



Pediatric Monteggia Fracture-Dislocations and Their Variants

Mark Haft, BS; Casey M. Codd, BA; Joshua M. Abzug, MD

Department of Orthopaedics, University of Maryland School of Medicine, Baltimore, Maryland

INTRODUCTION

- Monteggia fracture-dislocation variants have been well documented in adults but most of the literature in the pediatric population is in the form of case reports.
- **Purpose:** To investigate the outcomes of true Monteggia fracture-dislocations compared to their variants in the pediatric population.

METHODS

- **Study Design:** Retrospective chart review
- **Sample:** 93 pediatric patients who sustained acute Monteggia fracture-dislocations and their variants between 2011 and 2020.
- **Data:** Patient demographics, mechanisms of injury, fracture pattern, Bado and Letts classification, treatment (operative or conservative), and complications were recorded.
- **Statistics:** Simple statistics were performed.

Figure 1. Sample of images from patient with Monteggia fracture- dislocation



Figure 2. Sample of images from patient with Monteggia fracture- dislocation variant



RESULTS

- **Monteggia fracture dislocations:** 15 patients (16.1%)
- **Monteggia fracture dislocation variants:** 78 patients (83.9%)
 - **Olecranon fracture and concomitant radial neck fracture:** 61.5% (n=48)
 - **Ulnar shaft fracture and concomitant radial neck fracture:** 21.8% (n=17)
 - **Proximal ulna fracture and radial neck fracture:** 9.0% (n=7)
 - **Distal ulna fracture and radial neck fracture:** 5.1 (n=4)
 - **Olecranon fracture and radial head fracture:** 1.3% (n=1)
 - **Ulnar shaft fracture and radial head fracture:** 1.3% (n=1)
- **Treatment:**
 - Monteggia fracture-dislocation variants: 83.3% (n=65) were treated with immobilization alone.
 - Monteggia fracture-dislocations: only 20% (n=3) of were treated with immobilization alone.
- **Complications:**
 - **Total:** 17 patients (18.2%)
 - **Monteggia fracture-dislocation variants:** 16.7% (n=13)
 - 6 after immobilization
 - 7 after operative intervention
 - **Monteggia fracture-dislocations:** 20% (n=3)
 - All after operative intervention.
 - **Most common:** loss of range of motion (36.3%, n=8, all of which were variants)
 - Nerve palsy (13.6%, n=3)
 - Loss of reduction (13.6%, n=3), and
 - Malunion or nonunion (13.6%, n=3).

CONCLUSIONS

- Pediatric Monteggia fracture-dislocation variants are much more common than true pediatric Monteggia fracture-dislocations.
- Monteggia fracture dislocation variants that are treated with immobilization alone had a higher complication rate than true Monteggia fracture-dislocations.
- Therefore, these injuries must be followed closely and/or considered for operative stabilization.