Treatment of Idiopathic Clubfoot in the Ponseti Era and Beyond

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KEYWORDS

• Clubfoot • Talipes equinovarus • Ponseti • History

KEY POINTS

- The Ponseti method has replaced posteromedial release for initial correction of idiopathic clubfoot.
- The Ponseti method has been used successfully, with some modifications, for other types of clubfoot: complex idiopathic, arthrogryposis, myelomeningocele, recurrence after surgery, and neglected/older patients.
- There are new issues raised by this change in treatment.

A SHORT HISTORY OF THE PONSETI METHOD

Over the last several decades, the pendulum of idiopathic clubfoot treatment has swung from nonoperative, to operative, to nonoperative once again.[1] In 1970, Dr Hiram Kite, a proponent of casting, urged "knowledge, patience, and enthusiasm" when correcting clubfeet.[2] His series of infant patients spent an average of 38.4 weeks in casts, which along with poor reproducibility, relegated the technique to the sidelines for most practitioners. In the 1980s and 1990s, surgeons became increasingly aggressive with invasive surgical techniques. A 1991 symposium of international clubfoot surgeons yielded 594 pages devoted to results after surgery, and only 6 pages to nonoperative techniques.[3]

Throughout this period, an orthopedist working at the University of Iowa was also publishing his results using an alternative casting technique. Dr Ignacio Ponseti, a refugee of the Spanish Civil War and a professor of orthopaedic surgery at the University of Iowa, had started the technique in 1948. By 1963, he published on a series of 67

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patients with 5- to 13-year follow-ups, and reported 71% good results after a treatment program of 9.5 weeks of casting.[4] Unfortunately, the timing of this publication coincided with Dr Kite's monograph, and casting for clubfoot was falling into disfavor. Aggressive surgery was producing equally good results, and for a long period of time the trend was toward early posteromedial release after placement of a few initial casts.[3]

As surgeons began to see the final outcomes of surgery at adulthood, there was a growing realization that invasive approaches had major drawbacks. Although results were good during childhood, 10- to 20-year follow-up data showed that patients had premature arthritis, stiffness, and pain.[5,6] There was a possibility of rigid recurrence, as well as overcorrection, and the solutions to these problems were difficult (**Fig. 1**). Additionally, surgery had multiple short-term complications, including avascular necrosis of the talus, wound dehiscence, and infection.[7] In 1995, Cooper and Dietz published a 30-year follow-up study that reported 78% good or excellent results after Ponseti treatment and 1 year later Dr Ponseti published his definitive tome on clubfoot casting.[8,9] The timing was now favorable, and these publications generated significant interest among practitioners treating clubfoot.

Owing to this surge in interest, Dr Ponseti, by then retired from the University of Iowa, conducted many workshops on his technique. Several years later, other centers began reporting similar results, and in the decade from the early 2000s to the present time, the rate of posteromedial release has decreased to almost insignificant numbers.[1] A recent publication comparing long-term results of clubfoot release versus the Ponseti method showed that patients with casting fared better in terms of increased motion, greater strength, and less arthritis.[10]

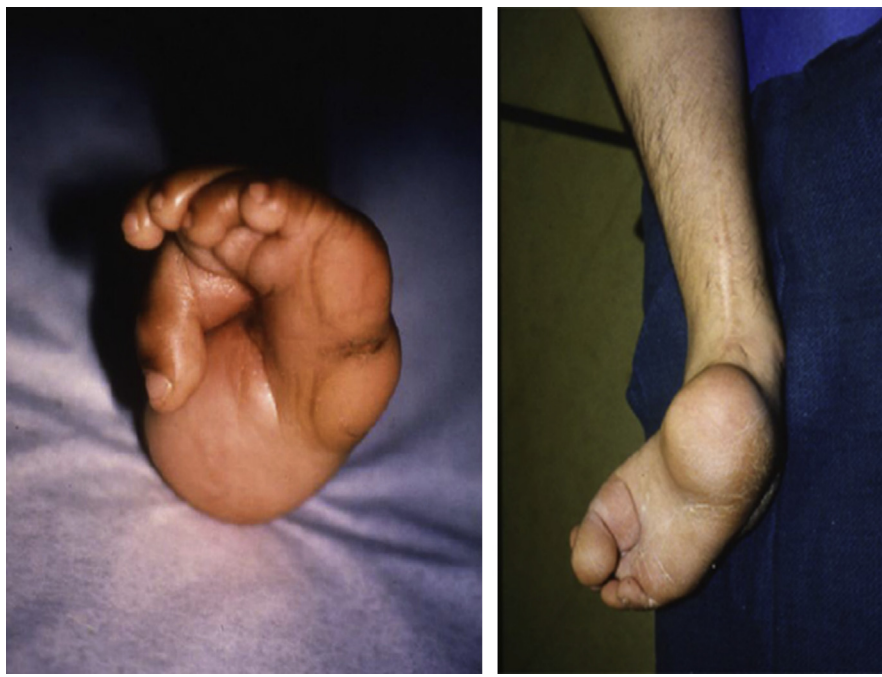

Fig. 1. Examples of severe recurrent clubfeet after posteromedial release.