

Ten-centimeter-long ulna bone defect: Reconstruction using combined Masquelet technique and non-vascularized fibula strut graft

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INTRODUCTION:

It is a great challenge to treat a forearm osteomyelitis with long segment of bone loss. We aimed to report our case of using fibula strut graft with masquelet technique of a deep surgical site infection patient.

REPORT:

A seventeen-year-old teenager presented with painful swelling over right forearm following a month history of closed fracture of midshaft of right ulna, in which was previously underwent plating of right ulna. Examination showed his forearm was swollen and erythema with sinus at surgical site. Purulent discharged seen upon milking. Plain radiograph showed periosteal reaction and loosening of screws. Erythrocyte sedimentation rate and C-reactive protein were raised. Diagnosis of deep surgical site infection was made.

A 2-staged surgery was planned. He first underwent wound debridement, removal of implant and cement spacer insertion with 10cm bone resected. Intraoperative culture showed Methicillin-susceptible Staphylococcus Aureus (MSSA). Four weeks antibiotic treatment was given.

5 months later, patient underwent second surgery, involving non-vascularized fibula grafting followed by right ulna plating and distal radio-ulnar joint k-wiring. Pseudomembrane was identified and incised parallel to the bone. Fibula autograft harvested was fit into the defect followed by plating. Postoperatively, patient was immobilized with slab for 2 weeks. No perioperative complication was observed after 1 year follow with good functional outcome.

Figure 1: Series plain radiographs of right radius in anteroposterior view showing

progression from preoperative (i), 1st stage surgery (ii), and 2nd stage surgery (iii).

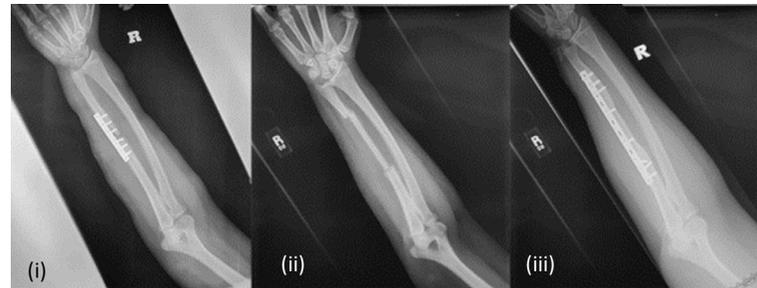
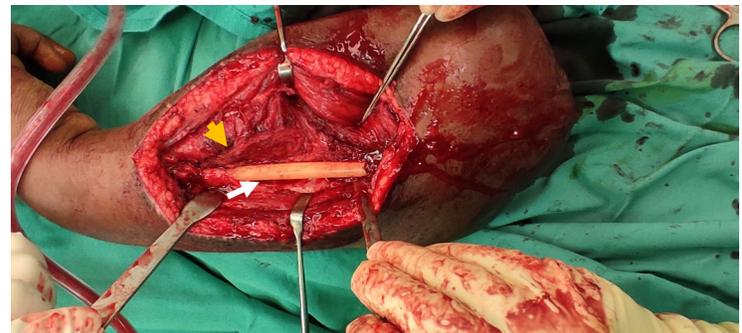


Figure 2: Intraoperative photo showing fibula strut graft (white arrow) inserted within the pseudomembrane (yellow arrow) filling up the defect.



CONCLUSION:

Despite the risk on non-union and bone resorption, 10-cm long bone defect can be treated safely with long segment non-vascularized fibula graft in conjunction with Masquelet technique.

REFERENCES:

1. Masquelet A, Kanakaris NK, Obert L, Stafford P, Giannoudis PV. Bone Repair Using the Masquelet Technique. J Bone Joint Surg Am. 2019 Jun 5;101(11):1024-1036. doi: 10.2106/JBJS.18.00842. PMID: 31169581.