Correction of Rigid Equinovarus Deformity with a Multiplanar External Fixator

Presenting:

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Background:
The rigid equinovarus foot deformity is a challenging condition treated by the orthopaedic foot and ankle surgeon. Multiple treatment modalities are available. Rapid surgical correction of the deformity may lead to skin and neurologic complications. However, gradual correction of the deformity with a multiplanar external fixator may decrease these complications. The purpose of this study was to present the results of a group of patients with rigid equinovarus deformities corrected using a multiplanar external fixator.

Methods:
We retrospectively reviewed the results of correction of a rigid equinovarus deformity using multiplanar external fixation in a small group of patients. All patients underwent open Achilles lengthening, posterior capsule release, posterior tibial tendon lengthening, flexor digitorum longus and flexor hallucis longus lengthening, followed by application of a multiplanar external fixator with gradual correction of the deformity over a period of several weeks. Preoperative and postoperative deformity and AOFAS ankle-hindfoot scores were assessed.

Results:
A total of 7 rigid equinovarus deformities in 5 patients were treated with a multiplanar external fixator. The average patient age at the time of surgery was 39.6 (range 17-59) years. Causes of the deformity included trauma in 3 patients (bilateral knee dislocations in 2 patients, compartment syndrome in 1 patient), anoxic brain injury in 1 patient, and long-standing rheumatoid arthritis in 1 patient. The average preoperative AOFAS ankle-hindfoot score was 27.7 (range 12-38). All deformities were gradually corrected to a plantigrade foot using a multiplanar external fixator over an average time of 4.9 weeks (range 4-6 weeks). The average duration of external fixation was 10.6 weeks (range 8-16 weeks). 6 of the 7 deformities maintained correction at final follow-up. There was 1 case of recurrence of the deformity. Other complications included 1 case of wound dehiscence and 1 case of pin tract infection, both in the same patient, which resolved after treatment with irrigation and debridement and antibiotics. The average postoperative AOFAS ankle-hindfoot score was 67.6 (range 38-86) at an average follow-up of 66.7 weeks (24-120 weeks).

Conclusion:
The treatment of the rigid equinovarus foot remains a challenge to the foot and ankle surgeon. Correction using a multiplanar external fixator is a viable treatment option. It allows for correction of the deformity in a controlled manner, helping to reduce the risk of any skin and neurologic complications that may result from too rapid surgical correction.