Internal Fixation of Distal Metacarpal Fractures: "New" Uses for an Old Plate

Paul A. Sibley, DO,1 Sidney M. Jacoby, MD,2 Joshua M. Abzug, MD,2 Christina L. Waddell, PA-C,2 Michael Rivlin, MD,2 John M. Bednar, MD2

Philadelphia College of Osteopathic Medicine, Department of Orthopaedic Surgery, Philadelphia, PA1
Department of Orthopaedic Surgery, Division of Hand Surgery – Thomas Jefferson University, Philadelphia, PA2
University of Maryland, Department of Orthopedics, Timonium, MD3

PURPOSE
- Certain metacarpal fracture patterns require operative fixation to restore anatomy and optimize results.
- Compared to dorsal plating, the width of the mini-condylar blade plate buttresses the deforming volar pull of the intrinsics and provides a stronger construct.
- The implant provides firm fixation in the juxta-articular fragment with minimal space requirements.
- Therefore, the purpose of this study was to examine our outcomes following utilization of a mini-condylar blade plate for the treatment of distal metacarpal fractures.

METHODS
22 distal metacarpal fractures in 20 patients treated with a mini-condylar blade plate were retrospectively reviewed.

Outcome measures
- postoperative grip strength
- range of motion
- return to work
- radiographic evidence of osseous union

RESULTS
- The average arc of motion of the metacarpal-phalangeal (MCP) joint was 62 degrees post-operatively.
- 62% (16 of 22 fractures) were able to flex their digits to their distal palmar crease.
- 71% (12 of 17 patients) had at least 75% return to grip strength compared to the contralateral side.
- The average return to full activity (17 patients) was 2.5 months (range 1-3 months) after surgery.
- There were no major complications.

CONCLUSIONS
- The mini-condylar blade plate is a safe and effective technique for stabilizing unstable peri-articular metacarpal fractures.
- Stable fixation allows for early range of motion, rapid return to strength, and a relatively quick return to full work duty.
- We have shown a low complication rate, however stiffness and residual pain can occur.
- The utilization of this technique should be considered when treating distal metacarpal fractures with open reduction and internal fixation.