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Congenital club foot in a teaching hospital in Lagos, Nigeria

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Summary

Congenital club foot has been sparsely reported in literature in Nigeria, although it has been reported as the commonest congenital musculoskeletal abnormality. This study enumerates the point prevalence of this disease in a university teaching hospital in Lagos. Better understanding of the epidemiology in our community should improve awareness, and influence management. Between June 2005 and July 2006, 72 consecutive patients with congenital club feet were seen in the orthopaedic clinic of our Hospital. Demographic data, birth weight, family history, birth facility, maternal age and associated congenital anomalies were recorded and analysed using Statistical Programme for Social Sciences (SPSS) version 15. A total of 72 patients were seen, 28 of whom had bilateral club feet resulting in a total of 100 feet. There were 38 males and 34 females. Only 29% presented in the first month of life and 28% in the second month. Maternal ages ranged between 19 and 38 years and no family history of congenital club foot was given. Babies delivered outside the orthodox medical system (churches, traditional healers, home etc) constituted 28%. The commonest associated congenital anomalies were tibia hemimelia, hydrocephalus, inguinal hernia and umbilical hernia. A default rate of 28% was observed during treatment. Congenital club foot may not be uncommon in Nigeria. Late presentation and high default rate before correction of the deformity were observed. Establishment of special club foot clinics should reduce the default rate. Training of healthcare workers in maternity units as well as Public awareness should encourage early referral to specialists.

Keywords: *Congenital anomalies, congenital club foot, tibia hemimelia.*

Résumé

La maladie congénitale des pieds a été rarement rapportée dans les littératures au Nigeria, bien que celle-ci est une anomalie congénitale musculo-

squelette la plus commune. Cette étude évaluait les taux de prévalence de cette maladie au centre universitaire hospitalier de Lagos pour une bonne compréhension de l'épidémiologie dans notre communauté afin d'améliorer la sensibilité et influencer sur les soins. De juin 2005 – juillet 2006, 72 patients consécutifs ayant des désordres congénitaux des pieds étaient consultés dans la clinique orthopédique de cet hôpital. Les données démographiques, poids à la naissance, histoire de la famille, les facilités de naissance, l'âge maternel et les anomalies congénitales associées étaient enregistrées et analysées utilisant le programme statistique pour les sciences sociales (SPSS) version 15. Vingt huit des 72 patients avaient une anomalie bilatérale. Ils y avaient 38 mâles et 34 femelles. Seulement 29% étaient dans leur premier mois de vie et 28% dans le second mois. Les âges maternels variaient entre 19-38 ans et aucune histoire de désordre congénitale. Les bébés délivrés hors du système médical orthodoxe constituaient 28%. L'hémimélie du tibia, l'hydrocéphalie, hernie inguinale et l'hernie ombilicale étaient les plus communes associées aux anomalies congénitales. Un taux de défaut de 28% était observé durant le traitement. La présentation tardive et le taux de défaut élevé avant la correction de la déformation étaient observés. La construction des cliniques des soins spéciaux aux pieds pourrait réduire ce taux. La formation des personnels de santé dans les unités de maternité aussi bien que les campagnes de sensibilisation doivent être encouragées référés les cas cliniques tôt aux spécialités.

Introduction

Club foot deformity is characterized by forefoot adduction, equinus, heel varus and frequently cavus deformities [1]. It can be classified as congenital or acquired, the congenital idiopathic variety being seen in otherwise normal children. Spina bifida and tibia hemimelia have been frequently associated with secondary congenital club foot [2-4]. Genetic factors and uterine overcrowding have been implicated in the aetiology of congenital idiopathic club foot [5,6]. Late presentation of patients to hospital for treatment of medical ailments has been well documented in West Africa [7]. It is generally accepted that they

should be managed non-operatively as soon as they are born, by serial manipulation and casting [8,9,10]. Lagos is a coastal city/state in South Western Nigeria with a population of 9 million, and there are two University Teaching Hospitals, one of the three National Orthopaedic Hospitals and one General Hospital where club feet are managed routinely. This study was intended to review the point prevalence of club foot as seen in one of these institutions, for better understanding of the disease presentation in our environment.

Materials and methods

All patients that presented in the out-patient orthopaedic clinic of our hospital with congenital club feet between June 2005 and July 2006 were included in this study. Data on age at presentation in hospital, sex, birth weight, position in family, maternal age, antenatal care, facility of birth, delivery mode, family history, previous treatment was obtained. Information regarding who first noticed the deformity, drug use during pregnancy, associated congenital anomalies and side affected was also recorded. The data was stored electronically and analysed using SPSS version 15.

Results

There were 72 consecutive cases with a total of 100 club feet, 38 males and 34 females. Age at presentation ranged from one day to seven years, and a total of 41 (56.9%) presented in the first twelve weeks of life. Only 21 patients (29%) presented in the first month, whilst 20 (28%) presented in the second month of life. Three patients (4.2%) presented after age 2 years (Table 1).

Table 1: Age and sex distribution

Age (months)	Male	Female	Total	%
<1	8	13	21	29.2
1-2	7	13	20	27.7
3-6	4	5	9	12.5
7-9	6	3	9	12.5
10-12	2	1	3	4.2
13-24	5	2	7	9.7
>24	2	1	3	4.2
Total	34	38	72	100.0

Twenty eight patients (38.9%) had bilateral deformities while the deformity was unilateral in 44 (61.1%), the right foot being affected in 20 (27%) and the left in 24 (33%). Ten patients had already

started walking, and of these, 4 had bilateral club foot deformities and had developed callosities on the dorsolateral aspect of the mid-foot. Birth weight ranged from 2.8 kg to 4.5 kg, but 75% were between 2.5 and 3.5 kg weight. Birth weight was unknown in 44 patients (61.2%). Fig 1 shows the maternal age distribution.

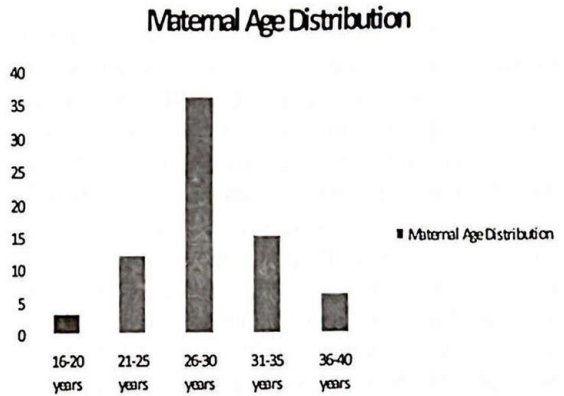


Fig. 1: Maternal age distribution

No family history of congenital anomalies was obtained, and none of the mothers had antenatal problems worthy of note or drug ingestion during pregnancy apart from routine antenatal medications. Twenty eight patients (39%) were first born children, 19 (27%) second-born and 14 (18.7%) third-born. Eleven were fourth and fifth-born children. None of the children were products of multiple pregnancy. Babies delivered in hospitals constituted the majority (70%) and 57% of the total were delivered in various private facilities.

Table 2: Birth facility

Birth facility	Number	%
Teaching Hospital	7	9.7
General Hospital	3	4.2
Private Hospital	41	56.9
Church	3	4.2
Others	18	25.0
Total	72	100.0

Six patients were delivered by caesarian section. A total of 21 (29.2%) were either delivered in churches, native healers homes or at home. (Table 2). Eighty per cent of the deformities were noticed

by parents, grandparents and other non-medically trained relatives. Only 3 had received previous treatment before they arrived in the hospital, two had been treated at native healers homes and one treated in a specialist hospital by serial manipulation and casting. Table 3 shows the associated congenital anomalies. The idiopathic variety of club foot constituted 82% of the cases seen. Twenty patients (32 feet) defaulted before correction was achieved.

Table 3: Associated congenital anomalies

Anomaly	Number	%
Tibia hemimelia	5	29.5
Hydrocephalus	2	11.7
Inguinal hernia	2	11.7
Umbilical hernia	2	11.7
Arthrogryposis multiplex congenital	1	5.9
Congenital dislocation of the knee (CDK)	1	5.9
Congenital dislocation of the hip (CDH)	1	5.9
Syndactily	1	5.9
Phocomelia	1	5.9
Spinal bifida	1	5.9
Total	17	100.0

Discussion

The epidemiology of club foot in Nigeria has been sparsely reported, and as such, there are no studies to compare results with. A study in South Western Nigeria showed that club foot was the commonest Orthopaedic anomaly seen [11]. The fact that 100 feet were seen in just one of four major orthopaedic centres in Lagos, Nigeria in a 14-month period suggests that club foot may not be an uncommon medical problem. However, this being a hospital based study; the numbers seen cannot be a true reflection of the incidence of club foot in Lagos. Less than 30% of the patients presented in the first month of life, and this is consistent with studies that have highlighted late presentation to hospital for medical ailments in Nigeria [7].

There was no sex preponderance in this study unlike others who have reported a male preponderance [12]. This study did not reveal any association with advanced maternal age, and the absence of family history leaves room for further curiosity. Other workers have identified genetic factors, putting male relatives of females with club foot at particular risk; and revealed that if one child has the deformity, the chances of the second having

it is one in thirty five [5]. Since many of the children in this study were first-born (40%), this effect may not readily be seen. The high percentage of babies whose mothers did not know their birth weight gives cause for concern, since most claimed the babies were not weighed at birth. This gives an indication of the quality of maternal and child healthcare in the facilities where most of the children were delivered. Of those whose birth weight were known, none weighed over 4.5 kg. This, coupled with the fact that none of the children were products of multiple pregnancies, does not support intrauterine crowding as a predisposing factor in this study [6].

The large number noticed by non-medically trained persons (80%) confirms that this deformity is easily observed, but raises the question of why they present late for treatment. Late presentation to hospital may be due to ignorance of the fact that the deformity can be corrected. Associated congenital anomalies were seen in 18 babies (25%), and tibia hemimelia topped the list. This is higher than the 20% previously reported in literature [12], but lower than the 30.5% seen in Zimbabwe [13].

The high default rate before correction is similar to that found in Malawi [14]. The barriers to club foot treatment adherence as observed in Uganda may be responsible for this [15]

Conclusion

This study shows that congenital club foot cannot be described as uncommon in Nigeria. Multicentre and community based studies will help to further elucidate the problem in Nigeria. Public awareness to encourage early presentation is essential. Healthcare providers in maternity units should be well trained to be able to identify congenital abnormalities and refer such to the appropriate specialist as soon as possible. Establishment of club foot clinics for better interaction between the care providers and the mothers and standardisation of treatment protocols is essential.

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