ISOLATED FRACTURE OF THE CAPITATE WITH A VOLAR DISLOCATED FRAGMENT

J. GUIRAL, A. GRACIA, J. M. DIAZ-OTERO

We describe a patient with a capitate fracture with a volar dislocation of the proximal fragment. After open reduction and pin fixation an excellent range of wrist motion was achieved.

Keywords : fracture ; wrist ; capitate.
Mots-clés : fracture ; poignet ; grand os.

CASE REPORT

A 25-year-old man fell 3 meters from a scaffold. He sustained a hyperextension injury to his left wrist, with marked pain, tenderness, swelling, and limited motion. Radiographs of the left wrist showed an isolated fracture of the capitate with a volar dislocated proximal fragment (fig. 1). A closed reduction was attempted but was unsuccessful. An open reduction was then performed under general anesthesia. The proximal fragment of the capitate was brought into position through an S-shaped volar incision, and stabilized by Kirschner wire fixation (fig. 2). After operation, the patient's wrist was immobilized in a short arm plaster cast for 8 weeks. At this time the Kirschner wire was removed, and wrist movement was encouraged. Three months after the injury, radiographs showed union of the fracture without avascular necrosis (fig. 3). Two years after surgery, the patient regained a painless normal range of movement of all the digits, and showed only a slight impairment of the wrist.

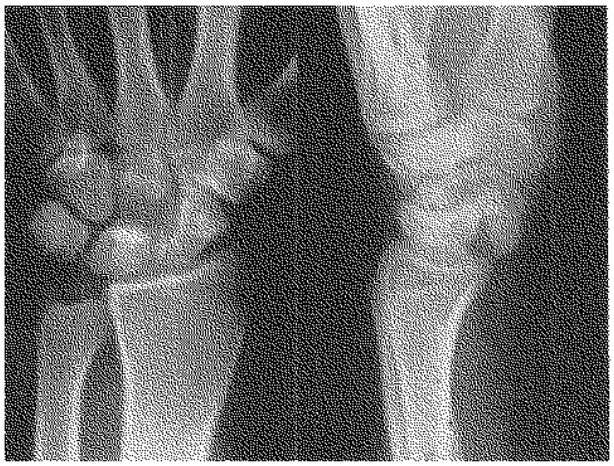

Fig. 1. — Radiograph of the wrist showing an isolated fracture of the capitate with a volar dislocated proximal fragment.

DISCUSSION

Isolated fracture of the capitate is uncommon. In 1982, Rand *et al.* (6) reported an incidence of 0.3% in 978 patients with carpal fractures. The commonly accepted mechanism of injury is a fall of the outstretched hand. Capitate fracture is often underdiagnosed (1, 2, 4, 5). Nonunion and avascular necrosis of the proximal fragment has been reported after capitate fracture. Again Rand *et al.* (6) also reported two nonunions after treat-

Department of Orthopaedic Surgery, Segovia General Hospital, E-40002 Segovia, Spain.
Correspondence and reprints : J. Guiral.

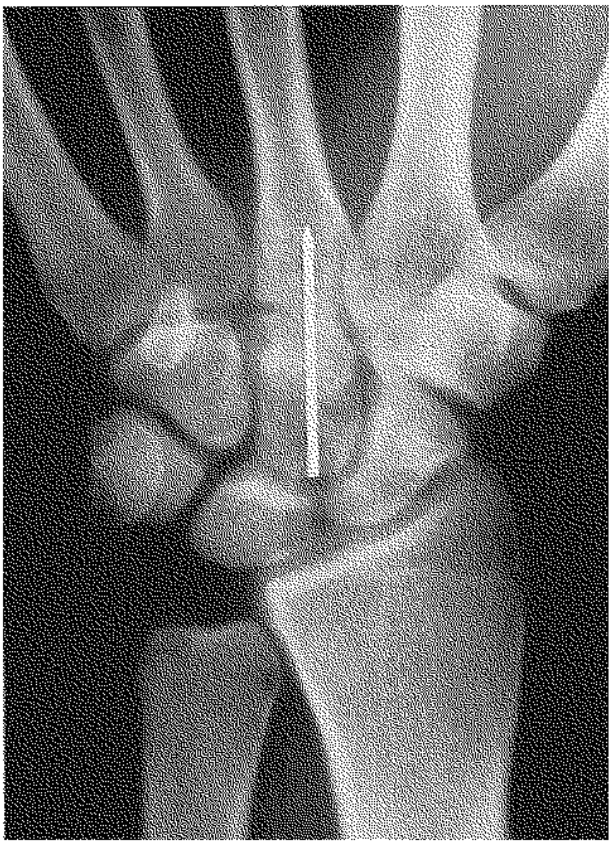

Fig. 2. — Capitate fracture stabilized by a Kirschner wire.

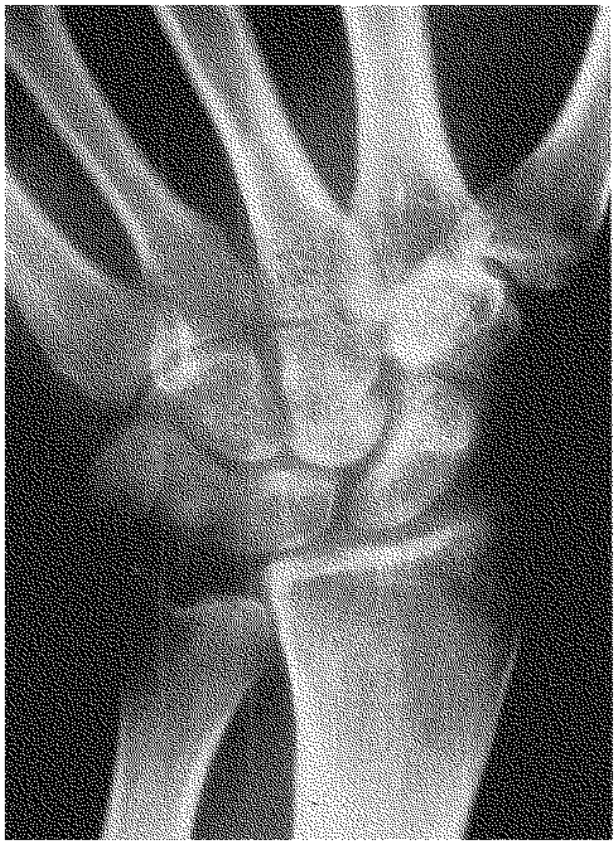

Fig. 3. — Radiograph of the wrist showing union of the fracture.

ment by cast immobilization. In 1987, Minami *et al.* (5) reported a case of nonunion diagnosed 6 months after an initial injury, treated as a sprain. These reports suggest that careful follow-through with adequate reduction and immobilization is essential for the treatment of a capitate fracture. Internal fixation of these fractures has been achieved by Kirschner wires (3) or Herbert screws (7). The use of Kirschner wires is perhaps the simplest treatment method, but it does not produce rigid fixation, so that additional immobilization in plaster is required. The Herbert screw provides compression of the fracture and reduces the need for prolonged postoperative immobilization, but introduces more technical difficulties, and the need of a wider surgical exposure of the joint.

The satisfactory short-term results obtained in the case reported suggests that adequate reduction and Kirschner wire fixation can lead to a successful outcome of capitate fractures.

REFERENCES

1. Adler J. B., Shaftan G. W. Fractures of the capitate. J. Bone Joint Surg., 1962, 44-A, 1537-1547.
2. Gibbon W. W., Jackson A. An isolated capitate fracture in a 9-year-old boy. Br. J. Radiol., 1989, 62, 487-488.
3. Ipsen T., Larsen C. F. A case of scapho-capitate fracture. Acta Orthop. Scand., 1985, 56, 509-510.
4. Lowry W. E., Cord S. A. Traumatic avascular necrosis of the capitate bone. Case report. J. Hand Surg., 1981, 6, 245-248.
5. Minami M., Yamazaki J., Chisaka N., Kato S., Ogino T., Minami A. Nonunion of the capitate. J. Hand Surg., 1987, 12-A, 1089-1091.
6. Rand J. A., Linscheid R. L., Dobyns J. H. Capitate fractures. A long-term follow-up. Clin. Orthop., 1982, 165, 209-216.

7. Richards R. R., Paitich B., Bell R. S. Internal fixation of a capitate fracture with Herbert screws. J. Hand Surg., 1990, 15-A, 885.887.

SAMENVATTING

J. GUIRAL, A. GRACIA, J. M. DIAZ-OTERO. Geïsoleerde fraktuur van het capitatum met verplaatsing naar palmair.

De auteurs rapporteren een fraktuur van het os capitatum met palmaire verplaatsing van het proximale fragment. Een open reductie werd gestabiliseerd met behulp van één Kirschnerdraad ; het resultaat was uitstekend met goede funktionele recuperatie.

RÉSUMÉ

J. GUIRAL, A. GRACIA, J. M. DIAZ-OTERO. Fracture isolée du grand os avec déplacement palmaire.

Les auteurs présentent un cas de fracture du grand os avec déplacement en sens palmaire du fragment proximal. La réduction stabilisée par un embrochage à ciel ouvert donna un bon résultat.