

# 8cm Segmental Bone Defect Reconstructed Successfully With Masquelet Technique In Post Traumatic Osteomyelitis Of Distal Femur.

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## INTRODUCTION:

Masquelet introduced the concept of induced membrane and reconstruction of large bone defects with non-vascularized autologous bone graft. We mainly report this case to highlight an optional treatment modality in limb reconstruction surgery involving segmental bone defects.

## CASE REPORT:

17 year old boy had a motor vehicle accident and sustained open segmental fracture of left femur (Gustillo grade IIIA) and subsequently underwent wound debridement and external fixation of left femur. After four weeks, external fixation was removed and distal femur locking plate was done. He was then referred to our center for continuation of care due to logistic reason. Six weeks postoperatively, the surgical wound was infected and x-ray showed osteomyelitis of distal femur. During the Masquelet's first stage surgery, radical debridement was done, the locking plate was removed and 8cm of non-viable bone was resected. Antibiotic cement spacer was inserted into the bone defect and left femur hybrid external fixation was applied. After two months, patient underwent the second stage surgery, whereby the induced membrane encapsulating the cement spacer was incised and bone cement was removed. Autologous cancellous iliac bone graft was inserted into the induced membrane and closed with absorbable sutures. Six months later, radiologically and clinically the fracture was united. He was able to ambulate without aid and the active range of motion of left knee was 0-100 degrees.

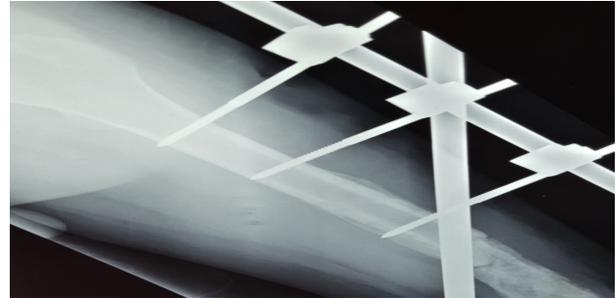


Figure 1: X-ray left femur 1 month after second stage surgery



Figure 2: X-ray left femur 6 months after second stage surgery shows united fracture

## DISCUSSION:

The cement spacer placed during 1<sup>st</sup> stage surgery prevents the fibrous tissue ingrowth and promotes the formation of induced membrane. The membrane conceptually acts like a biological chamber which prevents bone graft resorption and promotes vascularization and consolidation of the cancellous bone by secreting osteo-inductive and growth factors like BMP-2, TGF $\beta$ 1 and VEGF<sup>1</sup>.

## CONCLUSION:

Based on this successful 2 stage reconstruction surgery, we would like to reiterate Masquelet technique as an alternative viable method for reconstruction of long bone defects.

## REFERENCES:

1. Masquelet AC, Begue T. The concept of induced membrane for reconstruction of long bone defects. Orthop Clin N Am 2010; 41:27-37.