



**Executive**

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**Perilunate - Lunotriquetral dissociation**

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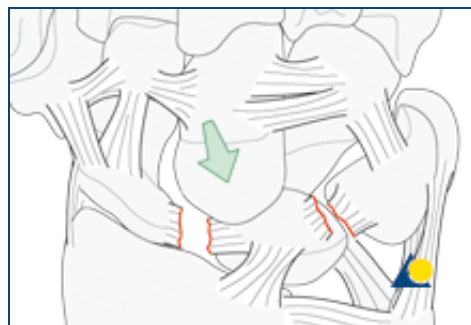
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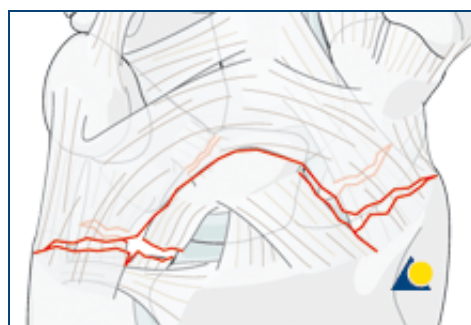
# Open reduction, internal fixation (ORIF)

## 1 Introduction



In this more advanced stage of perilunate dislocation, both scapholunate (SL) and lunotriquetral interosseous ligaments fail.

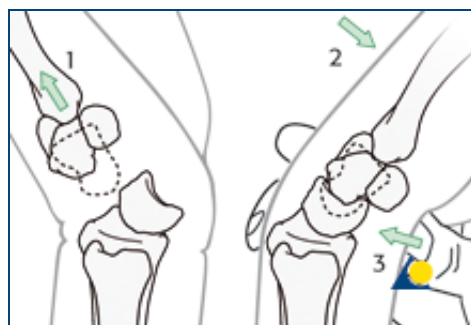
Midcarpal joint dislocation occurs. The distal carpal row is displaced dorsally regarding the proximal one.



A rupture of the palmar extrinsic ligaments at the level of the midcarpal joint also occurs.

Combined approaches facilitate comprehensive repair of the multiple ligament disruptions.

## 2 Reduction



**Closed reduction**  
**Manipulative reduction of the dislocated carpus**

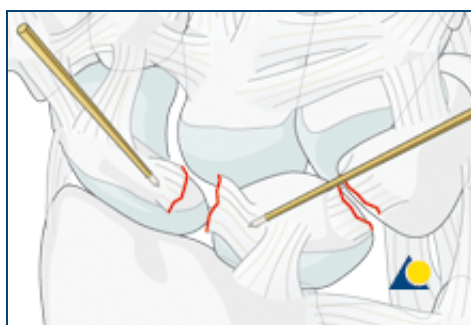
Closed reduction is a preliminary step to operative treatment and has three benefits:

- it restores carpal alignment
- it improves the patient's comfort and
- it facilitates surgical repair.

Closed reduction as an emergency procedure is mandatory in all cases in the emergency room under general or regional anesthesia.

With longitudinal traction on the hand and anterior pressure over the lunate by the operator's thumb, the hand is gently flexed to reduce the capitate. Once reduction is achieved, the traction on the hand is relaxed. After emergency reduction, the wrist is immobilized in a plaster splint, or cast (Colles), in a position of about 10 degrees of palmar flexion.

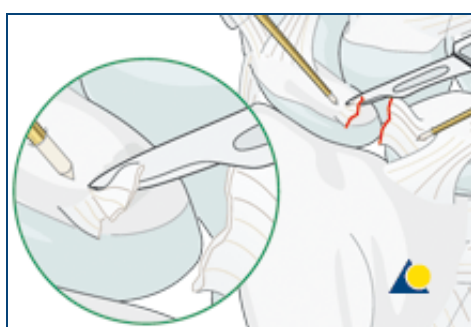
Nonoperative treatment is so frequently followed by redisplacement and later carpal derangement that ligament repair is mandatory.



### **Open reduction of the scapholunate joint**

At the definitive operation, a joystick K-wire is inserted into each of the scaphoid and the lunate. These are used to reduce the

scapholunate joint.



### **Assessment of dorsal and proximal ligament parts**

In most of the cases, the scapholunate (SL) ligament is avulsed from the scaphoid, and remains attached to the lunate.

The avulsion site is freshened to improve contact and healing.

## **3 Suture anchors**

A suture anchor is inserted into the debrided area of the avulsion.

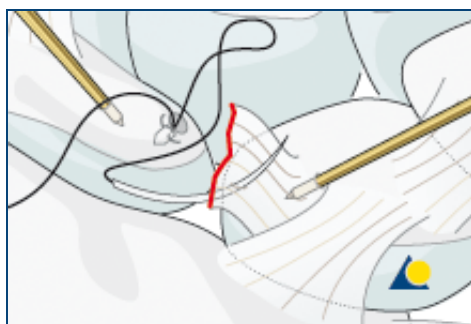


The suture anchor must be placed in position slightly obliquely, in order to resist rotational forces between the two bones (the scaphoid should be pulled from flexion, and the lunate from

extension).

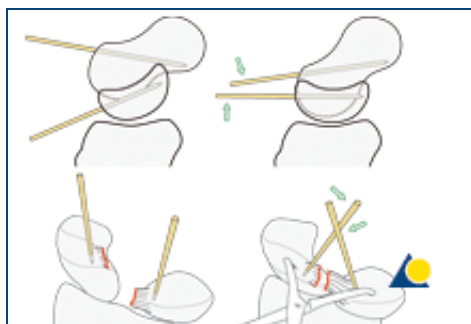
The anchor is placed distally in the scaphoid, or proximally in the lunate.

Often, one anchor will be sufficient, but occasionally two anchors will be needed.

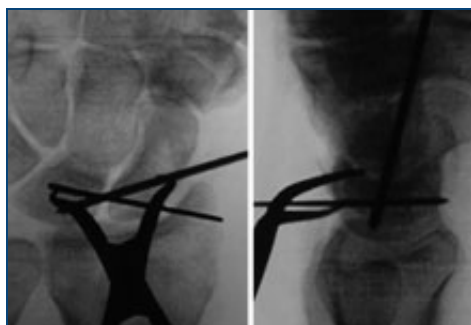


The suture is inserted into the ligament proximally when it is anchored in the lunate, and distally when it is anchored in the scaphoid.

#### 4 Anatomical reduction



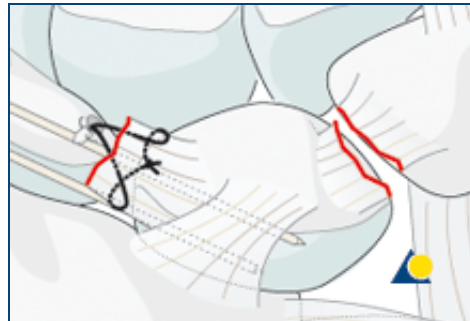
The SL gap is closed using the two joysticks, extending the scaphoid and flexing the lunate.



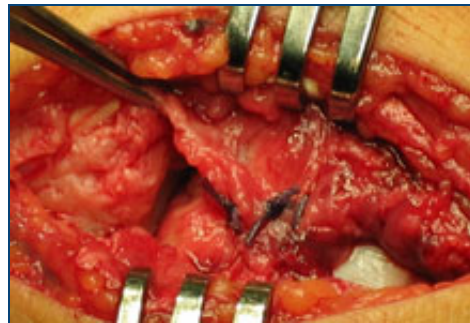
A pointed reduction clamp helps to secure the reduction temporarily. Confirm reduction using image intensification. Remove the joysticks if the reduction is satisfactory.

Both bones are secured by transfixation with two K-wires inserted percutaneously from scaphoid to lunate. Confirm the position of both wires using image intensification.

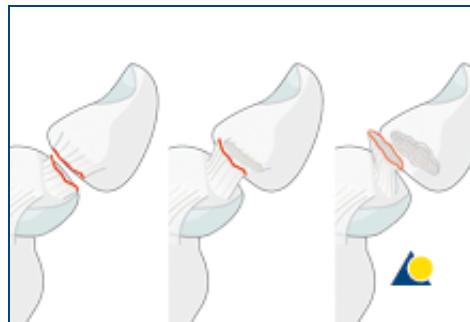
## 5 Ligament repair



At this stage, the sutures are tied.



If the ligament is torn in the mid-substance, direct repair is undertaken with resorbable sutures.

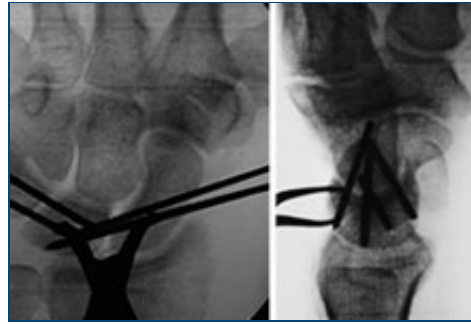


### Lunotriquetral ligament repair

The lunotriquetral ligament can be torn

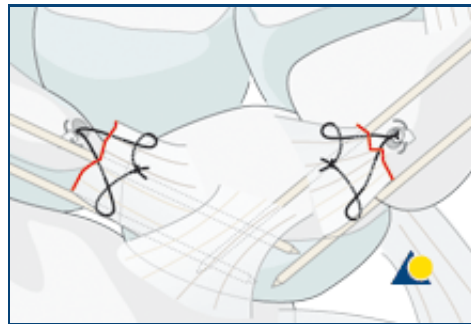
- from the lunate (as in most cases),
- from the triquetrum,
- in its mid-substance,
- or as a bony avulsion from either bone.

There must be sufficient ligamentous tissue remaining attached to the bone for repair with bone anchors. Otherwise, repair must be by direct suture, or by transfixation of both bones.



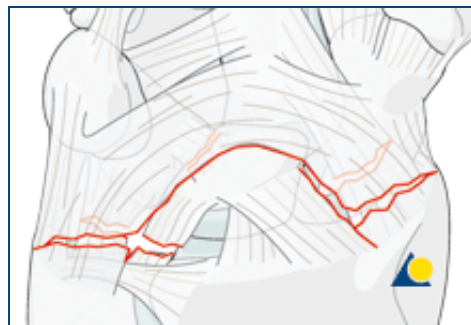
The LT joint is reduced, and two 1.4 mm K-wires are inserted percutaneously from the ulnar side of the triquetrum, across the LT joint, into the lunate.

Confirm the position of the wires using image intensification.



A suture anchor is inserted into the debrided area of the avulsion.

## 6 Palmar approach

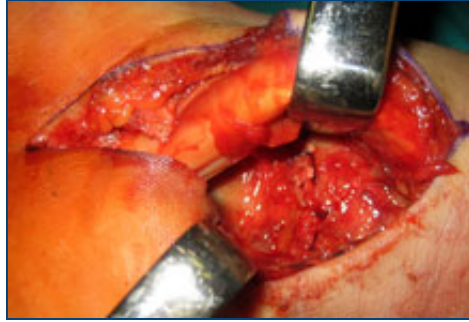


A palmar approach will reveal the characteristic disruptions of the extrinsic palmar ligaments, which occur through the space of Poirier. A rent in the palmar capsule, between proximal and distal ligament arches, exposes the midcarpal joint.



The midcarpal joint is irrigated. Loose bodies, or subchondral flakes, are removed,...

... and the rent is repaired anatomically using interrupted



resorbable sutures.

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