



## Isolated volar fracture-dislocation of the scaphoid with acute carpal tunnel syndrome : A case report

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**Dislocations and fracture-dislocations of the scaphoid are rare injuries. When they occur in a volar direction, they may be complicated by median nerve compression. While volar dislocations and fracture-dislocations of the scaphoid presenting late with median nerve compression have been reported, such injuries presenting with acute median nerve compression have not been reported. We describe a case of volar fracture-dislocation of the proximal half of the scaphoid causing median nerve compression and presenting with acute carpal tunnel syndrome. Urgent open reduction and internal fixation of the scaphoid along with decompression of the median nerve achieved prompt relief of the neurological symptoms.**

**Keywords :** carpal tunnel syndrome ; decompression ; median nerve ; scaphoid fracture.

### INTRODUCTION

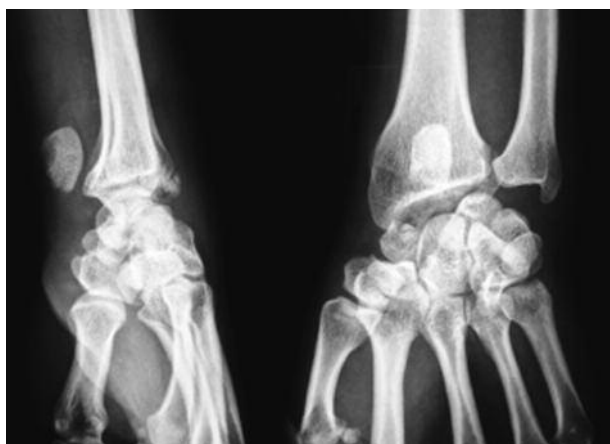
Dislocation of the whole of the scaphoid or its fractured proximal pole, from its socket is a rare injury (1-3,5-9). When the direction of displacement is volar or volar and ulnar, the median nerve is at risk for injury. While late-onset carpal tunnel syndrome secondary to a chronically displaced fragment of the scaphoid (2,3,8) and acute median nerve compression caused by the fracture haematoma in an undisplaced fracture of the scaphoid (4) have been described, there has been no reported case of acute carpal tunnel syndrome secondary to direct compression of the median nerve by a volarly dis-

placed fragment of the scaphoid. We describe a case of isolated volar fracture-dislocation of the scaphoid presenting with acute carpal tunnel syndrome, caused by direct pressure of the displaced proximal fragment on the median nerve.

### CASE REPORT

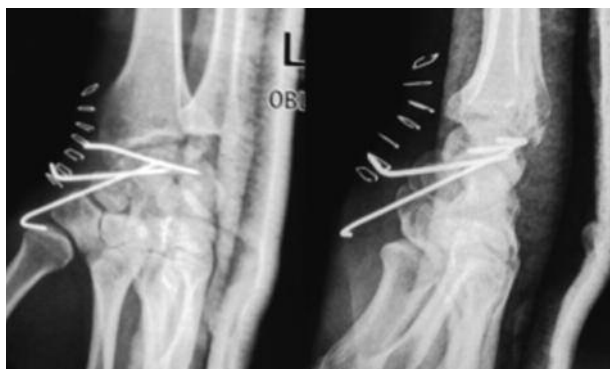
A 30-year-old male manual labourer presented with a history of fall on his outstretched non-dominant left hand, with the wrist in extension. He presented with pain and swelling in his left wrist and tingling and numbness along his radial three and half digits. Clinical examination revealed a bony prominence on the volar aspect of the distal forearm, paraesthesiae in the region of distribution of the median nerve and a normal radial pulse. Plain radiography revealed a fracture of the waist of the scaphoid with wide displacement of the proximal

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*Fig. 1.* — Plain radiographs illustrating fracture through the waist of the scaphoid with volar dislocation of the proximal fragment out of its socket.

fragment into the volar aspect of the distal forearm and a chip fracture of the dorsal lip of the distal radius (fig 1). A diagnosis of fracture of the scaphoid with acute carpal tunnel syndrome was made. The patient was taken up for urgent median nerve decompression with open reduction and internal fixation of the scaphoid, through a volar approach. The displaced proximal fragment of the scaphoid was found deep and ulnar to the flexor carpi radialis, just under the proximal edge of the flexor retinaculum and impinging on the median nerve. A soft tissue pedicle was found attached to the proximal fragment. The radioscaphocapitate



*Fig. 2.* — Postoperative radiographs showing anatomical reduction and internal fixation of the scaphoid and a transfixing Kirschner wire through the scapholunate articulation.

and scapholunate ligaments were ruptured. The median nerve was decompressed by replacing the proximal fragment in its place in the proximal carpal row. Anatomical reduction was obtained and internal fixation carried out with two Kirschner wires placed from the scaphoid tuberosity to the proximal pole (fig 2). The scapholunate articulation was transfixed by a Kirschner wire and the radioscaphocapitate and palmar scapholunate ligaments were repaired using Ethibond polyester suture. The wrist was immobilised in a below-elbow plaster slab. The patient had complete resolution of the tingling and numbness in his hand, by the first post-operative day. At six weeks the Kirschner wires were removed. Plain radiographs done at 12 weeks showed union of the fracture. At six months post-operatively, the patient had a painless wrist, full range of motion at the wrist and no neurological symptoms in his hand. Plain radiographs revealed no evidence of osteonecrosis.

## DISCUSSION

Dislocations of the scaphoid are rare injuries, with only isolated case reports, and fracture-dislocations form a small subset of these injuries (1,3,5-9). The direction of displacement of the fractured proximal pole can be dorsal (1,5,9) or volar (2,6,7). The direction of displacement has been attributed to the position of the wrist during injury, with a hyperextended position resulting in volar displacement (6). Our patient had axial loading of a hyperextended wrist resulting in volar displacement of the proximal fragment. Volar dislocations and volar fracture-dislocations of the scaphoid may be complicated by median nerve compression. Median nerve compression secondary to scaphoid injury has been recognised late, weeks to months after the injury, in a majority of the cases (2,3,8). Only a solitary case report of acute scaphoid fracture presenting with carpal tunnel syndrome could be found in the literature (9). In the reported case, the scaphoid fracture was undisplaced and the carpal tunnel syndrome was secondary to a fracture haematoma under pressure. The intra-operative observation of the position of the proximal fragment of the scaphoid impacted between the proximal edge of

the flexor retinaculum and the underlying median nerve, in our case, suggested that direct pressure of the fracture fragment was the likely cause of median nerve compression. Urgent surgical decompression was effective in achieving prompt relief of the neurological symptoms. In scaphoid injuries recognized late or presenting late with median nerve compression, the period of recovery of the nerve palsy has been as long as six to eight months after decompression (2,3,8). However, if recognized early and treated by urgent surgical decompression the recovery has been observed to be prompt (4) and our case further illustrates this. Kirschner wire fixation, rather than screw fixation was carried out because of the inability of the patient to afford a variable pitch headless screw. This necessitated prolonged immobilisation. However, with physical therapy, the patient regained full range of wrist motion and normal power in wrist and fingers, by six months.

In conclusion, volar fracture-dislocation of the scaphoid is an extremely rare injury and may be complicated by acute median nerve compression. The neurological injury may escape attention. Early recognition of the median nerve compression and urgent surgical decompression produced early and prompt neurological recovery in our case.

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