

NON-VASCULARIZED FIBULA GRAFT IN DEFORMITY CORRECTION OF A YOUNG CHILD

Mohd Hazrul Hazwan BH ^{1*}, Shanmugapragash G¹, Noorhuda AM¹, Muhammad Luqman N¹, Nazri MY¹, Ahmad Fadzli S¹, Akmal Azim AA²

¹Orthopaedic, Traumatology & Rehabilitation Department, Sultan Ahmad Shah Medical Centre, Malaysia

²Plastic and Reconstructive Surgery Unit, Sultan Ahmad Shah Medical Centre, Malaysia

*Corresponding author's email: drmohdhazrul@gmail.com

ABSTRACT

An eight years old child presented with a crush injury of her right leg, with open comminuted distal right tibia fracture and open right calcaneal fracture following an alleged motor vehicle accident in July 2019. This disastrous injury resulted in an extensive soft tissue damage which required multiple debridement and soft tissue surgery. Initially we performed debridement, external fixation; split and skin grafting. At this stage, complete healing and soft tissue coverage achieved, but her bone healing was impaired with non-union, varus deformity and shortening around 3 cm. Six months later, we discussed, counselled the parents and patient for autologous bone graft (non-vascularized fibular strut graft) and free flap procedure. Intraoperatively, large amount of fibrous tissues was removed, no signs of infection noted, and bone shortened until good bleeding sign seen. (Paprika sign). A 2 cm ipsilateral fibula strut graft harvested and inserted into the tibial intramedullary canal. It was stabilised with a 5-holes medial distal tibial locking plate. Our plastic surgery team further assisted with the closure employing a contralateral free anterolateral thigh (ALT) flap. With utilisation of this graft, we were able to avoid complications of taking alternative grafts such as iliac, and also assisted in her deformity correction by giving mobility during reduction. The tricortical nature of this graft also helped in maintaining the reduction and shown to be well integrated and united in the fracture site. Choice of ALT flap as wound closure seems beneficial for both soft tissue healing and bone healing. Serial plain radiographs shown good fracture healing and well aligned bone. The donor fibula site had also shown regrowth of the fibula, likely from the periosteum. This child was able to fully weight bear after 5 months with very minimal (1 cm) limb length discrepancy, which she compensated well while walking.

Keyword: crush injury, non-union, non-vascularised fibula graft

Acknowledgement: We would like to express special thanks to Plastic and Reconstructive Surgery team SASMEC for their contribution while managing this patient.