

Lengthening and reconstruction of congenital limb deficiencies for optimal prosthetic wear.

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Introduction

We reviewed our experience with lengthening and correction of deformities in two patients with congenital limb deficiencies. Both of these patients had difficulty with prosthetic wear. Corrections were performed with osteotomy and use of the Ilizarov/ Taylor frame utilizing the principles of distraction osteogenesis.

Method

Case 1: 21 year old with history of congenital below knee amputation from amniotic band syndrome. Chief complaint is of recurrent episodes of bruising, abnormal and dysfunctional gait pattern with prosthetic wear. She has varus deformity of the residual tibia, measuring 29 degrees, and a residual tibia length of 11.8 cm. Lengthening and correction of the residual limb deformity in the tibia was performed using Ilizarov/TSF frame to optimize the prosthetic wear and avoided the need for above knee amputation. After completion of treatment, the residual limb measures 16 cm, with full correction of varus deformity. Prosthetic fitting and gait dramatically improved.

Case 2: The patient is a 35-year-old male who presents with a large leg length discrepancy and deformity. The right side is short. He was diagnosed with bifid femur. He uses a foot-in-foot prosthesis. Physical exam showed a leg length discrepancy right side short by 22-centimeters, dysplastic right knee, valgus deformity (MPTA is 123 degrees), MAD 80 lateral and equines contracture, 30 degrees right side. Correction of deformity using an osteotomy of the proximal tibia for a gradual correction of the valgus deformity using an Ilizarov Taylor spatial frame. Alignment was restored and post op MAD is 0 prosthetic fitting and gait improved.

Conclusion

Distraction osteogenesis techniques using the Ilizarov /TSF can successfully be used to correct residual limb deformities to improve prosthetic wear and gait. In addition, correction of deformity should protect the knee from progressive arthrosis.