Traumatic bone loss of the hand using the Masquelet's technique

Vivien MORIS, David GUILLIER, Philippe RIZZI, Julien PAUCHOT, Laurent OBERT, Alain TCHURUKDCHIAN, Narcisse ZWETYENGA

University Hospital of Dijon, University Hospital of Besançon

INTRODUCTION

This study proposes a retrospective evaluation of eighteen patients treated for traumatic bone loss affecting the fingers, hand and wrist using the induced-membrane technique.

METHODS

Sixteen men and two women, mean age 54 years (27-74) presented an injury including bone loss. There were 13 cases of open fractures of the phalanx and 5 cases of metacarpal fractures. These patients were treated with debridement, ciment (methylmethacrylate) spacer and flap coverage when necessary.

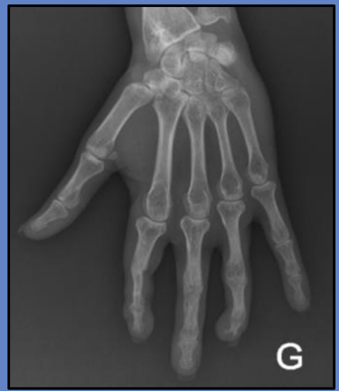
MASQUELET'S TECHNIQUE

RESULTS

In 16 patients the fractures were consolidated after a mean 4 months (1.5 - 12 months). The TAM (Total Active Motion) was 145° (75º - 270º) for the fingers. The Kapandji score reached 8 for the thumb. The grip strength measured using the Jamar reached 21 Kg/F and the pinch strength 5 Kg/F, both were half those in the healthy hand.

A comparative analysis was done to evaluate the interest of early physiotherapy after the bone graft (2nd step of the Masquelet technique). Two groups were created: group 1 (physiotherapy < 2 months) included 8 patients and group 2 (physiotherapy > 2 months) included 10 patients. The functional parameters of these two groups were compared using the non-parametric Mann and Whitney test, Student 95% confidence interval .

Results	Group 1	Group 2	Student
TAM	157.5	154.5	p > 0,05
Grasp	22.5	18.8	p > 0,05
Pinch	6.5	4.4	p > 0,05
Quick Dash	14.7	27.7	p < 0,05
Month before physio	1.1	2.7	p < 0,05



CONCLUSIONS

The induced-membrane technique is simple and can be used to treat traumatic bone loss in emergency, thus avoiding amputations and limb shortening, while preserving limb function. It provides immediate stability and thus allows early mobilization.