

## ORIGINAL ARTICLE

# Oral lesions as indicators of HIV infection among routine dental patients in Lagos, Nigeria

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**OBJECTIVES:** To document the incidental oral lesions of human immunodeficiency virus (HIV) infection, the pattern and frequency of the lesions based on clinical presentation and oral manifestations in routine dental patients who tested positive in Nigeria.

**SUBJECTS AND METHODS:** The study was conducted at the Oral Diagnosis/Oral Medicine clinic of the Lagos University Teaching Hospital, Lagos, Nigeria between May 2002 and April 2003. During this period, all patients with oral lesions suggestive of HIV/acquired immunodeficiency syndrome (AIDS) as described in the EEC-WHO Classification and diagnostic criteria of oral lesions of HIV were counseled and offered voluntary HIV testing. All the 35 patients who consented and tested positive were included in this study.

**RESULTS:** Of a total of 700 patients 53 patients with oral lesions suggestive of HIV/AIDS were seen, thirty-eight (72%) consented to HIV screening, 15 patients (28%) refused. Thirty-five patients (92%), mean age  $36 \pm 13$  years were confirmed positive for HIV. Oral candidiasis was the commonest lesion seen (43%) the second common being Herpes zoster (23%). Other lesions seen included erythema multiforme in two (6%), facial palsy in two (6%) and oral hairy leukoplakia in one (3%).

**CONCLUSION:** An oral mucosal lesion may be the presenting lesion of HIV/AIDS in routine patients attending the dental clinic. Oral health care workers should practice optimal infection control based on the Centers for Disease Control 'Standard Precautions' guidelines on infection control for all patients to minimize occupational transmission of HIV.

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**Keywords:** human immunodeficiency virus/acquired immunodeficiency syndrome; oral lesions; dental patients

## Introduction

Oral lesions may be the first features of human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) or they may herald deterioration in general health; some oral lesions are also indicators of poor prognosis. Most HIV-infected patients have head and neck manifestations at some stage of the disease. Fungal and viral infections as well as malignant neoplasms are reported to form the bulk of such lesions (Scully *et al.*, 1991; Arendorf *et al.*, 1998).

Three groups of lesions known to be associated with HIV infection have been recognized by the EC-Clearinghouse on oral problems related to HIV infection and WHO Collaborating Center on Oral Manifestation of Human Immunodeficiency Virus (EC-Clearinghouse, 1993). Consistent documentation of the pattern of oral lesions encountered in clinical practice and from screening exercises in different parts of the world has formed the basis of this grouping.

There are three phases involved in the diagnosis of HIV infection namely: (i) Presumptive diagnosis, (ii) Definitive diagnosis, and (iii) Definitive diagnosis with evidence of severity at presentation.

In Nigeria, an estimated 3.47 million people are living with HIV/AIDS according to the 2001 sentinel survey (FMHN, 2001). There is a dearth of literature on the subject of oral manifestation of HIV infection in Nigeria and as such the frequency and oral disease pattern have not been established. The increasing prevalence of HIV increases the risk that health care workers will be exposed to blood from patients infected with the virus especially when universal precautions are not followed for all patients.

Many patients in this country are totally unaware of their HIV status and if they were, they are not likely to disclose it especially when they come for dental care, which may be perceived as unrelated. The cost of screening all patients attending the dental clinic for routine treatment as well as the ethical issues around voluntary testing have further limited the assessment of the risk of infection in the oral care setting in our environment and in many developing countries.

The objective of this study was to document the incidental oral lesions of HIV infection, the pattern and frequency of the lesions based on clinical presentation and oral manifestations in routine dental patients who tested positive. This information is expected to give a fair estimation of the degree to which oral lesions can be used as indicators of HIV sero-status for this environment. We also aim to sensitize the dental practitioner to the oral lesions seen in HIV/AIDS and the need to practice uniform infection control based on 'Standard Precautions' guidelines for infection control [Centers for Disease Control (CDC), 2003].

### Subjects and methods

The study was conducted at the Oral Diagnosis/Oral Medicine clinic of the Dental Outpatients unit of the Lagos University Teaching Hospital (LUTH) between May 2002 and April 2003. This study area is the main referral institution in Lagos, serving a population of approximately 5 million people. The Oral Diagnosis Clinic, where all new dental patients are first seen, provides comprehensive examination to all patients before they are referred to the appropriate specialty clinics.

All patients with oral lesions conforming to EEC-WHO (EC-Clearinghouse, 1993) classification on the diagnostic criteria for oral lesions in HIV infection (Group 1, 2 and 3 lesions) were examined by the oral medicine specialist.

On reaching a diagnosis, the patients were educated on the oral lesions seen, voluntary consent was obtained, clinical photographs were taken and the patients received pretesting counseling. HIV screening was done using ELISA, patients with positive results were sent for confirmatory test using Western Blot and post-test counseling. Where indicated, smears for exfoliative cytology and incisional/excisional biopsies were performed to confirm clinical diagnosis of the relevant lesions. The oral lesions and presenting complaints were treated. All the cases seen were analyzed for this study.

### Results

In the period under study, a total of 700 patients were seen at the Oral Diagnosis/Oral Medicine clinic of the Lagos University Teaching Hospital, of these, 53 patients with ages ranging between 14 and 71 years were seen with lesions raising suspicion of HIV infection. Thirty-eight (72%) of these patients consented to HIV screening, 15 (28%) declined. On screening, 35 (92%) patients (18 males, 17 females) tested positive to ELISA and Western Blot while the remaining three (8%) were negative. The 35 patients who tested positive constitute 5% of the 700 patients seen in this study. The mean age of the HIV-positive patients was  $36 \pm 13$  years and the median was 45 years.

Oral pain was the most frequent complaint 28 (80%). This comprised of toothache, nine (26%), painful bleeding gums, five (14%), painful intra-oral ulcers, five (14%) and painful swollen jaw one (3%).

Oral candidiasis (OC) accounted for the largest number of lesions recorded; it was seen in 15 of the 35 patients (43%). Of these, ten (67%) had erythematous candidiasis, while five (33%) had pseudomembranous candidiasis. The majority (80%) of those with candidal lesions had accompanying angular cheilitis.

The second most prevalent lesions were HIV periodontal disease and Herpes zoster (HZ) seen in eight (23%) each. The HIV periodontal disease consists of HIV gingivitis (HIV-G) in four (11%) patients, HIV periodontitis (HIV-P) in three (9%) patients and necrotizing ulcerative gingivitis in one (3%) patient. Other lesions seen are erythema multiforme in three (6%), facial palsy in two (6%), oral hairy leukoplakia in one (3%) (Table 1).

Herpes zoster was found to be more common in males (M:F ratio = 7:1) while OC, HIV-P, facial nerve palsy and erythema multiforme were more common in female patients.

### Discussion

Thirty-five of the 38 patients (92%) screened in this study following suspected oral lesions were positive for HIV. They represented 5% of the entire population of 700 patients who passed through the oral diagnosis clinic within the study period. This figure although is not the true prevalence, is comparable to that of Itula *et al* (1997) who recorded a 7% prevalence of HIV-1 seroreactivity in an anonymous study of dental patients in a government clinic in Namibia.

Majority of our cases presented with pain in the mouth. Pain may cause considerable disability, discomfort and impaired quality of life. Some workers (Schoferman, 1989; O'Neil and Sherrard, 1993) have estimated that up to approximately 50% of patients admitted into hospitals because of HIV infection suffer from pain-related syndromes. Overall, about 28% of HIV-infected individuals suffer from oral cavity pain. This pain may be due directly to the mucosal disease, a side effect of medications and direct effects of HIV on neurologic tissues (O'Neil and Sherrard, 1993).

**Table 1** Oral lesions recorded in the human immunodeficiency virus (HIV) seropositive patients

	Group	Male	Female	Total	%
<b>Single lesions</b>					
Candidiasis		1	6	4	10
Herpes zoster		2	7	1	8
HIV periodontal disease		1	2	3	5
Major aphthous ulcers		2	1	2	3
Erythema multiforme		3	-	2	2
Facial nerve palsy		3	-	2	2
<b>Multiple lesions</b>					
Candidiasis and HIV-P		1	1	2	3
Candidiasis and major aphthous ulcer	1, 2	-	-	1	1
Candidiasis and hairy leukoplakia		1	-	1	1
<b>Total</b>			17	18	35
					100

Group: by EC-Clearinghouse (1993).  
HIV-P, HIV periodontitis.

The most common cause of oral cavity pain is oral candidiasis (OC). Necrotizing gingivitis, herpes simplex virus stomatitis, HZ, recurrent aphthous ulcers and Kaposi's sarcoma also cause pain. Herpes virus type 1 and rarely type 2 may lead to painful and resistant oral ulcers (Pensfold and Clark, 1992).

Oral candidiasis is an important fungal disease in the immuno-suppressed. Oral candidal lesions were the most common lesions among the HIV-positive patients in this study as 15 of the 35 patients (43%) were noted to have OC. This is similar to the findings of Arendorf *et al* (1998), where combined candidal lesions were evident in 37.8% of the HIV-positive South Africans. By comparison, the figure in this study is slightly lower than the reported prevalence in HIV-infected persons in Lesotho by Kamiru and Naidoo, 2002, where OC accounted for 54% of the lesions.

At the lower end of the scale for OC prevalence in HIV infection are the prevalence rates of 13.7%, and 15% in HIV-positive women in the United States of America as reported by Schuman *et al* (1998), and 7% in men who have sex with men (MSM) in San Francisco (Silverman *et al*, 1986). A similarly lower prevalence was found in a North Carolina (USA) study group by Patton *et al* (1998), where a prevalence rate of 20% was recorded for OC and in children with HIV infection in Nigeria among whom the prevalence of OC was 19% (Emodi and Okafor, 1998). The differences observed in the USA and African studies may be due to significantly different study inclusion criteria used in these studies, or medical interventions controlling oral disease in US-HIV patients.

Unlike most other studies (Patton *et al*, 1998; Schuman *et al*, 1998) where pseudomembranous candidiasis is the most common type of candida lesion, this study population had erythematous candidiasis as the most prevalent.

Erythematous candidiasis with angular cheilitis, accounted for eight (53%) of all the cases of OC. This rate of angular cheilitis is far higher than the findings of Kamiru and Naidoo (2002), in Lesotho where only 14% had angular cheilitis and the Kenyan group with 27% angular cheilitis (Butt *et al*, 2001). Nutritional factors also could contribute to angular cheilitis. Before the advent of HIV epidemic, presence of angular cheilitis was almost invariably indicative of a state of malnutrition in the underdeveloped economies of Black Africa. Considering the fact that there is little if any improvement in the economy, the relatively high prevalence of angular cheilitis being reported in our study may be attributable to interplay of the HIV infection and malnutrition. The nutritional state of HIV-infected individuals may also affect the course of the disease in several ways.

According to Holmsrup and Westergaard (1994) the common manifestations of disorders affecting the periodontal tissues of HIV seropositive individuals include gingivitis, necrotizing gingivitis, herpetic gingivostomatitis, HZ, periodontitis, and necrotizing periodontitis.

The reported prevalence of periodontal disease in HIV-infected patients varies greatly in the literature as it depends on many factors such as the stage of the disease,

the risk group to which the patient belongs, and criteria used for periodontal diagnosis.

Oral viral lesions are common in patients with HIV infection and these may be a marker for HIV and disease progression.

Even though it was reported in about 25% of HIV-infected persons by Silverman *et al*, 1986, in our study group, its prevalence was a mere 2.9%.

Another viral infection of significance in HIV infection is Herpes zoster (HZ), which is caused by Varicella zoster virus and may indicate poor prognosis of HIV infection (Scully *et al*, 1991). It characteristically presents as unilateral vesicles or ulcers in mucosa and/or skin, corresponding to the area of innervation by a branch of the trigeminal nerve (Greenspan *et al*, 1992). The lesions are extremely painful and the course of the disease may extend to the bone leading to osteonecrosis (Schwartz *et al*, 1989).

Herpes zoster has been reported by several authors (Scully *et al*, 1991; Jonsson *et al*, 1998) to be common in HIV/AIDS with an incidence of up to 17 times than in non-infected age-adjusted population. Herpes zoster is normally found in the aging population and its presence in younger age groups should arouse concern as it may signify opportunistic infection associated with HIV (Jonsson *et al*, 1998). In this study, HZ was found in eight (22.9%) patients (seven males and one female), all of whom were below the age of 55 years. This corroborates the earlier observations of Jonsson *et al* (1998).

Four (13%) patients had major aphthous ulcers, extremely painful and healed slowly. Other lesions seen are erythema multiforme and facial nerve palsy. None of the participants had Kaposi's sarcoma.

In line with one of the objectives of this study, a pattern of oral manifestation has been described for this population. Overall, this shares some similarity with some other sub-Saharan African countries with low standard of living and poor nutrition. The high prevalence of OC along with angular cheilitis is one example.

Finally, all those confirmed HIV-seropositive in this study were unaware that they had been infected. Each had presented with symptoms, which were perceived to be unrelated to HIV infection. Voluntary testing and counseling is still sub-optimal in this country, hence, a large percentage of the population are unaware of their HIV-serostatus. If, however, more people know whether they are infected or not, there is still a likelihood that they may hesitate to disclose it when receiving dental treatment. Perry *et al* (1993) found that only 53% of patients had informed their dentist of their infection.

In countries with advanced economies and regular dental services, dentists have not been universally receptive to caring for persons with HIV (Gerbert *et al*, 1989; Kay *et al*, 1990; Weyant *et al*, 1994). In many communities in the United States of America it was reported that finding a dentist willing to treat HIV patients is difficult (Coulter *et al*, 2000).

As there are increasing numbers of patients living with the infection, the numbers of HIV-positive persons who may seek dental care are increasing. Oral examinations may assist early recognition of disease and

comprehensive evaluation of HIV-infected patients. More important however is the adoption of 'Standard Precautions' (CDC, 2003) for all patients irrespective of their sero-status.

## Conclusion

Oral manifestations may be the presenting lesions of HIV/AIDS and the dentist may be the first medical personnel to diagnose the condition; therefore the dentist should be familiar with the oral manifestations of HIV/AIDS so as to be able to diagnose and manage it.

All dental personnel should practice adequate infection control based on the 'Standard Precautions' (CDC, 2003) on all patients to minimize occupational transfer of HIV/AIDS.

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