Pediatric and Adolescent 1st Metacarpal Fractures: Epidemiology, Outcomes, and Complications

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INTRODUCTION: The treatment and outcomes surrounding first metacarpal fractures have been well documented in adults but there is limited literature pertaining to these fractures in the pediatric population. The purpose of this study was to assess the epidemiology, treatment, and outcomes of pediatric and adolescent first metacarpal fractures.

METHODS: A retrospective review was performed to identify all pediatric and adolescent patients treated for a first metacarpal fracture over a 13-year period. Patient demographics, mechanisms of injury, fracture pattern, immobilization type, immobilization length, length of follow up, patient outcomes, and complications were recorded. Simple statistical analysis was performed.

RESULTS: Fifty-eight patients with an average age of 11.9 years (SD: 3.1 Range: 1-17 years) were identified. In total, 72% (N=42) of patients were male. The most common mechanism of injury was sports participation (N=20), followed by a fall (N=16), and an altercation (N=11). The average time from initial injury to evaluation was 8.1 days (SD: 8.7; Range:1-42 days). The most common fracture location was the metacarpal base (N=22; 38%) and 13 (22.4%) patients had concomitant injuries. Of the 58 patients, 53 (91.4%) were treated nonsurgically with immobilization for an average of 29.9 days (SD: 8.0). Five (8.6%) patients were treated surgically, three with a CRPP and two with ORIF. The average time to removal of hardware was 30.6 days (SD: 1.8). Of the 55 patients with sufficient follow-up data, one (1.8%) patient was noted to have a complication which was persistent thenar pain that resolved with formal therapy. The average time to return to activity was 31.2 days (SD:10.8).

DISCUSSION AND CONCLUSION: The vast majority of pediatric and adolescent first metacarpal fractures can be successfully managed through nonsurgical means with minimal complications expected. When surgical intervention is warranted, excellent outcomes can be expected. Further studies assessing pediatric first metacarpal fractures treated surgically and their associated complications are warranted.