INTRODUCTION

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The structure and anatomy of the foot can be affected by different diseases, among, these are the congenital diseases.

A congenital clubfoot by far the commonest congenital abnormality of the foot. Congenital idiopathic clubfoot comprises 25 percent of all foot deformities in any major orthopaedic centre ***(Turco, 1981)***.

Most anatomical studies of clubfoot of new born infant show the different pathological changes as osseous changes, articular malalignments and soft tissue changes ***(Ippolito and Pornset, 1988)***.

Relapsed clubfoot presupposes that a complete correction has been obtained and had subsequently been lost. However, it is evident from previous studies that the relapsed clubfeet are feet that have never been completely corrected, in which the different iatrogenic causes and patho-anatomical change have resulted in revision to the earlier stage of equinovarus ***(Sharrard, 1979)***.

In spite of good initial correction, evidence of recurrent deformity and loss of correction is noted within the first year after surgery and evaluation of results of management of clubfoot is influenced by preoperative variables, including the age of patient, severity of deformity, previous non-operative and operative treatment ***(Beatson, Pearson, 1966)***.

Management of relapsed and neglected clubfoot carried out by two methods :

1. Operative treatment.
2. Distraction technique.

The operative procedures are divided into two categories :

A. Procedures that involve soft tissue release and tendon transfer.

B. Procedures that involve bony correction.

The amount of soft tissue release should be decided by the amount of residual deformity that requires correction, Hence, the surgical treatment vary from close tenotomy and limited posterior release to extensive radical postero-medial release and subtalar release ***(Cumming and Lovoll, 1988)***.

After the second year, secondary structural adaptive bone changes play an increasing part in failure to obtain full correction. By the age of 3 or 4 years, correction of one or more of the bony elements of the deformity is indicated. It consists of realignment of the bone articular surface of the tarsus with minimal bone resection.

The correction of neglected and relapsed clubfoot by an external distraction is an alternative to a major operations which may involve osteotomies and tripple arthrodesis and in cases with skin problems. The distraction techniques have the advantage of avoiding the shortening of the foot that resulted from wedge osteotomies. The principle used is to balance the discrepancy in length between the lateral and medial side of the foot by distraction ***(Grill and Frank, 1987)***.

There are two types of external fixator used in the correction of the deformities, ring fixator ***(Ilizarov)*** and unilateral fixator.

The ***Ilizarov*** apparatus can be used to create soft tissue distraction or used in conjunction with osteotomies. The choice of approach depends on the age of the patient the presence of fixed bony deformities, and the stiffness of the foot ***(Paley, 1988)***.

In spit of good results of ***Ilizarov*** it is a complex apparatus, needs an experienced and trained surgeon and it is an expensive apparatus.

Our apparatus has been developed primarily for the paediatric age group, though its large version used in adolescents. It provides precisely controlled distraction and direction at the site of the deformity with six adjustable axes in three planes for gradual elongation of the soft tissues under radiological control. At the end of the distraction the foot is supple and pliable, like a bag of bones and cartilage in an envelope of soft tissues, and is amenable to precise molding in casts or external fixation.

The apparatus used in this study had the same idea of ***Ilizarov*** which is gradual stretching technique and also correction occurs in different planes and all components of the deformity of C.T.E.V. can be corrected at the same time but this apparatus differs from ***Ilizarov*** in the following :

a. Its assembly is easy.
b. Its application is so simple and orthopaedic surgeon can uses this fixator simply.
c. Economically is more cheep than ***Ilizarov***.

d. This fixator can be used to different age group even paediatric patients below 2 years and also can be used as preoperative stage to cases of neglected and relapsed talipes to stretch and prepare the foot to the surgical operation.