

## Complete Palmer Lunate Enucleation: A Rare Sport Injury

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### Abstract

### Case Report

Complete palmer lunate enucleation as the end stage of a perilunate dislocation is a very uncommon injury, especially in sports practice, it is associated with high rate of osteonecrosis. These usually occur after high-energy trauma of the wrist. We report a case of a complete palmar lunate enucleation occurring while practicing sport, he underwent an early open reduction through a single dorsal approach and internal fixation with K-wires along with ligamentous repair. The patient regained near full range of movement at 16 weeks post operatively, there were no instances of infection or avascular necrosis.

**Keywords:** palmer lunate enucleation, uncommon injury, sports practice, K-wires, ligamentous repair.

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## PATIENT AND OBSERVATION

A 21-year-old right-handed man presented to the emergency department with a history of fall on his hyperextended right wrist while practicing biking. There was pain and swelling around the wrist. The movements at the wrist were painful and restricted. There was no neurovascular deficit especially of median nerve. The radiographs (Figure-1) revealed an acute palmar lunate enucleation without scaphoid fracture.

With no further complications later and There was no evidence of avascular necrosis or degenerative change.

The patient underwent an open reduction of the dislocation. With a dorsal approach to the wrist joint between the 3rd and 4th extensor compartments, the perilunate dislocation was reduced and fixed with three K-wires through scapholunate, triquetrolunate and capitolunate junctions. The reduction was confirmed under C arm intraoperatively (Figure-2). The scapholunate ligament and dorsal capsule was meticulously sutured and the joint was immobilized. The patient was encouraged to actively move the fingers immediately postoperatively.

The K-wires were removed after six weeks and the patient was put on physiotherapy sessions. The patient was followed up at regular intervals and his recent radiograph at the completion of nine months showed satisfactory alignment of the carpal bones and

no recurrence of the dislocation. Clinically, the patient recovered near normal range of movements at the wrist joint by the end of four months.



Fig-1: A conventional AP and lateral wrist x-ray revealing a palmer lunate enucleation



Fig-2: A postoperative conventional AP and lateral wrist x ray confirming the reduction of the dislocation fixed with three K-wires through scapholunate, triquetrolunate and capitolunate junctions

## DISCUSSION

Volar dislocation of the lunate was first described by Green and O'Brien in 1978 [1]. It is a rare type of carpal dislocation [2].

The most common mechanism of this injury is fall onto a hyperextended wrist with or without the forearm in supination [3].

In a volar lunate dislocation (the final stage of perilunate injury), the capitate has reduced from its dorsally dislocated position to become colinear with the radius, dislocating the lunate into the carpal tunnel.[4] Lunate dislocations are further classified as stage IIA when the lunate has subluxated out of its fossa but has rotated <90°; stage IIB injuries exhibit lunate rotation >90° [5].

Perilunate dislocations are commonly missed injuries either due to lack of careful clinical examination at the time of initial presentation or due to delayed presentation by the patient [6]. The prognosis for these injuries with delayed presentation, is poor compared with those that are treated immediately [7-9].

Adequate clinical history and careful physical examination will help in early detection of these injuries [10]. Careful scrutiny of radiographs is essential with attention to the Gilula's arc of the carpal joints, scapholunate interval, scaphocapitate and capitulate angles [11].

Closed reduction is technically difficult and most authors suggest that immediate ORIF followed by ligament repair (if possible) is the treatment of choice [12, 13]. Combined dorsal and volar surgical approach to the wrist joint has usually been advocated for the management of this injury [14]. However, single dorsal approach helps to preserve the palmar wrist ligaments to the maximum with minimal surgical soft tissue damage [15]. Various implants have been used for stabilisation of the dislocation after reduction such as compression screws, cerclage wires and K-wires [14, 15].

In our case, we treated by open reduction and internal fixation with percutaneous K-wires via a single dorsal approach.

## CONCLUSION

Perilunate dislocations although rare, Early diagnosis and treatment is necessary to prevent the potential risk of avascular necrosis of the carpa, with open reduction and internal fixation with K-wires via a dorsal approach to obtain the best of results.

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