

# Simple and Reproducible Hemi-Hamate Arthroplasty Technique

## A Retrospective Review

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### INTRODUCTION

- Proximal interphalangeal joint (PIPJ) fracture dislocations can result in persistent pain, stiffness and angulation
- Hemi-hamate arthroplasty (HHA) can be used to reconstruct the base of the middle phalanx in cases of unstable PIPJ fracture dislocations
- Despite previous case series describing good outcomes with HHA, it has not gained widespread use
- Purpose of this study:
  - Describe our straight-forward and reproducible technique
  - Demonstrate the benefit in motion following the procedure

### METHODS

- Retrospective review of 11 cases
- Inclusion criteria
  - Unstable acute or chronic PIPJ fracture dislocation treated with HHA
  - Greater than 40% of the base of the middle phalanx requiring resurfacing
- Exclusion criteria
  - Fractures amenable to fixation
  - X-ray evidence of arthritis or injury to the head of the proximal phalanx

### RESULTS

- 11 patients (7 males/4 females)
- Mean patient age: 35 years old
- Mean time from injury to surgery: 6 months
- Mean joint surface involved: 64%
- Digit injured: ring or small finger > index finger > long finger
- Mechanism of injury:
  - Sports: 5/11
  - Fall: 3/11
  - Fight: 3/11
- Mean follow up: 26 months
- Bony union in all cases
- Postop pain at PIPJ: 0.4 (scale 0 to 10)
- No postop OA, PIPJ re-dislocation or hamate donor site complications
- 2 PIPJ complications (requiring tenolysis)
- Statistically significant improvement in arc of motion from 17° preop to 63° postop

Table 1. Pre- and postoperative range of motion

	Preoperative	Postoperative
Mean PIPJ range of motion, degrees	3-20°	15-77°
Mean PIPJ arc of motion, degrees	17°	63°
Mean MCPJ range of motion	-	0-85°
Mean DIPJ range of motion	-	0-55°

### Key technical points

- Debriding all fracture fragments, osteophytes and callous to ensure the joint is reducible prior to arthroplasty
- Assessing the orientation of the intermetacarpal articular ridge on the hamate to ensure that the hamate osteotomy aligns the interarticular ridge of the hamate with the interarticular ridge of the middle phalanx base
- Making an oblique hamate osteotomy if necessary to align the interarticular ridges
- Taking a larger bone block than required
- Fixating the bone graft with two bicortical screws to restore the volar buttress



Figure 1. Fluoroscopy is used to confirm the position of the hemi-hamate autograft after fixation using two bicortical screws



Figure 2. Hemi-hamate autograft seated into the middle phalanx base defect

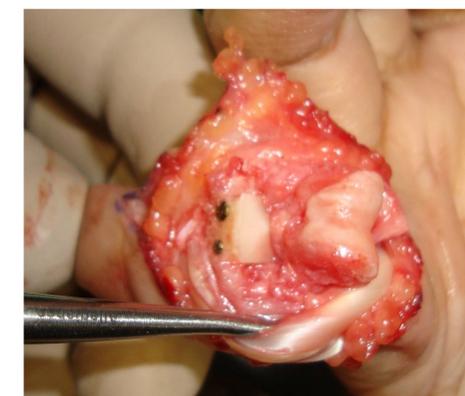


Figure 3. Fixation to the middle phalanx base with two bicortical screws

### CONCLUSION

- Despite the lack of a perfect geometric recreation of the base of the middle phalanx with the hamate, patients recover statistically significant improved PIPJ motion and have minimal pain
- HHA is a good option for any patient with minimal motion of their PIPJ following an unstable fracture dislocation

### DISCLOSURES

The authors have no conflicts of interest to disclose.