Preface: Managing Pediatric Foot and Ankle Deformity
Alice Chu

The Ponseti Method in Low and Middle Income Countries: Challenges and Lessons Learned
Jose A. Morcuende and Thomas M. Cook

Diffusing a health care innovation like the Ponseti method in low and middle income countries requires more than the application of the traditional continuing medical education approach of providing lectures on the topic. Challenges include limited personnel, competing priorities, inadequate medical supplies, and limited resources. Experience has indicated that the best chances of success in establishing such a program include identifying and advising in-country “champions” to provide the leadership, energy, and direction to build the program.

Treatment of Idiopathic Clubfoot in the Ponseti Era and Beyond
Alice Chu and Wallace B. Lehman

The initial treatment of idiopathic clubfoot was mostly surgical for the 1980s/1990s. In the latter half of the 1990s, there was a surge of interest in the Ponseti method of casting after the publication of Dr Ponseti’s 30-year results. Many authors have since shown correction rates in the high 90th percentile, rendering posteromedial release surgery almost obsolete. The success of the Ponseti method has been brought internationally and extrapolated to more and more difficult cases, such as idiopathic or syndromic, primary or recurrence. This new trend will create a different subset of complications.

Treatment of Severe Recurrent Clubfoot
Christof Radler and Gabriel T. Mindler

A video that shows postoperative results of a patient diagnosed with fixed equinus accompanies this article

Understanding the pathoanatomy of severe recurrent clubfoot and its implication on treatment options is important for the successful treatment. A comprehensive clinical evaluation of the different components helps in selecting procedures. Individual needs and social and psychological factors influencing treatment and the impact of treatment on the child have to be considered. With increasing dissemination and improved understanding of the Ponseti method, a further decrease in the frequency of severe recurrent clubfoot can be hoped for and expected.
Evaluation and Surgical Management of the Overcorrected Clubfoot Deformity in the Adult Patient

Dawid Burger, Amiethab Aiyer, and Mark S. Myerson

Adult patients presenting with an overcorrected clubfoot often have had a posteromedial release. They present later in life and have compensated quite well despite the development of deformity. Minor trauma may lead to the onset of acute symptoms. A spectrum of deformity exists. Key features include a dorsally subluxated navicular, a dorsal bunion from overpull of the tibialis anterior tendon, valgus of the ankle or hindfoot or both, and a flattop talus. This article details the diagnostic approach to the overcorrected clubfoot patient and options for management of the various components of the deformity.

Tendon Transfers Around the Foot: When and Where

Ken N. Kuo, Kuan-Wen Wu, Joseph J. Krzak, and Peter A. Smith

Tendon transfers are invaluable in the treatment of severe children’s foot deformities. They are often preferable to simple releases, lengthening, or fusion in surgical treatment because they provide an active motor function for deformity correction, and, when properly selected, the procedures stabilize the foot against progressive deformity. The authors describe four commonly used tendon transfer procedures that are useful in children’s foot deformity surgeries.

Syndromic Feet: Arthrogryposis and Myelomeningocele

Harold Jacob Pieter van Bosse

Treatment of myelomeningocele and arthrogrypotic foot deformities has been controversial. Many different procedures have been advocated for each type of deformity. In most cases, outcomes have had variable success rates, and many complications can occur. Treatment strategies should highlight care that avoids the development of a stiffened foot and allows for a variety of options to regain correction when a relapse occurs. This is particularly true in myelomeningocele, whereby a stiff foot runs a high risk for skin ulceration, leading to osteomyelitis. Discussion includes appropriate circumstances for the use of presented procedures and the author’s preferred treatment for each deformity.

Cavus Foot

Monica Paschoal Nogueira, Fernando Farcetta, and Alexandre Zuccon

Cavus foot is usually related to neurologic abnormalities and then requires complete clinical and imaging evaluation. It is important to identify whether the deformity is flexible or rigid, and combine different soft tissue and bony techniques to accomplish the best lasting results. On rigid feet, it is crucial to determine the apex of the deformity to guide the bony procedures indicated for each specific case. Tarsectomies are preferred to arthrodesis in these rigid feet with the aim of achieving a plantigrade foot.
Foot and ankle deformities in cerebral palsy can be effectively treated with surgery. Surgery should be considered in patients with significant deformity and those who have pain or difficulty with orthotic and shoe wear. Equinus contracture of both gastrocnemius and soleus can be treated with open tendoachilles lengthening; ankle valgus with medial epiphysiodesis. Equinovarus is more commonly seen in hemiplegic patients and this deformity can usually be treated with tendon transfers. Triple arthrodesis is an option in children with severe degenerative changes. It is important to address all aspects of the child’s pathology at the time of surgical correction.

Calcaneonavicular coalitions are an important cause of adolescent foot pain and deformity. The congenital condition is characterized by an aberrant osseous, cartilaginous, or fibrinous union of the calcaneal and navicular bones. Calcaneonavicular coalitions are the most common form of tarsal coalitions identified within epidemiologic studies. A thorough understanding of this clinically significant entity is important for restoring joint motion and preventing long-term disability.

Talocalcaneal coalitions present with complaints of flatfeet, foot or ankle pain after minor injury, or recurrent ankle sprains. Physical examination findings include limited subtalar motion and prominence inferior to the medial malleolus. Use of computed topography (CT) scans is recommended for preoperative planning. Confirmation of resection with intraoperative CT. Resection of talocalcaneal coalitions with fat-graft interposition has superior results to primary arthrodesis. Improved outcomes have been reported after resection with foot scores averaging 90/100 (AOFAS).

Flatfoot is commonly encountered by pediatric orthopedic surgeons and pediatricians. A paucity of literature exists on how to define a flatfoot. The absence of the medial arch with a valgus hindfoot is the hallmark of this pathology. Flatfoot can be flexible or rigid. This review focuses on the diagnosis and treatment of the flexible flatfoot. Most flatfeet are flexible and clinically asymptomatic, and warrant little intervention. If feet are symptomatic, treatment is needed. Most patients who require treatment improve with foot orthotics and exercises. Only feet resistant to conservative modalities are deemed surgical candidates. The presence of a tight heel cord is often found in patients who fail conservative management.
Current clinical concepts are reviewed regarding the epidemiology, anatomy, evaluation, and treatment of pediatric ankle fractures. Correct diagnosis and management relies on appropriate examination, imaging, and knowledge of fracture patterns specific to children. Treatment is guided by patient history, physical examination, plain film radiographs and, in some instances, computed tomography. Treatment goals are to restore acceptable limb alignment, physeal anatomy, and joint congruency. For high-risk physeal fractures, patients should be monitored for growth disturbance as needed until skeletal maturity.