



## RESULTS OF PONSETI TECHNIQUE FOR THE TREATMENT OF CONGENITAL TALIPES EQUINO VARUS

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**ABSTRACT** **Aims and objectives:** The aim of the study was to assess the functional outcome of CTEV management by the Ponseti technique.

**Materials and methods:** This is a retrospective study of 25 patients with CTEV with age <12 months treated using Ponseti cast technique at our institute .

**Results:** There was a good functional outcome in 95.45% of cases (score > 30) at the last follow up.

**Conclusions:** The management of CTEV by the Ponseti technique provides a good functional and cosmetic outcome. In a developing country like India, this technique is a safe, easy, economical method of clubfoot management.

**KEYWORDS :** ponseti , ctev , cast

### INTRODUCTION

Congenital talipes equinovarus (CTEV), also known as clubfoot, is a complex, congenital deformity of the foot. When untreated, children with clubfoot walk on the sides and/or tops of their feet, resulting in callus formation, potential skin and bone infections, inability to wear standard shoes, and substantial limitations in mobility and employment opportunities<sup>[1]</sup>. The incidence of congenital clubfoot is approximately 1 in every 1000 live births. It has a male predominance of 2:1 and an incidence of bilaterality estimated to be about 50%<sup>[2]</sup>. According to the Global Clubfoot Initiative report, the incidence of children born with clubfoot in India is 30,000 per year<sup>[3]</sup>.

### MATERIALS AND METHODS

This is a retrospective study of 25 cases of CTEV treated by the Ponseti method at our institute for children below 12 months of age.

All the subjects of the study were treated by the Ponseti method. Parents were educated about the condition, management technique and, more importantly, the course of the Ponseti method.

All patients aged <12 months with normal hips and spine having clubfoot were included in the study. Patients of children >12 months of age having associated neurological defects, spine and hip conditions, and previously treated by other methods, were excluded from the study.

A complete history of the patient's condition was taken from the parents which included any other associated anomalies, any family history of the same condition or a history of consanguineous marriage among the parents, and maternal obstetric history.

All patients were evaluated in detail about laterality, sex distribution, and severity of deformity. A general examination was undertaken to rule out any other congenital anomalies.

The components of the clubfoot deformity were corrected in the sequence C-A-V-E. We started with Cavus, Adductus, Varus, then finally Equinus. Cavus, which arises from pronation of the forefoot in relation to the hindfoot, was corrected by supinating the forefoot in proper alignment with the hindfoot. Adductus and Varus were corrected by gradually abducting the midfoot, with movement occurring in the plane of the sole of the foot. The entire foot can be gently and gradually abducted under the talus, which was secured against rotation in the ankle joint by applying counter-pressure with the thumb against the head of the talus. Heel varus was automatically corrected when the entire foot was fully abducted. Finally, Equinus was corrected by dorsiflexing the foot. Percutaneous tenotomy of the tendo Achilles was done as and when required. Well-moulded plaster casts were applied after manipulations were complete. Consecutive

casting is done every week.

Casting was begun as soon as possible when the children came to us for treatment. In all the infants, the Pirani scoring was done to assess the initial severity. Weekly follow up were undertaken during the initial periods of bracing to ensure compliance and to periodically assure and educate the parents. Later, after the application of a Dennis Brown (DB) splint, a monthly follow up was advised for three months and then up to 4 years.



### RESULTS AND DISCUSSION

In our study, there were 15 males and 10 females. The mean age at presentation was 4.03 months, and the age-range from 0.5 to 12 months. The most common age group at presentation was ≤4 months. Among the 25 cases, 18 cases had bilateral clubfoot, and 7 cases had unilateral clubfoot. Tenotomy was required in 12 cases.

In our series, the mean initial Pirani score at the time of presentation of cases was 5.19 (range 3.5 to 6) and at last follow up was 0.33 (range 0 to 3.5). The mean total number of casts required to correct the deformity was found to be 6.91, ranging from 5 to 10. In our series, a few minor complications were encountered during the casting procedure which included skin abrasions, cast saw injuries, cast loosening and cast breakage.

CTEV is one of the commonest congenital deformities. It is a complex deformity comprising equinus, varus, adductus and cavus, which are difficult to correct. It requires a meticulous and dedicated effort on the part of the treating physician and parents for the correction of the deformity. The goal of treatment is to reduce or eliminate these deformities so that the patient has a functional, pain-free plantigrade foot with good mobility without calluses and does not need to wear modified shoes. India is the second most-populous country in the world, with 25% of its people (about 375 million) living below the poverty line. Approximately 25,000 children are estimated to be born with idiopathic clubfoot every year in India. With such a large population living in poverty, non-invasive treatment of clubfoot with the Ponseti method has the potential to make a large impact on health outcomes for children who would otherwise be crippled by it. Our study aims to evaluate the Ponseti method by using the Pirani score as a functional tool and to measure the cost-effectiveness of the Ponseti method.

**CONCLUSION**

Management of CTEV by the Ponseti technique provides good functional and cosmetic outcomes when treated with strict adherence to the guidelines given by Ponseti that include serial casting, maintenance by bracing, and parental education, which can be started as soon as the child is born.

In a developing country like India, where there is a scarcity of resources and the referral system is poor, the Ponseti method is a very safe, efficient, cost-effective, economical treatment for the correction of clubfoot that radically decreases the need for extensive corrective surgery while also decreasing the social and financial burden of the parents, which can also be used successfully in rural contexts in other developing countries.

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