

A Case Report: Impaction Bone Grafting (BG) With Metaphyseal Cone(MC) In The Management Of Severe Tibial Bone Defect (AORI Type III) In Revision Total Knee Arthroplasty

¹Aizat AS; ¹Ahmad Fauzey K; ¹Muhammad Azhar A; ¹Mawardi M

¹Arthroplasty Unit, Orthopedic Department, Hospital Sultanah Bahiyah Alor Setar

INTRODUCTION:

The use of metaphyseal porous metal devices in dealing with severe bone defects has good short and mid-term results. Impaction BG is a well-established technique in hip revision cases, however it has recently gained preference as part of the management of bone defect for revision total knee replacement (rTKA)

REPORT:

A 68-Years old lady who had bilateral total knee replacement (TKR) in 2013, and revision of Right TKR in 2017, complained of right knee pain and instability. The diagnosis of aseptic loosening was established. Second stage rTKA was done on 3/3/2022 (11 months after the first stage – Fig 1 and 2) and it revealed a severe defect tibial plateau AORI Grade III with extremely thin cortical bone and no collaterals attachment (Fig 3). MC was used with a metal mesh which is secured peripherally with cortical screw together with impaction autologous bone graft to provide support to the MC (Fig 4). We manage to reconstruct the proximal tibia and implanted Rotating Hinged Knee proximal tibia (size B) with 100mm stem. We proceeded with distal femur prosthesis in view of very severe uncontained bone defect, poor bone quality of the distal femur and no MCL, LCL attachments. 2 years post-op, patient able to ambulate with single cane with good range of motion. Radiograph showed good osteointegration and well-fixed implants (Fig 5 and 6).

DISCUSSIONS:

Selection of using the MC for the proximal tibia reconstruction in this patient is due to the severe metaphyseal bone defect and the facts that MC comes in with different sizes and offer more flexibility in term of positioning of the implant. However, implantation of MC are predominantly press-fit as described in literatures. The impaction bone graft with the metal mesh

provides structural support and an acceptable amount of press fit to the MC.



Fig 1

Fig 2

Fig 3

CONCLUSION:

Impaction bone grafting with mesh is an effective strategy that gives more durable and versatile support to the MC in severe bone defects. This technique eliminates the need of proximal tibia megaprotheses

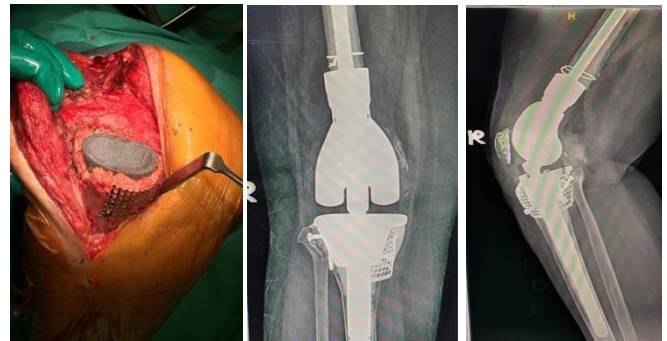


Fig 4

Fig 5

Fig 6

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