

## BACKGROUND

Metacarpophalangeal (MCP) and carpometacarpal (CMC) joint dislocations and fracture dislocations are uncommon injuries in the pediatric population.

## PURPOSE

We present a descriptive case series of pediatric dislocations and fracture dislocations of the MCP and CMC joints and elaborate on demographics, mechanism of injury, management, and outcomes.

## METHODS

- Retrospective study
- Patients under 18 years at a tertiary children's hospital diagnosed with dislocations or fracture dislocations of an MCP or CMC joint
- Information regarding patient demographics, mechanism of injury, type of dislocation, physical exam, radiographic findings, treatment, and outcomes were collected



**Fig 1:** 1<sup>st</sup> MCP dislocation

**Fig 2:** 1<sup>st</sup> MCP relocated with mitek anchor repair

**Fig 3:** 4<sup>th</sup> & 5<sup>th</sup> CMC fx-dislocation

**Fig 4:** 4<sup>th</sup> & 5<sup>th</sup> CMC relocated with CRPP

Patient Factor	Dislocated Joint			
	1 <sup>st</sup> MCP n=20	2 <sup>nd</sup> MCP n=2	4 <sup>th</sup> MCP n=1	4 <sup>th</sup> and/or 5 <sup>th</sup> CMC n=9
<b>Patient Age (yr)</b>	9.5 (3-18)	10.5 (6-15)	18	16.7 (15-18)
<b>Patient Sex</b>				
Female	9 (45%)	1 (50%)	-	-
Male	11 (55%)	1 (50%)	1 (100%)	9 (100%)
<b>Injury Mechanism</b>				
Sports Trauma				
Playing with Sibling	9 (45%)	1 (50%)	1 (100%)	-
Fall onto Hand	-	1 (50%)	-	-
Fighting or Punched	11 (55%)	-	-	1 (11.1%)
Object	-	-	-	8 (88.9%)
<b>Definitive Treatment</b>				
Closed Reduction	15 (75%)	-	-	2 (22.2%)
Open Reduction	5 (25%)	2 (100%)	1 (100%)	7 (77.8%)

**Table 1:** Patient Demographics and Injury Characteristics

yr = years; MCP = metacarpophalangeal; CMC = carpometacarpal

## RESULTS

- 32 patients sustaining MCP or CMC dislocations
- The most common dislocations involved border digits with the 1<sup>st</sup> MCP joint more frequently injured than 4<sup>th</sup> and/or 5<sup>th</sup> CMC joints. Dislocations of the 2<sup>nd</sup> and 4<sup>th</sup> MCP joints were rare, and there were no dislocations of the 3<sup>rd</sup> MCP joint in our population.
- The average age of any dislocation was 11.8 years, with 1<sup>st</sup> MCP dislocations affecting younger patients (mean 9.5 years) and 4<sup>th</sup> and 5<sup>th</sup> CMC dislocations occurring in older patients (mean 16.7 years).
- Falls onto the hand caused 37.5% of injuries, sports related injuries accounted for 34.4% of injuries, and fighting or punching a hard object resulted in 25% of injuries.
- Chronic injuries at the time of presentation were predictive of need for open treatment. Most 1<sup>st</sup> MCP dislocations could successfully be treated with closed reduction and immobilization while the majority of other injuries required open treatment. Of the 15 patients requiring open treatment, 4 were stable with volar plate repair alone and the other 11 required percutaneous K-wire fixation for stability.

## CONCLUSION

Dislocations of the MCP and CMC joints are uncommon injuries in the pediatric population. While closed reduction should be attempted in all acute presentations, these injuries frequently require surgical treatment due to failed reduction from interposition of the volar plate or persistent instability.

## REFERENCES

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