

Safety of Semi-Elective Treatment of Displaced Humeral Lateral Condyle Fractures in the Pediatric Population

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INTRODUCTION:

Lateral condyle fractures (LCFs) of the humerus are among the most common fractures in children, accounting for 17% of all pediatric elbow fractures. Many minimally displaced fractures can be treated conservatively with immobilization alone. However, displaced fractures (>2mm) often require operative intervention via closed reduction and percutaneous pinning (CRPP) or open reduction and internal fixation (ORIF). There is controversy within the literature regarding the timing of intervention for those displaced fractures. This study aims to compare the outcomes and complications associated with urgent versus semi-elective treatment of displaced LCFs within the pediatric population.

METHODS:

A retrospective review was performed to identify pediatric patients aged 0-17 years who sustained a displaced LCF. Fractures treated within 24 hours or less without presentation at an outpatient clinical setting prior to surgery were considered urgent, while fractures treated greater than 24 hours or seen in the outpatient setting prior to surgery were considered semi-elective. Data collected included patient demographics, mechanism of injury, time to surgery, treatment characteristics, outcomes, and reported complications. Simple statistical analysis was performed.

RESULTS:

53 patients with an average age of 5.60 years (SD: 3.00 years) were identified. The most common mechanism of injury was a fall on an outstretched arm (88.7%; n=47). Three patients sustained concomitant injuries, including elbow dislocations (n=2) and an ipsilateral both bone forearm fracture (n=1). 77.4% (n=41) of patients received semi-elective operative intervention within an average duration of 72.0 hours. 22.6% (n=12) of patients received urgent intervention within an average duration of 24.0 hours. 61.0% (n=25) of cases treated semi-electively underwent ORIF, while all (n=12) urgent cases underwent ORIF. There was no difference observed between groups with respect to number of pins utilized, time to pin removal, duration of immobilization, time to union, or time to return to activity. The complication rate among patients treated semi-electively was significantly higher than those treated urgently (19.5% vs. 0.0%; p<0.001). The complications observed in the semi-elective group included delayed union (n=1), malunion (n=4), stiffness (n=3), and physeal arrest (n=1).

DISCUSSION AND CONCLUSION:

Most pediatric displaced LCFs were treated semi-electively within the current study. All fractures treated urgently were managed with ORIF. There was a higher complication rate associated with semi-elective treatment of these fractures, possibly indicating better outcomes with earlier intervention. Additional larger cohorts are needed to evaluate complications associated with these fractures and their relation to timing of operative intervention.