

Re-fracture Rate of Pediatric and Adolescent 5th Metacarpal Neck Fractures

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INTRODUCTION: Fractures of the 5th metacarpal neck, commonly referred to as boxer's fractures, typically occur following direct trauma to a clenched fist. In adults, previous literature suggests that the intentional and aggressive nature of these behaviors (fistfights and punching) leads to a high rate of recurrent fracture at the 5th metacarpal neck, however, there is a paucity of literature within the pediatric and adolescent populations pertaining to the recurrence rate. The purpose of this study is to examine the epidemiology, treatment, and outcomes of 5th metacarpal neck fractures and any recurrent fractures to determine if there are any factors that indicate an increased likelihood of recurrence and to establish a rate of recurrence within the pediatric and adolescent populations.

METHODS: A retrospective review was performed to identify all pediatric patients aged under 17 years who were treated for a 5th metacarpal neck fracture over a twelve-year period. Data collection included patient demographics, mechanism of injury, course of treatment, return to activity, complications, and fracture recurrence. Associations between patient characteristics and outcomes were explored using univariate and multivariate logistic regression.

RESULTS:

Three hundred ninety-seven patients with a median age of 13 years (IQR: 11,15, Range: 1,16 years) were identified. Of these patients, 328 (83%) were male. 158 (42%) patients were injured through intentional or aggressive behaviors including fist fighting or punching. Patients were treated non-operatively (N=353, 89%) with immobilization, or operatively with a closed reduction and percutaneous pinning (N=32, 8.1%) or open reduction and internal fixation (N=12, 3.0%). The average time to return to activity was 37 days (SD: 19 days).

The incidence of refracture in the pediatric and adolescent population was 1.3% (N=5). 80% (N= 4) of refractures occurred in male patients and 100% (N=5) occurred through intentional or aggressive behaviors. Following reinjury, the average time to return to activity was 31 days (SD: 7 days). There was no significant association between fracture recurrence and patient and/or injury characteristics.

DISCUSSION AND CONCLUSION: The refracture rate of 5th metacarpal neck fractures in the pediatric and adolescent population is quite low at 1.3%. The initial fractures and refractures are most commonly seen in males. All patients with recurrent injuries had them caused by intentional or aggressive behaviors. Additional education is warranted to alert children and adolescents and their parents about the potential for refracture with intentional and aggressive behaviors.