

THE COACH ON THE RAILWAY - A CASE OF HEMICORTICAL TRANSPORT FOR ANTERIOR DIAPHYSEAL TIBIA DEFECT

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Introduction: Hemicortical bone transport using an external fixator device has been described for the management of bone defect, especially in tumour cases. In osteomyelitis, this technique may only be suitable for the superficial and localised type, as resection of the whole bony circumference may not be required.

Discussion: A 19 year-old male was referred from another centre for the sequelae of injuries he sustained in a motor-vehicle accident 6 months prior. He sustained open fracture of the left tibia (Gustilo 3B). A series of debridements and antibiotic cement spacer insertion was attempted at that centre following the development of infected non-union. On examination at our hospital, the cement spacer was exposed with devoid of anterior soft tissue, but there was no limb length discrepancy or obvious coronal / sagittal plane deformity. The radiograph revealed valgus malalignment of the tibia with in-situ cement spacer and sclerotic fracture edges but intact posterior cortex. We proceeded with surgical debridement and removal of the spacer. Intraoperatively there was around 11cm anterior cortices bone loss. The posterior cortex was healthy and well-vascularised. A construct for hemicortical transport was applied using Ilizarov external fixator, and hemicorticotomy of the proximal anterior cortex was done using Gigli saw. There were no post-operative complications, except during the transport period, a release of invaginating soft tissue envelope was done to ensure docking site union. The regenerated bone was well-consolidated after 10 months and the Ilizarov external fixator was removed one year after the surgery. The patient returns to his pre-injury activities with normal gait and good left lower limb function.

Conclusion: In hemicortical bone transport, the well-vascularised intact cortex acts as the "railway" to the transport segment, and this helps to produce excellent consolidated bone regenerate. Hemicortical bone transport provides an excellent alternative for management of diaphyseal bone defect.