Lunate Dislocation

A 45-year-old man presented to the emergency department with acute left wrist pain after a fall on an outstretched hand. Physical examination showed significant soft-tissue swelling along the volar aspect of the wrist with diminished 2-point discrimination in the median nerve distribution. Frontal radiograph (Figure A) shows a triangular-shaped lunate (asterisk) with widening of the radiolunate space (red arrow) and abnormal overlap of the lunate and capitate (green arrow). Additionally, an ulnar styloid avulsion fracture was noted (blue arrow).

The lateral view (Figure B) revealed volar displacement and rotation of the lunate bone (asterisk). The remainder of the carpal bones were in normal anatomic position in relation to the radius.

Lunate dislocation is an uncommon traumatic wrist injury that requires urgent management and repair. The lunate becomes displaced volarly with preserved alignment of the remaining carpal bones in relation to the radius. These injuries typically occur with significant wrist dorsiflexion from high-impact trauma. A lunate dislocation almost always occurs due to concurrent perilunate ligament injuries, most significantly the dorsal radiolunate ligament.1,2

On a frontal radiographic view, a lunate dislocation will manifest as an increased radiolunate distance with partial overlap between the lunate and capitate. The lunate will appear triangular. On the lateral view, the lunate is volarly displaced, taking on the appearance of a “spilled teacup” with preserved alignment of the capitate with the radius. Additionally, the lunate will not properly align with the capitate or radius.1 A midcarpal dislocation demonstrates less lunate volar tilt as compared to a complete lunate dislocation and demonstrates dorsal subluxation of the capitate.2 With a perilunate dislocation, the lunate remains in normal alignment with the radius but the capitate becomes dorsally dislocated.1,2

Treatment of a lunate dislocation involves immediate lunate reduction and surgical repair of the injured perilunate ligaments. Delay in treatment may lead to early osteoarthritic changes and wrist instability.1

References