

Case Study:

Use of the OsteoMed® Hand Plating System (HPS)
to Treat Closed, Comminuted Fracture of the
Fifth Proximal Phalanx



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Case Presentation

The patient was a 20-year-old female, Division I collegiate volleyball player, who sustained an injury from a hard spike. Radiographs confirmed a closed, comminuted, fifth proximal phalanx fracture in six fragments, spanning the phalangeal base and extending beyond the midshaft. Stable fixation with early range of motion (ROM) was the highest priority as the Big Ten Conference Championship was less than three weeks away.

Preoperative Plan

While the use of K-wires or percutaneous lag screw fixation was possible, Dr. Tueting ultimately chose to use the OsteoMed Hand Plating System as he felt that this system would provide a comprehensive, creative solution that could treat this complex fracture and allow a quicker return to sport. His surgical goals included: anatomic alignment and absolute stability of the comminuted segments; lag screw and cannulated screw fixation both inside and outside of the plate where needed; and locking plate and screw combinations for rotational control and additional stability.

Operative Findings and Approach

Performing an ulnar wrist block for intraoperative pain control, Dr. Tueting used a two-inch ulnar midaxial approach that allowed access to the fractured proximal phalangeal segments and hardware placement that would minimize the potential for extensor tendon irritation or injury. Longitudinal traction, derotation, and a minimal touch technique reduced the fracture. A 1.2 mm straight L-plate was cut and contoured to span the proximal phalanx. Through the plate, a combination of cortical compression, lag fixation, and locking screw fixation was used to stabilize the comminuted fracture.

Follow-Up

At the one-week postop, the patient revealed mild swelling with only minimal pain. A week later, the patient was able to make a full composite fist and fitted with a custom hand-based padded ulnar gutter splint to allow blocking and hitting with her dominant hand. She returned to volleyball practice, and at four weeks postop, she competed with her protected hand to help her team win the Big Ten Championship.

Discussion

The OsteoMed Hand Plating System provided a comprehensive and versatile solution to treat and reduce this complex multifragmented fracture of the proximal phalanx. The system allowed Dr. Tueting to use lag screws, compression screws, and locking screws with a 1.2 mm straight L-plate. The plate was anatomically cut and contoured to fit the patient's proximal phalanx to minimize tendon irritation and enable early ROM.

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Preoperative



Postoperative

