation, Semilunar Enucleation, Case Report

1. Introduction

Radiocarpal dislocation (RCD) is a rare entity accounting for 0.2% of wrist injuries

[1]. The combination of RCL and enucleation of the semilunate is a rare event, with very few cases reported in the literature. The mechanism is most often high-energy. Treatment is surgical.

There is no consensus on radiocarpal ligament repair. Some authors advocate capsuloligamentous repairs, especially the radiocarpal ligament [2] [3]. For others, this repair is not necessary [1].

The outcome is often favourable, but sometimes fraught with complications. In this case, we report a radiocarpal dislocation associated with enucleation of the semilunate. Trimming was performed. The dislocation was reduced and pinned, and the tendons and vessels were repaired. Functional outcome was satisfactory according to the Green O'Brien score, despite the existence of neuro-algodystrophy.

2. Observation

MF, a 25-year-old right-handed worker with no previous pathological history, was admitted in the first hour of an open trauma to the left hand and wrist. His hand had been caught between the two of a container. In fact, one of the container doors was forced closed while the left hand was holding the other door.

On examination, he presented with a linear wound on the dorsal surface of the left hand, with extension deficit of the third and fourth fingers. An arciform wound on the anterior aspect of the wrist with jet bleeding in the path of the radial artery was noted (Figure 1). Standard radiography revealed a Dumontier type I posterior radiocarpal dislocation with enucleation of the semilunate (Figure 2).

Treatment was surgical. Trimming was performed. Reduction of the dislocation was maintained with pins under scopic control (Figure 3). Tendon and vascular (radial artery) repair were performed.

The post-operative course was straightforward, with healing at D21. The pins were removed at M2, followed by functional rehabilitation of the wrist.

At 3 months, functional results were deemed satisfactory according to the Green O'Brien score, despite the existence of neuro-algodystrophy on imaging (Figure 4). Wrist flexion was 50 degrees and extension was 5 degrees. The fingers were mobile and sensitive.



Figure 1. Clinical images of hand (a) and wrist (b) wounds.



Figure 2. Radiograph of the wrist: (a) front view; (b) profile view.



Figure 3. Reduction of pin-fixed dislocation: (a) Reduction under scopy; (b) postoperative radiograph.



Figure 4. Clinical images and radiographs of the wrist and hand at the time of recoil.

3. Discussion

CRL is very rare. It accounts for 0.2% of dislocations and 20% of wrist injuries [1] [4]. Authors often report isolated cases [5]-[7]. This injury occurs as a result of high-velocity, predominantly dorsal trauma [3] [4].

Little is known about the mechanism of injury. Some authors report a combination of hyperextension, pronation and radial tilt [1] [3] [7]. Others suggest a flexion mechanism [8]. In our patient, the mechanism was a violent direct impact on the dorsal aspect of the wrist.

A cutaneous opening is rarely found. However, some authors have reported cases of associated skin lesions in their series [1] [9]. Other associated lesions may be present, notably vascular and nerve lesions [10]. The median nerve is most often affected due to stretching of the distal segment [7] [11]. Our patient had an associated lesion of the radial artery.

Dorsal displacement is most frequently encountered [1]. In the literature, ulnar styloid fractures, radial styloid fractures, posterior or anterior marginal fractures of the radius and distal radio-ulnar dislocation are the lesions associated with CRL. Pure radiocarpal dislocation is exceptional [7]. Enucleation of the semilunate is rare, and increases the severity of the lesion. Our patient presented with enucleation of the semilunate.

Treatment of radiocarpal dislocation is essentially surgical. It consists of emergency reduction. Suturing of the radiocarpal ligament is the rule, particularly in type 1 cases, to avoid ulnar translation of the carpus and residual instability [1].

The reduction can be maintained with pins. Our patient underwent urgent management, with reduction of the fixed dislocation using pins and vascular repair. The radiocarpal ligament was not repaired. However, cases of orthopedically treated CRL have been reported in the literature [12].

Short-term functional results are satisfactory in most series [1] [12]-[14]. Our patient had a satisfactory functional result according to the Green O'Brien score. Anatomically, complications such as aseptic necrosis of the semilunate (Kienböck disease) may be observed in the long term.

4. Conclusion

CRL is a rare injury resulting from high-energy wrist trauma. Whereas most authors recommend suturing the palmar or dorsal radiocarpal ligaments, we have shown in our series that no ligament suturing is necessary. Our functional results were comparable to those reported in the literature.

Patient Consent

Obtained.

Authors' Contributions

Malick Diop: Conception and drafting of the manuscript;

Mohamed Hachim: Conception;
 Ousmane Ba: Reading;
 Ibrahima Sory Camara: Reading;
 Mohamed Daffé: Supervision.

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Cornu, A., Sturbois-Nachef, N., Baudoux, M., Amouyel, T., Saab, M. and Chantelot, C. (2019) Luxation Radio-Carpienne: Etude rétrospective de 14 patients. *Revue de Chirurgie Orthopédique et Traumatologique*, **105**, 1048-1054. <https://doi.org/10.1016/j.rcot.2019.10.011>
- [2] Dumontier, C., Meyer zu Reckendorf, G., Sautet, A., Lenoble, E., Saffar, P. and Allieu, Y. (2001) Radiocarpal Dislocations: Classification and Proposal for Treatment. *The Journal of Bone and Joint Surgery-American Volume*, **83**, 212-218. <https://doi.org/10.2106/00004623-200102000-00008>
- [3] Ilyas, A.M. and Mudgal, C.S. (2008) Radiocarpal Fracture-Dislocations. *Journal of the American Academy of Orthopaedic Surgeons*, **16**, 647-655. <https://doi.org/10.5435/00124635-200811000-00005>
- [4] Dunn, A.W. (1972) Fractures and Dislocations of the Carpus. *Surgical Clinics of North America*, **52**, 1513-1538. [https://doi.org/10.1016/s0039-6109\(16\)39895-4](https://doi.org/10.1016/s0039-6109(16)39895-4)
- [5] Et-Tai, T. (2009) Fracture Luxation Radio-Carpienne Ouverte (A Propos D'Un Cas et Revue de la Litterature). *Revue de Chirurgie Orthopédique et Traumatologique*, **39**, 63-66.
- [6] Bennani, A., Ammoumri, O., Zizah, S., Almoubaker, S., Hamdi, O., Amar, F.M., et al. (2011) Fracture-Luxation radiocarpienne postérieure ouverte du poignet. À propos d'un cas. *Journal de Traumatologie du Sport*, **28**, 117-120. <https://doi.org/10.1016/j.jts.2011.04.009>
- [7] Loubignac, F., Colomb, F., Thiry, A., Nasr, Z. and Lovet, J. (1999) La luxation radio-carpienne pure: A propos d'un cas et revue générale de la littérature. *Revue de chirurgie orthopedique et reparatrice de l'appareil moteur*, **85**, 393-396.
- [8] Dodd, C.A.F. (1987) Triple Dislocation in the Upper Limb. *The Journal of Trauma: Injury, Infection, and Critical Care*, **21**, Article 1307. <https://doi.org/10.1097/00005373-198711000-00019>
- [9] Mudgal, C.S., Psenica, J. and Jupiter, J.B. (1999) Radiocarpal Fracture-Dislocation. *Journal of Hand Surgery*, **24**, 92-98. [https://doi.org/10.1016/s0266-7681\(99\)90047-5](https://doi.org/10.1016/s0266-7681(99)90047-5)
- [10] Bilos, Z., Pankovich, A. and Yelda, S. (1977) Fracture-Dislocation of the Radiocarpal Joint. *The Journal of Bone & Joint Surgery*, **59**, 198-203. <https://doi.org/10.2106/00004623-197759020-00011>
- [11] Green, D.P. and O'Brien, E.T. (1978) Open Reduction of Carpal Dislocations: Indications and Operative Techniques. *The Journal of Hand Surgery*, **3**, 250-265. [https://doi.org/10.1016/s0363-5023\(78\)80089-6](https://doi.org/10.1016/s0363-5023(78)80089-6)
- [12] de Keating-Hart, E., Pidhorz, L. and Moui, Y. (2012) Luxation dorsale de l'articulation radiocarpienne chez une femme de 85ans. *Chirurgie de la Main*, **31**, 195-198. <https://doi.org/10.1016/j.main.2012.07.009>
- [13] Lahtaoui, A., El Bardouni, A., Ismael, F., Jellali, T., Bahri, A., El Yaacoubi, M., et al.

- (2002) Les luxations-fractures radiocarpiales postérieures (À propos de huit cas). *Chirurgie de la Main*, **21**, 252-257. [https://doi.org/10.1016/s1297-3203\(02\)00120-8](https://doi.org/10.1016/s1297-3203(02)00120-8)
- [14] Baptista, M., Ribeiro, E., Ribau, M., Vieira Ferreira, N., Varanda, P. and Rodrigues, L.F. (2021) Open Perilunate Fracture Dislocation with Lunate Extrusion: A Case Report and Literature Review. *Case Reports in Orthopedic Research*, **4**, 210-216. <https://doi.org/10.1159/000518209>