

**Are All Fracture Dislocations of the Elbow the Same?**

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**Purpose:** Fracture-dislocations of the elbow are unstable injuries that typically result in poor outcomes, such as limited range of motion, stiffness, and long-term pain. The Monteggia fracture-dislocation is classically described as a fracture of the proximal ulna in conjunction with a radial head dislocation. The “terrible triad” fracture-dislocation is typically characterized by posterolateral elbow dislocation, coronoid fracture, and radial head or neck fracture. Monteggia and terrible triad fracture-dislocations are complex injuries that require operative fixation and careful management to ensure the best possible result. This study seeks to compare complications and patient outcomes associated with these 2 fracture types.

**Methods:** A retrospective chart review of all adult patients treated by 1 of 3 orthopaedic traumatologists at a major academic center for operative fixation for either a Monteggia or a terrible triad fracture between July 2007 and October 2018 was performed. Data collection included demographics, patient-reported pain and stiffness, range of motion, presence of contracture, nerve injuries, nonunion, and reoperation. Binary and linear regressions were used to compare these 2 fracture patterns in IBM SPSS.

**Results:** 104 patients, 59 Monteggia and 45 terrible triad, who had complete follow-up and radiographic imaging available were reviewed. Elbow contractures requiring operative release were more commonly associated with terrible triads ( $P = 0.010$ ). Additionally, the incidence of nonunion was significantly greater in Monteggia fractures compared to terrible triads ( $P = 0.036$ ). Both groups had similar rates of persistent pain, reoperation, and ultimate range of elbow motion in flexion, extension, pronation, and supination ( $P = 0.770$ ,  $P = 0.935$ ,  $P = 0.579$ ,  $P = 0.635$ ,  $P = 0.728$ ,  $P = 0.855$ ). The mean final range of motion in the Monteggia group was  $12.7^{\circ}$ - $126.9^{\circ}$  and pronation to supination  $76.7^{\circ}$ - $69.5^{\circ}$ . The terrible triad group was similar at  $16.1^{\circ}$ - $124.4^{\circ}$  and pronation to supination of  $74.6^{\circ}$ - $67.4^{\circ}$ . The overall complication rate was 34.5% in Monteggia lesions and 47.8% in terrible triad injuries.

**Conclusion:** Monteggia and “terrible triad” elbow fracture dislocations are complex elbow injuries that result in loss of elbow extension. Each pattern is associated with specific, and distinct, complication profiles. A Monteggia fracture-dislocation portends a higher risk of nonunion, while the terrible triad makes contracture more likely. Despite their unique complications, both patterns ultimately have high rates of reoperation as their unique complications are both indications for operative repair. Patients should be appropriately counseled on the complication profile of their unique injury pattern.