

# UNSTABLE METACARPAL FRACTURES TREATED WITH INTRAMEDULLARY NAIL FIXATION

Ather Mirza, MD, Justin Mirza, DO, Brian Lee, BS, Shawn Adhya, BS, Christopher Healy, DO

**OBJECTIVES:** Evaluate patient outcomes following intramedullary nail (IMN) fixation of unstable metacarpal (MC) fractures.

## METHODS

### *Demographics:*

55 patients with unstable MC fractures were treated with IMN over a 7 year period (Mean Age 33.9; range 15-78).

### *Surgical Technique:*

A 0.062 K-wire was introduced through the base of the fractured metacarpal while the fracture was held reduced. The intramedullary nail (straight, flexible, stainless steel nail with blunt, bent tip: Hand Innovations – Biomet 1.2/1.6 mm) was subsequently inserted in the pathway created by the K-wire.

### *Postoperative Management:*

A removable splint was applied, allowing motion of the MCP (MC base fracture), PIP & DIP. Occupational therapy was initiated mean 12 days post operatively. IMN was removed in all cases at 13.9 weeks. Outcomes were assessed by DASH score, AROM of wrist, grip & pinch strength, and radiological study of longitudinal and angular collapse.

PRE-OP



POST-OP



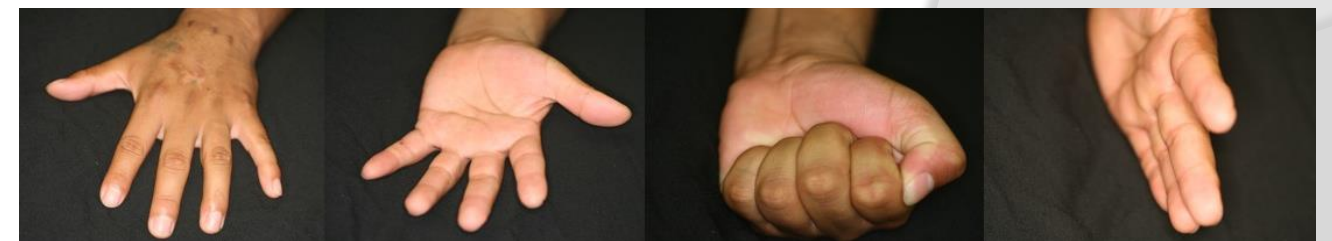
FINAL FOLLOW-UP



## RESULTS

Fractures were held at an average of 12.7 weeks; average final follow-up was 13.9 weeks. Patients regained 72.4% finger ROM at 2 weeks post-operatively and full finger ROM at final follow-up. The mean DASH score at final follow up was 6.5.

Complications included three cases of extensor tendon irritation which resolved without functional impairment, and two cases of backing out that required reoperation to replace the pin.



## CONCLUSIONS

This technique allowed for stable fracture fixation, early ROM allowing early resumption of usual daily activities, reduced immobilization, and minimal complications.