



Frequency, Pattern, and Treatment of Hand Fractures in Children and Adolescent: A 27-Year Review of 4356 Hand Fractures Treated at a Tertiary Center

Waleed Gibreel, MBBS¹; Brian Carlsen, MD^{1,2}; Steven Moran, MD^{1,2}; Karim Bakri, MBBS^{1,2}

¹ Division of Plastic Surgery, Department of Surgery, Mayo Clinic, Rochester, MN, USA

² Department of Orthopedic Surgery, Mayo Clinic, Rochester, MN, USA

Abstract

Background:

The frequency, pattern and treatment of pediatric hand fractures are largely underreported. We sought to review our institution experience with management of hand fractures in children and adolescent

Methods:

A retrospective review of all children (under 18 years of age) treated for hand fractures between January 1990 and June 2017 was performed. Fractures were categorized into metacarpal, proximal/middle phalanx, distal phalanx, and intra-articular MCP/PIP/DIP joints fractures

Results:

During the study period, 4356 patients (71% male) were treated for hand fractures at a mean±SD age of 12.2±3.5 years. The majority of fractures occurred in patients aged 12-17 years (n=2775, 64%), followed by patients aged 6-11 years (n=1347, 31%). Only 234 (5%) fractures occurred in children younger than 5 years. Most fractures occurred in the middle/proximal phalanx (n=2103, 48%), followed by metacarpal (n=1431, 33%), distal phalanx (n=521, 12%), and intra-articular MCP/PIP/DIP joints fractures (n=301, 7%). Middle/proximal phalangeal fractures were the most common fractures in all age groups

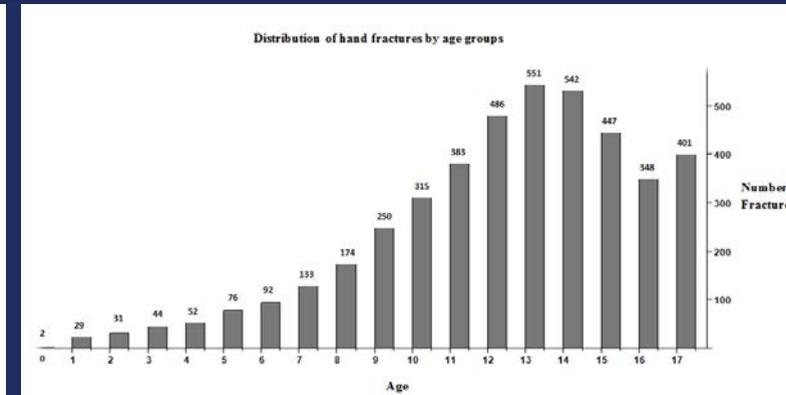
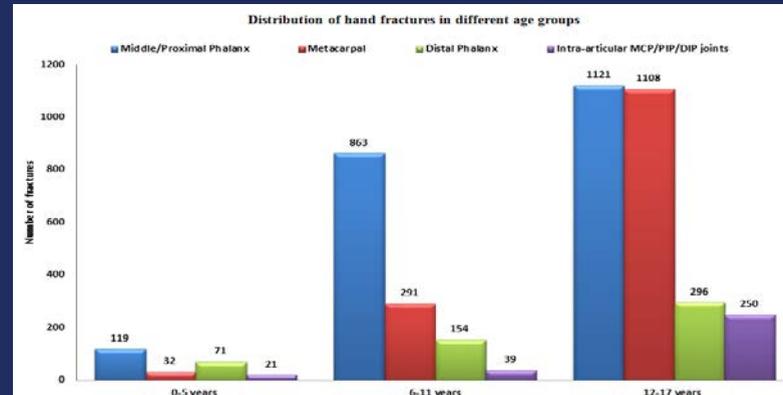
In patients between 0-5 years, distal phalangeal fractures were the next most common, while in patients older than 5 years metacarpal fractures were the next most common. The frequency of metacarpal fractures increased gradually with age and reaches a frequency similar to that of middle/proximal phalangeal fractures in the 12-17 years age group

The majority of metacarpal (93%), middle/proximal phalangeal (92%), and distal phalangeal (86%) fractures were amenable to closed treatment alone, whereas 28% of intra-articular MCP/PIP/DIP joint fractures required open reduction +/- fixation

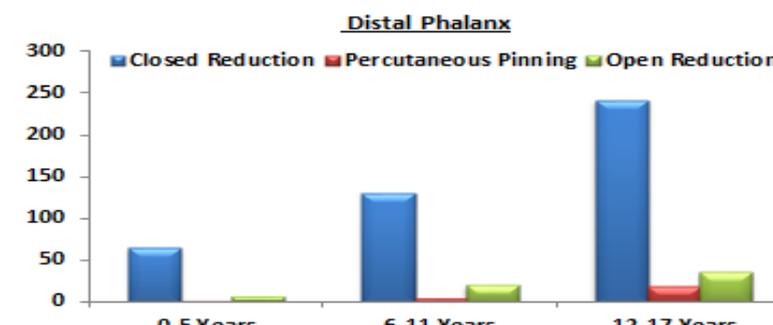
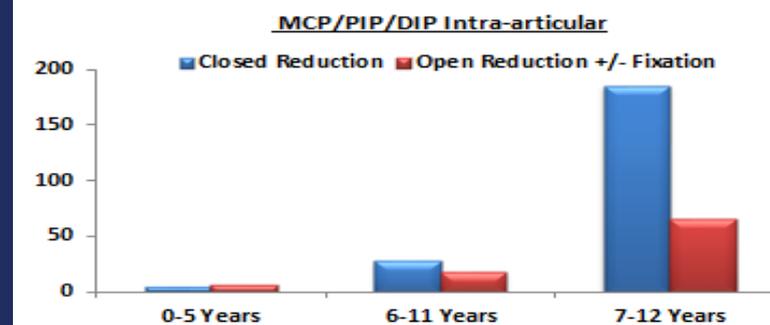
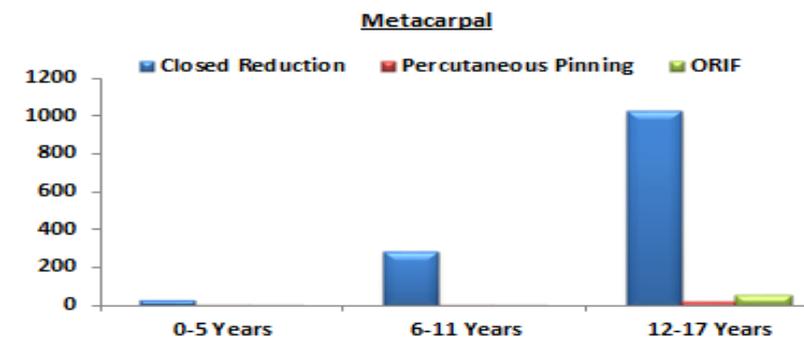
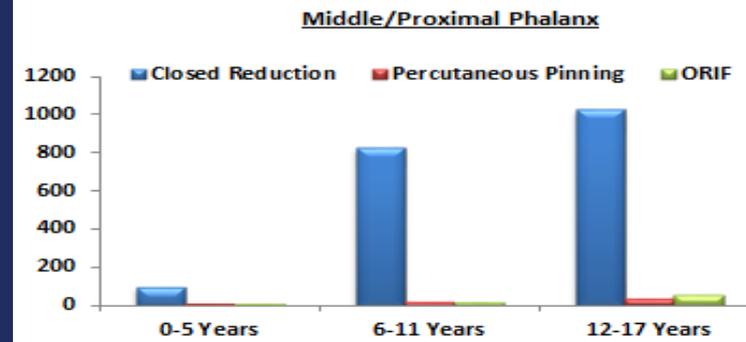
Conclusions:

The frequency, pattern, and treatment of pediatric hand fractures vary according to age. The large majority of fractures were amenable to closed treatment although intra-articular fractures were more likely to require operative intervention

Results



Treatment of different fractures in three different age groups



Conclusions

- The frequency and pattern of pediatric hand fractures vary according to age
- The frequency of fractures increases gradually with age till it reaches a peak incidence at age 12-14, the age at which most adolescent are engaged in sports activities
- Middle/proximal phalangeal fractures are the most common fractures in all age groups
- Despite the variation of the proportion of hand fractures in different age groups, most extra-articular fractures are amenable to closed reduction in all age groups
- The intra-articular extension of fractures is associated with decreased probability of successful treatment with closed reduction alone and open treatment if often required

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