In this case study, we present a 13 year old autistic female who presented to the office with chief complaint of severe pain and dysfunction. Her caretaker noted a pattern of decreased activity and ambulation that she attributed to pain in her feet and ankles resulting in significant weight gain. The patient presented us with a significant challenge in regards to post operative management due to the severity of her symptomatology. The patient had been referred to our practice 3 years prior ("requiring only substantial support") as well as the severity of her deformity. Upon gait examination the patient had a severely externally rotated limb (~45 degrees BL) with complete collapse of the medial longitudinal arch causing frequent falls and abrasions to the anterior lower limb, hands, and face.

Case Study

FIGURE 1 – PREOPERATIVE RADIOGRAPHS

In this case we present a 13 year old autistic female who presented to the office with chief complaint of severe pain and dysfunction. Her caretaker noted a pattern of decreased activity and ambulation that she attributed to pain in her feet and ankles resulting in significant weight gain. The patient presented us with a significant challenge in regards to post operative management due to the severity of her symptomatology. The patient had been referred to our practice 3 years prior ("requiring only substantial support") as well as the severity of her deformity. Upon gait examination the patient had a severely externally rotated limb (~45 degrees BL) with complete collapse of the medial longitudinal arch causing frequent falls and abrasions to the anterior lower limb, hands, and face.

Methodology and Hypothesis

Pre-operative and post-operative AP and lateral ankle radiographs were performed and parameters measured including the following: lateral talar-first metatarsal (Meyers') angle, calcaneal inclination angle, AP talonavicular angle and talonavicular coverage angle. Clinical parameters measured included resting calcaneal stance position and angle and base of calcaneum. J. Bone Joint Surg. Am. 2001;40:178

Results

AP talonavicular angle similarly performed better in the calcaneal wedge side: Left foot 28° (preop) to 16° (postop), Right foot 37° (preop) to 4° (postop).

Clinically the right side (wedge) performed better in regards to angle and base of gait – Left foot 22° (preop) to 18° (postop). Base of gait could not be measured consistently due to varus–valgus variation.

FIGURE 2 illustrates the subtle variation in technique that results not only in radiographic differences but in reference to function and ambulation. We attribute these findings to a change in our frame alignment that may affect our motional variability within their measurements. Limited by the utilization of only cadaveric models, while simulated weight bearing was achieved, the dynamic function of the extrinsic muscles were not reproduced.

Discussion

The short term follow up of 13 months and 16 months for the bilateral reconstruction of the left and right foot respectively show a distinct difference not only in radiographic parameters but in reference to function and ambulation. We attribute these findings to a change in our frame alignment that may affect our motional variability within their measurements. Limited by the utilization of only cadaveric models, while simulated weight bearing was achieved, the dynamic function of the extrinsic muscles were not reproduced.

References

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