

DORSAL DISLOCATION OF THE DISTAL END OF THE ULNA IN A JUDO PLAYER

by M. T. RUSSO* and N. MAFFULLI**

A 32-year-old policeman injured his left wrist while engaged in judo training. A distal radio-ulnar dislocation, ulna dorsal, was reduced under general anesthesia, but, as the distal radio-ulnar joint was unstable, a Liebolt's ligamentous reconstruction procedure and a partial excision of the triangular fibrocartilage complex were carried out. The patient could resume his job eight weeks after the operation, and light training after a further six months. The need for proper physical examination and accurate radiographic positioning is stressed.

Keywords : distal radio-ulnar dislocation ; injury ; judo.

Mots-clés : luxation radio-cubitale inférieure ; traumatisme ; judo.

SAMENVATTING

M. T. RUSSO en N. MAFFULLI. Luxatie naar dorsaal van het distaal uiteinde van de ulna bij een judoka.

Een 32-jarige politieman bezeerde zijn linker pols bij judo-training. Een distale radio-ulnaire dislocatie, met verplaatsing van de ulna naar dorsaal, werd onder algemene anesthesie gereponeerd ; gezien de repositie onstabiel bleek, werd een ligamentreconstructie volgens Liebolt verricht, met gedeeltelijke excisie van het driehoekig fibreus ligament. Patiënt hervatte zijn beroepsactiviteit 8 weken na de ingreep en een lichte sporttraining 6 maanden later. De auteurs onderstrepen het belang van een grondig onderzoek met preciese, correct gepositioneerde röntgen-opnamen.

RÉSUMÉ

M. T. RUSSO et N. MAFFULLI. Luxation radio-cubitale inférieure chez un judoka.

Les auteurs rapportent le cas d'un agent de police de 32 ans, qui subit un traumatisme du poignet gauche pendant l'entraînement de judo. Une luxation radio-cubitale inférieure, avec déplacement du cubitus en sens dorsal, fut réduite sous anesthésie générale ; comme la réduction était instable, une reconstruction ligamentaire selon la technique de Liebolt fut pratiquée, associée à une excision du ligament triangulaire. Reprise de l'activité professionnelle 6 semaines après l'intervention et d'un entraînement léger six mois plus tard. Les auteurs insistent sur la nécessité d'un examen physique approfondi et d'un examen radiographique précis sous une incidence correcte.

INTRODUCTION

Dislocation of the distal radio-ulnar joint is rare (5), even in sports activities that pose great risks of injury. Described in 1971 (7), such a dislocation has rarely been discussed in the literature (2, 4,,

* Hospital S. Maria della Misericordia, Department of Orthopaedics, Sorrento (Italy).

** University of London, Institute of Child Health, Respiratory and Anaesthetic Unit, Sports Medicine Laboratory, and Hospital for Sick Children, Department of Orthopaedics, London (Great Britain).

12, 17, 18). Most articles have been case reports (2, 11, 16), and a study on 10 patients was published in 1972 (6). The injury is often not diagnosed (2, 16); thus the patient should be thoroughly examined (8).

Although the radius dislocates on the ulna, these lesions are usually termed 'distal radio-ulnar dislocation, ulna dorsal or volar' (6), or 'periulnar dislocation of the radio-carpal mass' (12).

We report a case of distal radio-ulnar joint dislocation, ulna dorsal, in a male judo player.

CASE REPORT

A 32-year-old Caucasian male policeman injured his left wrist in a judo training session. He was engaged in a training fighting situation, gripping the lapel of his opponent's judo suit, with the forearm in midpronation. The forearm muscles

were almost maximally contracted when he was thrown forward and laterally still holding the opponent's lapel, with the wrist going into forced hyperpronation. The distal radius and carpus were thus firmly fixed by the muscular force exerted by the flexor muscles of the forearm. After a snapping noise, the patient experienced pain and could not move the wrist without severe discomfort. The hand was kept in full pronation. There was a slightly tender prominence, 1.5 cm in diameter, on the dorsal aspect of the right wrist, at the level of the distal radio-ulnar joint. Circulation was intact. Radio-carpal and carpal motion was restricted. The fingers and the thumb showed normal range of movement.

Antero-posterior and lateral radiographs showed no bony injury. On the lateral view, a posterior displacement of the ulna was shown (fig. 1). This was more evident when a simultaneous lateral



Fig. 1. — Anteroposterior and lateral views. The distal end of the ulna is posteriorly displaced.



Fig. 2. — The displacement of the distal end of the ulna is more evident when lateral comparative views are taken.

view of both wrists was taken (fig. 2). A distal radio-ulnar dislocation, ulna dorsal was diagnosed. Reduction was achieved by applying digital pressure on the distal end of the ulna, while the forearm was being gently supinated (1). The radio-carpal and distal radio-ulnar joint were unstable, and surgical exploration was carried out. A longitudinal dorsal approach was used, above the lateral margin of the distal ulnar epiphysis. After incision of the extensor retinaculum, the extensor carpi ulnaris and the tendon of the extensor digitorum were retracted before incising the dorsal radio-carpal ligament. On incision of the dorsal ulno-carpal capsule, the synovium was noted to be markedly hyperemic. The triangular fibrocartilage complex (TFC) of the wrist, showing several deep fissures, was excised preserving its peripheral rim. Four holes were drilled through the distal

end of the radius, and two through the distal end of the ulna (10) (fig. 3). A Supramid® thread was subsequently passed through the holes, and tied up on the dorsal aspect of the radius. The wound was sutured and an above-elbow plaster-of-Paris cast was applied for four weeks. Recovery was uneventful. After four weeks of physiotherapy, the patient was able to resume his work. Gentle training was allowed six months after the operation. He has now been fully asymptomatic for 28 months.

DISCUSSION

Traumatic dislocation of the distal radio-ulnar joint is overlooked in as many as 50% of cases (2, 16), especially when not associated with a fracture (6).

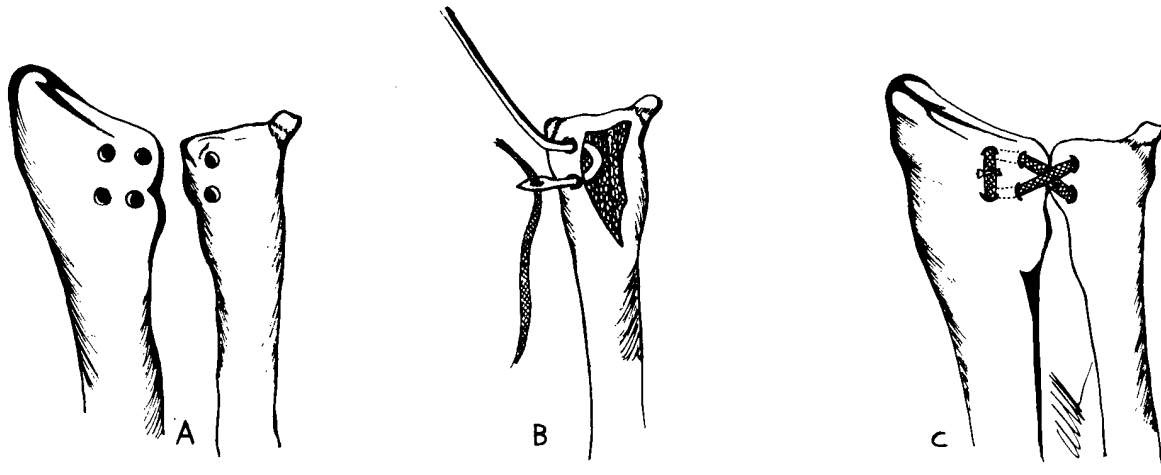


Fig. 3. — Schematic drawing of Liebolt's procedure (see text).

A dislocation of the distal radio-ulnar joint, ulna dorsal, may occur from three movements (6) :

1. forced pronation, with the distal radius and the carpus carried volar to the distal ulna ;
2. with fixed distal end of the radius and fixed carpus, the ulna is forced directly backward ;
3. with fixed distal end of the ulna, the distal radius and the carpus are displaced ventrally.

In the present case, the injury resulted from hyperpronation with the ulna fixed, resulting in a ventral dislocation of the radio-carpal complex. The diagnosis can be suspected on the basis of the clinical history and of physical examination (9), and confirmed by radiographic examination, but as little as 10° to 20° of rotation of the forearm may alter the relationship of the distal end of the radius and ulna (13). When lateral views are taken, the forearm should be placed in neutral rotation with complete superimposition of the finger metacarpals (6) ; otherwise physiological translational movements of the radius dorsally, in supination, and volarly, in pronation, may be misinterpreted as subluxation. Some authors suggest simultaneous exposure of both wrists in analogous rotation (15).

Given the age of the patient, the fissures of the TFC were to be expected (14), but specific symptoms from them seldom occur (3). The aggressive approach pursued in this case avoided habitual

subluxation (19), and allowed a quick and lasting recovery.

REFERENCES

1. ALEXANDER A. H. Bilateral traumatic dislocation of the distal radioulnar joint, ulna dorsal : case report and review of the literature. *Clin. Orthop.*, 1977, 1229, 238-243.
2. BIRCHE-JENSEN A. Luxation of the distal radio-ulnar joint. *Acta Chir. Scand.*, 1951, 101, 312-317.
3. COLEMAN H. M. Injuries of the articular disk at the wrist. *J. Bone Joint Surg.*, 1960, 42-B, 522-525.
4. COTTON F. J., BRICKLEY W. J. Luxation of the ulna forward at the wrist (without a fracture). *Ann. Surg.*, 1912, 55, 368-374.
5. CURR J. F., COE W. A. Dislocation of the inferior radio-ulnar joint. *Brit. J. Surg.*, 1946, 34, 74-77.
6. DAMERON T. B. Traumatic dislocation of the distal radio-ulnar joint. *Clin. Orthop.*, 1972, 83, 55-63.
7. DESAULT M. Extrait d'un mémoire de M. Desault sur la luxation de l'extrémité inférieure du radius. *J. Chir.*, 1971, 1, 78-87 (cited by Dameron T. B. Traumatic dislocation of the distal radio-ulnar joint. *Clin. Orthop.*, 1972, 83, 55-63).
8. GIBSON A. Uncomplicated dislocation of the inferior radio-ulnar joint. *J. Bone Joint Surg.*, 1925, 7, 180-189.
9. HEIPLE K. G., FREEHAFFER A. A., VAN THOF A. Isolated traumatic dislocation of the distal end of the ulna or distal radio-ulnar joint. *J. Bone Joint Surg.*, 1962, 44-A, 1387-1394.
10. LIEBOLT F. L. A new procedure for treatment of the luxation of the distal end of the ulna. *J. Bone Joint Surg.*, 1953, 35-A, 261-262.

11. McCOY G. F., GRAHAM H. K., BEVERLAND D. E. Isolated injury to the distal radioulnar joint. Case report and cadaver study. *Ulster Med. J.*, 1984, 53, 155-157.
12. MILCH H. So-called dislocation of the lower end of the ulna. *Ann. Surg.*, 1942, 116, 282-292.
13. MORRISY R. T., NALEBUFF E. A. Dislocation of the distal radioulnar joint. Anatomy and clues to prompt diagnosis. *Clin. Orthop.*, 1979, 144, 154-158.
14. MOSSING N. Isolated lesions of the radio-ulnar disk treated with excision. *Scand. J. Plast. Reconstr. Surg.*, 1975, 9, 231-233.
15. POPOWITZ M. Anterior dislocation of the ulna at the inferior radio-ulnar joint. *Mt. Sinai J. Med.*, 1972, 39, 521-525.
16. RAINEY R. K., PFAUTSCH M. L. Traumatic dislocation of the distal radioulnar joint. *Orthopedics*, 1985, 8, 896-900.
17. SCHEFFLER R., ARMSTRONG D., HUTTON L. Computer tomographic diagnosis of distal radio-ulnar joint disruption. *J. Can. Assoc. Radiol.*, 1985, 35, 212-213.
18. SPACE T. C., LOUIS D. S., FRANCIS I., BRAUNSTEIN E. M. CT findings in distal radioulnar dislocation. *J. Comput. Assist. Tomogr.*, 1986, 10, 689-690.
19. THOMAS T. L., MATTHEWSON M. H. Habitual anterior subluxation of the head of the ulna treated by Baldwin's operation. A case report. *Hand*, 1982, 14, 67-70.

N. MAFFULLI
105 The Grampians,
Shepherds Bush Road
London W6 7LZ (United Kingdom)