An Unusual Case of Posterolateral Rotatory Instability of the Elbow

Luigi Tarallo¹ Raffaele Mugnai¹ Fabio Catani¹

¹ Department of Orthopaedics and Traumatology, University of Modena and Reggio Emilia, Modena, Italy

J Hand Microsurg 2017;9:109–110.

Address for correspondence Luigi Tarallo, MD, Department of Orthopaedics and Traumatology, University of Modena and Reggio Emilia, Via del Pozzo 71, 41124 Modena, Italy (e-mail: tarallo.luigi@policlinico.mo.it).

The authors present a case of posterolateral rotatory elbow instability (PLRI) caused by the concomitant presence of lateral ulnar collateral ligament (LUCL) insufficiency and an impression fracture of the volar margin of the radial head.

A 13-year-old boy had a posttraumatic elbow dislocation treated with closed reduction and immobilization for 40 days. Eight years after the trauma, the patient comes to the authors' attention for recurrent elbow dislocation, in particular when an axial load was transferred into the radial head, with the forearm in neutral position and the elbow flexed to approximately 30 degrees. Assessment of stability with the posterolateral drawer and pivot-shift tests did not reproduce pain or instability.

X-rays demonstrated no bony deformity, except for the presence of multiple spots of heterotopic ossification near the humeral origin of the LUCL, suggestive for an old injury in that place. The magnetic resonance imaging (MRI) showed an edema in the posterior portion of the lateral humeral condyle and on the volar side of the radial head; the LUCL seemed to be healed in elongation. Computed tomographic (CT) scan of reconstruction revealed an impression fracture of the volar margin of the radial head and of the posterior part of the capitellum, analogous to the Hill-Sachs lesion of the shoulder (►Fig. 1).

During surgery, the area of bone loss of the volar margin of the radial head, documented with the CT scan, was confirmed, and a partial detachment of the LUCL from its humeral origin

Fig. 1 The impression fracture of the volar margin of the radial head and of the posterior part of the capitellum (CT study), associated with LUCL insufficiency (intraoperative images), can lead to posterior dislocation of the head, behind the capitulum humeri.

received
March 18, 2017
accepted after revision
July 3, 2017
published online
July 21, 2017

© 2017 Society of Indian Hand & Microsurgeons

DOI <https://doi.org/10.1055/s-0037-1604416>.
ISSN 0974-3227.

was observed (► **Fig. 1**). In this way the axial load of the forearm passes through the defect of the volar margin of the radial head, leading, in presence of a lateral ulnar collateral ligament insufficiency, to posterior dislocation of the head, behind the capitulum humeri (► **Fig. 1**).

The LUCL was retensioned using an anchor of 3.5 mm, obtaining a reduction of the space between the posterolateral humeral epicondyle and the supinator crest of the ulna, and complete resolution of the symptoms.

The diagnosis of PLRI may be missed if it is not suspected and investigated explicitly. The lateral pivot-shift test has been classically described as the most sensitive examination technique for diagnosing PLRI.¹ Morrey and O'Driscoll have also described a posterolateral drawer test that may demonstrate subtle rotatory translation.² However, in the present case, both the tests failed to show any sign of dislocation because they were performed with the forearm supinated, and the radial head covered the humeral condyle.

The value of MRI in the diagnosis of posterolateral rotatory instability remains controversial; however, it can be useful in evaluating possible LUCL lesions and signs of elbow instability (radiocapitellar and axial ulnohumeral incongruity).³

In conclusion, in the presence of recurrent elbow dislocation, the authors suggest suspecting the diagnosis of PLRI even if the clinical tests are negative, including between the imaging studies a CT scan to evaluate the integrity of the radial head, coronoid process, and capitellum.

Note

The patient provided informed consent to the publication of this work.

Conflict of Interest

None.

References

- 1 O'Driscoll SW, Bell DF, Morrey BF. Posterolateral rotatory instability of the elbow. *J Bone Joint Surg Am* 1991;73(03): 440–446
- 2 Morrey BF, O'Driscoll SW. Lateral collateral ligament injury. In: Morrey BF, ed. *The Elbow and Its Disorders*. Philadelphia, PA: WB Saunders; 1995:13–36
- 3 Hackl M, Wegmann K, Ries C, Leschinger T, Burkhart KJ, Müller LP. Reliability of magnetic resonance imaging signs of posterolateral rotatory instability of the elbow. *J Hand Surg Am* 2015;40(07): 1428–1433