Perihamate peripisiform and peritrapezium open axial carpal dislocation
Description of a new pattern of crush injury with four years of follow-up.

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INTRODUCTION
Axial carpal fracture-dislocations are very rare injuries associated with a severe crush or compression injury to the hand. The outcome is directly related to the injury pattern, soft tissue damage, and the surgeon's ability to obtain and maintain carpal anatomy but, despite adequate initial treatment, long-term results are not good in most cases.

CASE REPORT
A 39-year-old, right-handed male. His left hand was caught between two rollers for 10 minutes until he was freed. Cutaneous detachment of the ulnar side of the wrist and hand and divergence between the axes of second-third and fourth-fifth metacarpals (A).

Initial x-ray (B): loss of carpal height (Youm index), disruption of Gilula's and CMC lines, volar dislocation of the capitate with the 3rd metacarpal regarding the hamate and volar subluxation of the trapezium regarding scaphoid.

Diagnosis: Open axial carpal dislocation type B (perihamate peripisiform) and type E (peritrapezium) of Garcia-Elias.

Treatment: Debridement. Fluoroscopic control, reduction of the capitate and CMC dislocations and stabilization with K-wires. Physical therapy began at 5 weeks and K-wires were progressively removed from 5th to 10th week.
At 1 year follow-up he had a thumb opp deficit. Grip strength was 32Kg on his left hand and 60Kg on the right.
At 4-year FU, he had a thenar eminence flattening with a Kapandji score of 7, 70º of wrist extension and 78º of wrist flexion (Fig. D). Grip strength of 38Kg on his left hand and 59Kg on his right. X-ray showed mild signs of OA and a luno-hamate joint narrowing area. He was satisfied and continued at the same work as before.

CONCLUSIONS
- Axial carpal dislocations and fracture-dislocations remain a challenge.
- Predictors of long-term outcome remains unclear.
- Most may be classified as ulnar or radial but some lesions do not follow a single pattern as occurred in this case.
- We believe that adding a type G (mixed pattern) to the classification of Garcia-Elias could be useful not in changing the treatment but probably indicating a worse prognosis.