

The Role of Peroneus Brevis (PB) to Peroneus Longus (PL) tendon transfer in flexible progressive collapsing flatfoot deformity (PCFD) : A prospective Two-year follow up case series

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INTRODUCTION: The role of the peroneal tendons in Progressive Collapsing Flatfoot Deformity (PCFD), also traditionally known as Posterior Tibial Tendon Dysfunction, is likely overlooked and almost certainly understudied. We explored the impact of Peroneus Brevis (PB) to Peroneus Longus (PL) transfer in the adult population with flexible PCFD deformities class (A1: flexible hind foot valgus) (B1: flexible midfoot abduction) and (C1: flexible forefoot varus) as an augmentative measure combined with various bony procedures with proper assessment functionally, clinically, and radiologically.

METHODS: 27 patients (36 feet) were included in the study were 9 patients (18 feet) had the operation done bilaterally divided into two groups (A and B). Both groups had similar degree of deformity with the same bony procedure (Evans osteotomy) and degree of operative correction (8mm autograft wedge) done for both sides with the only variable component is the tendon transfer procedure done for group A and not done for group B. Functional, clinical, radiological and complication analysis was done preoperative with postoperative comparison between both groups at the two year marker.

RESULTS: No statistically significant difference regarding the functional aspect (AOFAS score). From the radiological aspect, statistically significant difference was recorded at the axial plane of the deformity (AP view angles) showing a significant decrease in midfoot abduction in group A (the tendon transfer group) than group B. Lateral column overload was significantly lower in group A than group B confirming the power of releasing a deforming force (Peroneus Brevis).

DISCUSSION AND CONCLUSION: Peroneus Brevis to Peroneus Longus tendon transfer poses a very legitimate simple procedure dealing with the muscle imbalance between the medial and lateral columns of the foot eliminating the primary evertor of the foot while simultaneously strengthening the Peroneus Longus. It deals with the new understanding of the flat foot complex as a three dimensional deformity as it works mainly on the axial plane of the deformity (mid foot abduction), The sagittal plane of the deformity (forefoot varus), And finally to a lesser extent dealing with the coronal plane of hindfoot valgus. This Procedure works through eliminating the primary evertor of the foot (PB) while simultaneously strengthening the PL, which contributes to the medial longitudinal and transverse arches of the foot, therefore decreasing the possibility of lateral column overload commonly caused by the Evans osteotomy through reducing pressure across the calcaneocuboid joint. It is preferably indicated for flexible PCFD deformities class (A1.B1.C1) yet is contraindicated in neuromuscular deformities with peroneal nerve

palsy.

