

Elbow Release in Patients Following Elbow Contracture: An Effective Modality

Anthony Christiano, BA; Kari Broder, BA; Nader Paksima, DO, MPH; Kenneth Egol, MD; New York University Hospital for Joint Diseases, New York, New York, USA

Purpose: Posttraumatic elbow contracture is a complication that follows complex elbow trauma, and results in limited range of motion. The purpose of this study is to characterize the affected patient population, operative management, and outcomes following elbow contracture release.

Methods: A retrospective chart review was conducted to identify all patients who underwent posttraumatic elbow contracture release performed by two orthopaedic surgeons at our institution between the years of 2004 and 2014. Medical records were reviewed to characterize patient demographics, injuries, operative details, outcomes, and complications. All patients underwent surgical treatment for their contracture that included the following elements: removal of hardware (45%), excision of heterotopic ossification (86%), and capsular release (98%). A paired-samples t test was used to determine if there was a significant mean difference in elbow arc of motion before and after elbow contracture release surgery.

Results: 54 patients underwent posttraumatic elbow contracture release at our institution in the identified time period. 49 patients had a minimum of 6 months follow-up and were included in our study. Mean age of patients at time of contracture release was 44.8 years (standard deviation [SD] 14.3). The cohort consisted of 23 men (47%) and 26 women (53%). The most common mechanism of initial elbow injury was low-velocity fall (61%). 40 patients (82%) were initially treated operatively for their initial injuries. Mean elbow arc of motion prior to contracture release was 61.7° (SD 33.0). Mean arc of motion after contracture release was 100.0° (SD 28.0). Paired samples t test showed elbow contracture release resulted in a significant increase of 38° in elbow arc of motion ($P < 0.0005$, 95% confidence interval [CI] 30.3 to 45.8). Five patients (10%) had a subsequent complication. One patient developed a posterior interosseous nerve palsy that resolved. One patient developed an ulnar nerve palsy that resolved. Two patients developed post-operative infection. One patient required treatment for post-operative seroma. Seven patients (14%) had radiographic recurrence of heterotopic ossification after contracture release. Six patients (12%) required a secondary reoperation to gain more motion.

Conclusion: Patients with posttraumatic elbow contracture can make significant gains in arc of motion after contracture release surgery. Patients can expect to recover a functional elbow arc of motion. However, patients must be counseled that a high percentage of patients will have recurrence of heterotopic ossification and may require more than one procedure to achieve motion.