

## Causes of Neglected Clubfeet in Pakistan

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### ABSTRACT

**Objective:** To determine the causes of delay in treating clubfoot in our set up.

**Methods:** This descriptive study was conducted from October 2015 and December 2018 in Hayatabad Medical Complex and Mercy Teaching Hospital Peshawar. Parents of all the patients of club feet meeting the inclusion criteria were interviewed in person about the possible causes of delay in treatment. Data stored in proforma.

**Results:** In our study parents of 46 patients with clubfeet were interviewed. Male patients were 27(58.7%) while female 19(41.3%). Age ranges from 01 to 05 years with mean age of  $1.7 \pm 2.12$  years. Majority (82.6%,n=38) of the parents actually consulted a qualified doctor and started treatment for the deformity earlier, but were either inadequate or incorrect. About 27(58.7%) patients could not afford the treatment after being diagnosed and counseled for further treatment. Some (17.4%,n=8) children were truly neglected as 05(10.8%) of them were taken to bonesetters, while 03(6.5%) parents initially noticed the deformity but considered it untreatable.

**Conclusion:** Inadequate or incorrect treatment and inability to afford proper treatment are the main causes of neglected clubfeet in our set up.

**Keywords:** Cause of neglect, Clubfeet, Ponseti serial casting.

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### INTRODUCTION

Clubfoot is one the most common congenital abnormality presenting to the pediatric orthopedic surgeon (incidence 1-2/1000 live births).<sup>1</sup> The severity of clubfeet varies from mild to severe (rigid) deformities.<sup>2</sup> There are a number of classifications to assess the severity of clubfeet, the most popular of them are Pirani<sup>2</sup> and Dimeglio<sup>3</sup> classification. Both these classifications give numbers to each component of the deformity according to its flexibility/rigidity. Positional clubfoot is a term used to describe a foot which seems deformed in equinus and inverted, but is passively fully correctable. Soft tissues of the plantar surface of foot, posterior and medial side of the ankle are shortened and contracted.<sup>4</sup> Tarsal bones are also displaced medially and plantarwards especially the ones directly related to the talus (calcaneum, cuboid and navicular).<sup>5</sup>

As clubfoot is an obvious deformity, no special investigation or screening program is required for its detection although it can be diagnosed prenatally by high resolution ultrasound. The exact causative factor for clubfoot is not known as yet, but there are many theories suggesting the possible cause. Risk factors include oligohydramnios, family history, male baby, first baby, twin pregnancy. Once the deformity is detected, the child is fully examined immediately to establish whether the clubfoot deformity is positional, idiopathic or syndromic. Treatment is started immediately as early treatment is simple and bears excellent results to an extent that it has dramatically decreased the rate surgery in these patients.<sup>6</sup> Moreover, the functional result of serial castings are far better than surgical management.<sup>7</sup> Treatment when started within 3 month of life, results are excellent, when started within six months of life, results are good and when started before walking age i.e. 12 to 15 months results are fair. After 9 months it becomes difficult to apply the cast as the children resist the cast, also the deformity becomes more and more rigid, so more casts are needed and the chances of residual deformity and additional treatment increases. Although majority of the studies show excellent results in any age and any treatment method,

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persistent, resistant, relapsed and neglected clubfeet are commonly seen even in the developed countries.<sup>8</sup>

Untreated or neglected clubfeet is defined as a clubfoot which has not received any form of (surgical and non-surgical) treatment until the child starts walking.<sup>9,10</sup> Some say neglected clubfoot is a child who has not received any treatment upto 2 years of age.<sup>11</sup> Neglected clubfeet cause a lot of problems to the child include limping gait, unable to participate in certain activities especially sports, abnormal callosities, skin problems (repeated ulcers) leading to infection, pain resulting from early arthritis, problems in society, employment and cosmetic. It is therefore very important to treat this deformity in order to lead a normal life.

As it is a very obvious deformity present at birth and early detection and treatment are the most important factors in obtaining an excellent outcome of clubfeet and many of these patients in our country present with deformities at a later age, it was decided to carry out a descriptive study in order to find out the cause of this delayed presentation.

**METHODS**

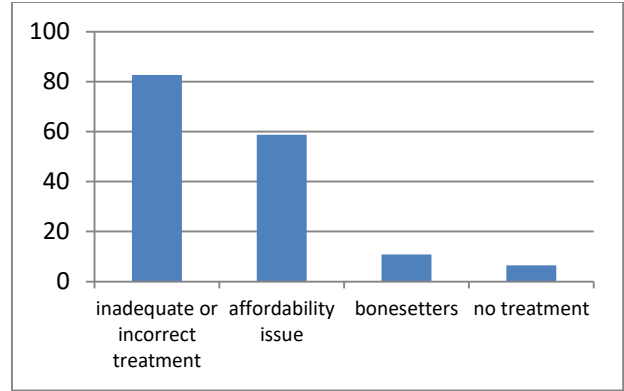
After taking ethical approval from Institutional Review Board(IRB) the study was carried out in two hospitals, between October 2015 and December 2018 by qualified orthopedic surgeons in Hayatabad Medical Complex, Peshawar and Mercy Teaching hospital, Peshawar. A questionnaire was prepared and parents of patients with clubfeet presenting late(one year and above) were interviewed after taking consent. Previously surgically treated children were excluded from the study. Important questions were asked from the parents to know the possible reasons for the delay in treatment (table I). Results were noted and later analyzed on Microsoft Excel. Frequencies and percentages were calculated for important variables like age and important causes of neglect.

**RESULTS**

In our study 46 patients were interviewed in which 27(58.7%) were male and 19(41.3%) were female. Age ranges from 01 to 05 years with mean age of 1.7 ± 2.12.

Our findings were quite interesting. Contrary to our expectations, 38(82.6%) patients actually consulted a qualified doctor and started treatment for the deformity earlier, but were either inadequate or incorrect.

**Graph I:** Main causes of neglected clubfeet.



**Table I:** Important questions asked from the parents of neglected club foot.

S No	Questions
1	Did you notice the deformity or not?
2	Did you consult a qualified doctor for the deformity?
3	Did you notice the deformity but not considered it important?
4	Did you consider the deformity to be corrected by itself with time?
5	Had you consulted a bonesetter for treatment?
6	Was qualified (pediatric) orthopedic surgeon available in your area?
7	Had the medical officer/health care worker counselled you to get proper treatment for the deformity?
8	Were you affordable to get complete treatment for the clubfoot?
9	Did you had any previous bad experience with the casts?



**Figure I:** 5 years boy with neglected clubfoot



**Figure II:** 3 years boy with neglected clubfoot

We noted that 27(58.7%) patients after early consultation could not afford the treatment (weekly visits) and 03(11.1%) out of these 27 patients did not start treatment and 24 (88.8%) of them left the treatment incomplete.

Only 8(17.4%) patients were truly neglected as 05(10.8%) of them went to bonesetters, while parents of 03(6.5%) patients initially accepted the deformity and considered it untreatable.(graph I)

## DISCUSSION

Contrary to the common belief, in our study only 8(17.4%) patients were truly neglected (03 patients accepted the deformity and 5 patients went to bone setters who do not know the management of clubfeet).

In our study, majority of the parents (82.6%) actually consulted a qualified medical personnel for their child's deformity. Only 03 (11.1%) patients did not start treatment because of affordability issues, but they actually visited a medical personnel for advice, who failed to explain the cost effectiveness of serial castings versus the cost and complications of later surgery or the problems that the child will encounter later in his/her life. Treatment for clubfeet was started without much counseling and probably the medical personnel did not know (and was not confident) about the excellent results himself. In many patients the castings were inadequate and improper and there was no or very little progress in correction, so many parents lost the confidence. The deformity was not corrected fully and an attempt was made to put the foot into the post casts splints. Also most of the patients were non compliant with the maintenance phase splints, some of them were not satisfied with the castings and left the treatment incomplete, few of them had very irregular visits.

There are many problems that occur with a neglected or a mal-treated, inadequately treated club foot which include a deformity, pain, abnormal gait, easy fatigability, psychological, social, cosmetic, sports, and sometimes failure to find an appropriate job. While correcting neglected clubfeet both the treating physician and patient encounter additional problems as the foot has now developed secondary changes like further shortening and decreased excursion of the muscles, bony deformities, proprioception problems. The child now is older, has more muscle power, resists castings, does not comply, is able to loosen the cast.(figure I and II) Surgical intervention is another option,<sup>12</sup> but complications are again common<sup>10</sup> as correction is acute. Once corrected, there is also difficulty in maintaining the corrected position because of the extensive surgical wound. The Ilizarov ring fixator<sup>12</sup> can be used to correct the neglected clubfoot gradually, but again there could be a lot of potential complications with this treatment method as well. Some authors have reported good results with serial (Ponseti) castings and its modifications in older children with club foot as well,<sup>13, 14</sup> but we have very limited experience of treating older children with clubfoot through casting technique.

Neglected clubfeet are very rare in developed countries, but they are quite commonly seen in the underdeveloped world. To date, we could not come across any study in which the cause of the neglect was questioned. Kashif<sup>15</sup> in his study narrated the causes of neglected Developmental Dysplasia of Hip, which is even more common than clubfeet. Causes mentioned were lack of screening programs, home deliveries, lack of resources and infrastructure, poor means of transport, non-availability of orthopedic doctor who may screen child for DDH and lack of awareness in pediatricians, general physicians and also parents of the babies.

Although the sample size of our study was small and we might have missed some minor reasons for the neglect of club feet but based upon our study the major causes of neglected club feet were inadequate knowledge and lack of expertise in the treatment of clubfeet by the medical personnel, specifically those practicing in the rural areas. In light of these results we recommend a series of workshops and awareness campaign throughout Pakistan to improve the treatment of this condition. These campaigns and workshops will be expected to bring a very positive change in the treatment of clubfeet, and not only parents will

be ready to accept and start casting soon after birth but the medical personnel will have adequate knowledge and skill to treat this condition safely.

## **CONCLUSION**

Inadequate or incorrect treatment and inability to afford proper treatment are the main causes of neglected clubfeet in our set up.

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## **Authorship and Contribution Declaration**

**Salik Kashif**, conception and design of the study

**Israr Ahmad**, acquisition of data

**Hamad Ali Shah**, interpreted the data

**Sajjad Ahmad**, drafted the manuscript

**Faisal Rafique**, final approval of the version for publication

**Khurram Iqbal**, revised the manuscript critically for important intellectual content

**Qasim**, acquisition of data

**Sanaullah**, drafted the manuscript