

# Pediatric Trans Olecranon Fracture-Dislocation of the Elbow Managed Nonoperatively: A Case Report and Review of Literature

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## Abstract

Elbow dislocations are rare injuries in children due to the resistance of the capsuloligamentous structures. Anterior dislocation is very rare and its combination with an olecranon fracture is unusual. The authors report a case of this lesion in a 7-year-old child managed nonoperatively.

## Keywords

Elbow, Anterior Dislocation, Children

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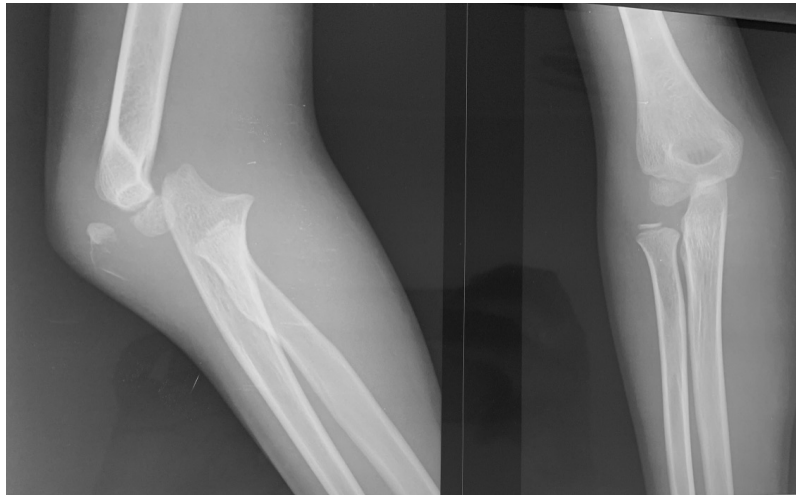
## 1. Introduction

Elbow dislocations are rare in children due to the resistance of the capsulo-ligamentary structures [1]. Posterior varieties are the most common. Anterior dislocation remains a rare or even exceptional injury, with only a few cases reported in the literature. Treatment is usually surgical. Orthopaedic treatment, although rarely reported, may be indicated in certain contexts and depending on the nature of the lesion. We report a case of anterior dislocation of the elbow associated with an olecranon fracture in a 7-year-old child who was treated orthopedically.

## 2. Observation

A 7-year-old boy with no previous pathological history was admitted to the emergency department two hours after a play accident. He presented with a closed trauma of the left elbow. The accident was caused by a fall during a Senegalese

wrestling match, with an unclear mechanism of injury. On examination, he presented with a deformity of the left elbow and absolute functional impotence of the upper limb. There was no vascular or nervous involvement. X-rays taken in the emergency department revealed a fracture-luxation of the elbow combining an anterior dislocation of the elbow and a fracture of the olecranon (**Figure 1**).



**Figure 1.** Post-traumatic radiograph of the elbow.

Emergency reduction using external maneuvers under general anaesthetic was performed without difficulty (**Figure 2**). The maneuvers involved traction combined with progressive elbow flexion. The elbow was stable after testing. A follow-up radiograph confirmed reduction of the dislocation and olecranon fracture. A brachio-antébrachio-palmar splint with the elbow flexed at 30° was applied.



**Figure 2.** Control after reduction.

After 30 days, the splint was removed. Five sessions of active-passive mobilisation of the elbow followed by self-rehabilitation were carried out after removal of the splint. Evaluation at 3 months post-traumatic noted a left elbow with full flexion-extension, pronation and supination. Consolidation of the olecranon fracture was achieved. This result, corresponding to an excellent outcome according to the Roberts [2] classification, was maintained at one year post-traumatic. **Table 1** gives a complete summary of the clinical case.

**Table 1.** Summary of the case.

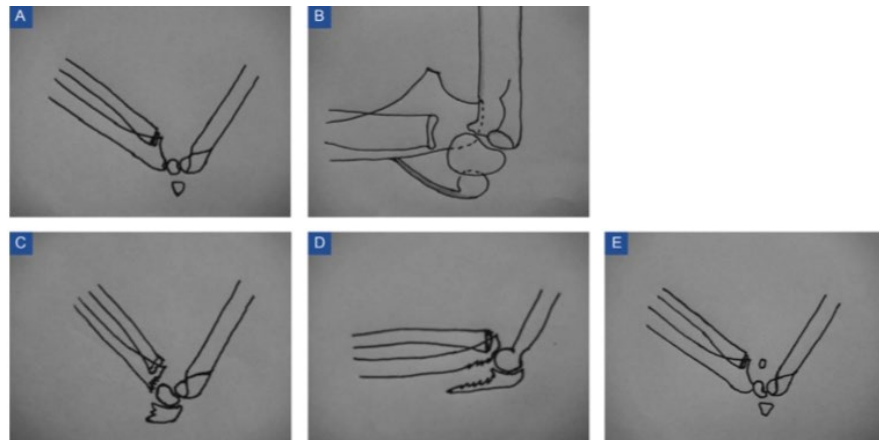
Parameters	Data
Age	7 years
Gender	Male
Circumstances	Playful accident Fall during a Senegalese wrestling match
Mechanism of injury	Unclear
Clinical data	Deformity of the left elbow Loss of normal anatomical landmarks of the elbow Absolute functional impotence of the upper limb No vasculo-nervous lesions
Radiographic findings	Anterior dislocation of the elbow associated with a fracture of olecranon
Treatment	Reduction by external maneuvers Contention with plaster Active-passive mobilisation of the elbow
3-month results	Excellent Full elbow mobility Consolidation of olecranon fracture

### 3. Discussion

Elbow dislocation is the second most common dislocation in adults, after shoulder dislocation [3]. It accounts for around 25% of elbow injuries [3] [4]. In children, supracondylar fracture of the humerus is the most frequent injury in elbow trauma, representing between 60% and 80% [5] [6]. Dislocations account for around 3% of elbow trauma in children [7] [8]. Posterior varieties are the most common [8] [9]. Anterior dislocation is very rare, and its association with an olecranon fracture is exceptional. Rasool [8] found one case in his series of 33 elbow dislocations. Hyvonen [9] noted 2 cases in a series of 104 dislocations. The combination of anterior elbow dislocation and olecranon fracture in children has been the subject of publications in the literature [1] [10]-[12]. It most often occurs after a play accident, and the mechanism most often described is a landing on the flexed elbow, although Wilkerson [13] found a hyperextended elbow mechanism in his case. Traction of the triceps is thought to be responsible for the fracture of the olecranon, which often manifests itself in the form of a bone tear [1]-[14]. Our case perfectly illustrates this hypothesis. However, due to the suddenness of the fall, the exact description of the mechanism in our case was not specified. In fact,

it was a fall during a Senegalese wrestling match.

A classification of this lesion was proposed in 2015 by Tiemdjo (Figure 3) [10] with 4 types identified according to the nature of the olecranon fracture. Type I corresponds to epiphyseal detachments. Type II corresponds to transverse fractures of the olecranon, type III to oblique fractures of the olecranon and type IV to olecranon fractures associated another fracture of the radius or humerus. Our case is similar to type I of this classification, corresponding to an epiphyseal detachment or proximal fracture of the olecranon with intact periosteum.



**Figure 3.** Classification of trans-olecranial anterior fracture-luxations. (A) and (B): Type I: epiphyseal detachment or very proximal fracture of the olecranon with or without continuity of the periosteum. (C): Type II: transverse fracture of the olecranon. (D): Type III: oblique fracture of the olecranon. (E): Type IV: olecranon fracture associated with another elbow fracture (medial epicondyle) [10].

Surgical treatment by open reduction and osteosynthesis of the olecranon is the most widely adopted therapeutic approach in the literature. Apart from this case, only Tiemdjo [10] has resorted to orthopedic treatment. The good results obtained in most of the cases described confirm the aim of the treatment, which is to obtain a stable elbow after reduction, regardless of the technique used. However, the technique of osteosynthesis of the olecranon is the subject of controversy. While Chater [1], Butler [11] and Wilkerson [13] have opted for tension band wiring, Guitton [12] recommends screw-plate osteosynthesis.

In addition, the choice of treatment should depend on the nature of the lesion, as proposed by Tiemdjo [10] in his decision-making algorithm. Our therapeutic approach is perfectly in line with this algorithm, with a highly satisfactory functional result.

#### 4. Conclusion

Anterior fracture-luxation of the elbow is a very rare injury in pediatric traumatology. A good understanding of the different anatomical and radiological entities is essential for efficient management. Proper orthopedic treatment can restore elbow function and stability in some cases.

## Declaration of Consent

The authors state that they obtained the informed consent of the patient's parents to report this case.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- [1] Chater, L., Atarraf, K., Arroud, M. and Afifi, M.A. (2014) Anterior Elbow Dislocation Associated with an Olecranon Fracture: A Rare Form of Elbow Dislocation in Children. *Journal de Traumatologie du Sport*, **31**, 43-45. <https://doi.org/10.1016/j.jts.2013.11.002>
- [2] Roberts, P.H. (1969) Dislocation of the Elbow. *Journal of British Surgery*, **56**, 806-815. <https://doi.org/10.1002/bjs.1800561103>
- [3] Hildebrand, K.A., Patterson, S.D. and King, G.J.W. (1999) Acute Elbow Dislocations. *Orthopedic Clinics of North America*, **30**, 63-79. [https://doi.org/10.1016/s0030-5898\(05\)70061-4](https://doi.org/10.1016/s0030-5898(05)70061-4)
- [4] Masson, E. (2024) Elbow Dislocations. EM-Consulte. <https://www.em-consulte.com/article/223634/luxations-du-coude>
- [5] Masson, E. (2024) Trauma to the Elbow. EM-Consulte.
- [6] Khenfri, P.M. (2022) Elbow Trauma in Children. <https://facmed.univ-constantine3.dz/wp-content/uploads/2022/02/Les-traumatismes-du-coude-chez-lenfant.pdf>
- [7] Yousri, B., Hachemi, M.O.E., Chekhlabi, N., Arihi, M., Aboumaarouf, M. and Andaloussi, M.E. (2012) Post-Traumatic Elbow Dislocation in Children (a Propos de 144 cas).
- [8] Rasool, M.N. (2004) Dislocations of the Elbow in Children. *The Journal of Bone and Joint Surgery*, **86**, 1050-1058. <https://doi.org/10.1302/0301-620x.86b7.14505>
- [9] Hyvönen, H., Korhonen, L., Hannonen, J., Serlo, W. and Sinikumpu, J. (2019) Recent Trends in Children's Elbow Dislocation with or without a Concomitant Fracture. *BMC Musculoskeletal Disorders*, **20**, Article No. 294. <https://doi.org/10.1186/s12891-019-2651-8>
- [10] Tiemdjo, H., Kinkpe, C., Coulibaly, N.F., Sane, A., Ndiaye, A. and Seye, S.I.L. (2015) Anterior Transolecranon Fracture-Dislocations of the Elbow in Children: A Case Report and Review of the Literature. *Archives de pediatrie. Organe officiel de la Société française de pediatrie*, **22**, 737-740. <https://doi.org/10.1016/j.arcped.2015.03.022>
- [11] Butler, M.A., Martus, J.E. and Schoenecker, J.G. (2012) Pediatric Variants of the Transolecranon Fracture Dislocation: Recognition and Tension Band Fixation: Report of 3 Cases. *The Journal of Hand Surgery*, **37**, 999-1002. <https://doi.org/10.1016/j.jhsa.2012.02.037>
- [12] Guitton, T.G., Albers, R.G. and Ring, D. (2009) Anterior Olecranon Fracture-Dislocations of the Elbow in Children. *The Journal of Bone and Joint Surgery-American Volume*, **91**, 1487-1490. <https://doi.org/10.2106/jbjs.h.00855>
- [13] Wilkerson, R.D. (1993) Anterior Elbow Dislocation Associated with Olecranon Fractures—Review of the Literature and Case Report. *Iowa Orthopedic Journal*, **13**, 223-225.
- [14] Winslow, R. (1913) A Case of Complete Anterior Dislocation of Both Bones of the Forearm at the Elbow. *Surgery, Gynecology & Obstetrics*, **16**, 570.