Nonoperative Management of Pediatric Mallet Fingers

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BACKGROUND

- A mallet finger is a disruption of the extensor mechanism at the distal interphalangeal joint (DIP)
- While this is a common injury in the pediatric population, research specifically on the management of these injuries in the pediatric population is lacking
- Treatment tends to mirror the management of these injuries in adults with extension splinting for at least 6 weeks

OBJECTIVES

- To examine the healing rates of pediatric mallet fingers treated nonoperatively
- To explore complication rates associated with nonoperative management of pediatric mallet fingers

METHODS

- Epic at SHS was queried for ICD-10 codes for mallet finger and related injuries that may have been mallet fingers, but not coded as such
  - Included patients were <17 years old and had an encounter with GSRMC Orthopedics or Plastic Surgery from 2013-2018
  - Patient’s were excluded if they were not treated with extension splinting initially, had open injuries, or they had follow up <6 weeks
- The primary measurements were range of motion of the DIP and the presence of pain
- Patients were stratified with the Crawford Classification
- Complications were also recorded and included the need to restart splinting, transition to operative treatment, splint irritation, presence of dorsal bump or nail bed deformity

RESULTS

<table>
<thead>
<tr>
<th>Table 1: Pediatric Mallet Fingers Treated Nonoperatively at GSRMC 2013-2018</th>
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</thead>
<tbody>
<tr>
<td># of Patients</td>
</tr>
<tr>
<td>Median Age (Min, Max)</td>
</tr>
<tr>
<td>Type of Mallet</td>
</tr>
<tr>
<td>Bony</td>
</tr>
<tr>
<td>Soft Tissue</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Average Length of Splinting in weeks (Min, Max)</td>
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<td>Average Follow Up in weeks (Min, Max)</td>
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<tr>
<td>Outcome</td>
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<tr>
<td>Excellent</td>
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<tr>
<td>Good</td>
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<tr>
<td>Fair</td>
</tr>
<tr>
<td>Poor</td>
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<tr>
<td>Complications</td>
</tr>
<tr>
<td>Convert to Operative</td>
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<tr>
<td>Restarted Splinting</td>
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<tr>
<td>Dorsal Bump</td>
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<tr>
<td>Nail Deformity</td>
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<tr>
<td>Splint Irritation</td>
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<tr>
<td>Outcome Breakdown</td>
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<tr>
<td>Limited Extension</td>
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<td>Flexion Limitation</td>
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</tbody>
</table>

CONCLUSIONS

- Even with our limited numbers at this institution we can see that the vast majority can be treated successfully with nonoperative management and this is supported in the literature
- Many of our “Fair” outcomes were due to reported flexion “stiffness” at final follow up and not a discreet number. It is doubtful this lead to any functional deficits
- Most of our patients with limited extension or need to restart treatment were due to noncompliance with splinting, which has been associated with worse outcomes
- Our only conversion to operative management was due to a patient presenting 8 weeks after injury and then being noncompliant with splinting

FUTURE IMPLICATIONS

- Exploration of the data from Randall Children’s Hospital will help to give this investigation a more robust amount of information
- There is a provider there that treats all of his nonoperative mallet fingers with only 4 weeks of splinting, unlike the classic adult amount of 6 weeks and we would like to explore if this is a reasonable option and possibly practice changing

REFERENCES & ACKNOWLEDGEMENTS