

Calcium Sulphate Antibiotic Carrier for Single Stage Masquelet Technique

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INTRODUCTION:

Masquelet technique is two-stage procedure for bone repair. Debridement of the bone and soft tissues is performed during the first stage of surgery, and then a polymethylmethacrylate (PMMA) cement spacer implanted at the location of the bone deficiencies. A PMMA-induced pseudosynovial membrane developed after 6-8 weeks. The cement spacer is removed during the second stage of surgery and a cancellous autologous bone graft is used to fill the defect.

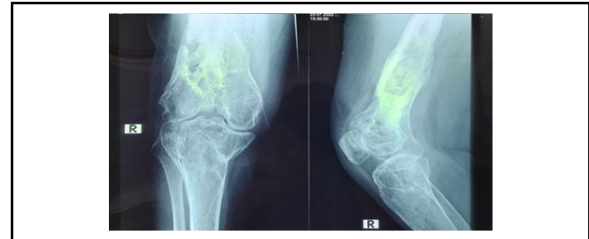
REPORT:

A 43 years old lady involved in motor vehicle accident 5 years ago and sustained multiple long bone fracture involving bilateral femur and right tibia. Operation done and unfortunately complicated with chronic osteomyelitis (OM) of right femur. After multiple operation done to eradicate infection and promote bone healing of right femur done still unsuccessful. On examination right thigh noted multiple operation scar and serous discharge noted over lateral aspect distal thigh. Investigation done and on imaging noted sequestrum and involucrum noted at distal femur. Wound debridement, bone resection, ilizarov external fixation and calcium sulphate antibiotic bone carrier insertion.

For the treatment of chronic osteomyelitis and infected non-union, a prospective, randomised clinical trial comparing the clinical efficacy of antibiotic-impregnated calcium sulphate with antibiotic-impregnated PMMA found that calcium sulphate was equally effective at eradicating infection as PMMA, but required fewer subsequent surgical procedures(2).

Figure 1: X-ray showing OM distal femur

Figure 2: Calcium sulphate bone cement



CONCLUSION:

Masquelet technique can provide solution to fill up bone defect after extensive debridement done with huge bone gapping by inserting antibiotic bone spacer. After about 6-8 week another operation have to be done to remove the cement spacer, but by using calcium sulphate antibiotic bone substitute, single surgery is needed in view of calcium sulphate will be degraded over time and reduce risk of another operation to the patient.

REFERENCES:

1. Rimsrud CHG, Aven RAR, Othergill AWF. The In Vitro Elution Characteristics of Antifungal-loaded PMMA Bone Cement. 94143:378-81.