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# Pattern of cleft lip and palate in Benin City, Nigeria

ON OBUEKWE, O AKAPATA

## Abstract

**Objective:** To study the pattern of cleft lip and/or palate (CL/P) in Benin City, Nigeria and to compare the findings with reports from other parts of the world. The results of this study may be used to improve the welfare of affected patients.

**Design:** A descriptive study.

**Setting:** The University of Benin Teaching Hospital (UBTH), Benin City, Edo State, Nigeria.

**Subjects:** 103 ethnic Nigerian patients with cleft lip and/or palate.

**Main Outcome Measures:** Consecutive ethnic Nigerian patients presenting with CL/P were studied. Patients' data collected included age, sex, ethnic group, type of CL/P and the laterality pattern. Descriptive statistics were generated for all the variables recorded.

**Results:** There were 49.5% females and 50.5% males; 95.1% were children and 4.9% were adults. The ethnic groups most often affected were Urhobo 29.1%, Bini 27.1% and Ibo 17.4%. The combined cleft lip and palate 60.2% was the commonest type of cleft. There were 28.2% patients with cleft lip only. More (7.8%) females were affected by the isolated cleft palate deformity. Twenty five patients had exceeded the time of repair. Their reasons were ignorance (36%) and financial constraints (64%)

**Conclusion:** The data from this study is consistent with studies from other parts of the world. However, a high proportion of patients did not have access to early treatment due to ignorance and financial constraints. Public enlightenment and financial assistance for the indigent patient is recommended.

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## Introduction

The cleft lip and/or palate (CL/P) is the most common congenital craniofacial malformation.<sup>1-3</sup> The aetiology of CL/P is complex and heterogeneous as causes linked to

environment, genetics and gene-environment interaction are known.<sup>4-8</sup> Although the CL/P deformity has a worldwide frequency of one in 700,<sup>9</sup> the incidence of CL/P varies from region to region and among races.<sup>10,11</sup> Most studies have shown that the incidence is highest in Orientals and

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Mongoloids, intermediate in Caucasians and lowest in blacks.<sup>12-14</sup> Concerning the incidence of the deformity, there is a higher rate of combined cleft lip and palate (CLP) compared to the cleft palate (CP).<sup>15-17</sup> Studies of laterality patterns in infants with external birth defects found that the left side was significantly more involved for CL/P.<sup>17-19</sup> Other congenital anomalies are associated with CL/P.<sup>20-22</sup> Certain parental factors like age and occupation have been implicated in the incidence of CL/P.<sup>23,24</sup>

Gender differences exist in the occurrence of CL/P, with a higher overall incidence in males compared to females.<sup>19,25-27</sup> However, most studies have shown a preponderance of females for CP,<sup>25,27</sup> while males are more often affected by the combined cleft lip and palate (CLP).<sup>19,26,27</sup> Also black males are more often involved in bilateral cases.<sup>14,28</sup>

The aim of this study is to document the pattern of CL/P as seen in Benin City, Edo State, Nigeria and to compare the results with those from other parts of the world. The results of this study may be used to improve the welfare of affected patients.

## Materials and Methods

This study was carried out at the Department of Oral and Maxillofacial Surgery, University of Benin Teaching Hospital, (UBTH) Edo State, Nigeria. Over a four year period, consecutive ethnic Nigerian patients presenting with CL/P were studied. Patients' data collected included age, sex, ethnic group, and type of CL/P. The laterality pattern was also recorded. The places of delivery of the patients were recorded as well as the referring personnel. Patients presenting late for treatment and the reasons for delay were documented. Parents' data documented were age, occupation and the parent(s) (or person) accompanying the patient. Descriptive statistics were generated for all the variables recorded.

## Results

During the study period, 103 patients with CL/P were recorded. There were 51 (49.5%) females and 52 (50.5%) males giving a female to male ratio of about 1:1 (Table I). There were 98 (95.1%) children and five (4.9%) adults. The children were aged one day to nine years (mean age eight months) with most 66 (64.0%) in the zero to six month age group (Table I).

Table I: Age and sex distribution of patients with CL/P.

Age range (in months)	Sex		Number	Percent
	Male	Female		
0-6	34	32	66	64.0
7-12	8	9	17	16.5
13-18	—	3	3	2.9
19-24	1	1	2	2.0
>24	9	6	15	14.6
<b>Total</b>	<b>52</b>	<b>51</b>	<b>103</b>	<b>100</b>

The adults were aged 18 years to 34 years with a mean age of 23.3 years. The ethnic groups most often affected were Urhobo 30 (29.1%), Bini 28 (27.1%) and Ibo 18 (17.4%). These are shown in Table II.

Table II: Distribution of patients by ethnic groups.

Ethnic group	Number	Percent
Urhobo	30	29.1
Bini	28	27.1
Ibo	18	17.4
Esan	7	6.8
Etsako	7	6.8
Ika	4	3.9
Ijaw	3	2.9
Hausa	1	1.0
Yoruba	1	1.0
Ibibio	1	1.0
Ighara	1	1.0
Ora	1	1.0
Akoko Edo	1	1.0
<b>Total</b>	<b>103</b>	<b>100</b>

Most 77 (74.8%) patients were delivered in hospitals while 20 (19.4%) were delivered at home. Six (5.8%) were delivered in maternity homes. The general medical practitioner referred 39 (37.8%) patients while the paediatrician referred 20 (19.4%) patients. Other sources of referral are shown in Table III.

Table III: Sources of referrals of patients.

Source	Number	Percent
Obstetrician	11	10.7
Midwife	9	8.7
Paediatrician	20	19.4
Surgeon	7	6.8
General practitioner	39	37.8
Relations	8	7.9
Others	9	8.7
<b>Total</b>	<b>103</b>	<b>100</b>

The combined cleft lip and palate 62 (60.2%) was the most common type of cleft, of which 17 (16.5%) cases involved the left side in males, seven (6.8%) in females and 26 (25.2%) were bilateral. There were 29 (28.2%) patients with cleft lip only. Of these 16 (15.5%) involved the left side, nine (8.7%) the right side and four (3.9%) were bilateral. More (eight or 7.8%) females were affected by the isolated cleft palate deformity. These are shown in Table IV. Most 102 (99.0%) cases of CL/P were non-syndromic while one (1.0%) case was syndromic (van der Woude). Four (3.9%) patients had associated congenital anomalies (cardiac 1.0%, inguinal hernia 1.0%, syndactyl 1.0%, varus deformity 1.0%). Twenty five (24.3%) patients had exceeded the expected time for repair. Their reasons were ignorance, nine (36%) cases and financial constraints, 16 (64%).

Table IV: Distribution of cleft types, laterality and sex.

Type	No.	%	Laterality			Sex	
			Left (%)	Right (%)	Bilateral (%)	Male (%)	Female (%)
Cleft lip	29	28.2	16 (15.5)	9 (8.7)	4 (3.9%)	15 (14.6)	14 (13.6)
Cleft lip and palate	62	60.2	24 (23.3)	12 (11.7)	26 (25.2)	33 (32.0)	29 (28.1)
Cleft palate	12	11.6	—	—	—	4 (3.9)	8 (7.8)
<b>Total</b>	<b>103</b>	<b>100</b>	<b>40 (38.8)</b>	<b>21 (20.4)</b>	<b>30 (29.1)</b>	<b>52 (50.5)</b>	<b>51 (49.5)</b>

Ninety five mothers (92.2%), 89 fathers (86.4%), four church mission workers (3.9%) and a husband (1.0%) accompanied the patients. Four (3.9%) patients (adults) reported alone. The mothers ranged in age from 19 to 43 years with a mean age of 32.0 years while the fathers were aged from 26 to 55 years with a mean age of 38.4 years. Regarding parental occupation, most mothers were housewives (40 or 38.8%), traders (28 or 27.1%) and fashion designers (five or 4.6%). The fathers were mainly professional drivers (28 or 27.1%), traders (18 or 17.5%) and civil servants (16 or 15.5%). A diverse group of jobs made up the rest of the parental occupations. Most 89 (86.4%) patients were of the low socio-economic group while 10 (13.6%) were of the middle class.

### Discussion

Edo State (population 2 172 608)<sup>29</sup> is located in the southern part of Nigeria. The UBTH is the largest health facility within a 250 kilometre radius and has over four states as its catchment area. The dominant ethnic groups of Edo State in descending order are Bini, Esan and Etsako. The Ibo followed by the Urhobo tribe are the dominant ethnic group in the adjacent Delta state (population 2 590 491).<sup>29</sup> The Ibo are not only indigenous to the catchment area but Ibos from other states are widely distributed in Nigeria due to their extensive engagement in trading. The pattern of CL/P shows a large variation among different countries.<sup>10</sup> A sub-division has to be made for the different ethnic groups within a base population as the incidence can differ among races.<sup>10,11</sup> This is consistent with the objectives of this study which documented CL/P on different ethnic groups but exclusively among Nigerian blacks. The ethnic groups often involved are the Urhobo (29.1%) of the Niger Delta area of Nigeria. The Bini of Edo State ranked second (27.1%) on the list of ethnic groups affected and when the other ethnic groups within the state are added, indigenes of Edo State ranked highest as the single state most commonly affected by CL/P. This may be due to the location of the study centre (Benin City) and for reasons of proximity, most patients report here. A study has shown that proximity to referral centres can influence response of patients sent to a specialist.<sup>30</sup>

Most of the patients in this study were children (95.1%). The unexpected birth of a baby with a cleft deformity is a traumatic and shocking experience, generating anxiety for parents.<sup>31</sup> Most parents are likely to seek help early for their

children with CL/P. A near equal sex distribution was observed in this study. Most reports on the epidemiology of CL/P show that overall the deformity is commoner in males.<sup>19-22</sup> However, some studies have shown near equal gender distribution<sup>17,19</sup> or a preponderance of females.<sup>32</sup> Also, the anatomic location of the cleft differs among the sexes. The isolated cleft palate is said to be commoner among females.<sup>21</sup> This is consistent with the findings from this study.

The incidence of CL/P is influenced by the sources of data (e.g. hospital record, birth certificates) and these could lead to under reporting unless the registration system is good.<sup>10</sup> Also, questionnaires sent to different doctors can produce reliable data.<sup>10</sup> This study relied on patients referred from other sources (Table III) and may not reflect the true figures. A study has shown that many patients referred to a specialist did not report to him.<sup>33</sup>

This study found the left-sided (23.3%) cleft lip and palate (60.2%) as the commonest cleft deformity and more often, males (32.0%) were affected. This is consistent with most studies.<sup>17,19-22</sup> Differences in the lateral distribution of specific birth defects may be due to subtle differences in morphogenesis on the left and right sides of the embryo brought about by establishment of left-right asymmetry prior to organogenesis.<sup>18</sup> Some studies have found the cleft lip as the commonest cleft deformity.<sup>31,24</sup> Most (99.0%) of the CL/P seen in this study were the non-syndromic type. This is consistent with other studies.<sup>16,34,35</sup> Other studies have shown that congenital anomalies are associated with CL/P to varying degrees.<sup>17,35</sup>

In our centre, cleft lip is repaired at three to four months and cleft palate at 12 to 18 months. Sandberg *et al.*<sup>1</sup> have stated that with advances in neonatology and paediatric anaesthesia, cleft surgery should be performed during the neonatal period. Even with our arbitrary upper limit of six months for cleft lip repair and two years for cleft palate repair, 25 (24.3%) patients were deemed to have presented late, citing ignorance and financial constraints as reasons. Late repair of CL/P may have a negative impact on parent-infant bonding and infant growth and development.<sup>1</sup> Although the analysis of parental occupation did not reveal any occupational exposures that may lead to clefting in the offspring,<sup>28</sup> it did reveal that most parents (89 or 86.4%) were of the low socio-economic group. This group of parents will benefit from enlightenment programmes and financial assistance concerning their children with CL/P.

In conclusion, this study has shown that the ethnic groups most often involved in orofacial clefting were the Jrhobos, Binis and Ibos. It also showed that the leomographic and laterality pattern is similar to reports from other parts of the world. However, a high proportion of parents did not have access to early treatment due to ignorance and financial constraints. Public enlightenment is necessary to highlight that the treatment of this deformity is available. The government, charity and non-governmental organizations are also enjoined to assist these patients, especially the indigent ones. Since this study documented the pattern of CL/P on patients referred to our unit, under reporting is possible. A multicentre study involving many hospitals is, therefore, recommended.

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