

## Clinico-Sonographical Evaluation of Idiopathic Clubfoot and its Correction by Ponseti Method-A Prospective Study

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### Letter to Editor

The research was done regarding the use of ultrasound to objectively define the deformities seen in clubfoot and to observe the correction as the treatment is carried out by Ponseti method. With concerns of radiation hazard with x-ray and difficulty to interpret x-ray in infants, ultrasound serves as a novel method to objectively assess the deformity. Ultrasound examination of clubfoot involves limited views with well-defined reproducible landmarks [1]. Medison SA 8000SE and Medison Sona ACE-X8 ultrasound machine with 7.5–12 MHz linear transducer 26 mm for smaller feet and 45 mm for larger feet was used to assess 82 feet in 54 children, along with pirani scoring to check correlational between sonographic variables and clinical parameters [2]. Various sonographic variables assessed were medial malleolus navicular distance (MMN) measured on medial view, calcaneo-cuboid distance (CCD) and calcaneo-cuboid angle (CCA) measured on the lateral view, talar length (TAL) measured on dorsal view and tibio-calcaneal distance (TCL) measured on posterior view. The average number of casts to achieve complete correction including tenotomy cast in 0-3 month group patients were eight (minimum 4, maximum 18) and in 3-6 month group patients were 10.12 (minimum 7, maximum 18) respectively. Tenotomy was required in 83.3% patients in 0-3 month group patients and in all patients in 3-6 months Group and 6-9 months Group patients. Results obtained were statistically significant and correlated with the clinical parameters of the Pirani scores [2]. The technique has a short learning curve, relatively inexpensive, non-invasive imaging modality, and supplements clinical scores. The technique offers added the advantage of real-time visualisation of reducibility of clubfoot deformity during sonography. The technique can be performed in both unilateral and bilateral cases without any differences as pre and post-treatment values are assessed. Although the study sample comprised of idiopathic clubfoot and pathological/syndromic clubfoot were not included in the study, there is no contraindication of using sonography in such cases. The study also involved atypical clubfoot seen in three patients, since these patients were assessed before, during the course of treatment, i believe the

pathology is iatrogenic rather than idiopathic (congenital), also real-time assessment helped in the correction of stubborn deformity in these cases. In this study, we found seven (8.5%) out 82 feet showed clinical correction with partially subluxated navicular observed on sonographic with other parameters returned to the normal. In these cases of spurious correction, no relapse, any clinical deformity or functional loss has been detected in the subsequent follow-up of 3 years; the results were compared with other studies by Desai et al and El-Adwar et al. [3,4]. Sonographic assessment has a limitation that it can be conducted only till the bones are cartilaginous, once the bones ossify they cast an acoustic shadow and in these children, standard radiographs are used. Although author didn't measure these variables, sonography can be used in clubfoot for measuring posterior compartment soft tissue thickness, length of tendoachilles, Achilles tendon percutaneous sectioning and its repair, TnMT1e (Talus nucleus Metatarsal 1 everted) angle, TnCe (Talus nucleus Cuneiform everted) angle and TTd (Tibia Tuber calcanei dorsal extended) angle for determining forefoot adduction, equinus and medial and lateral subluxation of clubfoot [5]. To conclude, sonography allows objective assessment of the correction of clubfoot and should be included as a routine assessment of neonatal clubfoot [2].

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