



## AUGMENTATED CORRECTION OF CLUB FOOT WITH PERCUTANEUS RELEASE OF FLEXOR HALLUCIS LONGUS

### Orthopedics

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### ABSTRACT

**Background:-** Idiopathic clubfoot can be managed by the technique described by Ponseti in infants which requires lot of passion and compliance of the patients. We used a different midway technique of percutaneous release of flexor hallucis longus for the management of moderate clubfoot.

**Material and methods :-** In 19 children, total 30 clubfoot with moderate type of deformity, were treated with this procedure. Assessment of results was done by comparing preoperative and 3 weeks postoperative Pirani scores.

**Results and Conclusion:-** Our results were excellent in 16.7% cases, good to fair in 83.3 % cases. None of our cases had any intra-op and post-op complication. This per-cutaneous flexor hallucis longus releases technique is having easy learning curve by which we can treat moderate type of clubfoot in less time and cost with good to excellent outcome.

### KEYWORDS

### INTRODUCTION

Clubfoot is one of the most common congenital orthopaedic anomalies and was described by Hippocrates in the year 400 BC. However, it still continues to challenge the skills of the paediatric orthopaedic surgeon as it has a notorious tendency to relapse, irrespective of whether the foot is treated by conservative or operative means. Clubfoot is often automatically assumed to be an equinovarus deformity, however, other permutations and combinations, such as calcaneovalgus, equinovalgus and calcaneovarus, are possible. Out of these four combinations, calcaneovalgus occurs most frequently, followed by equinovarus deformity. In more than 99% of the cases, calcaneovalgus responds to conservative treatment, which involves passive manipulation by the mother and usually does not require casting or operative intervention.

### Material and methods:

There were total 20 children treated with percutaneous flexor hallucis longus release and casting technique out of which one child was lost in follow up. Remaining 19 children of age group 1m to 1yr (avg age 4 months) were registered for the treatment. A short history with clinical examination of spine and foot was done. All these feet had moderate type of deformity as assessed by Pirani scoring system<sup>1</sup>. A foot with a Pirani score as modified by Flynn et al, less than 2.5 and which got corrected with Ponseti weekly casting was considered as mild. A foot was considered to be having moderate deformity when the foot had a Pirani score between 2.5 and 5. These feet did not get corrected fully with weekly Ponseti casting or recurred in a few weeks time due to poor parent compliance, ignorance, illiteracy, or low socioeconomic status. A foot was said to be having severe deformity if the Pirani score was more than 5. Moderate clubfoot can be treated with this procedure at the time of presentation (mid foot score should be  $\leq 2$ ). If clubfoot is severe convert it into moderate type by serial casting then do the percutaneous release. Syndromic, Rigid feet, neglected CTEV with bony deformity and candidates with secondary clubfoot were not considered to be fit for this procedure. Only the idiopathic congenital clubfoot of moderate variety were taken for the study.

### Procedure:

The surgery was done under short GA/ Local anaesthesia with patient in supine position. Knee kept extended and foot in dorsiflexion as much as possible so that the ligament becomes taught. With the help of no. 11 blade or 16 gauge needle directly reach up to the great toe, in full dorsiflexion of foot and if it is found to be tight, then percutaneous release of the flexor hallucis longus was done at the midpoint of proximal crease of great toe at metatarso-phalangeal joint, described by Mittal et al<sup>2</sup>. Correction was assessed on the table with regard to cavus and equinus. Correction was maintained by applying above knee CTEV cast from toe to groin for 1 week in over corrected position. After 1 week cast was removed and CTEV splint applied.

### Results:-

In our study, there were 19 children (average age 4 month) having deformity in 30 feet which were treated by percutaneous release technique. Deformity was assessed preoperative and 3 weeks postoperatively by Pirani's scoring system<sup>1</sup> and was compared and analysed. On comparing pre-op and post-op group's Pirani score, we observed a positive linear trend and achieved significant reduction of deformity toward poorer scores (p value  $< .001$ ) with in short duration of time. It was found that we had excellent result in 5 feet (as seen by postoperative Pirani score below 0.5), good in 22 feet (postoperative Pirani's score  $< 1.5$ ) and fair result in 3 feet (postoperative Pirani's score  $\leq 2$ ). Insignificant clawing of remaining four toes was there in some cases which were managed by manual stretching later-on. None of the patients had post-operative complication and failure of.

### Discussion:-

Ponseti's technique is the worldwide accepted technique for the treatment of clubfoot<sup>1</sup> but requires a lot of time and passion, it requires repeated casting which further increase the cost of treatment. This is difficult situation for the parents to expect the child will have normal foot, at a time they prefer to accept deformity rather than come repeatedly due to poverty and illiteracy. On the other hand, soft tissue surgery has its complications and hazards. In our study, we used a simple technique which is percutaneous release of FHL. By this technique, out of 30 feet, we had excellent result in 5 feet and remaining 25(83.3%) feet had good to fair results.

Thus we suggest this percutaneous release technique, for the correction of moderate type of clubfoot, which is simple and easy to learn with good to excellent outcome.



**Fig-1: Pre-op**



**Fig-2:- Flexor hallucis release**



**Fig-3:- Bilateral clubfoot treated with FHL release**



**Fig-4:- at 3 weeks follow up**

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