

Images in Surgery



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Case Description:

A 27-year-old male patient was referred to the University Hospital Zurich after falling 8 meters in a barn. He was suffering from pain in the pelvis and the left wrist. The primary survey showed a stable airway, normal breathing and circulation, a soft abdomen and stable pelvis and upper thighs, no apparent neurological abnormalities but an open fracture-dislocation of the wrist (Fig. 1). A full-body CT scan was performed, revealing a pelvic ring fracture, stable fractures of lumbar vertebrae 1 and 5, a pneumothorax, a pneumomediastinum and a trans-scaphoid perilunate fracture-dislocation with a proximal pole fracture of the scaphoid. The clinical examination showed a penetration of the distal forearm proximally to the flexion crease of the wrist. The lunate (Fig. 1, arrowhead) and proximal pole of the scaphoid had remained on the joint surface of the distal radius while the wrist was dorsally dislocated. There was normal perfusion of the hand and pain during passive extension of the contracted fingers, particularly on the ulnar side. A proper neurological examination could not be performed as the patient was se-

dated at this time point. Furthermore, there was no fracture of the forearm bones, but the distal radioulnar joint (DRUJ) was unstable.

What is the most appropriate surgical treatment?

- A. Closed reduction of wrist, external fixation and 2nd definitive surgery
- B. Extended volar approach with exploration of neurovascular structures, TFCC refixation, open reduction of wrist, dorsal approach with ORIF scaphoid, refixation extrinsic wrist ligaments, external fixation
- C. Open reduction of wrist through volar wound, K-wire scaphoid fixation, external fixation
- D. Extended volar approach, TFCC refixation, open reduction wrist with proximal row carpectomy, external fixation
- E. Closed reduction wrist, extended volar approach, TFCC refixation, dorsal approach with ORIF scaphoid, refixation extrinsic wrist ligaments, external fixation

Auflösung auf S. 22



Incidence of Hepatocellular Carcinoma in Patients With Nonalcoholic Fatty Liver Disease: A Systematic Review, Meta-analysis, and Meta-regression.

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Auflösung der Frage von S. 7

Images in Surgery

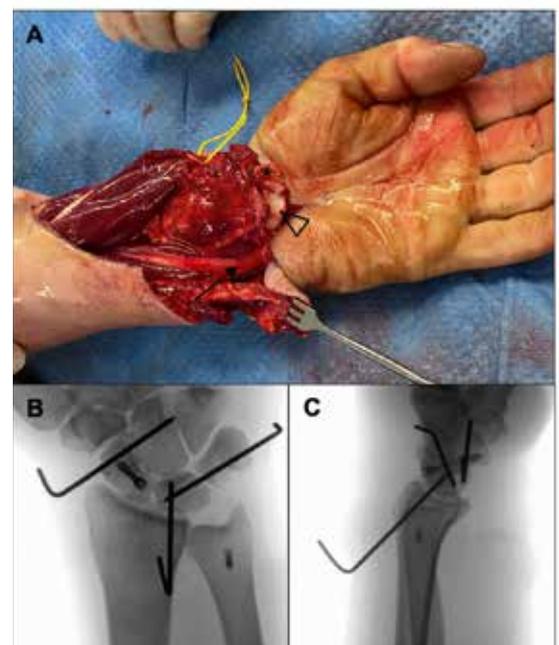
Case Solution:

Correct answer: B

When treating fracture-dislocations of the wrist with volar penetration of the distal forearm, a high index of suspicion for concomitant neurovascular injury is mandatory and attempts of closed reduction should be avoided. Indeed, in the present case, the ulnar nerve and artery as well as the flexor carpi ulnaris and the deep flexors were interposed between radius and ulna. In contrast, the radial artery and the median nerve were found dorso-radially to the radial styloid (Fig. 2A: arrow = trapped structures, arrowhead = lunate, asterisk = proximal pole of scaphoid, vessel loop = median nerve). Through an extended volar approach including carpal tunnel release, the interposed structures were replaced. Thereafter, DRUJ stabilization was achieved with TFCC-refixation. Wrist reduction was done followed by a dorsal approach through the 3d extensor compartment. The scaphoid fracture was fixed with a 3.0mm cannulated screw and the carpal bones were transfixed with K-wires. Finally, the radiocarpal ligaments were fixed with bone anchors and sutures. Instead of external fixation we used radio-lunate K-wire transfixation (Figs. 2B and 2C). Nine months after surgery, the patient is back to work in construction and pain-free despite a scaphoid non-union and signs of radiocarpal arthritis.

Open fracture-dislocations of the wrist are commonly resulting from extreme hyperextension trauma¹. Additional radioulnar dissociation has been reported with entrapment of neurovascular structures bet-

ween the forearm bones^{2,3}. Irreducible fracture-dislocations of the wrist are challenging injuries, particularly if they come along with radioulnar dissociation. These injuries require open reduction and eventually repair of neurovascular injury and should be done by hand surgeons familiar with complex wrist injuries.



References

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