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## **Efficacy of triple surgery for the treatment of pes cavus in Charcot-Marie-Tooth disease**

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### **ABSTRACT**

**Introduction:** Pes cavus is a deformity characterized by a high longitudinal medial arch. It is classically associated with neurological conditions, among which Charcot-Marie-Tooth (CMT) disease is the most common. Treatment options depend on the flexibility of the deformity. Various procedures are available to correct flexible pes cavus; these procedures can be performed in combination, and there is no standardized technique. There is limited information in the literature on the long-term outcome of treatment, and thus far, there is no consensus on the ideal surgery. The objective of the present study was to assess the efficacy of triple surgery (TS) (plantar fasciotomy, valgising calcaneal osteotomy and first metatarsal extension osteotomy) in the long-term treatment of pes cavus of patients with CMT.

**Methods:** Between 2000 and 2015, 15 patients with CMT and pes cavus who underwent TS were treated at our department, including a total of 18 feet from 8 women and 7 men. The mean age of the patients at the time of the surgery was 21 years (9 to 60 years), and the mean follow-up time was 11 years (4 to 19 years). Of the 18 feet that underwent TS, 14 required an additional procedure. To analyze the outcomes of TS, criteria were stipulated and divided into 3 categories: pain (A), deformity (B) and function (C). The following criteria were analyzed: category A: AOFAS pain subscale, pain visual analog scale; category B: clinical and radiographic pes cavus, clinical and radiographic hindfoot varus; category C: gait, flexibility and AOFAS-function subscale. Each analyzed subitem was scored (total score: 10 points) to determine whether correction was achieved and maintained until the final assessment according to different objective criteria. The outcome was considered good when the score was 8 points or more, fair when the score ranged from 5 to 7 points, and poor when it was 4 points or less.

**Results:** When pre-established criteria were objectively applied, 10 feet had a good outcome, 5 feet had a fair outcome, and 3 feet had a poor outcome; thus, a total of 15 feet (83%) had a satisfactory long-term outcome.

**Conclusion:** Triple surgery was effective for treating patients with CMT, providing good deformity correction of pes cavus in addition to long-term clinical and functional improvement.

**Keywords:** Charcot-Marie-Tooth Disease; Talipes Cavus; Foot deformity; Osteotomy.

