Lunocapitate arthrodesis as a final treatment for acute lunate fracture-dislocation in an adolescent. Clinical results at 2 years follow up.

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Objective: Closed carpal dislocations are complex rare injuries, usually a result of a fall on the outstretched hand. Active youngsters are mostly affected, amongst which adolescents are rarely mentioned in the literature. We present a rare case of a fracture dislocation in a 14 year old female adolescent, treated with primary lunocapitate arthrodesis.

Methods: A 14 year old female patient was evaluated at the emergency department after sustained a fall in a motorcycle accident, 6 hours before administration. The patient reported pain and inability to complete any motion of the left carpus, immediately after the fall. During clinical examination extended edema of the carpus and weak grip was documented. No neurovascular deficit was documented. On plain radiographs a perilunate volar dislocation was demonstrated. Computed Tomography (CT) was unavailable at the time and the young patient was moved to the operating room.

Under tourniquet and brachial block anesthesia a dorsal incision through the 3rd and 4th extensor compartment was performed. Lunate was identified volarly and reduced. A fracture of the dorsal pole was noted, creating a deficit of almost 30% of the articular surface. Also an osteochondral fracture of the capitate was identified, as well as complete disruption of the dorsal scapholunate and lunocapitate ligaments. Due to extensive bone loss of the lunate, it was decided to perform a primary lunocapitate arthrodesis, with the use of K-wires. Ligaments were reconstructed using absorbable sutures and anchors. A volar plaster cast was used for rest and immobilization.

Results: K-wires and the plaster cast were removed 6 weeks after surgical operation. The young patient started intense, but gradual physiotherapy. At 2 years follow up the patient had regained a painless wrist, with 45° volar flexion and 45° dorsal flexion.

Discussion: A closed volar perilunate fracture dislocation is a rare and complex injury. Anatomical reduction and partial fusion of the wrist is an option, when the reduced lunate is anatomical unaffected. In cases where bone loss is adequate, a primary lunocapitate arthrodesis is a satisfying treatment, so as to prevent against future collapse of the wrist. Although bibliography lacks treatment options in adolescents, we believe it can be performed with safety, minimal chances for pseudarthrosis and good results, as far as wrist kinematics are concerned.