Late Effects of Clubfoot Deformity in Adolescent and Young-Adult Patients Treated with Surgical Intervention

Foot & Ankle Category: Other

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Introduction
Children with clubfoot deformity often have residual foot deformity, pain and limited function in adolescence and young adulthood, especially following extensive soft tissue release procedures. These patients represent a heterogeneous group that often requires an individualized management strategy. There is a paucity of literature to help guide the treatment of these patients. Our objective was to review the surgical treatments and outcomes of patients presenting with late effects of clubfoot deformity at our institution, and to evaluate for any common patterns in pathology and management within this group.

Methods
We identified all patients that underwent surgery between January 2001 and January 2011 for problems related to a prior clubfoot deformity. All patients included in the study were between ten and twenty years of age at the time of surgery. We retrospectively reviewed the charts of these patients and collected data regarding their history, presenting complaints, physical examination, type of surgery, complications, postoperative examinations, and subjective outcomes. Subjective outcomes were assigned on a four-point scale from Excellent to Poor, based on the final follow-up notes.

Results
Thirty patients were identified that fit our inclusion criteria, with an average age of 14 years. All patients had been treated at a young age with serial casting, and most had at least one prior surgery on the affected foot. Pain with or without deformity was the most common presenting complaint. Average post-surgical follow-up was 24 months. Most patients had improvement of their deformity on physical examination, as well as an improvement in their symptoms. Good or Excellent outcomes were assigned to 85% of the patients based on the final follow-up note. Although each case was unique, we found several common patterns with regard to presenting complaints, deformity, and types of surgeries performed. These included clubfoot undercorrection (40%), clubfoot overcorrection (23%), dorsal bunion (17%), anterior impingement (13%), and lateral impingement (7%). Surgeries in the undercorrection group were primarily cavus foot reconstructions or fusion. Surgeries in the overcorrection group were primarily flatfoot reconstructions. Anterior impingement patients typically underwent exostectomy with or without tibial osteotomy, while lateral impingement patients typically had exostectomy with or without calcaneal osteotomy. Surgery for dorsal bunion deformities were correction using a new double bone block midfoot fusion technique with other forefoot bone and soft tissue procedures and tendon transfers as needed.
Conclusion
Late effects of clubfoot can be successfully managed with surgical intervention in patients during their second decade of life. Certain patterns of pathology are present in these patients, and identification of these patterns has helped us adopt an algorithm to assist in management of these problems.