LATE MANAGEMENT OF POST-TRAUMATIC PALMAR CARPAL SUBLUXATION

A CASE REPORT

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Fig. 1a

Fig. 1b

Anteroposterior (a) and lateral (b) radiographs showing the wrist in place with an avulsion fracture of the dorsoulnar surface of the triquetrum (small white arrow) (a) and a small fracture of the ulnovolar surface of the radius (b).

Only a few cases of palmar carpal subluxation associated with an ulnovolar fragment from the distal radius have been reported previously. We report a case which was treated operatively six months after the injury.

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In all cases of post-traumatic palmar carpal subluxation or dislocation previously reported, treatment has been mainly conservative, with varying results. We present a case of post-traumatic palmar subluxation of the carpus which was diagnosed one month after injury and treated by operation five months later.

CASE REPORT

A 30-year-old right-handed gymnast injured both wrists when his motorcycle collided with a car. During the collision, he continued to hold the handles of the motorcycle and was subsequently thrown over the roof of the car. He immediately felt pain in both wrists. Radiographs showed that the left wrist had a horizontal fracture of the styloid process and a fracture of the dorsal rim of the radius, and the right had an avulsion fracture of the dorsoulnar surface of the triquetrum and a small fragment from the ulnovolar surface of the radius (Fig. 1). The radiocarpal joint was not displaced. The left wrist was treated by closed reduction, fixation of the radial styloid fragment with a Kirschner (K)-wire and

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Fig. 2a

Fig. 2b

Radiographs taken six months after injury showing the abnormal overlapping at the radiocarpal joint (a) and the new articulation of the lunate with the ulnovolar rim of the radius (double arrows) (b).

Fig. 3

Radiographs immediately after operation.

application of an external fixation device. The right wrist was treated with a below-elbow cast.

Ten days later while trying to pull a heavy object with the fingers of the right hand and with the forearm in pronation he felt a strong pulling sensation in the volar area of the wrist associated with a cracking feeling. Three weeks later the cast was removed. The wrist had a slight bayonet deformity and radiographs showed volar subluxation and slight ulnar translocation, with widening of the stylo-scaphoid space. The patient refused operation. Five months

later, he returned because of weakness, deformity and restriction of active extension of the right wrist. Radiographs showed that the ulnovolar fracture of the distal end of the radius had not united and was seen as a separate ossicle articulating with the lunate (Fig. 2). Tomography and CT gave a clear interpretation of the fractures, while a radiocarpal arthrogram showed communication with the midcarpal joint through the lunotriquetral space.

At operation combined palmar and dorsal approaches were used. The palmar radiocarpal ligaments were macro-

Fig. 4

Radiographs 18 months after operation.

scopically intact. After subperiosteal dissection the entire separate osseous fragment and the articular surface of the radius were seen. Reduction of the subluxation was achieved by manual pressure and the reduced radiocarpal joint was stabilised with a K-wire inserted through a small incision over the styloid process of the radius. Two K-wires were inserted to fix the reduced osseous fragment and the capsuloligamentous flap was sutured back to its normal position. The dorsal incision was used to explore the dorsal radiocarpal ligaments which were found to be lax in their insertion to the triquetrum. The avulsed fragment of the triquetrum was reattached by suture and the dorsal radiocarpal ligaments tightened. An external fixation device was applied with the wrist in slight palmar flexion and maintained for eight weeks (Fig. 3).

When seen 18 months later, he had returned to his work and the wrist was free from pain and in alignment with the forearm. The range of movement was similar to that on the left side. Grip strength was 46 kg on the left and 43.6 kg on the right injured side. Radiographs showed that the radiocarpal joint remained reduced (Fig. 4). The palmar rim of the radius was prominent.

DISCUSSION

Nine cases of palmar dislocation of the radiocarpal joint have been reported previously. Four were isolated injuries without fracture (Bohler 1930; Rosado 1966; Fehring and Milek 1984; Moore and McMahon 1988) and the remaining five were associated with fracture of the styloid process of the radius (Fahey 1957), the styloid of the ulnar process

(Bellinghausen et al 1983; Moneim, Bolger and Omer 1985) and fractures of the ulnar styloid and an ulnovolar fragment from the distal radius (Bellinghausen et al 1983; Thomsen and Falstie-Jensen 1989).

The functional results were usually better than the radiological appearances might suggest (Bellinghausen et al 1983; Moneim et al 1985; Moore and McMahon 1988). The ulnovolar fragment of the distal radius is associated with a ligamentous injury which may lead to future subluxation of the radiocarpal joint.

Palmar carpal subluxations or dislocations are inherently unstable injuries which should be treated by closed reduction, cross-pinning of the radiocarpal joint and plaster immobilisation or external fixation.

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