

## Neglected Distal Humeral Epiphyseal Injury - Two Case Reports

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**ABSTRACT:** Distal humeral epiphyseal separation is an uncommon injury in children, which can be missed or misdiagnosed at initial presentation. Awareness of this injury and appropriate radiological assessment helps in proper management. Neglected cases because of inappropriate diagnosis can result in cubitus varus deformity. Full range of movements of elbow can be achieved if properly diagnosed and managed. We present two cases of neglected distal humeral epiphyseal injury in children that resulted in cubitus varus deformity in one case. Full range of movements was achieved in both cases after proper management.

**KEY WORDS:** Neglected epiphyseal injury; Cubitus varus; Diagnosis; Treatment

### INTRODUCTION

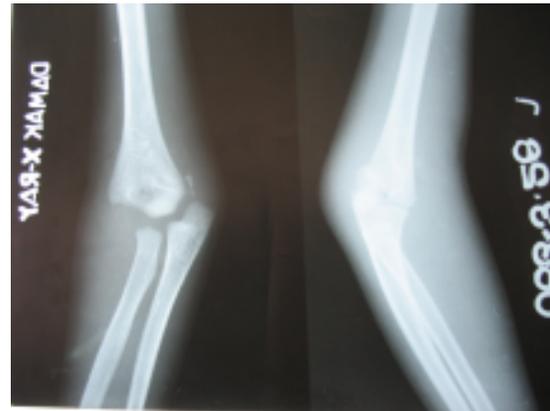
Distal humeral epiphyseal separation is a rare injury in children which may be difficult to diagnose and is easily mistaken for a dislocation of the elbow<sup>1,2</sup>. Fracture-separation of the distal humeral epiphysis presents problems in diagnosis, radiologic interpretation, and management<sup>3</sup>. Although rare in incidence, this condition warrants the same critical assessment of, and appropriate attention to detail, as any other elbow problem of childhood. Two cases of neglected epiphyseal separation of the distal humerus are presented with emphasis on the clinical and radiological features.

### CASE REPORTS

**Case 1:** A 6 year old male child sustained playground injury around right elbow. He presented after 4 weeks of injury in the Out Patients Department (OPD) of Orthopaedics. An X-ray was taken and a diagnosis of dislocation of elbow with medial epicondyle fracture of humerus was made (**Figure 1**).

We attempted open reduction and during reduction surprisingly we found distal humeral epiphyseal slip and small fragment of metaphyseal

chunk on medial side that was attached with epiphysis (**Figure 2**). Reduction was achieved and fixed with two cross k-wires. At the end of one year of follow-up, the patient had 10 degrees of cubitus varus deformity with full range of elbow movement.



**Figure 1: X-ray does not show distal humeral epiphyseal injury**

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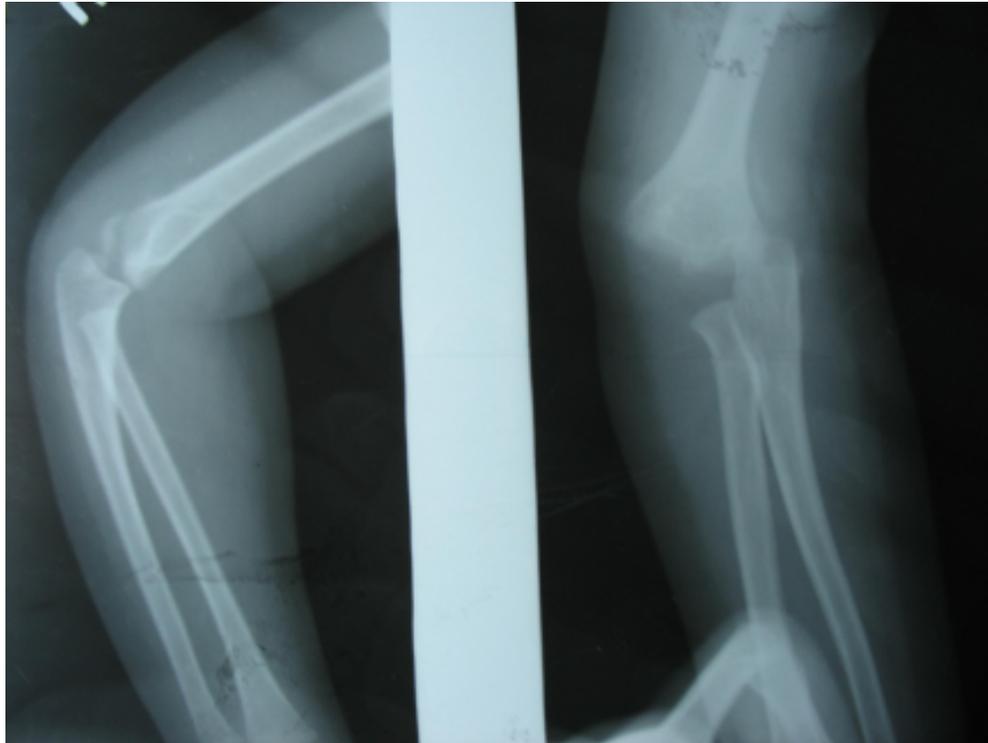
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**Figure 2: Showing type II distal humeral epiphyseal slip**

**Case 2:** A 5 year old male child reported to the OPD after 5 weeks of injury to the elbow. Radiological diagnosis of fracture dislocation of elbow was made (**Figure 3**).

An open reduction was performed and the fracture dislocation was fixed with 2 cross K-wires. The K-wires were removed after 3 weeks and physiotherapy was initiated. There was full range of movement at elbow joint and there was no varus deformity at the end of one year of follow up.



**Figure 3: X-ray showing fracture dislocation of elbow**

**DISCUSSION**

Distal humeral epiphyseal separation is an uncommon injury that is often misdiagnosed upon initial presentation. To make a timely correct diagnosis, the treating physician must have a thorough understanding of basic anatomical relationships and an awareness of the existence of this injury. The unimpressive clinical appearance of such an injury of the elbow in an infant, as well as the absence of

ossific nuclei of the distal humerus in the newborn, is responsible for the dilemma in making the diagnosis<sup>1</sup>.

Ultrasonography, a readily available, non-invasive technique, can be used to evaluate the non-ossified epiphysis about the elbow of infants to demonstrate dislocations, fractures, and physical separations. 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. The reason for this mistake is difficult roentgenological orientation owing to invisible ossification nuclei. Ultrasonographic examination is recommended for diagnosis<sup>1</sup>. Attention to the radiographic relationship of the ulna and humerus and an appropriate index of suspicion are keys to diagnosis. Nonaccidental injury should be considered as an etiology<sup>4</sup>. Ultrasonography (US) and MR imaging (MRI) may be helpful in diagnosis and obviate the need for intraoperative arthrography<sup>5</sup>. The medial displacement is more common<sup>6</sup>. According to **Oh et al**<sup>7</sup>, fracture separation of distal humeral epiphysis in young children is likely to produce cubitus varus deformity with the development of avascular necrosis of the medial humeral condyle.<sup>8</sup>

### CONCLUSION

Distal humeral epiphyseal separation is an uncommon injury that is often misdiagnosed upon initial presentation. Fracture-separation of the distal humeral epiphysis presents problems in diagnosis, radiological interpretation, and management. To make a timely, correct diagnosis, the treating physician must have a thorough understanding of basic anatomical relationships and an awareness of the existence of this injury.

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