Two-stage surgical treatment for non-union of a shortened osteoporotic femur


Abstract:

Introduction: We report a case of non-union with severe shortening of the femur following diaphysectomy for chronic osteomyelitis. Case Presentation: A boy, aged 16 years presented with a dangling and excessively short left lower limb. He was using an elbow crutch in his right hand to help him walk. He had a history of diaphysectomy for chronic osteomyelitis at the age of 9. Examination revealed a freely mobile non-union of the left femur. The femur was the seat of an 18 cm shortening and a 4 cm defect at the non-union site; the knee joint was ankylosed in extension. The tibia and fibula were 10 cm short. Considering the extensive shortening in the femur and tibia in addition to osteoporosis, he was treated in two stages. In stage I, the femoral non-union was treated by open reduction, internal fixation and iliac bone grafting. The patient was then allowed to walk with full weight bearing in an extension brace for 7 months. In Stage II, equalization of leg length discrepancy (LLD) was achieved by simultaneous distraction of the femur and tibia by unilateral frames. At the 6 month follow-up, he was fully weight bearing without any walking aid, with a heel lift to compensate the 1.5 cm shortening. Three years later he reported that he was satisfied with the result of treatment and was leading a normal life as a university student. Conclusions: Two-stage treatment succeeded to restore about 20 cm of the femoral shortening in a severely osteoporotic bone. It has also succeeded in reducing the treatment time of the external fixator.

Keywords:

Nonunion; Femur; Osteoporosis; Bone Lengthening

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