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Fracture of Lateral Condyle of Humerus with Postero-Medial Dislocation of Elbow in a Paediatric patient – A Case Report

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ABSTRACT

The dislocation of elbow in posteromedial direction associated with lateral condyle fracture in paediatric population is rarely reported. We report an 8 year old male child who had posteromedial dislocation of the elbow with Milch type II lateralcondylar fracture of the distal humerus. Closed reduction of elbow was done under general anaesthesia, followed by open reduction and fixation of lateral condyle with Kirschner wires. Patient was followed up till 9 months after injury. The joint was painless and stable with satisfactory mobility at final follow-up. As evidenced in literature and by our case, preliminary closed reduction of elbow dislocation followed by anatomical open reduction of lateral condyle remains the mainstay of treatment.

KEYWORDS lateral condyle, humerus, elbow, posteromedial dislocation

Introduction

Lateral condyle humerus fracture with posteromedial dislocation of elbow is an exceedingly uncommon injury. A handful of cases have been reported till now.[1-18]The radiographs associated with the injury show increased ulnohumeral joint space with posterior dislocation and a displaced fracture oflateral condyle of humerus.

Here, we present a case of posteromedial dislocationof the elbow associated with a Milch type II fractureof the lateral condyle of humerus. The injury mechanism, treatment, and the clinical outcomeare discussed.

Case

A 8 year-old boy fell from his bicycle onto his left outstretchedhand and presented in our emergency unit with swelling and deformity of left elbow (Figure 1). The injury was a closed one, without any distal neurovascular deficit. Radiographs were taken and they revealed posteromedial elbow dislocation with displaced fracture of lateral condyle (Milch II) (Figure 2).

Emergent reductionwas done under conscious sedation and analgesia in the emergency department by gentle traction and manipulation. The elbow dislocation was reduced and repeat radiographs revealed reduced elbow with the displaced lateral condyle fracture (Figures 3a and 3b). The joint was unstable to varusand valgus stresses. Patient was taken up for surgery within the next few hours.Through a standard lateral approach, the lateralhumeral condyle was anatomically reduced and fixedwith two 1.5-mm smooth Kirschner wires (K-wires)(Figure 4). A long arm slab was applied. At 2 weeks postoperatively, stiches were removed and slab was converted to long arm cast. At 4 weeks, the cast and wires were removed and rehabilitation begun.Final follow-up at 9 months revealed goodfunctionaland radiologic results (Figure 5). There was no varus or vagus instability. The range of motion was 0-110 degrees (0-120 degrees in opposite elbow) at 9 months of follow up.

Figure 1 - Clinical photographs after injury showing gross swelling and deformity around elbow joint.

Figure 2 - Radiographs depicting posteromedial dislocation of elbow with displaced lateral condyle fracture (Milch II).

Figure 3 - Radiographs after preliminary closed reduction of elbow.

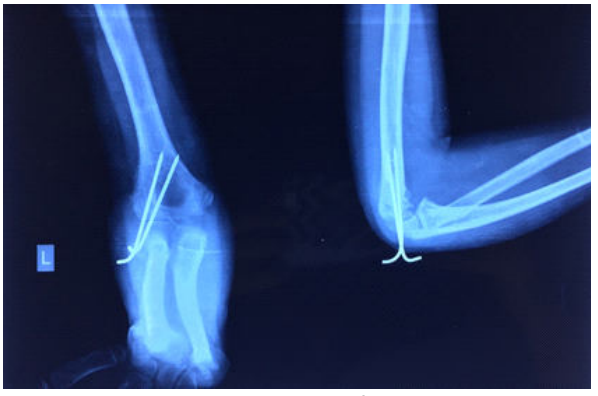

Figure 4 - Post operative radiographs after open reduction and K wire fixation of lateral condyle fracture.

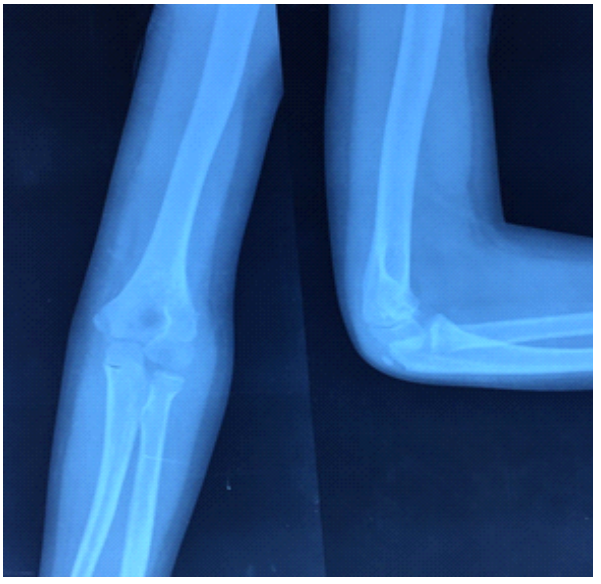

Figure 5 - Final follow-up showing radiological union.

Discussion

The elbow joint is the most common joint to be dislocated in children.Both posterior dislocation of elbow joint and lateral humeral condyle fractures are common in pediatric population [20]. However, the combined presentation of these two conditions is uncommon.[1,2,4,5,11-16,18,21]

The patient usually has history of fall on outstretched hand with varus directed force at elbow joint in partially flexed position. [21]It is important to obtain radiographs before one attempts reduction of dislocation, as lateral condyle fracture may be missed on post-reduction radiographs. [4]Patient clinically has signs of posterior dislocation and radiologicallyappreciable fracture of lateral condyle of humerus.According to the Milch classification, Milch Type II injuries that traverse the trochlear groove are significantly more common than Milch Type I.[13] In our case also, the lateral condyle fracture was Milch Type II. The radiocapitellaralignment as well as ulnohumeral articulation weredisturbed because of elbow dislocation.

AlthoughMilch type 1 injuries are thought to be stable because of presence of intact trochlear rim, cases with unstable elbow joint with type Milch Type 1 injuries have been reported.[13,14]Anatomical reduction of the lateral condyle fragment is of paramount importance to achieve a stable elbow joint. Sub-optimal reduction can culminate in non-union or mal-union, and lead to an unstable elbow. Any loose osteochondral fragments must be removed.[4]

With the available literature data [1-18], it appears good outcomes have been observed in such cases with preliminary closed reduction followed by anatomical open reduction of fractured lateral condyle.In our case too, we stressed upon these principles.

Conclusion

With our experience in this case, we conclude thatposteromedial dislocation of elbow with associated lateral condyle humerus fracture should be treated with preliminary closed reduction of dislocation followed by anatomical open reduction of lateral condyle humerus fracture in order to obtain favorable results.

References

1. Silva M, Cooper SD, Cha A. Elbow dislocation with an associatedlateralcondylefracture of the humerus: a rare occurrence in the pediatric population. J PediatrOrthop. 2015 Jun;35(4):329-33.
2. G. Mirouse P. Corcos, L. Casabianca, P. Guillon. Posteromedial dislocation of the elbow with lateral condyle and coronoid processfractures: a case report. Chirurgie de la MainVolume 33, Issue 1, February 2014, Pages 63–66.
3. McLearie M, Merson RD. Injuries to the lateral condyle epiphysis of the humerus in children. J Bone Joint Surg 1954;36: 84–9.
4. Cheng PG, Chang WN, Wang MN. Posteromedial dislocation of the elbow with lateral condyle fracture in children.J Chin Med Assoc. 2009 Feb;72(2):103-7.
5. MuradUslu M, Eksioglu F.Posterolateral dislocation of the elbow with concomitant fracture of the lateral humeral condyle. J Trauma. 2000 Oct;49(4):792-3.
6. Wheeler DK, Linscheid RL. Fracture-dislocation of the elbow.ClinOrthop 1967;50:95–106.
7. Roberts PH. Dislocation of the elbow. Br J Surg 1969;56: 806–15.
8. Hendel D, Aghasi M, Hslperin N. Unusual fracture dislocation of the elbow joint. Arch Orthop Trauma Surg 1985;104: 187–8.
9. Badelon O, Bensahel H, Mazda K, Vie P. Lateral humeral condylar fractures in children: a report of 47 cases. J PediatrOrthop 1988;8:31–4.
10. Pollen AG. Fracture and Dislocation in Children. Baltimore: William &Willkins, 1973:42–4.
11. Tachdjian MO. Fractures and Dislocations: Pediatric Orthopedics, 2nd edition. Philadelphia, PA: WB Saunders, 1990:3124–31.
12. van Haaren ER, van Vugt AB, Bode PJ. Posterolateral dislocation of the elbow with concomitant fracture of the lateral humeral condyle: case report. J Trauma 1994;36:288–90.
13. Rovinsky D, Ferguson C, Younis A, Otsuka NY. Pediatric elbow dislocation associated with a Milch type I lateral condyle fracture of the humerus. J Orthop Trauma 1999;13:458–60.
14. Murnaghan JM, Thompson NS, Taylor TC, Cosgrove AP, Ballard J. Fracture lateral epicondyle with associated elbow dislocation. Int J ClinPract 2002;56:475–7.
15. Pouliart N, De Boeck H. Posteromedial dislocation of the elbow with associated intraarticular entrapment of the lateral epicondyle. J Orthop Trauma 2002;16:53–6.
16. Kirkos JM, Beslikas TA, Papavasiliou VA. Posteromedial dislocation of the elbow with lateral condyle fracture in children.ClinOrthop 2003;408:232–6.
17. Rasool MN. Dislocation of the elbow in children. J Bone Joint Surg2004;86:1050–8.
18. Eksioglu B, Uslu M, Gudemez E, Cetik O. Medial elbow dislocation associated with a fracture of the lateral humeral condyle in a child. Orthopedics 2008;31:93–7.
19. Milch H. Fractures and fracture dislocations of the humeral condyles. J Trauma 1964;4:592–607.
20. Wilkins KE. Fractures and dislocations of the elbow region. In: Rockwood CA, Wilkins KE, King RE, eds. Fractures in Children. Philadelphia, PA: Lippincott Williams & Wilkins, 1996:618–54.
21. Morrey BF. Conditions Affecting the Child's Elbow: The Elbow and its Disorders. Philadelphia, PA: WB Saunders, 1985:276–80, 323–4. Conflict of interest – None Financial support - None