

# Oral manifestation of HIV/AIDS in Plateau state indigenes, Nigeria

\*O.O. Taiwo<sup>1</sup>, E. N. Okeke<sup>2</sup>, P.H. Jalo<sup>1</sup> and I.S. Danfillo<sup>1</sup>

<sup>1</sup>Regional Centre for Oral Health Research and Training Initiatives (RCORTI) for Africa, Jos, P.M.B. 2067, Jos, Plateau State, Nigeria

<sup>2</sup>Department of Medicine, Jos University Teaching Hospital (JUTH), Jos, Plateau State, Nigeria.

E-mail: taiwo25@yahoo.co.uk

## Summary

**Background :** To investigate the prevalence of oral manifestations of HIV/AIDS involving HIV positive Plateau State indigenous adults attending a Special Treatment Clinic serving referred cases and in-patient cases hospitalized in the Medical wards in JUTH, Jos.

**Study design:** A cross – sectional study.

**Results :** A total of 261 patients confirmed for HIV infection were examined. The age range was 17 – 80 years, mean = 35.6 ± 9.27 (SD). 59.4% were females and 40.6% were males. Oral lesions attributable to HIV/AIDS infection were found in 109 (41.8%) patients, 38 (34.9%) of these patients had multiple lesions. Oral lesions were diagnosed more frequently in women (59.6%) than in men (p= 0.945). Oral candidiasis was the most common presentation (35.7%) with pseudomembranous candidiasis (23%) and angular cheilitis (10%) being the most common variants. All the cases of erythematous candidiasis (n=7) were exclusively seen in the female population. Oral hairy leukoplakia and xerostomia were present in 4.6% and 3.8% of cases respectively. Kaposi's Sarcoma was in 5 (1.9%) patients.

**Conclusion :** The prevalence of HIV-related oral lesions (HIV-ROL) in a hospital based adult population of Plateau State indigenes in Jos is 41.8%. Oral Candidiasis is the most common HIV-ROL detected and this agrees with most reported findings.

**Key-words:** Oral manifestations, Candidiasis, HIV/AIDS, Nigeria

## Résumé

**Introduction:** Etudier la fréquence des manifestations buccales de VIH/SIDA impliquant des indigènes adultes de l'Etat de Plateau qui sont séropositifs qui fréquemment une Clinique du Traitement Spécial qui auberge des cas des malades envoyés et des cas des patients hospitalisés dans la salle médicale de JUTH, Jos.

**Plan d'Etude:** Une étude d'un groupe représentatif

**Résultats:** Un total de 261 patients confirmés pour l'infection de VIH ont été étudiés. La tranche d'âge était de 17–80 ans, moyen = 35,6±9,27 (SD) 59,4% étaient du sexe féminin et 40,6% étaient du sexe masculin. Lésions buccales attribuables à l'infection du VIH/SIDA étaient trouvées chez 109 soit 41,8% des patients. 38 soit 34,9% de ces patients avaient des lésions multiples. Le plus souvent, on avait diagnostiqué des lésions buccales chez

des femmes 59,6% plus que chez des hommes (P=0,945). Candidose buccale était une présentation la plus courante (35,7%) avec candidose pseudomembraneuse (23%) et chéilite angulaire (10%) qui est la variante la plus courante. Tous ces cas de la candidose érythémateuse (n=7) sont vus exclusivement chez la population de sexe féminin. Leucoplasie buccale périlleuse et xérostomie étaient présent en 4,6% et 3,8% des cas respectivement. Sarcome du Kaposi était noté chez 5 soit 1,9% des patients.

**Conclusion:** La fréquence des lésions buccales ayant rapport avec VIH (VIH-RLB) dans un hôpital peuplé des adultes, indigènes de l'Etat de Plateau à Jos est 41,8%. Candidose buccale est le VIH-RLB la plus courante détectée et ceci approuve des résultats déjà rapportés.

## Introduction

Acquired Immunodeficiency Syndrome (AIDS) is a retroviral disease characterized by profound immunosuppression that leads to opportunistic infections, secondary neoplasms, and neurologic manifestations. There is little doubt that AIDS is caused by Human Immuno-deficiency Virus (HIV), a non transforming human retrovirus belonging to the lentivirus family<sup>1</sup>.

Since the first cases of AIDS were diagnosed in Nigeria in 1986, the disease has systematically permeated the entire Nigerian social fabric, affecting men and women in urban and rural areas, as well as adolescents, commercial sex workers, traders, high profile politicians and socialites, servicemen and women, truck drivers and students.<sup>2</sup> Indeed, every Nigerian is vulnerable to the disease and the limited data from national HIV sentinel surveys indicated a rapid transition from near zero prevalence in 1990<sup>2</sup> to a 5.8% National average HIV prevalence rate among the adult population between the ages of 15 to 49 years by 2001<sup>3</sup>. In human terms, in Nigeria, the HIV epidemic has increased from 2.6million HIV positive adults in 1999 to 3.01 million in 2001<sup>3</sup>.

A sero-prevalence HIV/AIDS survey in Nigeria in December 2001 showed that out of the six geopolitical zones in the country, the North – Central zone was the worst affected with an estimated prevalence of 7.9%<sup>3</sup>. Plateau State is one of the states in this zone, with a prevalence of 8.5% as at December 2001<sup>3</sup>.

There seemed to be a definite variation in the extent to which the six different zones had been affected by the HIV epidemic<sup>4</sup>. No simple explanation can be offered for the variations observed. Possible factors that may account

\*Correspondence

for the variation include differences in the prevalence of other sexually transmitted diseases, access to health care facilities, access to information and other interventions, socio-cultural practices, literacy rates, and degree of urbanization and separation from families<sup>4</sup>.

Oral health is an integral component of general health. The inclusion of oral examination is a vital component of an individual's overall health assessment. The oral cavity is among the most biologically dynamic structures of the human body. Any adverse change resulting from immuno-suppression predisposes to oral bacterial and fungal infections<sup>5</sup>. Oral and peri-oral lesions are common in people infected with HIV. These lesions are common at all the stages of HIV infection<sup>6</sup>. They are often the presenting feature and predict deterioration in general health and a poor prognosis<sup>7-10</sup>.

Oral candidiasis has been widely reported as the most common oral manifestation of HIV/AIDS<sup>11-15</sup>. This finding cannot be generalized to be an accurate representation of the general populace. When compared with studies from other parts of the world, the frequency of oral lesions appeared to be less common. In a group of predominantly ethnic Chinese, the most common oral lesion found was minor aphthous ulceration while Kaposi's sarcoma was noted for its absence<sup>16</sup>. This is in contrast to findings in 100 Zimbabwean and 119 Tanzanian HIV/AIDS patients which reported Kaposi's sarcoma as the most frequent lesion seen<sup>17,18</sup>. In the Zimbabwean study above, no case of oral hairy leukoplakia was found as opposed to studies which reported oral hairy leukoplakia as the most common oral manifestation of HIV/AIDS<sup>19,20,21</sup>. A related study conducted in Benin city, the capital of Edo state, one of the states in the South – South geopolitical zone of the country showed that 80% of the oral manifestations seen were of fungal origin<sup>22</sup>. It is still not clear whether these differences could be attributed to racial, social or geographical factors.

The present study aims to investigate the prevalence of oral manifestations of HIV/AIDS as seen in HIV/AIDS patients of Plateau state origin in Nigeria. It also intends to highlight its similarities or differences with other studies conducted elsewhere.

### Materials and methods

The study population was composed of 261 confirmed HIV positive adults of Plateau state origin seen at the Special Treatment Clinic (STC) and the Medical wards of the Jos University Teaching Hospital (JUTH). The study protocol was approved by the Ethical Committee of the hospital. Informed consents were also taken from the patients prior to data collection.

Examinations were carried out in the wards with patients lying supine on their beds with the aid of a hand held light while in the STC, patients were examined seated on a chair with a back rest. Oral lesions were diagnosed clinically, according to the criteria established by the European Community Clearinghouse (ECC) on oral

problems related to HIV infection.<sup>23</sup> Demographic and clinical data were recorded on an adapted form WHO suggested for use.<sup>8</sup>

These examinations were conducted by a dentist trained in the identification of intra-oral lesions associated with HIV infections. If there was any doubt as to the diagnosis of a lesion, it was tagged as unidentified in the analysis. If multiple lesions were found (in the same patient) at the time of clinical evaluation, each lesion was considered independently for the analysis. All patients examined were those who had not commenced the use of any Anti-retroviral drug since they had been shown to have a marked effect on the prevalence and clinical appearance of oral lesions<sup>15</sup>. Appropriate treatment and advice on oral health were administered as necessary.

An adult according to this study refers to patients above the age of 16 years.

Descriptive statistics and statistical analysis of all data were calculated with SPSS software version 11.0 and *p* values  $\leq 0.05$  were considered statistically significant. A comparison of the baseline characteristics was made by means of Pearson's Chi Square test for qualitative variables.

### Results

Out of the 261 patients, 167 (64%) were seen at the Special Treatment Clinic and 94 (36%) were from the medical wards. All the patients seen in the wards were admitted in the hospital for the management of various systemic conditions and oral manifestations associated with HIV infection, although the latter were not the primary reason for admission. Overall, 106 (40.6%) were males and 155 (59.4%) females. In general, the age range was 17 to 80years with a mean of  $35.6 \pm 9.27$  (SD). While the age range in the male was 22 – 80years (mean = 40.2), the female range was 17 – 64years (mean=32.4). The age group 31 – 40years was the worst hit with 115 (44.1%) patients affected.

Sexual contact was the most common mode of HIV transmission ( $n=215$ , 82.4%); while transmission via an unknown source and by inoculation of blood or blood components represent 15% and 2.6% respectively. Other socio – demographic parameters evaluated in the study included the individual's marital status, occupation and educational status. This established that whereas 52.5% of the population was married and 19.5% single, others were either separated, divorced or widowed. Of the 261 patients seen, 74 (28.4%) had multiple sexual partners. None of the patients had a history of intravenous drug use (IVDU). According to the CDC classification (1992)<sup>24</sup>, most of our patients, (approximately 85.4%) fell into CDC group 4 with full blown presentations of various opportunistic infections. The rest were distributed in the other HIV/AIDS groups as follows: group 2 (13.5%), group 1 (0.8%) and group 3 (0.4%). The combined gender distribution of the patients according to their demographic and clinical characteristics is summarized in Tables 1 and 2.

**Table 1 Demographic characteristics of 261 HIV positive Plateau state patients attending JUTH.**

Characteristics	Gender				Total	
	M	%	F	%	N	%
Examination Site						
Clinic	63	59.4	104	67.1	173	64
Ward	43	40.6	51	32.9	104	36
Gender	106	40.6	155	59.4	261	
Age (years)						
Range	22 – 80		17 – 64		17 – 80	
Mean ± SD	40.2 ± 9.37		32.4 ± 7.78		35.6 ± 9.27	
Educational Status						
None	6	5.7	11	7.1	17	6.5
Primary	25	23.6	36	23.2	61	23.4
Secondary	27	25.5	39	25.2	66	25.3
Tertiary	48	45.3	69	44.5	117	44.8
Marital Status						
Married	77	72.6	60	38.7	137	52.5
Single	13	12.3	38	24.5	51	19.5
Divorced	6	5.7	12	7.7	18	6.9
Separated	—	—	6	3.9	6	2.3
Widowed	10	9.4	39	25.2	49	18.8

**Table 2 Clinical characteristics of 261 HIV positive Plateau state patients attending JUTH**

Characteristics	Gender				Total	
	M	%	F	%	N	%
Route of Transmission						
Sexual Contact	84	79.2	131	84.5	215	82.4
Inoculation by blood or blood components	3	2.8	4	2.6	7	2.6
Unknown (not sure)	19	18	20	12.9	39	15
Clinical Stage						
CDC I			2	1.3	2	0.8
CDC II	9	8.5	26	16.9	35	13.5
CDC III	1	0.9			1	0.4
CDC IV	96	90.6	126	81.8	222	85.4

### Oral manifestations

The overall findings for the prevalence of the oral manifestations seen in our study are in Table 3. Out of the 261 patients, 109 (41.8%) presented with oral lesions, 38 (34.9%) of these patients had multiple lesions. Oral lesions were diagnosed more frequently in women than in men (59.6% Vs 40.4%) though not significant ( $\chi^2=0.005$ ,  $p=0.945$ ). The most common oral lesion was candidiasis (35.7%), of which pseudomembranous 64 (23.0%) and the angular cheilitis 27 (10.0%) were the most common variants. All the cases of erythematous candidiasis (n=7) were exclusively seen in the female population. Oral hairy leukoplakia was evident in 4.6% (12) of patients. Cumulatively, the HIV associated periodontal diseases

(Necrotizing gingivitis, Necrotizing periodontitis and Linear gingival erythema) were evident in 10.3% of the patients seen. Linear gingival erythema (LGE) was the most common in this category (n = 17, 6.5%). The distribution of the oral lesions diagnosed in this population according to gender is depicted in Table 3.

### Discussion

The mouth and the pharynx are easily examined by clinicians with a wide range of professional training. Oral disease is common in HIV-infected persons and frequently is the first indicator of progression to symptomatic disease<sup>10</sup> These lesions are often clearly visible and

**Table 3 Prevalence of oral manifestations in 261 HIV infected patients in JUTH. (Some had multiple lesions).**

Type	Male		Female		Total	
Any oral disease						
Candida lesion	n	%	n	%	N	%
1. Pseudomembraneous Candidiasis	25	23.6	39	22.6	64	23.0
2. Angular Cheilitis	11	10.4	15	9.7	27	10.0
3. Erythematous Candidiasis	–	–	7	4.5	7	2.7
<b>Total</b>					98	35.7
Gingival/Periodontal lesions						
4. Linear gingival erythema	11	10.4	6	3.9	17	6.5
5. Necrotizing Gingivitis	3	2.8	1	0.6	4	1.5
6. Necrotizing Periodontitis	3	2.8	3	1.6	6	2.3
<b>Total</b>					27	10.3
7. Oral hairy leukoplakia	7	6.6	5	3.2	12	4.6
8. Herpes labialis	--	--	1	0.6	1	0.4
9. Herpetic Stomatitis	--	--	1	0.6	1	0.4
10. Oral ulcerations	2	1.9	2	1.3	4	1.5
11. Kaposi's Sarcoma	3	2.8	2	1.3	5	1.9
12. Enlarged salivary gland	--	--	4	2.9	4	1.5
13. Xerostomia	3	2.8	7	4.5	10	3.8
14. Unidentified lesions	5	4.7	3	1.9	8	3.1

Note: Gender percentages are in relation to those presenting with the particular lesion(s).

several can be diagnosed accurately on clinical features alone. More than 40 different oral diseases have been described in patients infected with the human immunodeficiency virus (HIV).<sup>25,26</sup> Thus, in cases where HIV status is unknown and where HIV testing is difficult e.g. in the developing countries, certain oral lesions provide a strong indication of the presence of HIV infection.<sup>27</sup> Consequently, oral examination of HIV infected individuals is of great importance, not only because it is an uncomplicated procedure, but also because of its valuable clinical information<sup>13</sup>.

HIV related oral lesions (HIV-ROL) were registered in approximately 41.8% of the patients seen in our study. Our finding (41.8%) is akin to a prospective study carried out at the University Teaching Hospital Benin City, Nigeria on 123 confirmed HIV/AIDS patients with 48.8%<sup>22</sup> of the patients presenting with oral disease attributable to HIV/AIDS. A related study conducted in Italy also reported 41% as the prevalence of oral manifestations associated with HIV infection while a US Multicentre study gave 40% as the prevalence of HIV-ROL.<sup>28</sup> Different prevalence figures have been reported round the globe ranging from a low of 13% in Kenya to a high of 99% in Spain<sup>28</sup> Duration of seropositivity, nutritional status, sexual orientation and practices had been proposed as factors that may explain the disparity in the results<sup>14</sup>.

The clinical range of the oral manifestations of HIV infection seen in our study is similar to that reported elsewhere in Africa<sup>10,14,18</sup> and the Americas<sup>29</sup>. Cumulatively, the women presented with more oral lesions than the men (59.6% v 40.4%). Oral candidiasis (35.7%) was the most common finding as in numerous studies; Philippines (67%)<sup>10</sup>, Mexico (36%)<sup>28</sup>, Kenya (13%)<sup>28</sup>,

Tanzania(12%)<sup>28</sup>, South Africa (37.8%)<sup>14</sup> and Zambia (25%)<sup>30</sup>. All variants of oral candidiasis seen in this study were more frequently associated with women. This agrees with an Italian study which reported oral candidiasis as the most common lesion in women<sup>31</sup>. Pseudomembraneous candidiasis and angular cheilitis were the most common variant seen. Also, in this study, all the cases of erythematous candidiasis were seen exclusively in the women. The reason for this is not certain.

Marked variability is reported in the prevalence of Hairy leukoplakia (HL) internationally, with approximately a quarter of infected patients displaying these lesions.<sup>14</sup> Hairy leukoplakia (in our study) was more common in men than women as previously reported.<sup>13,15,31,32</sup> None of our patients saw any need for treatment basically because it was symptomless and consequently, unaware of its presence. In our study, using Spearman's correlation, HL was strongly associated with pseudomembraneous candidiasis (p = 0.003). This association agrees with other reports<sup>13,15</sup>.

The 10.3% prevalence of HIV associated periodontal disease seen in our study is similar to that reported from South Africa (10%),<sup>28</sup> Namibia (10%)<sup>28</sup> and other studies.<sup>14,33</sup> However, the reported range is wide from 0% reported in Tanzania, Peru and Italy to almost 70% as reported by Winkler, 1992.<sup>14</sup> These disparities may be attributed to inclusion of periodontal disease that is not directly associated with HIV-positive status. These lesions which includes linear gingival erythema, necrotizing gingivitis and necrotizing periodontitis may cause pain, spontaneous gingival bleeding, extensive and rapid destruction of gingival, periodontal tissues and tooth supporting bone which may result in exposure and

sequestration of bone and loosening of teeth, sometimes leading to exfoliation.<sup>10,34</sup>

Oral lesions of Kaposi's sarcoma (OKS) is the most common malignancy associated with HIV infection<sup>9</sup> and may be the first presentation of this condition.<sup>34</sup> The relative distribution of oral Kaposi's sarcoma lesions (in our study), with most lesions occurring on the palate followed by the gingiva and then the tongue is in accord with observations in similar studies conducted elsewhere.<sup>10,18</sup> Most of the cases encountered in our study had the nodular type of OKS.

The cause of HIV related salivary gland disease is unclear for no aetiological agent had been explained<sup>23</sup>. Enlargement of salivary glands due to infiltration by CD8 lymphocytes in both paediatric and adult HIV infection has been described<sup>34</sup>. In our study, all the cases (4) were predominantly seen in the female population and all of them were from the parotid gland. The reason for the female preponderance in the Salivary gland enlargement in this study is unclear.

Xerostomia may accompany salivary gland enlargement. This can also be induced by medication and several pathological conditions<sup>9,18,23</sup>. Our series showed unequal distribution of xerostomia with respect to gender. This could be as a result of the salivary gland enlargement in the female population as more of the cases of xerostomia seen were in this group (70%). Non Hodgkin's lymphoma was not detected in this study. This is not unexpected as other studies had either reported it's low prevalence<sup>14</sup>, or absence<sup>18,25,31</sup> in HIV – infected patients in their areas.

### Conclusion

The study showed that Oral Candidiasis is the most common oral presentation in HIV/AIDS patients among Plateau state indigenes attending JUTH. It is significantly more common in the female population. This finding cannot be extrapolated to be representative of the general Nigerian population since there are variations in socio – cultural behaviours of the different ethnic groups in the country.

### Acknowledgement

This project was sponsored by a grant from the Regional Centre for Oral Health Research and Training Initiatives (RCORTI) for Africa, Jos ( an arm of the Oral Health Division of the Federal Ministry of Health, Nigeria) in collaboration with the World Health Organization, Jos, Plateau State.

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