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Diaphyseal fracture of the metacarpals of the long fingers: comparative study between mini-plate and intramedullary pinning:

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I. Introduction

Metacarpal fractures are frequent injuries of the hand, they constitute 30% of hand fractures. The treatment is not yet well codified and remains a subject of debate and scientific discussion.
For unstable and displaced fractures, the treatment is surgical. Thus, two techniques are commonly used: anterograde intramedullary pinning and internal osteosynthesis by screwed mini-plate.

II. Material and methods

A descriptive and comparative retrospective study was carried out of 65 cases of fracture of the metacarpal diaphyses in the orthopedic traumatology department B4 at the University Hospital of Fez divided into 2 groups: 46 cases operated by intramedullary pinning and 19 cases by screwed mini plate with an open reduction by internal fixation.
The clinical and radiological results were analyzed according to subjective and objective criteria, in particular the Quick Dash score.

III. Results

The two groups were comparable in terms of age and sex with a male predominance in the 2 groups.
The operating time is significantly shorter in the group treated by intramedullary pinning. In addition, patients who received a screwed plate report more postoperative pain.
A rupture of the extensor tendon was noted in a patient who underwent intramedullary pinning.
In addition, an average shortening of 2mm was observed in the same group.
In parallel, in the second group, there is a case of pseudarthrosis and a case of adhesion of the extensor tendon as well as stiffness.
However, no significant difference in the other parameters, particularly for the Quick Dash score.

IV. Discussion

Percutaneous intramedullary pinning techniques limit soft tissue dissection, but require 3-4 weeks of postoperative immobilization and a second surgery is often required for removal
The overall complication rate is about 16%, similar to our series, including major complications.
Our study confirms the results of the literature with an anatomical and rigid reduction of the screwed plate allowing an early mobilization of the joints; unsystematic material removal; with, however, more frequent complications.

V. Conclusion

Technique selection remains based on fracture characteristics and surgeon preference.
More recently, studies have emerged on the use of retrograde screwing to treat phalangeal and metacarpal fractures, with excellent results.

Figure 1 2nd 3rd metacarpal fracture treated by pinning

Figure 2 fourth metacarpal fracture treated with plate