Computer-Assisted Gradual Correction of Charcot Foot Deformities: An In-Depth Evaluation of Stage One of a Planned Two-Stage Approach to Charcot Reconstruction

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Abstract

This case series demonstrated reproducibility of stage one of the senior author’s planned two-stage approach to Charcot reconstruction, to show correction of the Meary’s and calcaneal inclination angles to within a normal range, and to illustrate ulceration healing. To this point, outcomes have been shown to be similar in regards to complete ulceration healing, i.e. postoperative complications, no complications, and statistical significance of the gradual correction of the Meary’s and calcaneal inclination angles to within a normal range.

To our knowledge, the present case series is the largest to date focusing on gradual Charcot deformity correction with the use of computer-assisted external fixation. Stage two of the procedure will need to be examined in detail, and subsequent studies will need to be performed to determine if these corrections were maintained over time and whether the time of which limb salvage was able to be achieved (Fig 5).

Analysis & Discussion

This series shows that stage one of a two-stage approach to Charcot reconstruction can be accomplished successfully by gradual deformity correction with the use of computer-assisted external fixation. These results are not only held on the work of Lam et al., but they indicate that gradual deformity correction may be the safest and most effective way when it comes to Charcot reconstruction. With this, we can finally find a clinically acceptable, more simplified method for correction of complex Charcot deformities.

References