

POSTEROMEDIAL ELBOW DISLOCATION WITH IPSILATERAL DISTAL RADIUS FRACTURE

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ABSTRACT

Distal radius fractures with concomitant ipsilateral elbow dislocation are a rare injury pattern. Only a few cases of a distal radius fracture with ipsilateral elbow dislocation have been reported. We discuss the case of a 46-year-old gentleman presenting with posteromedial elbow dislocation with an ipsilateral closed extra-articular fracture of the distal radius. Plain radiographs showed a right posteromedial elbow dislocation and ipsilateral distal radius fracture. CT scans of the elbow showed impaction fractures of the coronoid and trochlea, suggesting a concomitant posteromedial varus elbow dislocation injury. CT scans of the wrist showed the presence of a comminuted, extra-articular distal radius fracture. Surgical fixation of the distal radius was performed, as well as repair of the right elbow lateral capsule-ligamentous complex with suture anchors. Proper recognition of the posteromedial varus instability type injury to the elbow, as in this case is important, should be addressed. If VPMRI is missed, it can lead to ulno-humeral osteoarthritis of the elbow joint.

Keywords: Elbow dislocation; Posteromedial instability; Varus instability; Radius fracture; Elbow instability.

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CASE REPORT

A 46-year-old gentleman was presented to the hospital after falling from his bicycle and landing on his outstretched right hand. He complained of pain over the right wrist and elbow. On physical examination, there was an obvious deformity over the right elbow with swelling noted over both the right elbow and wrist joint. Both the wrist and elbow joint were tender and unable to be ranged. There were no open wounds noted, and no neurovascular deficit. Plain radiographs showed a right posterior-medial elbow dislocation and ipsilateral distal radius fracture [Figs. 1(a) and 1(b) and 2(a) and 2(b)].

CT scans of the elbow showed impaction fractures of the coronoid and trochlea, suggesting a concomitant posteromedial varus elbow dislocation injury. CT scans of the wrist showed the presence of a comminuted, extra-articular distal radius fracture.

Open reduction and internal fixation of the distal radius was performed [Figs. 3(a) and 3(b)].

Following fixation of the distal radius, stress test of the elbow was performed, with laxity of the lateral joint line on varus stress testing, suggesting a posteromedial varus pattern of elbow injury. Figure 4(a) and 4(b) intraoperatively, it was noted that there was 50% rupture of the common extensor origin and avulsion of lateral ulnar collateral ligament off the footprint. The patient then underwent repair of the right elbow lateral capsule-ligamentous complex with a 3.0 mm biocomposite suture anchor (Depuy Mitek, Raynham, MA). Intra-operative fluoroscopic imaging of the right elbow post-repair shows a stable elbow even on stress-test [Fig. 5].

At three months follow up, right wrist palmar flexion was 54°, dorsiflexion was 68°. Pronation was 80° while supination was 90°. Right elbow flexion and extension was 9° to 143°. His grip strength had been improving, with the patient able to return to cycling.

At four months follow up, right wrist palmar flexion was 56°, dorsiflexion was 72°. Pronation

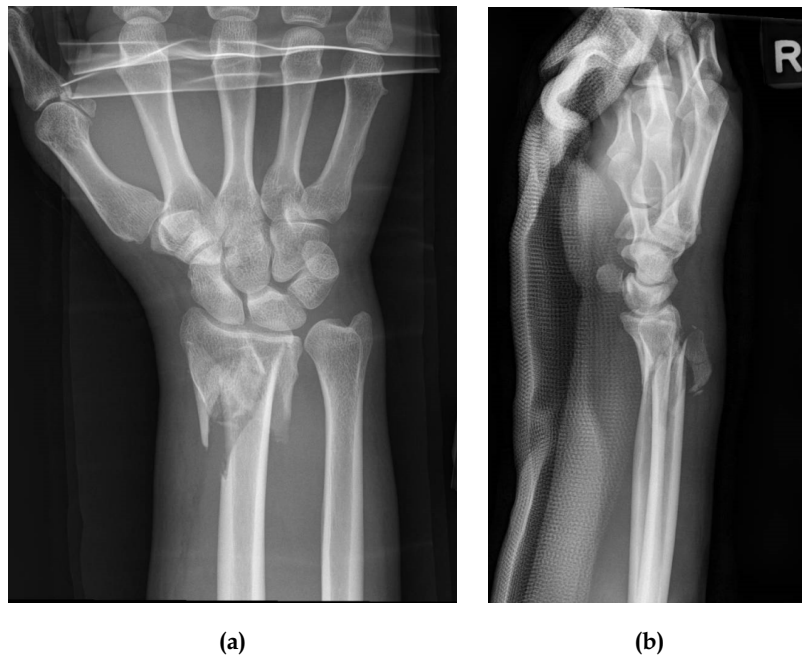


Fig. 1 (a) Anterior view of radiograph of the right distal radius fracture and (b) Lateral view of radiograph of the right distal radius fracture.

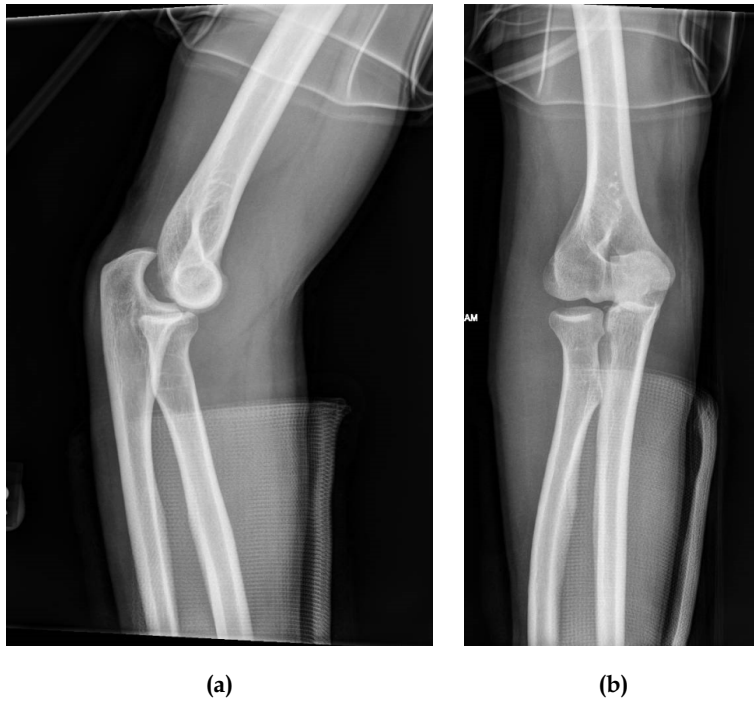


Fig. 2 (a) Anterior view of radiograph of the right elbow dislocation and (b) Lateral view of radiograph of the right elbow dislocation.



Fig. 3 (a) Anterior view of immediate post-operative radiograph of the right distal radius and (b) Lateral view of immediate post-operative radiographs of the right distal radius.

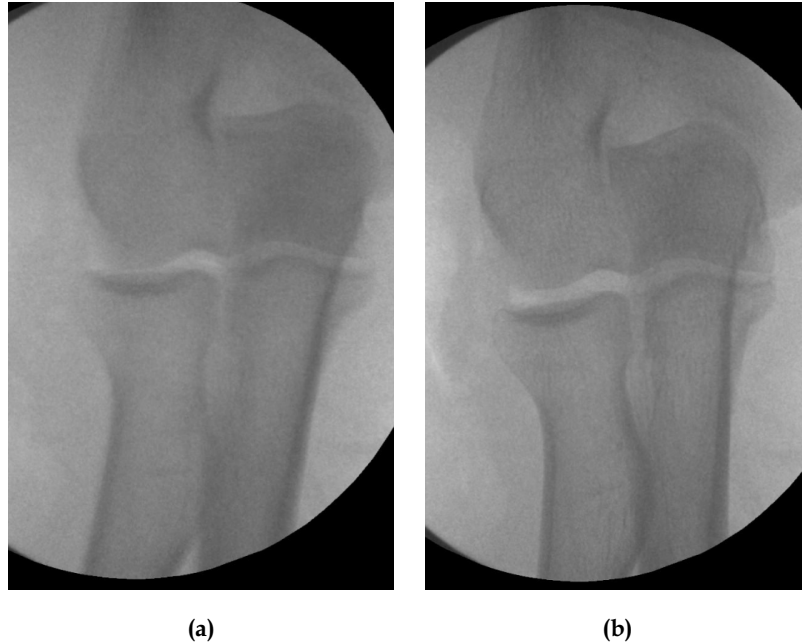


Fig. 4 (a) Intra-operative fluoroscopy with pre-stress test view of the right elbow prior to repair and (b) Intra-operative fluoroscopy with post-stress test view of the right elbow prior to repair.

was 80° while supination was 90°. Right elbow flexion and extension was 7° to 143°. Right elbow average strength was 110N. Right hand grip strength was 22.2kgf/Nm.



Fig. 5 Intra-operative fluoroscopy with post-stress test view of the right elbow post repair.

At six months follow up, the patient’s right elbow range of motion was satisfactory. Pronation and supination was full. Right wrist range of motion was satisfactory. The radiological scans showed the fracture healed, with implants *in situ*.

At one year follow up, the patient had regained full range of motion for both his right elbow and wrist. Radiological scans showed full fracture healing [Figs. 6(a)-6(d)].

DISCUSSION

Fractures commonly involved with elbow dislocation are those of the proximal ulna or radius.¹ Distal radius fracture with an ipsilateral elbow dislocation is not a common pattern of injury. Of the 13 reports noted,^{1-10,12-14} Frazier,³ Madhar⁶ and Nanno⁹ described such cases in children. Furthermore, varus posteromedial rotational instability (VPMRI) of the elbow associated with distal radius fracture is uncommon, yet imperative is not to be missed.



Fig. 6 (a) Anterior view of 1 year post-operative radiograph of the right elbow, (b) Lateral view of 1 year post-operative radiograph of the right elbow, (c) Anterior view of 1 year post-operative radiograph of the right radius and (d) Lateral view of 1 year post-operative radiograph of the right radius.

The mechanism of injury in this case was likely an axial loading, varus injury to the elbow, causing avulsion of the lateral ulnar collateral ligament. The medial side of the elbow was thus compressed, causing impaction fractures of the coronoid and trochlea. Elbow dislocation associated with a distal radius fracture likely indicates a high energy trauma, hence investigations should be made to disclose any bony or ligamentous injuries causing instability of the elbow. Proper recognition of the posteromedial varus instability

type injury to the elbow, as in this case is important, should be addressed. If VPMRI is missed, it can lead to ulno-humeral osteoarthritis of the elbow joint.

CONCLUSION

The case above increases awareness about the possibility of a posteromedial varus type instability of the elbow associated with a distal radius fracture. This highlights the importance of

thorough clinical examination and investigations, such that the above injury type will not be missed.

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