

DOI: 10.4172/2471-8416.100062

An Unusual Case Report of Lateral Condyle Fracture Humerus Associated with Type 1 Coronoid Fracture in 8-Year-Old Child

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Received date: February 01, 2019; Accepted date: February 14, 2019; Published date: February 19, 2019

Citation: Arora M, Madaan E, Madaan U, Kumar S, Gupta A (2019) An Unusual Case Report of Lateral Condyle Fracture Humerus Associated with Type 1 Coronoid Fracture in 8-Year-Old Child. J Clin Exp Orthop Vol. 5 No1:62.

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Abstract

The case report describes the rare combination of lateral condyle fracture humerus along with fracture coronoid type 1. The patient underwent open reduction and internal fixation with 2 K wires for lateral condyle fracture. The coronoid fracture was left untouched as there was no indication for its fixation. At the end of 13 months, the patient has healed completely and is doing well.

Keywords: Lateral condyle fracture humerus; Elbow joint; Elbow dislocation

Introduction

Isolated fracture of coronoid in children is very rare. It usually occurs as a result of either avulsion of brachialis muscle or as a part of elbow dislocation, which is usually dislocated in the posteromedial direction [1,2]. On the other hand, lateral condyle humerus fracture is very common in children [3,4]. However, lateral condyle fracture along with dislocation of elbow leading to coronoid fracture is something that is unheard of [5-8]. The authors report a very rare case of fracture lateral condyle and coronoid fracture in an 8-year-old child. As per the current literature review, this combination of fracture pattern has never been reported to the very best knowledge of the authors at the time of writing this manuscript.

Case Report

An 8-year-old child presented to the emergency department with pain and swelling of his left elbow. The child sustained an injury to the left elbow as a result of a fall from 6 feet in height. On examination, his vitals were stable. There was swelling and tenderness over lateral condyle. On distal examination of his hand, we found was no neurovascular deficit. There was no other significant systemic injury. X-rays AP and Lateral views showed a fracture of lateral condyle humerus along with coronoid fracture (**Figure 1**). The patient was taken up for the surgery after pre-anesthetic clearance. The lateral condyle was

fixed with two K-wires using standard Kocher's approach (**Figure 2**). However, as the fracture coronoid was type 1 and also per operatively, the elbow was found to be stable after fixation of lateral condyle, it was decided to leave the coronoid fragment untouched. An above elbow cast was applied after dressing the wound. Post op period was uneventful. The child was started on an active range of motion exercises after 3 weeks of surgery. At 6 weeks K wires were removed. At the present follow up of 13 months a child has a full range of motion of the involved elbow joint (**Figure 3**).



Figure 1: X-ray AP and a lateral view showing avulsed coronoid fragment and lateral condyle fracture.



Figure 2: Post op X-ray. The left coronoid fragment can be seen on lateral view.



Figure 3: Post op clinical pics showing bilaterally comparable flexion and extension of the elbow joint.

Discussion

Lateral condyle fracture is the second most common fracture occurring in pediatric elbows [9,10]. It is very rarely associated with an elbow dislocation. The lateral condyle fracture is classified into two types. Milch type 1, where the fracture line enters medially into capitello-trochlear groove, is a true type 4 salter Harris injury and is frequently stable. Milch type 2, where the fracture line extends into the trochlea, is a salter Harris type 2 fracture and is inherently unstable [11]. The treatment of displaced lateral condyle humerus is open reduction and internal fixation with K wires, irrespective of Milch type, as was done in our case. The lateral condyle is very rarely associated with elbow dislocation [12].

The coronoid fracture is not very common in pediatric elbow injuries [1,2]. It is usually associated with an elbow dislocation. Regan and Morrey classified coronoid fractures into three types [13,14]. Type 1 involves the coronoid tip, Type 2 occurs when the fracture involves up to 50% of the coronoid process, while in Type 3 the fracture involves more than 50% of the coronoid process. Regan and Morrey recommended avoiding open reduction for type I and type II fractures [13]. For Type 3 coronoid fracture open reduction and internal fixation are recommended. Although both lateral condyle and coronoid fracture are known to occur in pediatric populations their combination has not been described before. The only possible explanation that can explain this two fracture simultaneously is the occurrence of elbow subluxation/dislocation which got reduced spontaneously.

Elbow dislocations are not very common injuries in pediatric populations. They account for approximately 3% of injuries to the elbow [15]. Elbow dislocations in pediatric age groups are usually associated with fracture medial epicondyle [16-18]. These studies quote the incidence of medial epicondyle fracture to vary from 30% to 50%. Although the fracture of lateral condyle, olecranon, capitellum, trochlea and coronoid can occur with elbow dislocation, the incidence is very low [12].

In our case, the possible mechanism of injury that can explain the fracture combinations is as follows. The child must have broken his fall on an outstretched hand with a semi-flexed elbow. Only a combination of varus and posterior directed force could perfectly explain the combination of lateral condyle fracture and coronoid tip avulsion. There would also have been a posterior subluxation/dislocation of the elbow as well which would have got reduced spontaneously, as per the understanding of the authors.

The lateral condyle fracture was milch type 1 along with coronoid tip avulsion. The elbow was found to be stable after fixation of lateral condyle fragment with two K wires. Hence, the coronoid tip avulsion was left untouched. Had there been per op elbow instability after lateral condyle fixation or intra articular coronoid fragment, it would have been surely tackled surgically.

Conclusion

The combination of lateral condyle fracture and coronoid tip avulsion although very rare is not difficult to treat. The authors aim to document this type of injury so that this combination of injury can be diagnosed early and managed appropriately.

Conflict of Interest

The authors state that there are no conflicts of interest at the time of publication of this article.

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