



Case Report

Congenital talipes equinovarus: successful early correction using the ponseti method

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Abstract

Background: Congenital talipes equinovarus (CTEV) is a common structural foot deformity that can cause lifelong disability if untreated. Early correction using the Ponseti method achieves excellent functional outcomes and minimizes the need for surgery. We report a neonate with unilateral CTEV managed successfully using serial Ponseti casting from the neonatal period, followed by percutaneous tendoachilles tenotomy and maintenance with Denis-Browne splints. At seven-month follow-up, the child demonstrated near-normal alignment, no neurovascular deficits, and good weight-bearing ability. This case highlights the effectiveness of early, protocol-based Ponseti management in achieving durable correction of CTEV.

Keywords: Congenital talipes equinovarus; Ponseti method; Tendoachilles tenotomy; Denis-Browne splint, Clubfoot

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1. Introduction

Congenital talipes equinovarus (CTEV) is one of the most common congenital musculo-skeletal anomalies, occurring in 1–2 per 1,000 live births. It involves a complex deformity characterized by forefoot adduction, hindfoot varus, and ankle equinus. The etiology is multifactorial, with genetic, neuromuscular, and environmental influences. The Ponseti method—comprising gentle manipulation, serial casting, percutaneous Achilles tenotomy, and subsequent bracing—has become the gold standard for correction. When initiated in the neonatal period, it achieves excellent long-term outcomes and minimizes the need for extensive surgery.

2. Case Presentation

A term male neonate, birth weight 3.14 kg, born at 38 weeks' gestation by emergency lower-segment caesarean section for non-progression of labour, was noted at birth to have left-sided CTEV (Fig 1 a). There were no other congenital anomalies, and the neonatal course was uneventful. Pediatric orthopedic consultation was obtained, and Ponseti serial casting was initiated on day 10 of life (Fig 1 b). The infant underwent weekly casts with progressive correction of cavus, adduction, and Varus deformities. Residual equinus deformity persisted after serial manipulation, though neurovascular

status remained normal. Tendo-achilles tenotomy and DB median bar Once the heel Varus deformity was corrected and residual equinus persisted, a percutaneous tendo-achilles tenotomy was performed under general anesthesia at one month and five days of age. Following tenotomy, an above-knee cast was applied with the knee flexed at 90 degrees and retained for three weeks to facilitate tendon healing.

After cast removal, the infant was treated with Denis-Browne bar and shoes, worn full-time for the first three months (Fig 2a). The latest assessment was done at six months of age, when the baby was advised to use baby shoes at night until three years of age. At seven-month follow-up, the baby demonstrated near-complete correction, was able to stand with support, and showed no deficit or recurrence of deformity (Fig 2 b). The parents were counseled to continue bracing adherence and regular pediatric orthopedic reviews.



Fig (1): a): Left congenital talipes equino varus deformity. b): Ponseti casting applied to left leg after manipulation.



Fig (2): a): Denis Brown median bar and shoes worn continuously after tendo achilles tenotomy. b): Outcome at latest follow up at 7 months of age

3. Discussion

Congenital talipes equinovarus continues to be one of the most prevalent and correctable congenital orthopedic deformities. Historically, surgical release was associated with stiffness, scarring, and recurrence. The Ponseti method has emerged as a less invasive,

physiological approach that achieves correction in over 90 % of cases when properly applied. The key lies in early initiation, meticulous adherence to casting principles, and appropriate bracing to maintain alignment. Studies—including those by Herzenberg et al. and Morcuende et al. (*J Orthop Surg Res*, 2015)—show that timely percutaneous tenotomy combined with consistent brace use prevents relapse and ensures functional gait. Long-term outcomes are excellent when follow-up and caregiver compliance are ensured.

4. Take-Home Points

- Ponseti casting remains the gold-standard for initial management of CTEV, with high success and minimal complications.
- Percutaneous tendoachilles tenotomy effectively corrects residual equinus without the morbidity of open surgery.
- Strict bracing compliance with Denis-Browne splints is essential to prevent recurrence.
- Early detection and treatment in the neonatal period yield the best long-term functional outcomes.