New Anteromedial Minimally Invasive Approach for Extra-Articular Distal Humeral Shaft Fractures: First Clinical Data

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Purpose: This prospective study aimed to evaluate functional and radiological outcomes of this new approach in real patients.

Methods: 31 patients met the inclusion criteria. An extra-articular elbow locking compression plate of the same arm was molded to achieve an adequate fit of the plate on the anterior side of the medial epicondylar area. First the distal anteromedial MIPO (minimally invasive plate osteosynthesis) window was created through the fibers of the pronator and brachialis muscle. Posteriorly, the proximal MIPO window was performed through the classic anterior MIPO approach. The plate was introduced through the distal window in a retrograde fashion, up to upper side of the anterior aspect of the humerus. Finally, proximal and distal attachment of the plate was performed.

Results: Patients were followed for at least 48 months. The mean distance from the fracture to the upper border of the coronoid fossa was 3.71 cm (range, 0.1-5.9 cm). All fractures healed and the mean consolidation time was 14.35 weeks (range'10-22). The mean postoperative UCLA score at final follow-up was 34.35 and the mean MEPS (Mayo Elbow Performance Score) was 97.10. All patients corresponded to excellent and good results. There were no deep infections. Two iatrogenic radial nerve palsies and two transient anterior interosseous nerve palsies were reported.

Conclusion: Direct damage to the neurovascular bundle is the main concern for the surgeon in this new approach; even so, there were only 2 injuries of a branch of the median nerve that recovered in 4 months. The radial nerve cannot be damaged directly through this approach. Similar functional outcomes have been reported in other MIPO techniques. This clinical study revealed that MIPO via an anteromedial distal approach is a safe and useful technique for distal fractures of the humeral shaft.