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**Mohamed Amine TRIKI**  
 M.D. orthopedic surgery  
 department, Sahloul Hospital,  
 Sousse, Tunisia.

**Walid Osman**  
 M.D. orthopedic surgery  
 department, Sahloul Hospital,  
 Sousse Tunisia.

**Hamdi Kaziz**  
 M.D. orthopedic surgery  
 department, Sahloul Hospital,  
 Sousse Tunisia.

**Thabet Mouelhi**  
 M.D. orthopedic surgery  
 department, Sahloul Hospital,  
 Sousse Tunisia.

**Nader Naouar**  
 Professor chief Department of  
 anatomy, M.D. orthopedic  
 surgery department, Sousse  
 Tunisia.

**Mohamed Laaziz BenAyache**  
 M.D. chief department of  
 orthopedic surgery, Sousse  
 Tunisia.

## Birth trauma as the cause of fracture of the distal epiphysis of the humerus: A case report

**Mohamed Amine TRIKI, Walid Osman, Hamdi Kaziz, Thabet Mouelhi, Nader Naouar, Mohamed Laaziz BenAyache**

### Abstract

The distal fracture of humerus at birth is rare. It may lead to delay diagnosis or misdiagnosis. Diagnosis is mainly done with plain radiography confirmed by ultra sonography or MRI. We report a case of distal fracture of humerus at birth which has been treated with closed reduction and stabilised with cast for three weeks. A flow up of eight years showed no complications and full healed fracture with no complains.

Authors reporting similar cases showed that precece diagnosis and orthopedic treatment for this type of fracture is efficient to complete heal with neither growth nor functional complications.

**Keywords:** birth trauma, fracture, epiphysis

### Introduction

The pure physéal lesion of the distal humeral epiphysis is an uncommon and difficult-to-diagnose condition due to the absence of calcified ossification centers during the first three months of life, which usually leads to delaying the diagnosis or to misdiagnosis. However, the prognosis is good and complications are few.

We report the clinical and radiological results of a neonate who had sustained traumatic separation of the distal epiphysis of the humerus at birth.

### Case Report

A neonate female patient had sustained trauma of the left elbow at birth.

Plain radiographs showed a displaced Salter-Harris type I lesion of the distal right humeral epiphysis. (Figure A)

An orthopedic surgeon saw the patient within two days of birth. The neonate underwent unsuccessful attempt at closed reduction under general anesthesia. Then the fracture was immobilized in a cast with the elbow at 90 degrees of flexion for 3 weeks. (Figure B)

Seven months later radiographies showed remodeling healed fracture location. (Figure C)

When seen at 8 years after injury, the clinical and radiological results were excellent, with complete realignment of the injury, normal mobility and good function of the elbow. Table (1) No growth disturbances were observed. (Figure D and E)

**Table 1:** Elbows mobility eight years after trauma

Elbow mobility	Extension	flexion	pronation	supination
right	0°	130°	80°	80°
left	0°	130°	80°	80°

### Discussion

The authors report on a case of fracture of the distal humeral epiphysis sustained at birth. This is extremely rare. The main problem in treatment of this kind of fracture is correct and timely diagnosis. In almost all reported cases the fracture has been confused with elbow dislocation.

Ultra Sonography better MRI were very useful to confirm diagnosis that what reported Ziev N. and all [2] in his case.

Princic J and *et al.* [3] recommend ultrasonography for diagnosis in his reported case.

Jacobson and *et al.* [1] reported six case of distal humeral epiphysis fracture in newborn

**Correspondence**  
**Mohamed Amine TRIKI**  
 M.D. orthopedic surgery  
 department, Sahloul Hospital,  
 Sousse, Tunisia.

children.

The correct diagnosis was made from plain radiographs and often supplemented with ultrasonography, MRI and arthrography. All six displaced fractures were immobilised in a cast with the elbow at 90° of flexion and the forearm pronated. When seen at a mean of 58 months (16 to 120) after injury, the clinical and radiological results were excellent in five patients, with complete realignment of the injury. In one patient the forearm lay in slightly reduced valgus with the elbow in full extension.

The reason for this mistake is difficult roentgenological orientation owing to invisible ossification nuclei. Ultrasonography and MR imaging are recommended for diagnosis.

The treatment of the injury is conservative. Closed reduction and immobilization for 3 weeks in an above-the-elbow plaster cast is advised [3].

De Jager and Hoffman [4] found that 12 of 48 children (0 to 8 years of age) had a varus deformity at follow-up, with a higher frequency of varus in children less than two years of age. He therefore recommended closed reduction and pinning, but could not explain the varus deformity in three of the ten children who had open reduction and pinning.

Kasser and Beaty [5] recommended immobilisation in a cast with the elbow in 90° of flexion, and the forearm in full pronation to stabilise the fracture in neonates.

Conversely, Price [6] advocated closed reduction and percutaneous pinning. Mizuno et al [7] recommended open reduction through a posterior approach with pinning, and found no post-operative deformity.

For orthopedic treatment, the end results have been very good in almost published cases, as they were in the present case.



Fig A

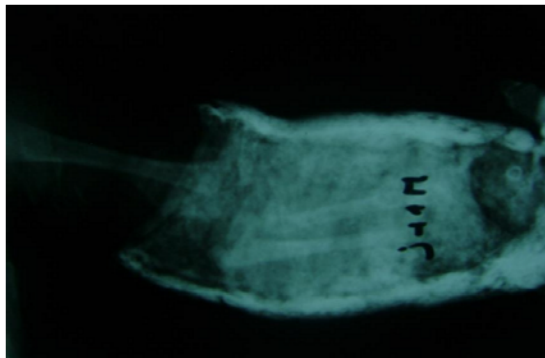


Fig B



Fig C

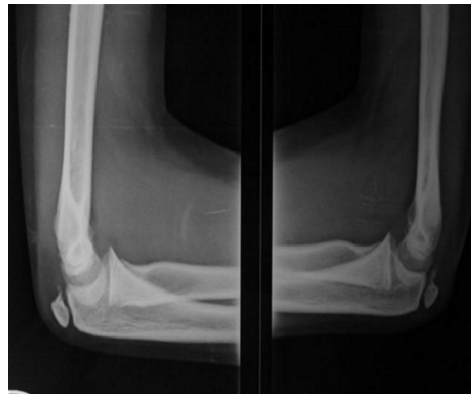


Fig D





**Fig E**

### **Conclusion**

Traumatic separation of the distal epiphysis of the humerus may be missed on the maternity wards and not diagnosed until after discharge from hospital. However, even when no attempt is made to reduce the displaced epiphysis, a good clinical result can be expected.

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