

Masquelet Procedure – 100 Days Old Induced Membrane

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INTRODUCTION:

The management of critical-sized bone defects (CSBD) following chronic osteomyelitis continues to be an arduous task. We present a case of tibial osteomyelitis treated using the Masquelet technique¹.

CASE PRESENTATION:

A 26 years old gentleman sustained a grade IIIB open fracture of the left tibia. He underwent debridement, external fixation and VAC on day 2 post trauma followed by reverse hemisoleus flap on day 5 then discharged with external fixator. At 6 weeks, the external fixator was removed and PTB cast applied. Unfortunately, patient developed a non-healing sinus at 3 months, with radiological evidence of chronic osteomyelitis. The first stage was performed using an antibiotic-coated tibial nail with 4.5cm bone resected. Subsequently, patient defaulted follow-up and the second stage was done 100 days after the first stage. Three months later, the patient began full weight bearing, with a healed wound and signs of union radiographically.

DISCUSSIONS:

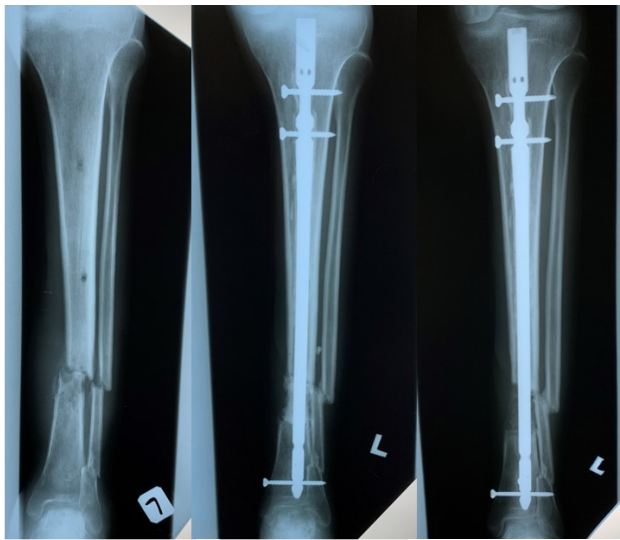
The cement spacer used for the Masquelet technique leads to the formation of an induced 'pseudomembrane' which is highly vascularized and contains high levels of VEGF, IL-6, and other bone morphogenetic factors¹. It was thought that its osteogenic capability is highest between 4 to 6 weeks. In our case, it has been shown that this capability is still potent, even after 3 months and is supported by several studies^{2,3}. The time of treatment was faster than ring fixators for such defects, however leaves a problem of donor site morbidity for larger defects (more than 5cm)³.

CONCLUSION:

The Masquelet technique remains a novel method in management of long bone CSBD. Further studies are required to assess the evolution of the induced membrane for longer periods.

REFERENCES:

1. Olli-Matti Aho et al., The Mechanism of Action of Induced Membranes in Bone Repair; *J.Bone Jt. Surg* 2013.
2. TM Wong et al; Masquelet Technique for Treatment of Posttraumatic Bone Defects; *Sci. World J.* Volume 2014, Article-ID 710302
3. CK Kyriakopoulos et al; Implementation of the Masquelet Technique in Complicated Septic Non-union of the Ulna—A Case Report; *J.Pharm.Pharmacol.* 4 (2016) 293-297



A: Osteomyelitis Of Tibia B: Post 1st Stage Masquelet C: 3 months post 2nd Stage