Our Experience of Ponseti Treatment for Clubfoot Deformity at District Head Quarter Hospital Timergara, Khyber Pakhtunkhwa

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[1]Muhammad Naeem Shah: Conception and design of the study, acquisition of data,
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ABSTRACT

Objective: To determine the outcome of Ponseti treatment for clubfoot(Congenital Talipes Equino Varus) deformity in neonates.

Methods: It was a descriptive study conducted in District Head Quarter Hospital Timergara Khyber Pakhtunkhwa from 25th July 2017 to 25th August 2018. All children below one year of age with Congenital Talipes Equino Varus(CTEV) deformity meeting the inclusion criteria were included in our study. The pretreatment severity of clubfoot deformity was scored through Pirani Scoring system. All the children were then subjected to manipulation and weekly serial casting by Ponseti technique and the final outcome was assessed by improvements in the Pirani score and graded as excellent, good and poor.

Results: In our study the total clubfeet were 48 in 32 neonates. Mean age was 4.3 months(range 2.5 to 11 months) Male children were 22(68.7%) and female 10(31.2%).Bilateral clubfeet were present in 20(62.5%) children while unilateral in 8(25%).The pre-treatment mean Pirani score was 5.5 while post treatment mean score was less than 0.5.Excellent and good outcome was achieved 46(95.8%)and 2(4.1%) feet respectively.

Conclusion: Ponseti treatment for Congenital Talipes Equino Varus deformity in neonates produced excellent outcome in majority of patients. The Ponseti technique of serial casting should be the treatment of choice to treat congenital clubfoot deformity.

Key Words: Clubfoot, Congenital Talipes Equinovarus, Neonate, Pirini scoring, Ponseti technique

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INTRODUCTION

The Ponseti treatment has its origin from north America in 19401-3 and within few years it had spread all over the world as the primary treatment for club feet.[4] This technique use the talar head as a key landmark in obtaining safe reduction of the deformity. The incidence of clubfoot is 1 to 2 per 1,000 live births.1 The four components of the deformity are Cavus, Adductus, Varus and Equinus.[2] The prime objective of treating a club foot deformity is to correct the foot gradually to achieve a supple, painless and plantigrade foot.[2,3] This objective is achieved through a non surgical treatment of serial casting worldwide irrespective of the severity of club foot deformity. In very rare and resistant cases however, surgical posteromedial release(PMR) is advised. But surgical release has more complications and recurrence rate of 13 to 50% has been reported.[4] Literature does not support extensive surgery for treating CTEV.[5]

Ponseti casting technique has become the primary treatment method worldwide, because it has made it possible to correct CTEV without surgical intervention. This magical method consists of corrective manipulation and application of the serial plaster casting followed by percutaneous Achilles tenotomy in selected cases. The success rate of Ponesti technique has been reported to be 90- 96% in various studies.[5-10] This technique has very few complications as compare to surgical release.[11,12]

Clubfoot is common congenital anomaly in our area. To facilitate parents we started club foot clinic in our hospital where all children of clubfoot are managed with Ponseti serial casting free of cost. The

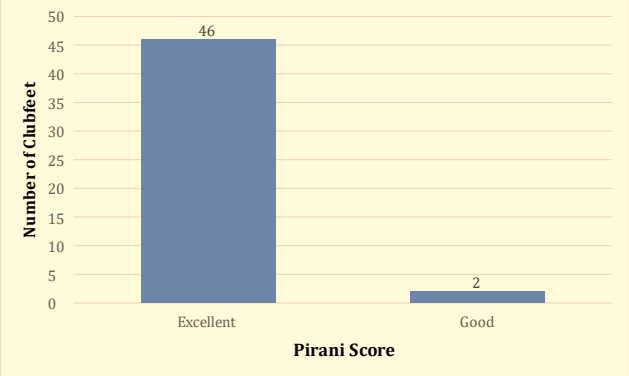
publication of our results will cause awareness among local health care providers that best results can be achieved in remote areas and at the door step of patients. This will compel them to refer club feet children with confidence to our hospital rather than to Peshawar. The objective of our study was to determine the outcome of Ponseti treatment for clubfoot(Congenital Talipes Equino Varus) deformity in neonates.

METHODS

We conducted this descriptive study in District Head Quarter Hospital Timergara Khyber Pakhtunkhwa from 25th July 2017 to 25th August 2018.Children of either gender and age less than one year with idiopathic clubfoot presenting to outpatient department were included in our study. Children with surgical release and syndromic club feet were excluded from our study. The study was approved by the Ethical Committee of our hospital. Informed consent was taken from all the parents of neonates. All children were thoroughly examined for any associated anomalies. Pre casting Pirani scoring[13] of all the club feet children were calculated and noted. All the castings were done by the primary author himself as he had done various hands on clubfeet training workshops. All club feet were manipulated for 2 minutes followed by casting weekly. In the first cast cavus was corrected and in the subsequent casts adduction and varus was corrected. Percutaneous Achilles tenotomy under local anaesthesia was performed in cases in which the foot dorsiflexion was less than 15degrees.Pirani scoring at the end of casting were calculated and corrected feet were rehabilitated in Dennis Brown splint. The outcome of Ponseti casting was graded as excellent (Pirani score 0), Good (score 0.5-1) and Poor (score ≥ 1).No recurrence reported at 6 months post casting. The data was analysed with SPSS (version 22).Important quantitative variables were represented as mean while qualitative as frequencies and percentages. Data presented in graph where necessary.

RESULTS

The total number of neonates in our study were 32 with 48 club feet. The mean age was 4.3 months(range 2.5 to 11 months). Most (68.7%,n=22) children were male while female were 10(31.2%).Bilateral clubfeet were present in 20(62.5%) children while unilateral in 8(25%). Majority (66.6%,n=32) of the feet were corrected in 6 casts. Only 16(33.3%) feet needed 9 casts for correction. Achilles tenotomy was needed in 36(75%) feet. The pre treatment mean Pirani score was 5.5 while post treatment mean score was less than 0.5. Excellent outcome was reported in 46(95.8%)and good in 2(4.1%) feet as shown in graph. Poor outcome was not noted in our series. Minor complications like pressure sores were noted in 14(29.1%) feet but all resolved with local care and reassurance. No major complication was noted.



Graph showing outcome as determined by Pirani score.

DISCUSSION

Although club foot deformity (CTEV) is one of the most-commonest birth anomaly, it requires a dedicated surgeon as well as parents to effectively correct this deformity.[14] The primary objective is no doubt to achieve a supple, plantigrade and painless foot.[15]

The Ponseti serial casting should be started soon after birth and after achieving correction long rehabilitation, follow up and supervision is needed to detect any recurrence of the deformity.[2,16] This technique is simple, non-aggressive ,effective and globally acceptable.[2] Literature supports early serial casting soon after birth because of better results.[8,13]

The pathogenesis of club foot starts from 12th to 20th weeks of intrauterine life and active till 3 to 5 years of age.[16,17] Most of neonates in our series were less than 6 months of age as in other studies13 and this can be attributed to better awareness of public through electronic and print media made by our department in our locality and hospital. We have been regularly arranging workshops on clubfoot making the public realize that this deformity is curable, easy to treat and results are better if treatment is started soon after birth.

The findings of our study are comparable to previous studies. The mean pre casting Pirani score

and number of total casts were similar to previously reported series.[11,12,18-20]

In our study Achilles tenotomy was needed in 36(75%) feet. Sever clubfeet with a high pre treatment Pirani scores were more likely to had tenotomy. Gupta15 did tenotomy in 95% of his clubfeet and Dobbs21 in 91% of his patients. Bor10 is of the opinion that clubfeet requiring more casts for correction are more likely to be needing some surgical intervention in future.

Post Ponesti bracing or splinting protocol is an important component of overall clubfeet management. Maintaining the feet in corrected position depends upon strict adherence to the bracing protocol and regular follow up for supervision. 6,7,13,22.23 We had no drop out in our study because the treatment was cost effective and all of our children had fully corrected feet and they are still in rehabilitation phase using the Dennis Brown splint.

Our sample size was small and our follow up was only six months post casting. Further studies with larger sample size and longer follow up are therefore recommended.

CONCLUSION

Ponseti treatment for Congenital Talipes Equino Varus deformity in neonates produced excellent outcome in majority of patients. The Ponseti technique of serial casting should be the treatment of choice to treat congenital clubfoot deformity. It is an easy and cost effective technique and usually has no complications. Both parents and neonates has good compliance for this method of treatment.

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