

LITERATURE REVIEW

Polyaxial Double Plating of Complex Distal Humerus Fractures

CLINICAL ISSUE:

Distal humerus fractures are rare, with an incidence of ~2%. However, treatment is challenging due to the complex anatomy of the elbow joint and the frequency of comminuted fractures. Complication rates are between 29% and 61%, including non-union, ulnar nerve injury, stiffness, heterotopic ossification, and infection.

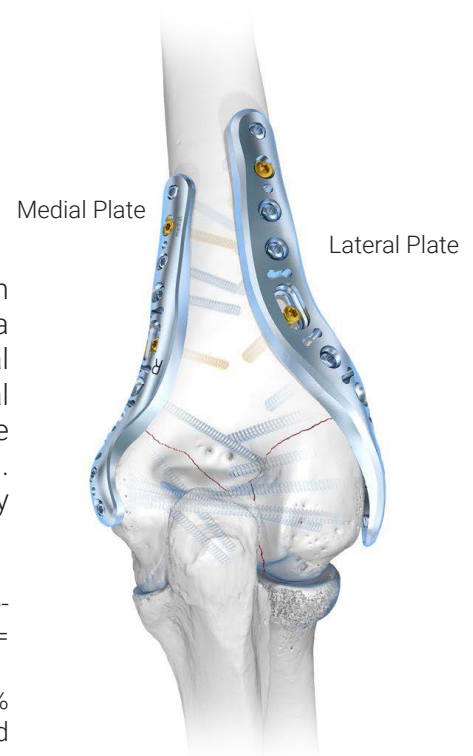
MEDARTIS SOLUTION:

- Three plates that can be pairwise positioned in an orthogonal or parallel configuration.
- The anatomical plates are shaped for a good fit to the bone.
- Tapered profile at the ends to reduce plate protrusion over the epicondyles distally and reduce the risk of stress fractures proximally.
- Medial plate with anterior curvature to protect the ulnar nerve.

LITERATURE REVIEW:

In this retrospective study, Habarta et al evaluated 116 patients with distal humerus fractures treated with double plate osteosynthesis at a trauma center from 2010 to 2020. They compared fixed-angle orthogonal plating (DePuy-Synthes LCP; 46 patients), variable angle orthogonal plating (Medartis APTUS Distal Humerus 2.8; 36 patients), and variable angle parallel plating (Medartis APTUS Distal Humerus 2.8; 34 patients). Mean age was 57y (SD+/-21), 51% female. The fractures were mostly AO type C (92%), with 52% type C3 and 41% open.

1. The fixed-angle plating system showed higher revision rate than variable-angle plates independent from the plate configuration (50% vs 24%, $p = 0.004$).
2. In particular, non-union (17% vs 3%, $p = 0.006$), and elbow stiffness (24% vs 3%, $p = 0.007$, for orthogonal plating) were more common in fixed angle plating.
3. Rate of implant removal was significantly higher in the fixed-angle plate group compared to the variable-angle plate group (28% vs 10%, $p = 0.01$).



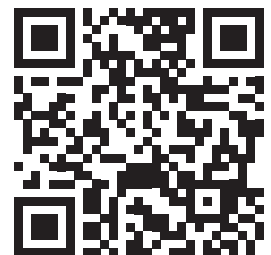
Distal Humerus Plates 2.8

KEY TAKEAWAY:

The authors concluded that "...lower overall revision rate including a decreased non-union rate using a latest generation variable-angle plating system compared to a fixed-angle plating system. Therefore, the use of latest generation variable-angle plates should be considered."

Scan the QR Code to read this study and learn more about the specific methods and results from this study or visit

<https://pubmed.ncbi.nlm.nih.gov/40745123/>



REFERENCES:

Habarta J, Gilbert F, Grunz JP, et al. Does polyangular double plating lead to less complications than monoaxial locking implants in the treatment of complex distal humerus fractures?. *Eur J Orthop Surg Traumatol.* 2025;35(1):333. Published 2025 Jul 31. doi:10.1007/s00590-025-04465-4