Deformity and Clinical Outcomes Following Surgical Correction of Charcot Foot
Michael Pinzur, MD, Adam Schiff, MD

Category: Diabetes

Keywords: Diabetes, Charcot

Introduction/Purpose: There is growing acceptance that the historic accommodative treatment of the acquired deformity associated with Charcot Foot arthropathy leads to very poor patient reported outcomes. Surgical correction of the acquired deformity is now advised with the goals of improving ambulation and quality of life.

Methods: Over a twelve-year period, 214 consecutive patients (9 bilateral) underwent surgical reconstruction of the acquired deformity associated with symptomatic midtarsal diabetes-associated Charcot Foot arthropathy. The patterns of midtarsal deformity were arbitrarily stratified into three clinical groups based on observed weight bearing pattern, radiographic relationship of the forefoot to the hindfoot and integrity of the talo-calcaneal joint. All patients were followed for a minimum of one year. All had weight bearing radiographs before surgery and at a minimum of one year following surgery. A VALGUS deformity pattern was present in 138, VARUS in 48 and DISLOCATION of the talo-calcaneal joint in 37.

Surgery included tendon-Achilles lengthening and an attempt at bony correction of the non-plantigrade clinical deformity. Immobilization in all cases was accomplished with a three level static circular external fixator. Clinical outcomes were based on successful resolution of infection and the ability to resume independent walking with commercially-available therapeutic footwear.

Results: Seven patients died within a year of surgery. Overall, 173 of 216 feet (80.1%) achieved a favorable clinical outcome rating. The VALGUS deformity pattern was the most common, with 120 of 138 patients (89.6%) achieving a favorable clinical outcome rating. There were two transtibial and one transmetatarsal amputations in this group. Twenty-seven of the 48 patients (58.7%) with a VARUS deformity pattern achieved a favorable clinical outcome rating, with seven undergoing transtibial, one Syme’s and one transmetatarsal amputation. There were thirty-seven patients with a valgus deformity pattern characterized by loss of integrity, i.e., DISLOCATION, of the talo-calcaneal joint. Correction of deformity and a favorable clinical outcome rating was achieved in twenty-six (72.2%), with one knee disarticulation and two transtibial amputations.

Conclusion: Overall, 176 of 223 (77.6%) patients, many with severe structural deformity and osteomyelitis, achieved a favorable clinical outcome. Patients with a VARUS deformity pattern, or loss of integrity of the talocalcaneal joint, were less likely to achieve a favorable clinical outcome rating. This retrospective case series suggests a reasonably good probability of improving clinical outcomes in this complex patient population. This deformity stratification should be helpful going forward when counseling patients with non-plantigrade diabetes-associated Charcot Foot deformity on the risk-benefit ratio associated with surgical correction of their acquired deformity.