

Bilateral Displaced Distal Radius and Ulna Fractures in a 15-Year-Old Boy After Fall from Height: A Rare Case Report

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Abstract: ***Background:** Distal radius fractures are among the most common upper limb injuries in children and adolescents, often resulting from a fall on an outstretched hand (FOOSH). Bilateral distal radius and ulna fractures, however, are rare and require careful management to ensure good functional outcomes. **Case Presentation:** A 15-year-old male presented with bilateral wrist pain, swelling, and deformity following a fall from height. Clinical examination and radiographs revealed displaced distal radius and ulna fractures with dorsal displacement. Closed reduction and percutaneous K-wire fixation were performed bilaterally under fluoroscopic guidance. The postoperative course was uneventful, and radiological union was achieved by six weeks. Full functional recovery was noted at three months postoperatively. **Conclusion:** Bilateral displaced distal radius and ulna fractures in paediatric patients are uncommon. When displacement exceeds 50% of the bone diameter, closed reduction and percutaneous K-wire fixation offer stable fixation, prevent redisplacement, and provide excellent functional and cosmetic outcomes.*

Keywords: Distal radius fracture; Bilateral wrist fracture; Paediatric orthopaedics; K-wire fixation; Fall on outstretched hand; Percutaneous fixation; Distal ulna fracture.

1. Introduction

Fall on the outstretched hand is a common mechanism leading to upper limb fractures, especially in the paediatric population. Among these, distal radius fractures represent one of the most frequent injuries (1,2). Most paediatric distal radius fractures are amenable to conservative management with closed reduction and immobilization in a plaster cast. However, when the displacement is significant, surgical fixation using percutaneous K-wires provides a stable and minimally invasive solution that prevents redisplacement and allows early mobilization (3,4). Bilateral distal radius and ulna fractures are rare and typically result from high-energy trauma such as falls from height. Such injuries present unique management challenges due to the risk of growth plate involvement and potential long-term deformities (5).

2. Case Report

A 15-year-old boy presented to the orthopaedic outpatient department with pain, swelling, and visible deformity in both wrists following a fall from height. On examination, tenderness, swelling, and restricted wrist motion were noted bilaterally. Neurovascular assessment was normal. Radiographic evaluation revealed bilateral distal radius and ulna fractures with dorsal displacement of the distal fragments. The patient was planned for closed reduction and percutaneous K-wire fixation under fluoroscopic guidance.



3. Surgical Procedure

Under regional anaesthesia and aseptic precautions, closed reduction was achieved using manual traction and

manipulation. A 1 cm incision was made over the radial styloid, and the underlying bone was exposed by blunt dissection, taking care to protect the superficial branch of the radial nerve and the tendons of the first and third extensor compartments (6). The first K-wire was inserted under fluoroscopic guidance. A second incision was made between the fourth and fifth extensor compartments, and a second K-wire was introduced from the dorso-ulnar rim of the radius

into the anterior cortex of the radial shaft. A third incision over the ulnar styloid allowed insertion of the third K-wire through the physis into the lateral cortex of the ulnar diaphysis. The same procedure was repeated for the contralateral wrist. The wires were bent, cut externally, and covered with sterile dressing. Bilateral below-elbow slabs were applied.



4. Postoperative Course

Postoperative recovery was uneventful. Follow-up radiographs confirmed satisfactory alignment and stable fixation. At six weeks, radiological union was evident, and the K-wires were removed. Progressive physiotherapy restored wrist motion and grip strength. At the three-month follow-up, the patient achieved full, pain-free range of motion in both wrists with no deformity or growth disturbance.

5. Discussion

Distal radius fractures are the most common fractures in children, accounting for up to 25–30% of all paediatric fractures (1,7). Bilateral distal radius and ulna involvement, however, is uncommon and typically follows high-energy mechanisms. In fractures with displacement exceeding 50% of the bone diameter, conservative treatment alone carries a higher risk of redisplacement (8). Percutaneous K-wire fixation offers reliable stability and prevents loss of reduction, while minimizing surgical morbidity (4,9). K-wire fixation is a cost-effective, minimally invasive technique that preserves soft tissues and allows early mobilization once union is achieved (10). Our case demonstrates the efficacy of bilateral closed reduction and K-wire fixation in achieving excellent radiological and functional results, even in complex paediatric injuries.

6. Conclusion

Bilateral displaced distal radius and ulna fractures in the paediatric population are rare but can be successfully managed with closed reduction and percutaneous K-wire fixation. This method ensures stable fixation, prevents redisplacement, and achieves excellent long-term functional recovery.

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