Corrective osteotomy of distal radius malunion - salvage of volar ulnar fragment malunion and volar subluxation of the carpus

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Case overview:
Patient with bilateral distal radius fractures acutely managed with open reduction internal fixation develops malunion of the volar ulnar fragment with volar subluxation of the carpus. This technique describes salvage of this malunion with an intra-articular corrective osteotomy and fixation with k-wires, a volar locking plate, and a dorsal spanning plate.

Method/Technique:
A volar ulnar approach to the distal radius is used to expose the lunate facet. A curved osteotome is used under fluoroscopy to identify the articular step-off, and an intra-articular osteotomy is performed. The fragment is reduced using k-wires as joysticks and bone graft is placed in the resultant diaphyseal gap. The k-wires are bent over the volar cortex and a volar locking plate is placed overtop the k-wires. Intra-operative stress views suggest mild volar subluxation of the carpus, therefore a dorsal spanning plate is also placed as a neutralization device.

Results:
Post-operative x-rays show maintained reduction and hardware placement.

Summary:
This case highlights the volar carpal subluxation that can occur with volar ulnar rim distal radius fractures. Surgeons should consider using a dorsal spanning plate at the index surgery to neutralize the volar forces. Salvage options include volar opening wedge osteotomy, intra-articular corrective osteotomy, and radiocarpal arthrodesis. This case presents an example of intra-articular corrective osteotomy and fixation with k-wires, a volar locking plate, and a dorsal spanning plate.