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Unique Case Study of a Fracture to the 5th Proximal Interphalangeal Joint

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Abstract

Background: A 15-year-old male high school football player was attempting to catch a football during a practice session that ended up deflecting off his 5th digit. The athlete was initially assessed by the athletic training student and the certified athletic trainer. Edema was noticeable at the proximal phalange of the 5th digit. Upon assessment of the individual range of motion, bilateral movement in both hands was equal and unrestricted. Also, finger grip strength did not have any significant deficit. Meanwhile, slight pain/discomfort was reported by the student-athlete along with the proximal joint during the initial assessment while in flexion. Therefore, the athlete was instructed to buddy tape his fingers and return to ice it before leaving the facility after practice. Over the next several days, the athlete continued to tape and refrained from any contact drills during practice and iced his hand daily. Over the course of the practice week, the swelling did not dissipate, though his pain level was decreasing. Therefore, the AT decided to refer him for imaging. The x-ray returned a fracture to his 5th digit.

Treatment: The athlete required a surgical operation to reduce the fracture and was placed in a splint for 3 weeks, he was removed from competitive activity. The student-athlete began rehab following the removal of the edema to the repair site. Initially, the goal was to decrease the edema and increase the individual range of motion.

Outcome: The athlete was a multi-sport athlete and was clear to return to activity 3.5 weeks post-operation. Over the next four weeks, the athlete was able to rehab and prepare himself for basketball season, where he was able to return to play after missing the first couple of weeks of the season. Student-athlete was able to return without any limitation.

Conclusion: Student-athlete initially presented signs of a jammed finger, but due to the edema and inability to dissipate, the AT referred the athlete for imaging that correctly diagnosed the injury as a phalangeal fracture.

Purpose of Rehab

Goals: Return the athlete to play without any functional limitations

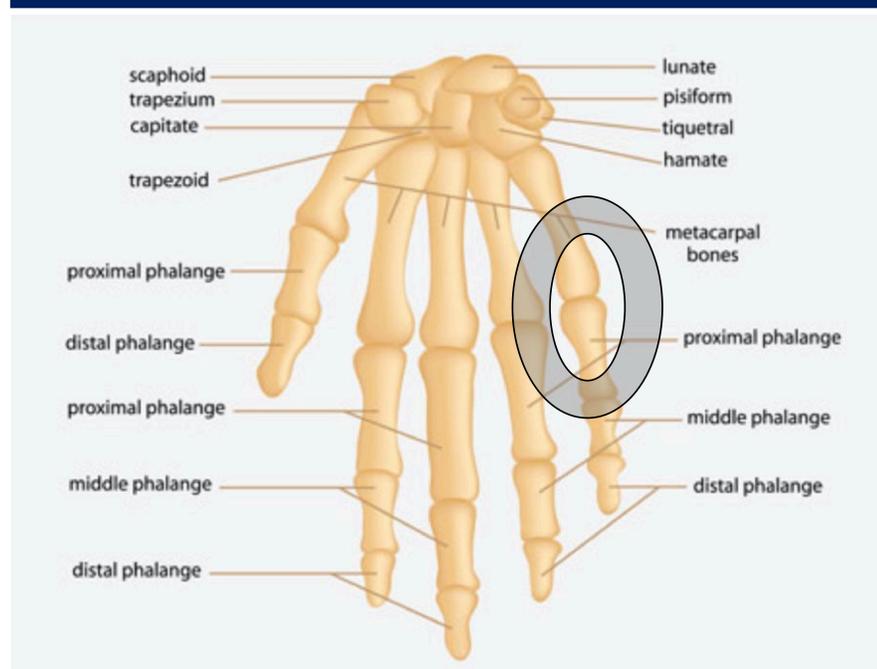
Short Term Goals Post-Operation:

- Decrease Inflammation
- Decrease Pain
- Regain Range of Motion of the Hands/Fingers
- Regain Grip Strength
- Maintain/Improve Lower Body Strength
- Maintain/Improve Cardiorespiratory Endurance

Long Term Goals:

- Prepare for Basketball Season
- Dribbling, Passing, Catching without hesitation

Fracture of the 5th Proximal Interphalangeal Joint¹



Rehab Protocol

Week 1-3 Post-Operation:

- Splint/Sling
- PRICE Protocol: ice bag for swelling and pain
- **Week 3 Follow-up:** physician clearance to return to activity: (finger buddy taped during activity)

Week 4-7:

- Joint Mobilization to regain range of motion
- TheraBand Hand Trainer
- Range of Motion Targeted: Finger Flexion, Extension, Opposition
- Discontinue Splint
- Physician Clearance for Basketball Season at Week 7 Post Op

Other Rehab Consideration:

- Running and Sprinting in order to Maintain Cardiorespiratory Fitness 2-3 times per week
- Arm Bike for 15-20 Minutes 3-4 times per week
- Core Strengthen Exercises Daily
- Weight training with football team during lower body session

Conclusion:

Student-Athlete was able to regain normal function in his 5th digit. A second physician clearance was warrant after student-athlete was hesitant to return following the initial follow-up with physician 3 weeks after the surgical intervention. Therefore, the goals was to continue to improve range of motion, strength, and confident for the individual. After 7 weeks, the student-athlete was prepared for basketball season and return to play without any limitation.

References:

1. Anatomy: Hand and Wrist. BID Needham. <https://www.bidneedham.org/departments/orthopaedics/hand-program/anatomy-hand-and-wrist>. Accessed March 30, 2021.