Posterolateral dislocation of the elbow with concomitant fracture of the lateral humeral condyle in a five year old child

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Abstract
A case of complex paediatric elbow trauma, comprising of fracture lateral condyle associated with posterior dislocation of elbow is presented. Concomitant elbow dislocation was managed by closed reduction under sedation, assessing the elbow stability under general anaesthesia along with lateral condylar fracture fixation using cannulated cancellous screw. The patient had an uneventful recovery with an excellent outcome. As these fractures are quite unusual to encounter, the management of such fractures can be technically demanding.
Introduction

There are limited evidences available in the literature describing complex elbow trauma in the paediatric population. The complex elbow anatomy and multiple growth centres appearing at the different time periods complicate the diagnosis and management of such trauma. McLearie and Merson published a review of five patients with lateral condyle fracture in association with posterolateral elbow dislocation [4]. Tachdjian described a case of medial elbow dislocation associated with fracture lateral humeral condyle [6]. More recently, Posteromedial dislocation of the elbow with lateral condyle fracture was described in four children by Kirkos et al. [3]. Posteromedial dislocation of the elbow with associated intraarticular entrapment of the lateral epicondyle is reported by Pouliart and De Boeck [5]. Similar injury patterns have been reported in the literature in paucity.

Complex paediatric elbow injuries are quite unusual and their management can be technically demanding. A case on complex paediatric elbow trauma, comprising of fracture lateral condyle associated with posterior dislocation of elbow is described here.

Case report:

A 5 year old boy presented with a grossly swollen and deformed right elbow after sustaining a fall off swing and directly landed on the elbow. There was no neurovascular deficit in the extremity. The radiographs showed posterolateral dislocation of the right elbow in association with Milch type III lateral condyle fracture (Fig. 1). The elbow dislocation was successfully manipulated under sedation in the emergency department. He had undergone an open reduction and internal fixation of the lateral condylar fracture using cannulated cancellous screw by lateral approach on the next day of injury (Fig. 2).
Fig. 1: Preoperative anteroposterior and lateral radiographs of the right elbow revealing displaced and rotated fracture lateral humeral condyle associated with posterolateral elbow dislocation.

The operated elbow was immobilised in an above elbow backslab postoperatively for the period of three weeks. Check radiographs are requested at one week follow up and confirmed no loss of reduction. The metalwork was removed at three months postoperatively. At 12 month follow up, the elbow had normal appearance and functions with no alteration in the carrying angle and no symptoms.

Fig. 2: Postoperative anteroposterior and lateral radiographs of the right elbow revealing internal fixation of the lateral condyle fracture with the help of single cannulated cancellous screw.
Discussion

The literature describing complex elbow trauma in the paediatric age group is quite limited. As these fractures are quite unusual to encounter, the management of such fractures can be technically demanding.

Traumatic dislocation of the elbow is a rare injury in children constituting 3-6% of all elbow injuries. It can infrequently be associated with lateral humeral condyle fracture. [3,5,8] The fixation of lateral condyle fracture is of prime importance as it constitutes Salter Harris type IV injury. The evidences support prompt open reduction and internal stabilisation of the lateral humeral condyle fracture provide the best results. [1,2] Growth plate and articular surface should be aligned and restored. Missing or inadequately treated lateral humeral condylar fracture can lead to non-union, abnormalities in carrying angle, prominence of the lateral humeral condyle, cubitus valgus and tardy ulnar palsy. [7]

In the described case, the elbow dislocation was reduced by closed manipulation under sedation, although, the elbow stability was assessed under general anaesthesia. Open reduction and internal fixation of lateral condyle fracture was carried out with the help of single cannulated cancellous screw. Kirschner wire, the alternative mode of fixation, is more widely used and usually removed ranging from 3 to 8 weeks. [2,7] The patient had an uneventful recovery with an excellent outcome as per Hardacre functional rating system [1] for evaluation of the results (i.e. no loss of motions, no alteration in the carrying angle and no symptoms).

In summary, concomitant elbow dislocation can be managed by closed reduction followed by simultaneous or later on anatomical reduction and open screw fixation or K-wiring of the lateral condyle fixation. Postoperatively, a close clinico-radiologic follow-up helps in early diagnosis of the loss of reduction.
References


