

Transscaphoid perilunate dislocation with a dorsal dislocated proximal scaphoid fragment

Report of 2 cases

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Two patients with a dorsal transscaphoid perilunate dislocation with a dorsal dislocation of the proximal fragment of the scaphoid are described. Our 2 cases demonstrate that there can be a simultaneous frac-

ture of the scaphoid and rupture of the scapholunate ligaments, which require open reduction and internal fixation.

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Perilunate dislocations constitute about 3 percent of all the carpal injuries (Dobyns and Linscheid 1984).

We present 2 unusual cases of a dorsal transscaphoid perilunate dislocation.

Case reports

Case 1. A 67-year-old man fell 4 meters from a tree and sustained a transscaphoid perilunate dislocation of his left wrist with marked swelling and tenderness, and median nerve symptoms of the hand. Radiographic examination revealed a dorsal transscaphoid perilunate dislocation with a dorsal dislocation of the proximal scaphoid fragment (Figure 1). Closed reduction under axillary block anesthesia was unsuccessful, and open reduction was performed through combined palmar and dorsal approaches. The proximal fragment of the scaphoid had extruded through the dorsal joint capsule, and all of its ligamentous and capsular attachments had been torn. The torn dorsal capsule was trapped between the capitate and the lunate, thus preventing reduction of the midcarpal dislocation. The scaphoid fracture was fixed with a Herbert screw in a retrograde manner. After repair of the palmar and dorsal ligaments, the wrist was immobilized in a short cast for 8 weeks.

Five years after the operation, the patient was able to engage in everyday activities without pain. The range of motion of his left wrist was 40° of dorsiflexion, 45° of palmar flexion, 10° of radial deviation, and 20° of ulnar deviation. The grip strength was 70 percent of the normal dominant hand. Radiographs

showed a healed fracture and no evidence of degenerative changes or carpal collapse.

Case 2. A 39-year-old man sustained a closed, crushing injury to his left wrist that was caused by a heavy steel plate. He was referred to us 3 days after the injury with marked swelling of the wrist and a dorsal bony prominence that was movable underneath the skin. The radiographic examination indicated a dorsal transscaphoid perilunate dislocation. The proximal fragment of the scaphoid was displaced dorsally and was rotated approximately 180°.

With the patient under axillary block anesthesia, closed reduction was attempted. However, the scaphoid fracture remained unreduced while the anatomic relationship of the capitate and lunate was restored (Figure 2).

Open reduction was then carried out through the dorsal approach. The proximal fragment of the scaphoid was immediately encountered, being extruded through the rent in the dorsal capsule. Reduction of the midcarpal joint was easily achieved after the fractured scaphoid had been anatomically reduced and fixed with a Kirschner wire. The wrist was immobilized in a short cast for 8 weeks. Five months after the operation, radiographs showed scaphoid union, and the Kirschner wire was removed.

Fourteen years after the injury, the patient had resumed construction work with no pain. Examination of the left wrist showed 50° of dorsiflexion, 55° of palmar flexion, 15° of radial deviation, and 25° of ulnar deviation. The grip strength was 72 percent of the normal dominant hand. Although the radiographs



Figure 1. Case 1. Dorsal trans-scaphoid perilunate dislocation with a dorsal dislocation of the proximal scaphoid fragment, which is turned upside down.

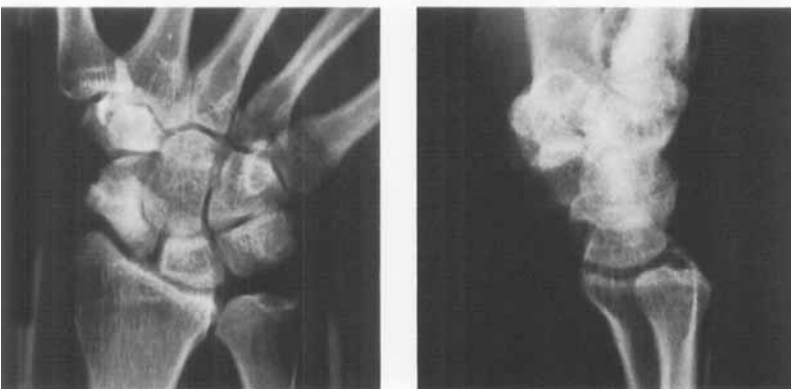


5 years after the operation. There are sclerotic changes of the lunate and an irregularity of the proximal articular surface of the scaphoid. However, there are neither degenerative changes nor a carpal collapse deformity.



Figure 2. Case 2. Dorsal trans-scaphoid perilunate dislocation with a dorsal dislocation of the proximal scaphoid fragment.

14 years after the operation. There is atrophy of the proximal half of the scaphoid. There are neither degenerative changes nor a carpal collapse deformity.



demonstrated atrophy of the proximal half of the scaphoid, there was no evidence of degenerative changes or carpal collapse of the wrist (Figure 2).

Discussion

Dorsal transscaphoid perilunate dislocations account for more than 50 percent of carpal dislocations (Green and O'Brien 1978). There are 3 cases of a transscaphoid perilunate dislocation with a dislocation of the proximal fragment of the scaphoid reported in the English literature (Weiss et al. 1970, O'Carroll and Gallagher 1983, Viegas and Hoffmann 1988).

A perilunate dislocation usually occurs through the body of the scaphoid or through the scapholunate interval. When this injury occurs through the scaphoid, the proximal fragment of the scaphoid usually follows the lunate, retaining its ligamentous attachments to the lunate. Vender et al. (1989), however, reported 2 cases of the simultaneous occurrence of an acute scaphoid fracture and a ligamentous rupture of the scapholunate interval. On the basis of their description, we suspect the mechanics of our patients' injury was as follows: with the hand forced into a hyperdorsiflexed position, a dorsal perilunate dislocation occurred through the scapholunate interval, which was accompanied by an undisplaced fracture of the scaphoid. When the

dislocation force ceased to act, the distal row, by powerful contraction of the flexor muscle, forcefully recoiled into the neutral position. At that time, impingement of the dorsal dislocated scaphoid against the dorsal radial rim led to shearing of an undisplaced fracture of the scaphoid, thus causing simultaneous fracture of the scaphoid.

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