CORR Insights®: Can Selective Soft Tissue Release and Cuboid Osteotomy Correct Neglected Clubfoot?

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Where Are We Now?

Congenital clubfoot deformity is a worldwide health problem among musculoskeletal disabilities. The surgical rate for congenital clubfoot is falling because of the efficacy of the Ponseti and French method of treatments. However, the neglected clubfoot remains a problem in resource-poor regions. Despite several international projects in Africa championing early management via Ponseti method, neglected clubfoot continues to be the treatment dilemma in obtaining better functional outcomes.

Using the Ponseti method as an initial approach to treatment, followed by more-limited corrective surgery as needed is certainly a management option for neglected

clubfoot. External fixation devices, such as Ilizarov frame or Taylor spatial frame have obtained some popularity. These techniques imply slow distraction and gradual correction. Some orthopaedic surgeons apply Ponseti principles in gradual correction within the external fixation frames. These types of management also depend on the age of the patient, as well as the rigidity of the deformity. More extensive posterior medial releases, such as were used in the present study, were advocated in regions where followup is not consistent. An experienced surgeon who understands the anatomy is essential for this treatment to produce the desired results.

Where Do We Need to Go?

Faldini et al. reported satisfactory results with extensive posterior medial releases combined with cuboid subtraction osteotomy in 31 patients (56 clubfeet). All patients were older than 5 years of age with neglected clubfoot and from Tanzania, Africa. The procedure, in addition to soft tissue release, included removal of a wedge from the cuboid to shorten the lateral column in order to correct forefoot adduction. This gives an additional armamentarium for management of neglected clubfoot. This method may work well in the region where followup is inconvenient.

The authors emphasized the importance of avoiding trauma to soft-tissues, and of not damaging the talonavicular cartilage. The procedure does not sacrifice any articular cartilage, and allows realignment of the foot for better functional results.

One aspect of the paper that is unclear is how the authors released the bifurcate ligament. The authors stated in the paper that they released the bifurcate ligament with a lateral approach. Usually, the ligament is more accessible

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with a medial approach. The authors did not use fixation at the end of release when they corrected the foot. For this age group, Kirschner wire fixations to medial and lateral columns are more desirable in order to maintain the reduction while in a cast. The anterior tibial tendon could be a deforming factor in clubfoot. The authors did not mention this in their paper.

Postoperatively, the leg was immobilized in the above-knee cast in hyper-corrected position (talus-valgus-pronation). The authors did not make it clear which interosseous ligament was cut. Subtalar interosseous ligament is important for talo-calcaneal stability. If the subtalar interosseous ligament was cut and the foot placed in pronation rather than external rotation, there is a danger of lateral subluxation of calcaneus under the talus.

More broadly, though, early treatment is the first priority when working with a patient who has congenital clubfoot. For resource-poor regions, clubfeet are often neglected due to a lack of trained healthcare personnel who can perform the Ponseti method. Inadequate healthcare facilities, insufficient education, and poor screening for the general population are also factors that often lead to neglect. Addressing this important set of concerns, which affects many patients in large areas of the globe, should be a priority for our specialty.

How Do We Get There?

A combined international funding effort is necessary to achieve our treatment goals. If feet require surgical correction after initial Ponseti method, extensive procedures are avoidable. The principle of a la carte procedures by Henri Bensahel should be adhered to. The index procedure may work well in regions where followup is inconvenient or simply not a main concern. In a setting where more resources and followup are available, initial treatment by Ponseti method is likely a preferred choice for those with neglected clubfoot.

We also need an improved system of evaluating clubfoot treatment outcomes. An agreeable, international language of outcome evaluation is important for comparing differing series. The Laaveg and Ponseti classifications are not enough for contemporary evaluation. They are too subjective. Proper evaluations should include detailed physical examinations, muscle strength tests, and gait analysis with outcome evaluation instruments and a functional quality of life questionnaire. Radiographic evaluation in older individuals will also be informative, especially for those likely to develop arthritis. A prospective view of how children with clubfoot grow into adulthood is important for pediatric orthopaedic surgeons treating congenital clubfoot. Long-term followup studies will reveal a true natural history of clubfoot management.