

SURGICAL SCIENCES SECTION

THE ADVANTAGES OF MINIMALLY INVASIVE PLATE OSTEOSYNTHESIS (MIPO) BY ANTERIOR APPROACH IN DISTAL HUMERAL SHAFT FRACTURES

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Introduction: Complex distal humeral shaft fractures management is debatable due to the fact that ORIF with plates is associated with a higher morbidity while intramedullary nails do not present reliable results.

Purpose: to emphasize the advantages of MIPO by anterior approach in distal humeral shaft fractures.

Material and methods: We have operated 19 distal humeral shaft fractures (3 type 12-A, 11 type 12-B and 5 type 12-C / AO classification) using the MIPO technique imagined by Livani and Belangero, in order to avoid the problems related to the neural vascular structures of the arm and especially to the radial nerve. 5 patients were registered with traumatic radial nerve palsy. The proximal approach of 3-5 cm was realized between the biceps (medially) and deltoid muscle (laterally). The distal approach of 3-5 cm was performed by subperiosteal dissection of the lateral supracondylar ridge of the humerus, with retraction of brachioradialis and long carpal extensor muscle, as well as the radial nerve, even though unseen. A classic or a DCP plate of 4.5 mm with 10-14 holes was molded and twisted medially to adapt to the anterior face of the humeral lateral column and diaphysis, thus avoiding occlusion of the coronoid or of the olecranon fossae. The plate was inserted from distal to proximal and fixed onto the shaft with at least 2 proximal and 2 distal screws (after reestablishing the humeral axis, length and rotation). In a single case we have performed MIPO after surgical exploration of the nerve. The patient started a rehabilitation program immediately or after a short immobilization. 6 fractures in 6 patients (with arm wrestling mechanism in 3 cases) were operated by indirect reduction and biological plating, avoiding the related problems. According to AO classification, there was 1 fracture-type 12A, 2-type 12B and 3- type 12C.

Results: 18 fractures healed within a mean time of 9 weeks after surgery, while we have recorded a non-union in an obese female patient. There were no vascular or nerve complications, except 3 transient paresthesia for the radial nerve. All primary neurological lesions recovered within 6-8 weeks. Elbow functional results were considered excellent according to SECEC score.

Conclusions: The authors are promoting the advantages of this technique regarding safety and feasibility as well as plate stability which allows a fast rehabilitation. Even if it is a demanding technique, MIPO seems to be the best option for distal third humeral fractures and a viable solution for distal fractures with radial nerve palsy.

Key words: MIPO, anterior approach, radial nerve, subperiosteal dissection.