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## Orofacial lesions in 126 newly diagnosed HIV/AIDS patients seen at the University College Hospital, Ibadan

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### Summary

Human immune deficiency virus (HIV) infection is one of the most devastating infection in modern times. Oral manifestations of HIV infection occur in approximately 30-80% of patients infected with this virus and the factors, which predispose to these lesions include: CD4 count less than 200cells/mm<sup>3</sup>, viral load, xerostomia, poor oral hygiene and smoking. These manifestations have subsequently become important entry criteria for: clinical trials of various therapeutic regimes, prophylaxis of HIV related opportunistic infections, anti-retroviral trials and vaccine studies. Over a six month period, all newly diagnosed HIV/AIDS patients attending the Special Treatment Clinic at the Haematology Department of the University College Hospital, Ibadan, Nigeria were recruited into this study before anti-retroviral therapy was commenced. As part of the general physical examination of these patients, a thorough orofacial evaluation was also carried out and the findings were documented. The most prevalent orofacial lesions were candidiasis, xerostomia, melanotic hyperpigmentation and herpetic ulcer among others. The aim of this study was to evaluate the pattern of oral lesions found in patients who were newly diagnosed as having HIV infection prior to commencement of anti-retroviral drugs and relate these lesions to the age, sex and occupation of the patients. These findings may suggest the likelihood that there is a pattern of oral manifestation of HIV infection.

**Keywords:** HIV/AIDS, orofacial manifestations, disease progression, Nigeria

### Résumé

L'infection du virus immunodéficient acquis (VIH) est l'une des infections les plus dévastatrices des temps modernes. Les manifestations orales de l'infection du VIH apparaissent approximativement à 30-80% des patients infectés et les facteurs qui prédisposent ces lésions incluent: le taux des CD4 moins de 200 cellules/mm<sup>3</sup>, le taux viral, la xérostomie, la mauvaise hygiène orale et la cigarette. Ces manifestations sont devenues des critères importants d'entrée des patients en régime thérapeutique, la prophylaxie du VIH liés aux infections opportunistes, les essais antiretroviraux et les études des vaccins. Durant une période de six mois tous les nouveaux patients ayant le HIV/SIDA diagnostiqués au

département d'hématologie au Centre hospitalier Universitaire, Ibadan, Nigéria commençaient au spécial traitement clinique d'anti-rétroviral. Après une examination clinique générale des patients une évaluation orofaciale était aussi faite et les données documentées. Les lésions orofaciale plus prévalent étaient: le candidiase, la xérostomie, l'hyperpigmentation mélanotique et l'ulcère herpétique. Le but de cette étude était d'évaluer la fréquence des lésions orales trouvées aux patients qui étaient nouvellement diagnostiqués ayant le VIH à la prise des médicaments anti-rétroviral et lier ces lésions par rapport à l'âge, au sexe et à l'occupation du patient. Ces résultats suggèrent la grande probabilité de la fréquence des manifestations orales de l'infection VIH.

### Introduction

Human immunodeficiency virus (HIV) infection is one of the most devastating infections in modern times. If untreated, almost all the patients with HIV infection will ultimately develop the dreaded Acquired Immunodeficiency Syndrome (AIDS). AIDS is a disorder of the cell-mediated immunity, characterized by opportunistic infections, malignancies, neurological dysfunction and a variety of other infections and it is the most severe manifestation of a spectrum of HIV related conditions [1].

An estimated 40.3 million HIV infections and 10 million AIDS cases have been reported worldwide. The brunt of the disease is largely borne by communities in the sub-Saharan Africa where an estimated 28 million people are living with HIV/AIDS [2]. In Nigeria, there is a median prevalence of 5.0% HIV/AIDS cases spreading largely through unprotected sex in heterosexuals. The estimated figure of people infected with HIV/AIDS in Nigeria was 3.8 million at the end of the year 2005 as reported by UNAIDS/WHO [3].

Oral manifestations of HIV infection occur in approximately 30-80% of all affected patients, and the factors, which predispose to the expression of these lesions include: CD4 count (<200 cells/mm<sup>3</sup>), viral load, xerostomia, poor oral hygiene and smoking [2,4,5,6,7]. These manifestations have been important entry criteria for clinical trials (and end point in these trials) as well as for vaccine studies.

A possible explanation for these oral lesions is probably related to the ever-present potentially pathogenic flora of the oral mucosa, saliva, dental plaque, gingival crevice, tonsils and pharynx. However, these seemingly normal commensals become invasive or virulent as a result of weakened immune defenses [4,6,8]. Besides being

indicators of progression to AIDS defining conditions, these oral lesions are universal components of HIV classification and staging schemes [4,5,6,8].

These oral lesions include: fungal infections, bacterial infections, viral infections, neoplasm and miscellaneous conditions like hypermelanotic pigmentation of the oral mucosa, which though present in people not infected with HIV, occur more frequently and more severely in patients affected with HIV infection [9]. Variations in the presentation of and the incidence of various orofacial lesions in different parts of the world have been reported [10,11,12]. However, data on the pattern, age and sex distribution of orofacial manifestations of HIV/AIDS in Nigeria is sparse, despite the fact that these lesions are very relevant in the diagnosis and management of this condition. This prospective study was designed to provide additional baseline information on the pattern of orofacial lesions in patients with newly diagnosed HIV infections in Southwestern Nigeria.

### Patients and method

Consecutive newly diagnosed patients with HIV/AIDS infection who were enrolled for management at the Special Treatment Clinic, in the Haematology Department of the University College Hospital, Ibadan for a period of six months were entered into the study. Ethical approval was given along with that approved for the Special Treatment Clinic by the University of Ibadan/University College Hospital, Ibadan, Institutional Review Committee and informed consent was obtained from all the patients.

Orofacial evaluation was carried out using disposable oral examination set under natural lighting and pen touch (the universal precaution technique was strictly adhered to) and the findings were documented as part of the routine general examination of the patient. Dental treatment and follow-up were instituted where necessary and the data collected included: patient's biodata and classification of the oral lesions. The diagnosis of the orofacial lesions were made using the criteria established by the EEC - Clearinghouse and WHO [1,12].

### Results

The data from this descriptive study was analyzed using SPSS version 10. Within the period of study, a total of 150 consecutive patients were seen in the special treatment clinic and 126 patients consented to detailed orofacial examination. All the patients were Nigerians and these were 50(39.7%) males and 76(60.3%) females with ages ranging from 1 to 63 years (mean age of 34.6 years  $SD \pm 10.2$  and a median age of 33 years). Seventy six (60.3%) patients were married, 39(31.0%) were single, 2(1.6%) were divorced and 9(7.1%) were widowed. In all, there were 279 lesions with some patients presenting with more than one lesion. The age / sex distribution of the lesions are shown in Table 1. The commonest lesion in both sexes and ages is candidiasis (with a female preponderance between the ages of 21 and 40 years (Table 1)) and the predominant variety is the

pseudomembraneous type. In patients with candida infection, traders and married women were the most commonly affected (Table 2), and with respect to the occupation of the infected patients, traders were noted to be the most commonly infected (Table 3).

### Discussion

Orofacial lesions are associated with various immunosuppressive conditions like diabetes mellitus, malnutrition (protein energy deficiency states), stressful conditions and HIV infections [11]. Oral lesions in HIV/AIDS infections are fundamental components of disease progression or immune suppression as measured by the CD4 count [4,7]. Previous studies on HIV/AIDS related oral lesions considered specific categories of patients with emphasis on the influence of antiretroviral drugs, infection in women and likewise infections in homosexuals [5,8,13]. In Taiwan, Chiang *et al* reported that oral leukoplakia was the most common lesion, while in the United State of America Flaitz and Hicks and Brady *et al* found that oral candidiasis was the most prevalent oral lesion in children and African - American women [14,15,16]. In Brazilian children infected with the HIV infection, Magalhaes *et al* observed angular cheilitis to be the most common lesion in their study [17]. In the previous studies, some of the examinations of oral lesions in patients with HIV/AIDS infection were carried out by non-dental personnel thereby casting doubts over their findings [4].

Oral lesions associated with HIV/AIDS have been said to occur between 30 to 80 percent of patients with this infection [5,10]. Late presentation, a high viral load and lower innate immunity as a result of environmental and dietary factors are other possible reasons for the wide differences in the observed incidence of the orofacial manifestation of HIV/AIDS [18].

Fungal infections have been found to be prevalent in patients with HIV/AIDS, and these have been attributed to excessive use of antibiotics to combat bacterial infections or are as a result of cross infection following poor personal hygiene [19,20]. In this study, candidiasis was the most common infection occurring in 80(63.0%) of the patients and the most prevalent was the pseudomembraneous type, which is closely related to poor immune status [18]. However, other studies in the Caucasian population reported lower values of 25% and 23.2% respectively [4]. This disparity may be due to the fact that antibiotic abuse is less common in the western world where their use is well controlled.

Xerostomia, which is commonly found in association with candidiasis, occurred in 49(17.6%) cases. This is lower than the value of 29% in the cases reported by Younai *et al* [21]. However, parotid enlargement occurred in 5(4.0%) cases in this study. Melanotic hyper pigmentation occurred in 35(27.8%) patients and these newly emerging macules are attributed to an increase in the amount of melanin pigment in the basal cell layer of the epithelium and underlying connective tissue. This lesion has been



**Table 2:** Relationship between occupation and marital status with respect to candida infection

Occupation	Erythematous type	Pseudomembranous	Erythematous and Pseudomembranous	Angular Cheilitis	Total
Technician	2	9	1	1	13
Nurse	0	2	0	0	2
Student	0	4	0	0	4
Farmer	0	0	0	0	0
Civil servant	4	6	0	0	10
Trader	7	26	4	0	37
Business man	1	5	0	1	7
Driver	0	1	0	2	3
Unemployment	1	0	0	0	1
Soldier	0	2	0	0	2
Cleric	0	1	0	0	1
Total					80
Marital status					
Single	4	16	0	1	21
Married	7	35	5	2	49
Divorced	1	1	0	0	2
Widow	3	4	0	1	8
Total	15	56	5	4	80

**Table 3:** Occupation of the patients with newly diagnosed HIV infection

Occupation	Frequency	%
Technician	19	15.08
Nurse	2	1.59
Student	12	9.52
Farmer	1	0.79
Civil servant	21	16.67
Trader	46	36.51
Business man	9	7.14
Driver	5	3.97
Unemployment	6	4.76
Soldier	4	3.17
Cleric	1	0.79
Total	126	100

observed both during and after treatment with anti-retroviral drugs in the Caucasian population [2,5,19] but its prevalence in the general population is said to be undetermined and the aetiology is still unclear.

Another well-established AIDS-defining lesion is the human papilloma virus infection, which may be a solitary lesion or may present as florid numerous small projections. In HIV/AIDS infection, its prevalence is noted to increase in patients on anti-retroviral drugs [19,22]. In addition, the incidence of salivary gland diseases has also been found to be on the increase since the HAART era

[20]. There was one case of viral warts in our study and this could be attributed to the fact that the patients were recently diagnosed HIV positive and not frank AIDS cases.

Hairy leukoplakia, an oral lesion that results from Epstein-Barr virus (EBV) infection and often associated with immune deterioration [4,5] was found in 2(1.59%) patients. This finding is similar to that reported in India by Raganathan [12] but it is at variance with the finding in the Caucasian population where an incidence of 17% was reported by Glick *et al* [4].

Although linear gingival erythema (LGE) and necrotizing ulcerative periodontitis (NUP) are the common variants of HIV related periodontitis, the prevalence of these lesions remains unclear. In this study, HIV related periodontitis were found in 16(12.7%) patients. Glick *et al* [4] reported a prevalence of 6.3% for NUP in their series and suggested that this lesion (NUP) was associated with a low CD4 count (<200cells/mm<sup>3</sup>).

### Conclusions

Oral and orofacial manifestations may be one of the early signs of HIV/AIDS infection and therefore, there is the need for practitioners to be familiar with these lesions so as to assist in early diagnosis and subsequent treatment of these patients. It is therefore pertinent that thorough oral examinations should be an essential component in the assessment and management of HIV/AIDS patients.

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