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ORIGINAL RESEARCH ARTICLE

Oral manifestations of HIV–AIDS in Nigerian patients

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Summary: Because of the unique features of the AIDS epidemic in West Africa, we sought to determine if the spectrum of oral lesions among Nigerian patients with HIV–AIDS differs from that found in other regions. Of 500 patients examined, 266 (53%) had oral lesions. Lesions due to candidiasis were present in 244 (49%), while other oral lesions were infrequent (<3% for each of the other types). Oral lesions were associated with advanced disease stage ($P < 0.001$), a history of urethritis in men ($P < 0.001$), and alcohol ($P < 0.001$) and tobacco use ($P = 0.03$). A significantly lower prevalence of oral lesions (6%) was found among the 32 patients receiving antiretroviral drug treatment.

Keywords: HIV–AIDS, oral, candidiasis, West Africa

Introduction

Despite efforts to curtail the AIDS epidemic, the prevalence of HIV in Nigeria and other African countries continues to increase at an alarming rate, with the primary mode of transmission being heterosexual^{1,2}. Between 1993 and 1999, HIV seroprevalence in Nigeria rose from 1.8% to 5.4%³.

Oral lesions are frequently the first overt clinical feature of HIV infection⁴. More than 90% of patients living with HIV have at least one oral lesion during the course of the disease^{5,6}. Oral lesions contribute to significant morbidity, and even mortality, while some oral lesions predict progression to AIDS⁵. Oral lesions were present in the majority of South African and Congolese HIV–AIDS patients^{7,8}.

The AIDS epidemic in West Africa has certain features that distinguish it from the epidemic elsewhere: a greater prevalence of HIV-2, a lower frequency of endemic Kaposi's sarcoma, and more recent expansion of the epidemic^{9,10}. These variations may alter the spectrum of oral lesions among patients living with HIV–AIDS in West Africa.

The objective of this study was to describe the prevalence and spectrum of oral lesions among Nigerian patients living with HIV and to determine the relationship of specific oral lesions with the clinical stage of HIV.

Methods

We enrolled 500 consecutive patients living with HIV who presented to the Jos University Teaching Hospital in Jos, Nigeria, from May to December 1999. The teaching hospital serves as a referral centre for seven neighbouring states and as a centre for antiretroviral drug therapy.

The diagnosis of HIV was based on at least two positive enzyme-linked immunosorbent assays or Western blot. We included both outpatients and inpatients of all ages. We obtained informed consent from each patient or parents of minors, and the Jos University Teaching Hospital Ethical Committee gave approval for the study.

A structured interview and detailed clinical examination were performed, including a comprehensive oral and perioral examination. Proficiency in the clinical assessment of oral lesions was obtained through a training programme for the study of oral lesions in HIV–AIDS at the Inter-country World Health Organization (WHO) Collaborative Centre for Oral Health for Africa (ICOH) in Jos. Data were recorded on the WHO recording form for oral lesions associated with HIV–AIDS¹¹. Diagnosis and classification of oral lesions was based on the USA Oral AIDS Collaborative Group criteria¹². Appropriate treatment and advice were given as indicated. Clinical staging of HIV was determined using the Centers for Disease Control and Prevention classification¹³.

Data were analysed with EpiInfo version 6.04c¹⁴. The Chi-square test or Fisher's exact test were used as appropriate to test for significant differences in frequencies. A P -value less than 0.05 was considered significant.

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Results

A total of 500 patients living with HIV were studied, and 266 (53%) had oral lesions. Clinical characteristics of the study patients and their relationship with oral lesions are shown in Table 1. The mean age (\pm SD) of the patients was 35 ± 11 years, and the male to female ratio was 1.2 to 1.

There were no significant relationships between marital status or dental hygiene practices and oral lesions. We observed a significantly greater frequency of oral lesions with advancing clinical stage of HIV infection. Oral lesions were inversely related to CD4 cell count, and most oral lesions were found in those with a CD4 count less than $200/\mu\text{L}$. Oral lesions were rare among patients in antiretroviral therapy. Table 2 shows the prevalence of various types of oral lesions. Oral candidiasis was most frequent, being found in nearly half of the patients, and the pseudomembranous subtype predominated. Other oral lesions were infrequent (<3% for each) and usually accompanied candidiasis.

We examined the relationship between risk factors for HIV infection and occurrence of oral lesions (Table 3). All six children under age 10 years had oral lesions. Oral lesions were associated with a history of urethritis in male patients, but not

Table 2. Spectrum of oral lesions in 500 Nigerian patients living with HIV-AIDS

Type of oral lesion†	Number	%
Any oral lesion	266	53
Candidiasis	244	49
Pseudomembranous	220	
Angular cheilitis	44	
Erythematous	22	
Oral ulcerations	12	2.4
Hairy leukoplakia	12	2.4
Oral Kaposi's sarcoma	12	2.4
Linear gingival erythema	10	2.0
Necrotizing gingivitis	8	1.6
Necrotizing periodontitis	8	1.6
Nodular lesions (unspecified)	6	1.2
Melanotic pigmentation	4	0.8
Parotid enlargement	2	0.4

†Some patients had more than one oral lesion

with other sexually transmitted disease syndromes. Tobacco use and alcohol consumption were significantly associated with oral lesions.

Oral lesions were associated with other clinical features (Table 4). Oral symptoms and odynophagia were strongly associated with oral lesions as were systemic signs of advanced disease. The majority of patients studied had multiple oral symptoms and physical signs.

Table 1. Clinical characteristics of 500 Nigerian patients living with HIV-AIDS and their relationship with oral lesions

Characteristics	No. (%)	Oral lesions		P value
		Present	Absent	
Gender				0.10
Male	276 (55)	156	120	
Female	224 (45)	110	114	
Age (years)				0.01
0-10	6 (1)	6	0	
11-20	22 (4)	10	12	
21-30	138 (28)	66	72	
31-40	200 (40)	116	84	
41-50	98 (20)	44	54	
>50	36 (7)	24	12	
Marital status				0.17
Married	314 (63)	158	156	
Single	110 (22)	62	48	
Divorced	38 (8)	26	12	
Widowed	38 (8)	20	18	
Oral hygiene practice				0.65
Toothbrush	458 (92)	246	212	
Chew-stick	154 (31)	86	68	
Mouth rinse	16 (3)	8	8	
None	4 (0.8)	2	2	
CDC clinical stage				<0.001
I	24 (5)	0	24	
II	196 (39)	62	134	
III	280 (56)	204	76	
CD4 cell count (per μL)				<0.001
0-200	376 (81)	275	101	
>200	90 (19)	10	80	
Antiretroviral therapy	32 (6)	2	30	<0.001

CDC = Centers for Disease Control and Prevention

Discussion

The 53% prevalence of oral lesions in HIV-AIDS in Jos, Nigeria is similar to the 1989 prevalence of 50% reported from Côte D'Ivoire¹⁵, but less than the 66% prevalence among South African patients with HIV⁷. The prevalence of oral lesions in HIV-AIDS reported in various studies may depend on the proportion in advanced stages of HIV infection in the study population. We found that the prevalence of oral lesions was significantly related to an advanced clinical stage of HIV-AIDS. The majority of HIV-AIDS patients in this study had advanced disease, consistent with the late presentation of care of many Nigerian patients infected with HIV. Antiretroviral drug therapy was associated with a reduced frequency of oral lesions. The clinical spectrum of the oral lesions of HIV-AIDS seen in this study is similar to that reported elsewhere in Africa⁷, Europe¹⁶ and America¹⁷. As in other studies^{7,18}, we found a high prevalence of oral candidiasis. Although pseudomembranous candidiasis was most prevalent, erythematous candidiasis and angular cheilitis were likewise important markers of advanced HIV-AIDS. The low prevalence of other oral lesions has also been observed in other studies^{7,19,20}.

The positive correlation between tobacco use and oral lesions contrasts with the report of Muzyka *et al*²¹, of a negative correlation between tobacco use

Table 3. Relationship between risk factors of 500 Nigerian patients living with HIV-AIDS and oral lesions

Risk factor	No. (%)	Oral lesions		P value
		Present	Absent	
Sexuality				0.78
Heterosexual	482 (96)	252	230	
Homosexual	8 (1.6)	4	4	
No sexual experience	10 (2.0)	6	4	
Intravenous drug use	6 (1.2)	3	3	1.0
History of blood transfusion	126 (25)	64	62	0.53
History of sexually transmitted diseases				
Pelvic inflammatory disease	172 (34)	82	90	0.44
Urethritis	158 (32)	104	54	<0.001
Genital ulcers	136 (27)	74	62	0.74
Mother-to-child transmission	6 (1.2)	6	0	0.03
Tobacco usage	24 (4.8)	18	6	0.03
Alcohol consumption	96 (19)	66	30	<0.001
Kissing	326 (65)	164	162	0.08

and the incidence of oral lesions, especially aphthous ulcers. They postulated that tobacco by-products increase keratinization of oral mucous membranes, protecting against ulceration. The positive association of tobacco use and oral lesions in this study demonstrates that tobacco use should not be regarded as protective in all populations.

Methods of basic oral hygiene have previously been shown to be related to oral lesions⁷. We did not find a difference in the frequency of oral lesions between those using a traditional chew stick (a soft tree branch used to clean the teeth and gums) and those using a toothbrush.

The trend toward greater frequency of oral lesions with advancing stage of HIV infection observed in this study is consistent with earlier

reports^{7,22,23}. As the CD4 cell count falls, the immune system is unable to combat opportunistic oral infections. Oral lesions have an important role in the diagnosis and staging of HIV infection where diagnostic facilities are limited. One option for preventing oral lesions in HIV-AIDS is to slow progression of HIV infection by use of antiretroviral therapy.

Oral lesions of HIV-AIDS frequently cause inability to eat and swallow, subsequently leading to malnutrition, emaciation and stigmatization. Hence, prompt and early treatment of oral lesions is essential.

References

Table 4. Clinical features of 500 Nigerian patients living with HIV-AIDS and their relationship with oral lesions

Feature	No. (%)	Oral lesions		P value
		Present	Absent	
Peripheral lymphadenopathy	414 (83)	242	172	<0.001
Weight loss	404 (81)	240	164	<0.001
Change in taste	350 (70)	234	116	<0.001
Pallor	256 (51)	178	78	<0.001
Skin lesions	208 (42)	122	86	0.04
Xerostomia	200 (40)	140	60	<0.001
Positive chest signs	196 (39)	126	70	<0.001
Odynophagia	110 (22)	94	16	<0.001
Hepatomegaly	104 (21)	62	42	0.14
Abdominal tenderness	76 (15)	46	30	0.16
Oral pain	68 (14)	60	8	<0.001
Splenomegaly	58 (12)	28	30	0.42
Neurological deficit	52 (10)	42	10	<0.001
Finger clubbing	24 (5)	16	8	0.18
Jaundice	20 (4)	14	6	0.12
Pedal oedema	20 (4)	18	2	<0.001
Perineal ulcers	16 (3)	12	4	0.08
Cyanosis	4 (1)	3	1	0.63

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