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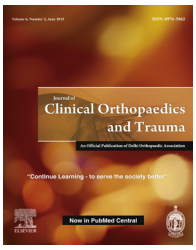

Case report

A unique case of bilateral trans-scaphoid perilunate dislocation with dislocation of lunate into the forearm

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ABSTRACT

Introduction: Perilunate dislocations are commonly seen after fall on an outstretched hand in extremes of dorsiflexion and ulnar deviation. A greater arc injury is one when there is an associated fracture of one or more bones around the lunate while a lesser arc injury is associated with pure ligamentous disruption around the lunate.

Case report: We report a unique case of bilateral trans-scaphoid perilunate dislocation in a 35-year-old male labourer. This is the first reported case where the lunate dislocated into the forearm on the volar aspect. Urgent open reduction and stabilization of both wrists was done. Currently, the wrist is stable with functional range of motion with union of both scaphoid fractures at 1-year follow-up.

Discussion: A delay in management of perilunate dislocations is associated with unfavourable prognosis. Prompt reduction and fixation is of paramount importance. Radiocarpal arthritis is associated with delayed management. In our case, the patient has regained painless functional range of motion without any radiological evidence of arthritis.

Conclusion: We thus conclude that all perilunate dislocations must undergo emergency reduction. Open reduction and ligamentous repair should be considered as the treatment of choice as it is associated with better functional outcomes in terms of pain and arthritis.

1. Introduction

Perilunate dislocations are commonly seen after fall on an outstretched hand in extremes of dorsiflexion and ulnar deviation. Mayfield et al. described the arc that the dislocating torque follows, which begins with disruption of the scapho-lunate ligament or fracture of the scaphoid followed by lunato-capitate disruption and then by disruption of the lunato-triquetral ligament. Eventually, if the force is sufficient, the lunate dislocates and rotates palmarly, which is the final stage of perilunate dislocation. A greater arc injury is one when there is an associated fracture of one or more bones around the lunate while a lesser arc injury is associated with pure ligamentous disruption around the lunate.[1]

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2. Case report

A 35-year-old male labourer sustained injury to both his wrists due to fall from a height on outstretched hand. He was taken to a tertiary care centre where he was thoroughly evaluated and relevant radiographs were taken. Examination and radiographs revealed closed perilunate dislocation bilaterally (Fig. 1). On the left side, there was an associated fracture of the scaphoid with dislocation of the lunate and the proximal pole of the scaphoid into the forearm volarly. The lunate was rotated palmarly and was present just volar to the distal end of radius. There was a similar dorsal perilunate dislocation with fracture of the waist of scaphoid on the right side. There was no neurological or vascular deficit. A computed tomogram confirmed the diagnosis and the extent of communition (Fig. 2).

The patient was immediately taken for closed reduction under anaesthesia where an attempt was made to milk the dislocated lunate back into the wrist and then reduce the capitate using the Tavernier manoeuvre. However, the dislocation was irreducible on the left while it was suboptimal on the right side.

Hence, open reduction was resorted to with the standard dorsal approach. The lunate was reduced back to its native position and fixed to the radius with a K wire and the scaphoid

Fig. 1 – Preoperative X-rays showing bilateral trans-scaphoid perilunate dislocation with dislocation of the lunate on the volar aspect in the left side.

Fig. 2 – CT scan of the left wrist showing dislocation of lunate proximally on to the volar aspect of radius.

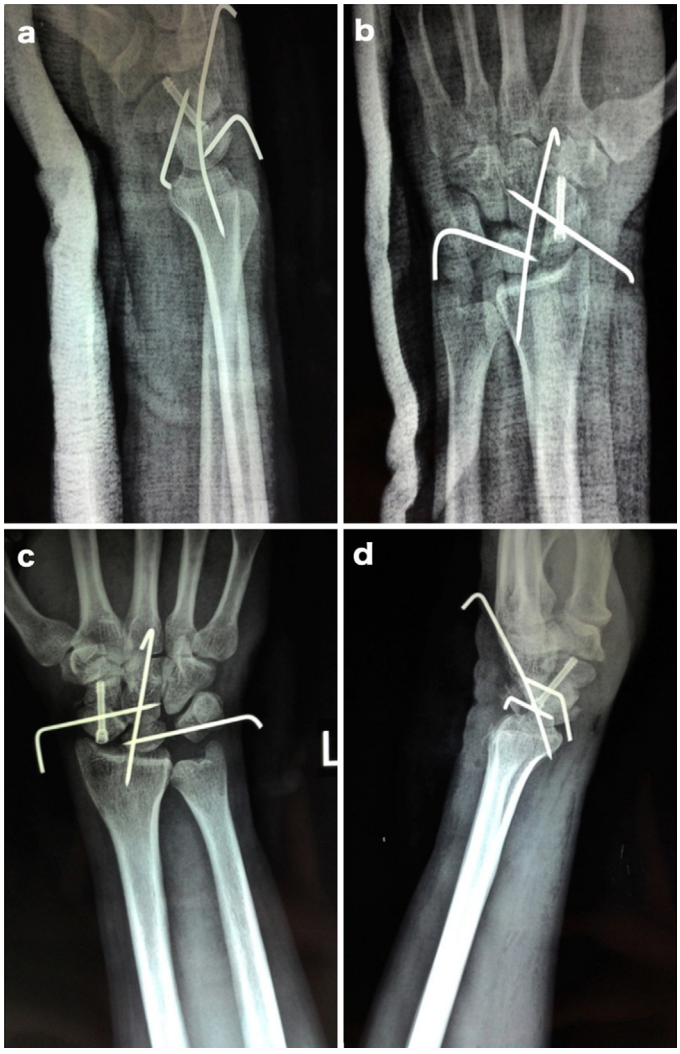

Fig. 3 – Postoperative X-rays showing fixation. Right side (a and b) and left side (c and d).

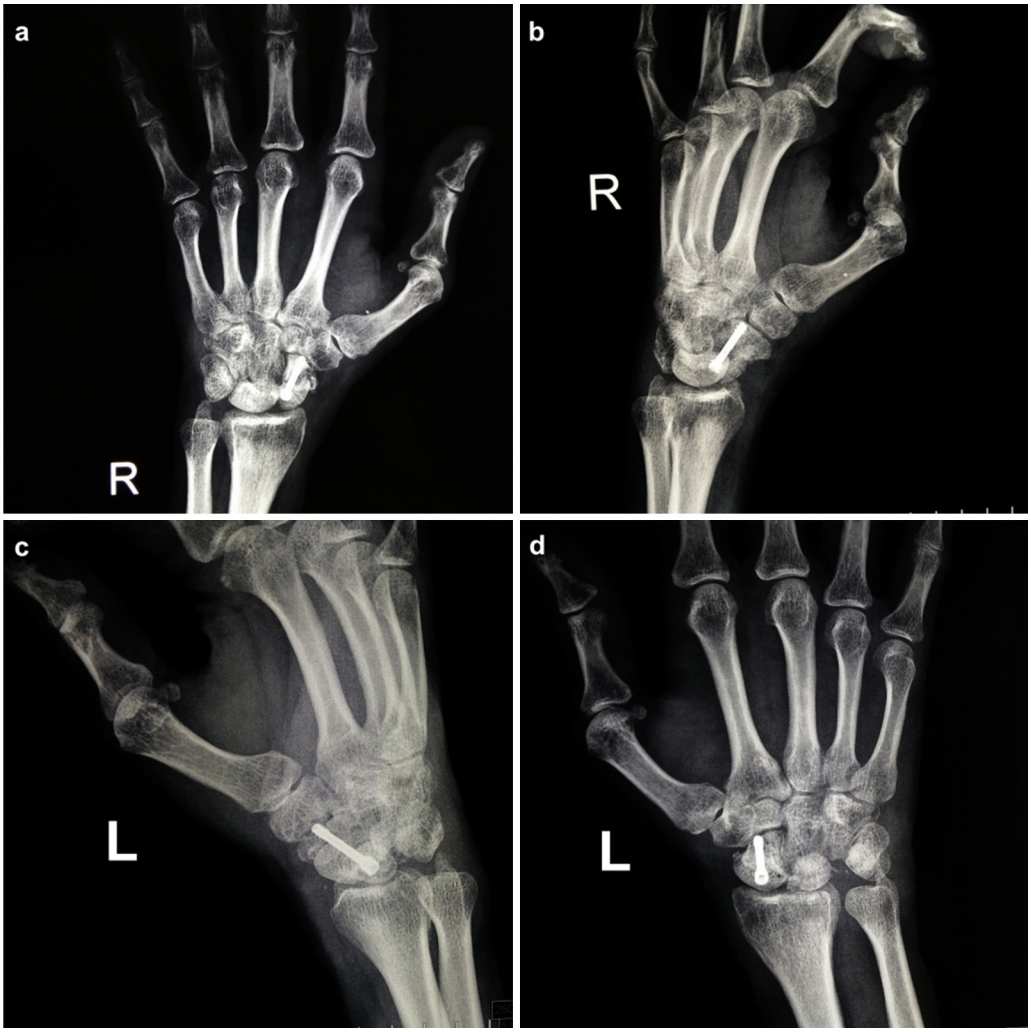

Fig. 4 – 1-Year follow-up X-rays showing union of scaphoid and maintained integrity of radiocarpal and intercarpal joints.

was reduced and fixed with a Herbert screw on both sides. The lunato-triquetral and scapho-capitate relationships were restored and stabilized using K wires (Fig. 3). The torn ligaments were repaired dorsally and volarly and the wound was closed in layers. Postoperatively, both wrists were immobilized in a brace.

After 6 weeks of immobilization, the K wires were removed and both the wrists were imaged fluoroscopically for range of motion. As both wrists were stable, physiotherapy was started to regain the range of motion. By 3 months, both scaphoid fractures showed signs of union. Patient had functional range of motion at both wrists. Radiographs did not show any evidence of arthritis even at 1-year follow-up (Fig. 4).

3. Discussion

Perilunate dislocations are devastating high-energy wrist injuries that require immediate reduction. Significant number (20%) of perilunate dislocations are missed on initial conventional radiographic investigations, mainly X-rays, leading to a delay in management leading to unfavourable results. This is more common in lesser arc injuries and hence MRI is a useful adjunct in diagnosis. Also, A CT scan is useful to detect occult greater arc injuries. They must be considered as an emergency and prompt reduction with temporary or definitive fixation must be undertaken. Median nerve palsy must be looked out for especially in when the lunate dislocates palmarly.[2,3]

This is the first case to report bilateral trans-scaphoid perilunate dislocation with the lunate being dislocated into the forearm volarly on the left side. Surgical options include closed reduction and internal fixation or open reduction with ligamentous repair. Green et al. have conclusively established that urgent open reduction is the treatment of choice if the reduction is suboptimal. Open reduction is considered to be a better alternative as the torn ligaments can be addressed to more effectively. Herzberg et al. followed a series of 14 trans-scaphoid dorsal perilunate dislocations that underwent open reduction and internal fixation with good medium term results.[4] Post-traumatic radiological arthritis was almost always seen but this did not correlate with the clinical function, which was adequate. Trumble and Verheyden reported a series of 22 patients with perilunate dislocations that were treated with open reduction, most of whom showed good range of motion and grip strength on a 4-year follow-up. Follow-up radiographs did not show any evidence of change in

scapho-lunate angle and decrease in joint space. A retrospective study by Inoue et al. of 28 perilunate dislocations with scaphoid fractures revealed satisfactory results when early open reduction, ligamentous repair and cast immobilization were carried out. Thus, open reduction and internal fixation have a favourable effect on the prognosis.[5–7]

In our case, the patient recovered to functional range of motion in both wrists with the scaphoid showing union bilaterally. Also, the movement was pain free and there was no evidence of arthritis. This illustrates the importance of early open reduction with fixation in terms of favourable outcome.

4. Conclusion

We thus conclude that all perilunate dislocation must undergo emergency reduction. Open reduction and ligamentous repair should be considered as the treatment of choice as it is associated with better functional outcomes in terms of pain and arthritis.

Conflicts of interest

The authors have none to declare.

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