

Key Publications

Surgical Outcomes of Fifth Metacarpal Neck Fractures – A Comparative Analysis of Dorsal Plating Versus Tension Band Wiring

Publication Excerpt

“Patients who underwent Dorsal Plating (DP) demonstrated better improvement in fracture angulation, radial-ulnar displacement, Metacarpal (MC) height ratio, and final Range of Motion (ROM) compared to those who underwent Tension Band Wiring (TB).”

Journal Abstract

The purpose of our study is to retrospectively compare the use of tension band (TB) wiring and dorsal plating (DP) for the fixation of fifth metacarpal (MC) neck fractures. A retrospective study of patients who had surgical treatment of 5th MC fractures from 2009 to 2013 was performed. Data including patient demographics, mechanism of injury, preoperative and postoperative pain score, range of motion (ROM), duration of follow-up, and whether implants removed were documented. Three radiological parameters: angulation (in degrees), radial-ulnar displacement (in millimeters) and MC height ratio were measured. There were a total of 84 patients with isolated closed 5th MC neck fractures, of which 41 underwent DP and 43 underwent TB. Patients who underwent DP demonstrated better improvement in fracture angulation, radial-ulnar displacement, MC height ratio, and final ROM compared to those who underwent TB. This study has shown that DP is a viable surgical treatment option for 5th MC neck fractures.

Reference

Wong KP, Hay RA, Tay SC. Surgical outcomes of fifth metacarpal neck fractures – a comparative analysis of dorsal plating versus tension band wiring. *Hand Surg.* 2015;20(1):99-105 doi: 10.1142/S0218810415500148. PubMed PMID: 25609282.

Comparison of AO Titanium Locking Plate & Screw Fixation vs Anterograde Intramedullary Fixation for Isolated Unstable Metacarpal and Phalangeal Fractures

Publication Excerpt

“Anterograde intramedullary (AIM) fixation, the conventional treatment for metacarpal and phalangeal fractures, has been reported to have many advantages, including minimal soft tissue dissection, smaller skin incision and potentially less tendon irritation. However, these advantages may be outweighed by inferior stability and a greater incidence of complications. In recent years, fixation with Arbeitsgemeinschaft für Osteosynthesefragen (AO) titanium locking plate and screws (ATLPS) has been used to treat unstable metacarpal and phalangeal fractures and has yielded favorable clinical outcomes.”

Journal Abstract

Objective

This study aimed to compare the clinical and radiologic outcomes of AO titanium locking plate and screw (ATLPS) and anterograde intramedullary (AIM) fixation for treating unstable metacarpal and phalangeal fractures.

Methods

Adult patients with isolated fresh unstable metacarpal and phalangeal fractures who met the inclusion criteria were enrolled into this prospective study from July 2013. Patients were divided into ATLPS or AIM groups when they were admitted to our department after considering their work requirement, fracture complexity, and surgeon's experience and were then treated accordingly. Relevant demographic, clinical and preoperative clinical data were collected and analyzed. Clinical examination and radiograph evaluation were performed 1 week and 1, 3, and 6 months postoperatively. Outcome measures were visual analog scale (VAS) scores for pain, total range of motion (ROM) of the injured digit, Quick Disabilities of the Arm, Shoulder, and Hand scores (Quick-DASH) and grip strength (percentage of the contralateral corresponding digit).

Results

From July 2013 to September 2014, 76 patients were treated by AIM and 71 by ATLPS. Age, sex, time from injury to operation, dominant hand, injury mechanism, fracture location, fracture type, and participant occupation were similar in both groups ($P > 0.05$). Operations were all performed well and followed by uneventful postoperative functional recoveries. At 3-month follow-up, all clinical outcomes were significantly better in the AIM than ATLPS group ($P < 0.05$) except for VAS pain scores. However, at 6-month follow-up, the differences were no longer significant, indicating similar results for both types of fixation. Patients in the AIM group developed significantly more complications ($P = 0.037$). Sick leave was significantly longer in the AIM group ($P = 0.02$).

Conclusion

AIM outperforms ATLPS in the treatment of unstable metacarpal and phalangeal fractures in the early, but not the later, postoperative period; the latter is associated with significantly more complications. Patients treated by ATLPS require shorter sick leave, which is of particular benefit to workers with specialized manual skills.

Reference

Zhang B, Hu P, Yu K, et al. Comparison of AO titanium locking plate and screw fixation versus anterograde intramedullary fixation for isolated unstable metacarpal and phalangeal fractures. *Ortho Surg*. 2016;8:316–322.



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