Prevalence of clinical oral manifestations and symptoms of HIV/AIDS in Sikonge Hospital, Tabora Region

Machibya F[1], Simon ENM[2]
[1,2]School of Dentistry, Muhimbili University College of Health Sciences.

Key words: Oral manifestations, HIV/AIDS, Sikonge

Abstract

Background: The oral cavity is one of the sites where HIV infection and AIDS manifests through development of an unspecified number of oral lesions. **Objective:** To determine the prevalence of oral manifestation of HIV/AIDS in an essentially rural population at Sikonge district. **Type of study**: Cross-sectional study. **Population**: HIV/AIDS individuals attended at Sikonge hospital. **Setting**: HIV/AIDS Counselling and Treatment Centre (CTC) at Sikonge Designated District Hospital, Tabora region, Tanzania. **Methodology:** A total of 203 HIV/AIDS individuals diagnosed by serological tests at Sikonge hospital, filled structured questionnaires and were clinically examined for oral lesions. A standard oral examination method recommended by the World Health Organisation (WHO) was used to examine the peri-oral and oral structures. Data entry and analysis was done by using SPSS.10 computer programme *Result*: Majority of HIV/AIDS patients (69.9%) were in 3rd and 4th decades of life with more females (54.2%) than males. Various types of oral lesions were found with a prevalence of 61.6%, oral candidiasis being the most prevalent (34%). About 70% of examined individuals had enlarged regional lymph nodes and 21.2% were found to have periodontal disease. A total of 57 individuals (28.7%) reported some salivation problems.

Conclusion: The prevalence of oral lesions among the examined individuals from this essentially rural based population was high. However, the distribution and relative frequency of the different lesions is variable from that from other studies. There is need for setting a widely accepted criteria of classifying oral and peri-oral lesions associated with HIV/AIDS.

Correspondence:Ferdinand Machibya, P. O. Box 12658, Dar-es-salaam,Tanzania.
E-Mail. frmachibya@yahoo.com

Introduction

The oral cavity is among the sites where Human Immunodefienciency Virus (HIV) infection and Acquired Immunodeficiency Syndrome (AIDS) manifests through development of a yet unspecified number of lesions. It is estimated that more than 90% of HIV infected individuals will have at least one oral manifestation some time during the course of the disease (1,2). While nearly all these oral disorders associated with HIV infection also occur in other conditions characterized by immunosuppression, no other condition is associated with as wide and significant spectrum of oral diseases as it is with HIV infection (1). Many HIV associated oral lesions appear early after the infection, not infrequently representing the earliest signs or symptoms of the disease (1,2,8). They may cause considerable discomfort, pain, inability to swallow, difficult in eating, dysphagia, odynophagia, interference with speech and some may affect appearance (3,4,5,6,7). Thus, early detection of associated oral conditions should, in many cases, lead to early suspicion of HIV infection (1).

Studies from different parts of the world have shown differing statistics on the prevalence of oral lesions associated with HIV/AIDS (6,7,9,10). In general, it is accepted that oral candidiasis is the commonest oral manifestation of HIV/AIDS (6,7,11,12). However, reported prevalences of oral candidiasis from different parts range from 17% to 43% of patients with HIV infection and above 90% of patients with AIDS (5,13). In a South African study, 74.4% of HIV-infected patients presented with one or more oral mucosal lesion, 30.4% of which were symptomatic. Among these, 6% presented first with an oral complaint that subsequently led to the diagnosis of HIV-infection (3,6). Several studies on HIV/AIDS related oral lesions done in Tanzania have reported varying results. In one study intra-oral lesions were seen among 31.3%

of the HIV seropositive patients and 29.6% of AIDS patients (9). Another study reported oral lesions in 52% of HIV-infected patients and 54% of AIDS patients (10). Several studies have presented excellent data showing differing levels of seroprevalence of HIV infection between urban and rural Tanzania with urban centres showing a comparatively higher prevalence (14,15). Ironically, available data on oral manifestations of HIV/AIDS are from urban settings only.

The aim of this study therefore was to determine the prevalence of clinical oral manifestation and symptoms of HIV/AIDS in an essentially rural population at Sikonge district.

Material and Methods

The study area
The study was conducted at the designated district hospital in Sikonge district - Tabora region. The hospital catchment population is mainly rural based from Sikonge and neighboring districts of Urambo, Uyui, and Mpanda. The study involved individuals who were attended at the hospital and had been diagnosed to be having HIV infection or AIDS.

Study design
A cross–sectional descriptive study.

Study duration
The study was conducted for one month, between August and September 2005.

Study subjects
All HIV positive individuals aged 16 years or above, who attended the clinic during the study period, were eligible. These included pre operative patients, blood donors, MCH clients, STI clinic patients, volunteers, and those who were tested because they were clinically suspected patients. Therefore, 203 individuals were seen.

Research Instruments
The instrument used in the study included a structured questionnaire with clinical examination form, and a set of intra oral examination instruments, pencil, pens, rulers, calculator, manila paper, examination gloves

Questionnaire
Using structured questionnaire (Swahili version) the participants were interviewed in a separate room within the clinic in the presence of the principal researcher and an assistant. For those who could not understand Swahili language their vernacular was used. The questions dwelt on information on the duration of HIV seropositivity, salivation problems and previous experience of oral lesions.

Clinical examination
All patients underwent a baseline oral examination under optimal conditions using a dental chair, adequate illumination, mouth mirror, periodontal probe and gauze for tongue extension.

A standard oral examination method recommended by World Health Organisation (WHO), 1998 (16) was used to examine (i) the extra oral, head and neck areas, and (ii) peri oral and intra oral soft tissues using the criteria described by Greenspan et al. (12)

Ethical consideration
Permission to conduct the study was granted by the Muhimbili University College of Health Sciences (MUCHS) ethics committee. Permission was given by regional and district health authorities at Tabora and Sikonge respectively and by the hospital authorities. Informed consent was sought from all the participants. All subjects were registered in the study by using serial numbers rather than names, for confidentiality purposes.

Data entry and analysis
All data were entered in a computer and analysed using SPSS programme (SPSS) version 10 (17). Frequencies were calculated for the different conditions and cross tabulation and Chi square and paired *t-test* were used for comparisons.

Results
Majority (69.9%) of patients were in the 3rd and 4th decades of life, few were below 20 years of age and only 2.5% were aged 60 years and above (Table 1). On the average females were younger, with mean age of 33 years compared to males who had a mean age of 39 years ($P < 0.01$).

Majority (94.1%) of the patients were from Sikonge district and few patients were from neighbouring districts of Urambo, Uyui, and Mpanda.

Table 1. The distribution of patients by age group and sex

Age in years	Sex					
	Male		Female		Total	
	n	(%)	n	(%)	n	(%)
17-19	1	(0.5)	4	(2.0)	5	(2.5)
20-29	19	(9.4)	41	(20.2)	60	(29.6)
30-39	40	(19.7)	42	(20.7)	82	(40.4)
40-49	14	(6.9)	18	(8.9)	32	(15.8)
50-59	14	(6.9)	5	(2.5)	19	(9.4)
60 +	5	(2.5)	0	(0.0)	5	(2.5)
Total	**93**	**(46)**	**110**	**(54)**	**203**	**(100)**

Oral candidiasis was found to be the most prevalent lesion, affecting 34% of the study population, followed by periodontal diseases (21.7%) and hairy leukoplakia (13.3%) (Table 2). A total of 44 (21.7%) patients were found to have different forms of periodontal diseases among which, linear gingival erythema was the commonest. Others were acute necrotising ulcerative gingivitis, necrotising periodontitis, and necrotizing stomatitis. A severe form of oral disease (necrotizing stomatitis) affecting large part of the gingiva, exposing the jaw bone and involving the buccal mucosa and large part of palate and floor of the mouth was observed in one (0.5%) patient.

Kaposi's sarcoma was found in 5.4% of the study group. The location of this lesion in the mouth was as follows. Palate 2.5%, gingiva 2.5% and both palate and gingiva 0.5%.

Pseudomembranous candidiasis was the commonest form of oral candidiasis forming 58% of all forms of oral candidiasis, while a combination of pseudomembranous and angular cheilitis was found in about 4% of the study population (Table 3).

About 70% of the examined individuals had lymphadenopathy involving the regional lymph nodes, sub mandibular lymph nodes being the most (62.07%) commonly affected (Table 4).

A total of 57 (28.7%) patients reported to be suffering from salivation problems. Majority (25.1%) complained of dry mouth while some few (1.5%) complained of painful salivation. Other complaints were excessive salivation (0.5%), both dry mouth and painful salivation (1.5%), and both excessive and painful salivation (0.5%). Cross-tabulation showed that 37% of patients complaining of dry mouth also had at least one type of periodontal condition.

Discussion

Sikonge is mainly a rural area with a small semi urban centre, which serves as the district headquarters. Sikonge hospital is situated 100 kilometres from Tabora municipality, the regional headquarters, and is surrounded by a population of peasants and cattle keepers.

Sikonge Designated District Hospital is the only centre in the whole district with HIV/AIDS counselling and treatment centre. Every individual who is diagnosed to be HIV positive has to report to this centre for either counselling or treatment or both.

Table 2: Prevalence of oral lesions

Type of oral lesion	Frequency	Percent
Candidiasis	69	34
Periodontal disease:		
i) Linear gingival erythema	36	17.7
ii) Necrotizing gingivitis	5	2.5
iii) Necrotizing periodontitis	2	1.0
iv) Necrotizing stomatitis	1	0.5
Oral hairy leukoplakia	27	13.3
Kaposi's sarcoma	11	5.4
None	52	25.62
Total	**203**	**100**

Majority of the patients in this study were in the 3rd and 4th decades of life and the male to female ratio was 1:1.2 (Table 1). This is consistent with the Dar es Salaam study of Tatizo (2005) and the 2005 report on AIDS in Tanzania by UNICEF (14,18). The relatively higher prevalence of HIV/AIDS in this age group could be explained by the fact that the most important route of transmission of HIV is sexual contact. Since in our society this is the most sexually active age group, it is at a higher risk than the younger or older age groups. The male/female ratio is different from that seen by Bravo et al. (2006) in a Venezuelan population where the male/female ratio was 4:1 (19). Most plausible explanation may be the fact that the Venezuelan study involved quite a good number of homosexual men.

Table 3: The occurrence of different forms of oral candidiasis

Type of candidiasis	Occurrence	
	Frequency	Percent
Pseudomembranous	40	19.70
Erythematous	8	3.94
Angular cheilitis	5	2.46
Hyperplastic	1	0.49
Pseudomembranous and erythematous	6	2.96
Pseudomembranous and angular cheilitis	8	3.94
Hyperplastic and angular cheilitis	1	0.49
None	134	66.01
Total	**203**	**100**

Oral candidiasis constituted the most common lesions comprising 34% of all the examined individuals (Table 3). This is consistent with several other studies, which also found candidiasis to be common in HIV/AIDS (6,7,19,20,21,22,). Candida species; *Candida albicans, Candida tropicalis* and *Candida glabrata* are normal flora of the oral cavity; therefore have an increased likelihood of causing opportunistic infection in immunosupressed patients. A number of other factors that may predispose patients to candidiasis include frequent use of antibiotics, xerostomia and other systemic derangements. Accordingly, the highest prevalence of candidiasis was found among patients who reported to have HIV/AIDS for more than one year while those with less than one month from time of diagnosis had lower levels of candidiasis. This might suggest that patients who were infected with HIV for a comparatively longer period had lower levels of immunity and were more prone to develop opportunistic infections. Oral candidiasis has been seen to have a direct relationship with decline in the numbers of CD4 cells. Four distinct forms of oral candidiasis have been reported in association with HIV infection: pseudomembranous, erythematous (atrophic), hyperplastic candidiasis and angular cheilitis (20,23). Pseudomembranous type (oral thrush) was the commonest (19.7%) form of oral candidiasis seen at Sikonge. Erythematous candidiasis and angular cheilitis were found in only about 4% of patients each (Table 3). They clinically appeared as red lesions on the palate and dorsum of the tongue with depapillation of filliform papilla. This prevalence of the two forms of candidiasis as found in this study is in agreement with those reported by Greenspan at al. (1990). Angular cheilitis was the third most common form of candidiasis representing 7.29% of all those who had candidiasis. It manifests as red-fissured crests with or without ulceration at the commeasures.

Hyperplastic form of candidiasis was seen in only 0.5% of subjects. It is characterised by non-removable, whitish yellow patches and has been related to smoking. It should be distinguished from oral hairy leukoplakia. Considering that the definitive diagnosis of hyperplastic candidiasis is made from histological appearance of hyperkeratosis, the presence of hyphae and specific tests like Periodic Acid Schiff (PAS), which can only be done in the laboratory, our findings should be taken to be on the lower side. It is likely that in this study some of these lesions could not be detected through clinical examination alone.

Occasionally several or all forms of candidiasis might be concomitantly found in one individual as was reported by Greenspan et al. (24). In this study, however, only a combination of two different forms of lesions was seen in some patients, i.e. pseudomembranous with angular cheilitis, erythematous with angular cheilitis and hyperplastic and angular cheilitis (Table 3).

Periodontal conditions were observed in 21.7% of the examined patients. This prevalence, which was second to oral candidiasis is in keeping with that found in other studies (11,24). Although conventional periodontal diseases are commonly seen in HIV/AIDS, a much more rapid and severe form occasionally occurs (6). Linear gingival erythema (LGE), is an early stage of periodontal disease that occurs early in HIV/AIDS and may progress to other severe forms of periodontal disease. Though seen with a relatively high (17.7%) prevalence in this study many patients were not bothered by the condition. It's mild symptomatology may be the reason for its high prevalence in HIV/AIDS patients compared to other forms of periodontal diseases as patients tend to ignore it. It has been hypothesised that the periodontitis observed in HIV infected patients represents an infection by normal periodontal pathogens overwhelming the defective immune system to the extent of invading periodontal tissues (24,).

Kaposi's sarcoma was observed with a prevalence of 5.4% (Table 2). This is the most frequently encountered neoplasm in HIV/AIDS patients, with prevalence varying from 2.2% to 15% (6,11). The lesion occurred more often in females compared to males with a male to female ratio of 1:1.5, ($P < 0.5$). This finding contrasts with the findings of Reznik (1999) who found Kaposi's sarcoma to occur more often in males than in females (11). This vascular appearing lesion commonly occurs on the skin but may involve any organ system. Any part of the oral cavity can be affected; nevertheless, Kaposi's sarcoma lesions seen in this study were distributed equally on the palate and gingiva only. This is similar to findings of Arendorf (1995) in South Africa (6). Majority of the patients with intra-oral Kaposi's sarcoma had similar lesions occurring on other parts of the body. It was apparently found out that in 6 out of 11 patients with Kaposi's sarcoma it co-existed with oral candidiasis.

Xerostomia of varying levels was a complaint among 25.1% of the patients, which is consistent with what was found by Reznik 1999 (11). The commonly observed dry mouth (xerostomia) among HIV/AIDS patients is highly suspected to be a contributory factor in periodontal diseases (Odds Ratio 2.7). This is supported by the fact that in this study 37% of patients with dry mouth were found to have periodontal disease as well. In total 50 patients (29%) had one or more complaints related to salivation. Matee et al. (2000) reported 29.6% enlargement of submandibular salivary glands and 20% enlargement of parotid glands (26).

Hairy leukoplakia shows a wide clinical and pothologic spectrum. It is a sign of immunosupresison in general rather than HIV infection (27). Prevalence rates range from 0 to 46% depending on the patient group and diagnostic criteria (8,19,28,29). In our group oral hairy leukoplakia was found in 13.3% of patients examined similar to what was reported by others (6,27). Other studies, however, have reported differing prevalence of this oral lesion (8,10,19). These reports notwithstanding, the fact remains that the lesion is highly associated with HIV infection albeit not considered to be an AIDS defining condition. Moreover, hairy leukoplakia has prognostic significance with regard to the subsequent development of AIDS in symptom-free HIV seropositive patients (30). Clinically hairy leukoplakia has to be distinguished from other white lesions of the tongue, such as tobacco-induced lesions, lichen planus, frictional keratosis, white sponge nervus, and hyperplastic candidiasis (31).

Table 4: Distribution of regional lymph node enlargement

Lymph node	Occurrence	
	Frequency	%
Submandibular	126	62.07
Both submandibular and cervical	7	3.45
Both submandibular and submental	6	2.95
Submandibular, submental and cervical	2	0.99
None	62	30.54
Total	**203**	**100**

Sixty nine percent of the study subjects were found to have either unilateral or bilateral enlarged regional lymph nodes. Lymphadenopathy is common in HIV/AIDS (32). The patients who were examined were at different stages of disease progression; it was therefore not surprising to find such a high prevalence of regional lymph node enlargement. The majority (62.7%) had sub mandibular lymph-node enlargement, a few (1%) had both sub-mandibular and cervical and others had sub-mandibular and sub-mental enlargement. Two patients had all cervical lymph node groups involved. Although lymphadenopathy in the cervical region is most commonly associated with active bacterial infection, in the patients seen at Sikonge there was no evidence of active infection in the oral or peri-oral region. It therefore can be correctly speculated that the lymph node enlargement in this group of patients was due to HIV infection.

Many studies have reported varying prevalence of oral lesions among HIV/AIDS patients ranging from 20% to more than 70 % (1,2,6,7,9,12). Our study showed that 61.6% of HIV/AIDS patients attending Sikonge hospital had one or more oral lesions. It was also found that 12.3% of the patients had a co-existence of more than one type of oral lesions: for example 4% had candidiasis and periodontal disease and 3% had oral hairy leukoplakia and periodontal disease together. Several other oral and perioral conditions, which have been described by others were not seen in this study. Among these are

herpetic ulcers, non-Hodgkin's lymphoma, condylomata acuminatum and verruca vulgaris (33). The diversifications in appearance, frequency and time of occurrence of oral lesions related to HIV/AIDS are as yet not clearly understood, but are possibly related to complex and variable cofactors. Among such factors are composition of the study population, geographic differences, conditions under which investigations are carried out and the diagnostic criteria in use.

Conclusions

The prevalence of oral lesions among HIV/AIDS patients from this essentially rural based population was high. Oral candidiasis was the most common oral lesion followed by periodontal conditions. The distribution and relative frequency of the different lesions varies from that from other studies.

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A sweepers of the bank asked the Branch manager, 'You don't trust me.'
He replied, 'How can you say that? I even leave the keys of the safe lying around.'
Said the cleaning lady, 'That's true, but none of them fit.'