

# A new subtype of Galeazzi-equivalent injury? Case report

Claire-Anne Saugy<sup>1</sup>, Aline Bregou<sup>2</sup>

1. Service d'Orthopédie, Ensemble Hospitalier de la Côte, Morges
2. Unité Pédiatrique de Chirurgie Orthopédique et Traumatologique, Centre Hospitalier Universitaire Vaudois, Lausanne

## Introduction

**Pediatric displaced distal metaphyseal ulnar fractures** and **distal radial buckle fractures** are common. But their association has never been reported to our knowledge.

- Thus, **classification** and **management of this pattern remain challenging** especially in young children.
- Distal radioulnar joint (**DRUJ**)'s **assessment is difficult**. A **Galeazzi-equivalent injury should be suspected**.

## Methods

We report the case of a 2-year-old boy who presented the above-mentioned association of forearm fractures and compare our management with actual recommendations.

## Results

### Day 0

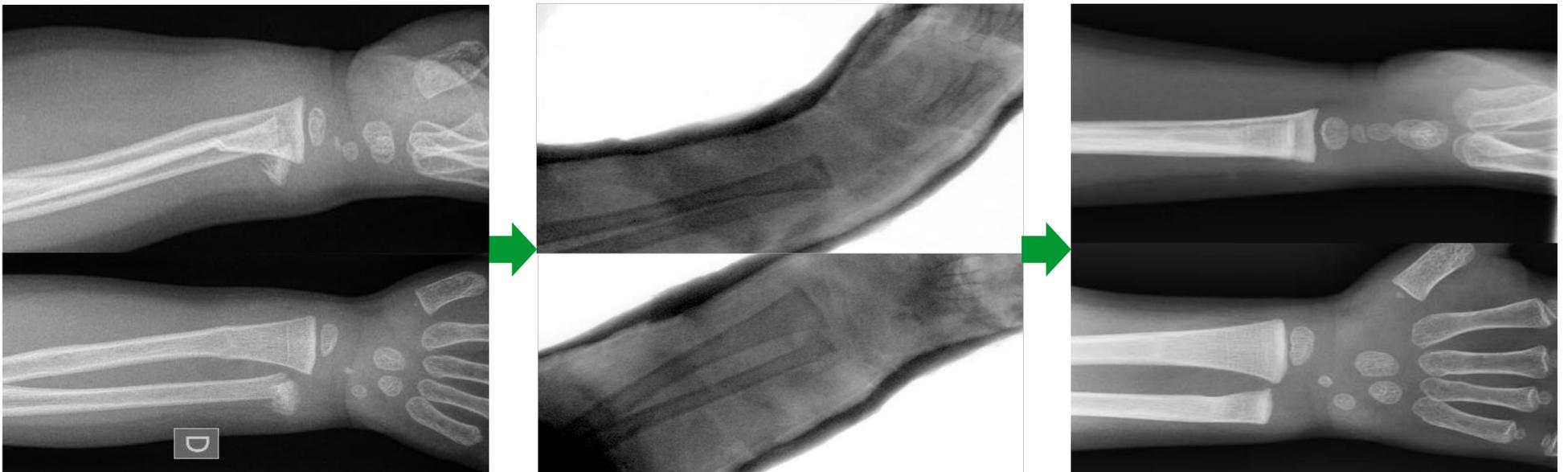
Fall from a 30 cm height.  
Right forearm trauma without skin/neurovascular lesion.  
DRUJ' stability unknown because of pain/swelling/young age of the patient.

### Day 1

Closed reduction under general anesthesia.  
8 weeks of immobilization (4 with an above-elbow plaster cast (small wrist palmar flexion and forearm neutral position) followed by 4 with a wrist splint).

### 5 months after surgery

No residual pain/range of motion limitation/DRUJ's instability.  
Follow-up discontinued.



## Discussion and conclusion

The patient's fractures pattern is unusual for his age. It combines a displaced distal metaphyseal ulnar fracture and a distal radial buckle fracture. Each of these fractures is quite common but their association is infrequent. The differential diagnosis included Galeazzi-equivalent injury versus "simple" metaphyseal fractures without DRUJ's instability.

**DRUJ's initial testing** remains difficult among young and painful children. But its **stability must be assessed** during follow-up in **displaced distal forearm fractures**. Misdiagnosed lesions or improper treatment could compromise DRUJ' stability, wrist and forearm range of motion, and generate chronic pain. Unfortunately, no age-specific diagnostic radiographic measurements are described in literature for DRUJ's instability. And ulnar epiphysis is unossified in children that young.

The **Galeazzi-equivalent injury** combines radial fracture with ulnar epiphyseal avulsion associated with metaphysis displacement. Additional lesions could also be superimposed on one of the actual classification<sup>1, 2, 3</sup> (Table 1). This pattern concerns skeletally immature children (ligaments are "stronger" than bone) and is probably underestimated. Most of the Galeazzi-equivalent injuries are treated by closed reduction and immobilization in an above-elbow plaster cast for 4 to 6 weeks<sup>4</sup>. Reported results in literature are good but there is a paucity of long-term data<sup>5</sup>.

Our patient healed without sequela. However, **we would recommend a low suspicion threshold for DRUJ's instability in young children presenting displaced distal metaphyseal ulnar fracture associated with distal radial buckle fracture**. That suspicion should raise the necessity of appropriate treatment and follow-up.

## Bibliography

1. Rodríguez-Merchán EC. Pediatric fractures of the forearm. Clin Orthop Relat Res. 2005 Mar;(432):65-72.
2. Letts M, Rowhani N. Galeazzi-equivalent injuries of the wrist in children. J Pediatr Orthop. oct 1993;13(5):561-6.
3. Little JT, Klionsky NB, Chaturvedi A, Soral A, Chaturvedi A. Pediatric distal forearm and wrist injury: an imaging review. Radiographics. 2014 Mar-Apr;34(2):472-90.
4. Eberl R, Singer G, Schalamon J, Petnehazy T, Hoellwarth ME. Galeazzi lesions in children and adolescents: treatment and outcome. Clin Orthop Relat Res. 2008 Jul;466(7):1705-9.
5. Cha SM, Shin HD, Jeon JH. Long-term results of Galeazzi-equivalent injuries in adolescents--open reduction and internal fixation of the ulna. J Pediatr Orthop B. 2016 Mar;25(2):174-82.

Type	Description
A	Fracture of the radius at the junction of the middle and distal thirds +
1	Dorsal dislocation of the ulna
2	Epiphyseal fracture of the distal ulna with dorsal displacement of ulnar metaphysis
B	Fracture of the distal third of the radius +
1	Dorsal dislocation of the ulna
2	Epiphyseal fracture of the distal ulna with dorsal displacement of ulnar metaphysis
C	Greenstick fracture of the radius with dorsal bowing +
1	Dorsal dislocation of distal ulna
2	Epiphyseal fracture of distal ulna with displacement of ulnar metaphysis
D	Fracture of distal radius with volar bowing +
1	Volar dislocation of the ulna
2	Epiphyseal fracture of distal ulna with volar displacement of ulnar metaphysis

Table 1: Letts and Rowhani classification of Galeazzi-equivalent injury<sup>1, 2</sup>