

Functional Outcomes in Severely Displaced Pediatric Lateral Condyle Fractures With and Without Elbow Dislocations

Joseph Scott Miller, Joseph Scott Miller

INTRODUCTION: Lateral condyle fractures of the humerus are both the most common growth plate fracture in the pediatric elbow and the second most common pediatric elbow fracture overall. Traumatic elbow dislocations in the pediatric population are less common and the concomitant presentation of elbow dislocation and lateral condyle fracture is rare. This rare presentation demands examination to support clinical decision making. The purpose of the current study was to compare completely displaced lateral condyle fractures occurring with and without concomitant elbow dislocation and the functional outcomes of these fractures.

METHODS: Completely displaced fractures occurring with a simultaneous elbow dislocation (group A) and completely displaced lateral condyle fractures occurring without associated elbow dislocation (group B) from 2001 to 2021 were identified. Range of motion outcomes were compared between group A and group B based on both loss of flexion or extension of $\geq 10^\circ$ and loss of flexion or extension $\geq 15^\circ$ at 3 mo., 6 mo., and 1 yr. Treatment method, physical therapy participation, complication rate, stiffness, casting time, fluoroscopy time, shaft condylar angle, lateral capitellouhumeral angle, and maximum initial displacement were also compared between the two groups to assess outcomes of the fractures.

RESULTS: 40 patients in group A were identified with an average age of 5.6 years (range 16 months–12 years) and mean follow-up of 1.1 years. 95 patients in group B were identified with an average age of 5.5 years (range 15 months–12 years) and a mean follow-up of 1.2 years. Compared to patients in group B, group A patients were significantly more likely to have stiffness of $\geq 15^\circ$ at both 3 month and 6 month follow-up. Participation in physical therapy resulted in faster range of motion recovery in group A patients. All patients in both groups had satisfactory long-term outcomes. Other variables examined did not vary significantly between the two groups.

DISCUSSION AND CONCLUSION: Satisfactory long-term outcomes can be expected for patients with severe lateral condyle fractures; however, prompt mobilization of the joint in patients with a concomitant fracture dislocation allows for faster range of motion recovery. Families should be counseled that the elbow of lateral condyle fracture patients with associated elbow dislocations stays stiffer longer and may require extended rehab efforts.