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NON VASCULARIZED FIBULAR GRAFT IN CASE OF POST TRAUMATIC BONE DEFECT OF FEMORAL DIAPHYSIS : A CASE REPORT

Orthopaedics

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ABSTRACT

A high velocity trauma causing open injury and bone defect in left femur of patient was reported to tertiary care centre and was managed with primary debridement and skeletal traction and after soft tissue healing definitive fixation done with locking plate and non vascularized fibula strut graft. After 10 months graft has incorporated and consolidated and patient rehabilitated to pre injury occupation.

KEYWORDS

bone defect, non vascularized fibula, strut graft

Introduction:

Post traumatic bone loss in lower extremity is encountered in case of high velocity trauma and poses various difficulties in management. Various management options available are cancellous bone grafting, bone transport using Ilizarov ring fixator or mono rail fixator, vascularized or non vascularized fibular graft and masquelet technique of induced membrane(Lin, K. C. ,2014). Still limb salvage in these condition is a challenging task.

Case Report:

A 20 year male having compound fracture left femur with bone loss was referred to tertiary care centre after 3 days of injury. Patient was hemodynamically stable and ICD was in situ for chest injury. Primary debridement and fasciotomy of left leg was already done at other centre. Redebridement done and skeletal traction and Thomas splint was applied. Proper antibiotic coverage was given. The length of bone defect determined with help of CT scan which was 13 cm (Fig 1).

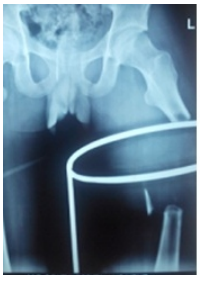

Fig 1. Radiograph showing bone defect in left femur diaphysis

After 12 days of trauma, clinical examination and laborotary investigations of patient ruled out any infection and definitive procedure was done with Non Vascularized Fibular strut graft from contralateral limb, cancellous graft from ipsilateral iliac crest and Calcium Hydroxyapatite blocks and definitive fixation with locking proximal femur LCP (Fig 2).

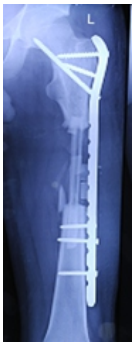

Fig 2. Radiograph after definitive fixation

Post operative antibiotic coverage given and patient discharged on 14th post operative day after suture removal. Patient was on followup on monthly basis and mobilized with walker support. After 7 months there was radiological evidence of incorporation of fibular graft and also a fracture of fibular strut graft with callus (fig 3).

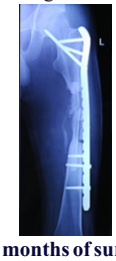

Fig 3. Radiograph at 7 months of surgery.

Patient was advised partial weight bearing and after 10 months incorporated fibular sturt graft was consolidated and patient was able to walk independely (fig 4 ,5) and resumed his vocation.

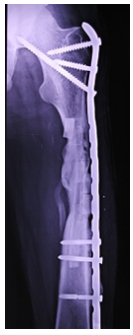

Fig 4. Radiograph at 10 months

Fig 5. Patient standing full weight bearing on affected limb at 10 months

Discussion:

After 10 months patient has shown good result with incorporation and consolidation of fibular strut graft and patient is able to walk without support and hip and knee range of motion are normal. Other available options for management have their own shortcomings like bone transport(Kesemenli,2001) is associated with pin loosening, pin tract infection and poor compliance and reported literature also does not support bone transport for 13 cm large bone defect(Rigal,2012). Vascularized fibular graft has although shown better results in reported literature but it needs expertise of vascular surgeon and prolonged anti thrombosis prophylaxis with closed monitoring(Minami ,2000). Masquelet technique is two staged operation and has financial constraints and with 13 cm large bone defect availability of enough cancellous graft required in second stage of surgery is also a limitation (Masquelet ,2010).

Conclusion:

Non Vascularized Fibular sturt graft is well suited surgical procedure for large bone defects in terms of patient compliance and affordability once the chances of infection is ruled out and rigid fixation is provided .

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