

Oral manifestations of HIV infection in 36 Nigerian children

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Oral manifestations of HIV/AIDS are early and common clinical indicators of HIV infection. There has been no report on the clinical prevalence of oral lesions associated with HIV infection in children in sub-Saharan Africa. We report the findings of a cross sectional study of 36 Nigerian children seen at the Pediatrics Infectious Disease Clinic of the AIDS Prevention Initiative in Nigeria (APIN), Jos University Teaching Hospital (JUTH) Jos, Nigeria.

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INTRODUCTION

It has been well documented in the last few years that women constitute one of the fastest growing segments of the HIV-infected population and that there has been a rise in perinatal transmission of the virus from mother to infant.¹ Most of these infants with congenital HIV infection appear normal at birth with clinical difficulties appearing towards the first year.² In about half of these children, oral manifestations display the first signs of the disease.^{2,3}

Orofacial lesions commonly associated with pediatric HIV infection includes candidiasis, herpes simplex infection, linear gingival erythema, parotid enlargement and recurrent aphthous stomatitis.^{1,4} Oral candidiasis is the most common oral lesion in children with AIDS and often the first manifestations of HIV infection.⁵⁻⁷ Other orofacial lesions strongly associated with HIV infection but rare in children includes Kaposi's sarcoma, non-Hodgkin's lymphoma and oral hairy leukoplakia.⁴

Since the mouth is readily accessible and these

lesions are easily identified, they can help to diagnose, prevent and intervene in the progression of this infection especially in developing countries.

The paucity of studies on the oral lesions associated with HIV/AIDS in pediatric patients in Nigeria prompted the study of these lesions in HIV sero-positive Nigerian children seen at the Pediatrics Infectious Disease Clinic of the AIDS Prevention Initiative in Nigeria (APIN) Centre, Jos University Teaching Hospital (JUTH), Jos.

MATERIALS AND METHODS

This was a cross sectional study of 36 HIV positive Nigerian children living in and around Jos, Plateau state. These children were examined during the outpatient clinic days between February 2004 and November 2004. All patients examined were 18 months and older as an HIV antibody test presents insufficient evidence of HIV infection in children because of the persistence of passively acquired maternal antibodies in the first 15 months after birth.^{8,9} Western Blot test was used to confirm the HIV infection.

The study protocol was approved by the Ethics Committee of the hospital (JUTH) and informed consent from the patient's parents / guardians were obtained prior to data collection.

Systematic oral examinations were carried out by a dentist with the patients seated (the younger ones on their parent / guardian's laps). These examinations were consistent with the standardized oral examination method recommended by the World Health Organization.¹⁰ Oral lesions were diagnosed clinically, according to the criteria established by the European Community Clearinghouse on Oral problems related to HIV infection.¹¹ Demographic and clinical data were recorded on

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a recording leaflet designed for that purpose. Advices on oral health care were given to their parents or guardians as necessary. Statistical analyses of all data were carried out using SPSS version 11.0 software and p values <0.05 were considered as being statistically significant. Associations between baseline characteristics were made by means of some non parametric tests for qualitative (nominal) variables and parametric tests for quantitative (ratio) variable.

RESULTS

A total of 36 children were seen, of which 19 (52.8%) were females. Age ranged between 18-168 months with a mean of 65.9 ± 42.7 months. Twenty-eight (77.8%) patients were already confirmed for HIV infection by Western Blot while 7 (19.4%) tested positive by the use of the enzyme linked immunosorbent assay (ELISA). Mother-to-child transmission accounted for 83.3% of the mode of transmission. The CD4 counts of 23 (63.9%) patients were available with a range of 8.00-1250 cells/ul. As at the time of clinical examinations, 14 (38.9%) patients had commenced the use of the highly active anti retroviral therapy (HAART). (Table 1)

Fifteen (41.7%) patients had oral lesions associated with HIV infection (3 of them having multiple lesions). Cumulatively, oral lesions were diagnosed equally in both genders though more females 8 (53.3%) presented with lesions. Candidiasis (45%) was the most common lesion seen with the Angular Cheilitis (25%) variant having the highest frequency. Other oral lesions seen included: Parotid gland enlargement (30%), xerostomia (10%), herpetic ulcer (10%) while Kaposi's

Table 1

Demographic and Clinical data of 36 HIV positive Nigerian children seen in JUTH

CHARACTERISTICS	HAART USE		TOTAL	
	Yes	No	N	%
Gender				
Male	7	10	17	47.2
Female	7	12	19	52.8
Age Group (in months)				
18 - 42	5	9	14	38.9
43 - 66	4	4	8	22.2
67 - 90	2	3	5	13.9
91 - 114	2	3	5	13.9
115 +	1	3	4	11.1
Sero - positivity status				
Positive	2	5	7	19.4
Confirmed	12	16	28	77.8
Suspect	-	1	1	2.8
Route of transmission				
Maternal	12	18	30	83.3
Parenteral	-	3	3	8.3
Not sure	2	1	3	8.3
HIV related oral lesions				
Yes	4	11	15	41.7
No	10	11	21	58.3
Female				

Table 2

Prevalence of oral lesions associated with HIV/AIDS in 36 infected Nigerian Children. (Some had multiple lesions).

Type	Male	Female	Total	
Any oral disease	N	N	N	%
1. Pseudomembraneous Candidiasis	1	2	3	15
2. Angular Cheilitis	3	2	5	25
3. Erythematous Candidiasis	1	-	1	5
Total	5	4	9	45
4. Parotid Gland Enlargement	2	4	6	30
5. Herpes Simplex Ulcers	1	1	2	10
6. Kaposi's Sarcoma	1	-	1	5
7. Xerostomia	1	1	2	10
Total lesions	10	10	20	100

sarcoma represented only 5%. None of the three major periodontal lesions associated with HIV/AIDS (necrotizing ulcerative gingivitis, necrotizing ulcerative periodontitis and linear gingival erythema) were noticed in this group. (Table 2)

Four (28.6%) of the 14 patients on HAART were part of those with oral lesions associated with HIV/AIDS, while 11 (50%) of the 22 patients who had not commenced the use of HAART complemented the number. One sample Kolmogorov-Smirnov Test showed that the difference in the prevalence of HIV associated oral lesions in the patients on HAART and those yet to start was very significant ($Z = 2.372$, $p = 0.000$). (Table 3)

There was no significant difference in CD4 counts of those on HAART and those yet to begin ($t = -0.446$, $p > 0.05$). Tuberculosis (16.7%), Diarrhoea (16.7%) and Otitis Media (11.1%) were the opportunistic infections noticed in these patients at the time of examination.

Table 3

Prevalence of oral lesions associated with HIV/AIDS in 36 infected Nigerian Children in relation to HAART use.

Oral Lesions associated with HIV/AIDS	HAART USE		Total	
	Yes	No	N	%
Type				
1. Pseudomembraneous Candidiasis	1	2	3	15
2. Angular Cheilitis	-	5	5	25
3. Erythematous Candidiasis	-	1	1	5
4. Parotid Gland Enlargement	2	4	6	30
5. Herpes Simplex Ulcers	-	2	2	10
6. Kaposi's Sarcoma	1	-	1	5
7. Xerostomia	-	2	2	10
Total	4 (20%)	16 (80%)	20	100

DISCUSSION

HIV related oral lesions are a common feature in children with HIV infection, with a prevalence of 41.7% irrespective of the Anti Retroviral Therapy (ART) status of the patients. A further breakdown showed that those yet to commence HAART had more manifestations (80%) when compared to those who had been on the medication (20%) for varying period of time. This had been confirmed by previous reports attesting to a reduction in the prevalence and clinical manifestations of HIV related oral lesions in patients on HAART.¹²⁻¹⁴ However, a similar study conducted in Northern Thailand on 45 HIV positive children with 15 (33.3%) of them already on ART did not show any appreciable difference in prevalence of these lesions when compared with those yet to start.¹⁵

There are no publications on the prevalence of oral HIV lesions in pediatric infection in Africa.¹⁶ Different prevalent figures exists for those available; Brazilian children: 38%-72.7%,^{3,17,18} Americans: 53.6%,¹⁶ Northern Thai children 48.9%¹⁵ and 41.7% in our study. These varying prevalence figures could be attributed to racial, social and geographical variations in disease presentations.

Oral candidiasis (45%) was the most common HIV-related oral lesion recorded in this study. This agrees with previously reported studies worldwide.^{1,3,6,19} It can occur in as high as 72% of all cases of pediatric HIV infection.¹ Another HIV-related lesion identified as the most common lesion in other studies was cervical lymphadenopathy.^{1,17} A case of Kaposi's sarcoma (ks), one of the lesions strongly associated with HIV infection but rare in children was observed on the dorsum of the tongue in a 43 months old male patient. The lesion was disseminated all over the facial skin. No case of Oral hairy leukoplakia (another lesion strongly associated with HIV/AIDS) was noticed. None of the periodontal lesions associated with HIV/AIDS reported in other studies^{1,20} were noticed in this study.

Previous reports had also noticed an increase in the CD4 levels in patients on HAART.^{13,21} In this study, there was no significant difference in the CD4 counts of those patients on HAART and those yet to commence HAART. This might not be unconnected with the fact that our measurements of these variables were not pre-defined but cross sectional. Use of HAART is faced with many challenges in our setting. Poverty is central, often delaying onset of therapy until patients become very ill. This could have eroded any differences between those on HAART and those yet to commence.

In conclusion, according to the WHO, African children account for 90% of all HIV infection among children less than 15 years of age.¹ The major source of transmission is from an HIV-infected mother. Recogni-

tion is often difficult because of the varied signs and symptoms. The most common oral findings include candidiasis, parotid salivary gland enlargement and herpetic infections. Since the mouth is readily accessible for clinical examination, these important oral signs could be utilized to assist early diagnosis of AIDS in these vulnerable population so that early intervention can be provided.²²

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In The Right Track

I have been honored from Dr. White to continue his important work with the Journal.

Before taking this enormous responsibility, I did some research and there are some things I found out: This is one of the leading pediatric journals in the world, read and consulted around the globe and the symptom can be clearly seen by the amount and diversity of articles submitted. In this issue you will read articles from the U.S., U.K., Mexico, Israel, Brazil, India, Greece, Nigeria, Saudi Arabia, and Turkey.

Even if the Journal is doing well, I believe there is always room for improvement. In future issues, you will see some addendums and I invite you as loyal subscribers and collaborators to share your insights. Give us time to produce those changes and in the near future, we will get back to you to participate in a survey.

Meanwhile, visit our webpage www.pediatricdentistry.com which has received an extreme face lift.

As you might have noticed, the Journal just turned 30. This might seem a short time, but let me tell you that 30 years ago Elvis Presley was still alive and well, Mohammad Ali defended his title against Joe Frazier, the movie, *One Flew Over The Cookest Nest* with Jack Nicholson won the Oscar for Best Movie and Actor, Stevie Wonder and Olivia Newton-John won Grammys.

As soon as this door between us is open I am positive that we will accomplish together the very important task of following Dr. White's trail.

Dr. A. Marc Saadia, M.