

Profile of Dermatological Manifestations in Seropositive Patients Correlated with CD4 Count Sample of a Moroccan Population

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1. Introduction

Dermatologic conditions are common during infection with the human immunodeficiency virus (HIV) and they are usually the first manifestation of HIV which ensure early diagnosis and prompt treatment [1]. They act as diagnostic factors in the monitoring of immune status of the patients [2]. More than 90% of patients develop skin lesions and 30%-80% of patients develop oral manifestations during the disease. Mucocutaneous lesions in HIV patients have been correlated with CD4 counts in many studies as serial CD4 counts have a prognostic significance which are used as markers for assessing progression from HIV infection to AIDS [3]. Thus the objective of our study was to report their frequency, their type in correlation with the rate of CD4.

2. Materials and Methods

We conducted an observational study from December 2015 to May 2016. We prospectively included all patients diagnosed with HIV and dermatological manifestations at the HIV reference center at the Internal Medicine Department of Hassan II University Hospital in Fez. Each patient was examined and treated by the same dermatologist assigned to this service and the levy for CD4 was performed every three months. Informed consent was taken from the patients. Demographic details were recorded on excel. A thorough clinical examination of the skin and oral cavity was done. The most recent CD4 counts (cells/mm³) of the patients were obtained from the medical records. Ethical approval for the study was obtained from the Ethical Committee of Our Institution. The results were statistically evaluated using Student's t-test and Chi-square test.

3. Results

Over a 6-month period, demographic data showed a total of 69 patients with 129 dermatological manifestations. 30 males and 39 females were included in the study. These subjects were aged between 15 and 70 with the most affected age groups

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between 20 and 45 years old. Majority of the patients belonged to average socioeconomic strata and were illiterate. The most common dermatoses were oral candidiasis (22%) (FIG. 1 and 2), shingles (10%) (FIG. 3), hydradenitis (8%); psoriasis (13%), Kaposi's disease (8%) (FIG. 4), prurigo (12%), dermatophytosis (14%), pyoderma (9%); and seborrheic dermatitis (4%).



FIG. 1. Genital candidiasis.



FIG. 2. Oral candidiasis.



FIG. 3. Zona.



FIG. 4. Kaposi.

Patients with various clinical presentations were stratified into four groups of CD4 cell counts (Group I CD4 <200, Group II CD4 200–500, Group III CD4 500–1000, and Group IV CD4 >1000).

Maximum lesions were seen in patients with CD4 count 200–500 as shown in (TABLE 1).

TABLE 1. Number of disorders in each group of CD4 cell count.

CD 4 count	Number of disorder
<200	85
200-500	30
500-1000	9
>1000	5
Total	129

Two dermatoses (oral candidiasis and chromonychia) were significantly associated ($p < 0.05$) with CD4 values below 200 / mm². Four dermatoses were associated with the AIDS stage (shingles, herpes, oral candidiasis and xerosis).

4. Discussion

The main target of the HIV appears to be the CD4 cell population. A progressive reduction in the number and function of the CD4 cell population is one of the most striking and consistent immunological features of HIV-related disorders [4]. In general, the CD4 count progressively decreases as HIV disease advances [5]. It is thought that the incidence and severity of skin disorders increase as immune function deteriorates [6].

Cutaneous lesions can be classified into five groups: infectious, autoimmune, drug-induced, HIV-related, and cutaneous malignancies. Often, these conditions present atypically, are much more severe, and need prolonged treatment in HIV-infected patients than in the general population [7]. The various oral manifestations can be categorized into (1) Infections: Bacterial, fungal, viral, (2) Neoplasms: Kaposi's sarcoma, non-Hodgkin's lymphoma, (3) Immune mediated: Major aphthous, necrotizing stomatitis, (4) Others: Parotid disease, nutritional, xerostomia (5) Oral manifestations as adverse effects of antiretroviral therapy [8].

Very often, the infections in HIV are not the new infections but the reactivation of old infection. In this study, we did not encounter any case of bacterial and parasitic infection. Clinically, there were 5 cases of viral infection, out of which three were HSV one infection of oral mucosa involving anterior labial maxillary gingiva and two were HPV infection of skin resembling verruca vulgaris. Maximum cases of viral infections were seen in CD4 count of 200-500 with the mean CD4 cells/mm³ value of 422.6. Munoz-Perez et al. in their study mentioned that HIV infection itself predisposes to an increased risk of HPV infection that is not directly related to the degree of immunosuppression [9].

Oral or pharyngeal candidiasis is the most common fungal infections observed as the initial manifestation of symptomatic HIV infection [8]. The pseudomembranous "white patches" variant of candidiasis is associated with more severe immunosuppression than the erythematous, hyperplastic, or angular cheilitis types [7]. Oral candidiasis is usually observed at CD4 counts of $< 300/\mu\text{l}$ [8]. In the present study, out of 19 cases with fungal infections, 17 cases clinically showed oral candidiasis of tongue (FIG. 3), and two cases had other dermatophytoses, one involving corners of the mouth resembling cryptococcosis and the other in the web space between the fingers resembling intertrigo. Maximum cases of fungal infections were seen in CD4 count of 200-500, with the mean CD4 cells/mm³ of 432.3. Scrapings were taken from oral candidiasis cases which were followed by PAS staining to arrive at a confirmatory diagnosis.

The most common noninfectious skin manifestation found in our study were nail changes. All 20 nails were examined, positive cases showed findings such as longitudinal melanonychia, paronychia, transverse and longitudinal ridging, and onychomycosis. There were a total of 106 cases with maximum cases in the CD4 count of 200-500 with a mean CD4 cells/mm³ of 391.9. Longitudinal melanonychia was the most frequent finding among others. The occurrence of longitudinal melanonychia in HIV-positive patients is now well established. It has been attributed to the use of Zidovudine, but it has also been described in patients who were not receiving antiretroviral treatments. This symptom could be due to increased levels of α melanocyte-stimulating hormone [10].

Nail changes were followed by cutaneous pigmentation which was mostly seen on the face, neck, and legs. There were a total of 83 cases of skin pigmentation with maximum cases in the CD4 count of 200-500 with a mean CD4 cells/mm³ of 386.1. Xerosis is generally associated with a late stage disease. Nutritional factors may contribute to xerosis because these patients usually suffer considerable weight loss and cachexia [9]. Thirty-seven cases showed xerosis with maximum cases in the CD4 count of 200-500 with a mean of CD4 cells/mm³ of 353.4.

PPE is a unique dermatosis associated with advanced HIV infection, characterized by sterile papules, nodules, or pustules with a hyperpigmented, urticarial appearance, and pruritus. When patients present with intractable, unexplained itching, physicians must consider a diagnosis of PPE and investigate for HIV infection [7]. Our study showed six cases of PPE with maximum cases having CD4 count of 500-1000 with a mean CD4 cells/mm³ of 588.5. Acquired ichthyosis is a very common finding on the lower legs in HIV-infected patients. The dermatosis is characterized by variably sized plate such as scales, xerosis, and an absence of inflammation [11]. This study showed six cases of ichthyosis mostly involving lower legs with maximum cases having CD4 count of 200-500 with a mean CD4 cells/mm³ of 236.1. There were four cases of hair loss with two cases having CD4 count of <200 and two cases with CD4 count of 200-500. Mean CD4 cells/mm³ was 259.2. Other cutaneous findings included two cases of dermatitis, one case of psoriasis, one case of pyogenic granuloma, and one case of polymorphous light eruption.

There is no particular oral lesion which is associated only with HIV-AIDS, but there are certain manifestations such as oral candidiasis, OHL which are associated very frequently and are considered AIDS-defining diseases and have also been included in the clinical classification of HIV by CDC in category B [8]. OHL is the lesions usually seen on the lateral surface of tongue and appear as vertical white striations, corrugations, or as flat plaques or raised shaggy plaques with hair-like keratin projections and associated with a localized Epstein-Barr viral infection [8]. Worldwide, the prevalence of OHL among HIV-infected individual ranges from 0% to 26% [7]. There was only one case of OHL in our study . OHL usually occurs in CD4 counts of <200/ul [8]. Our case had CD4 count of 107/ul.

Oral pigmentation, patchy brown to brownish-black asymmetrical lesions usually >1 cm, which are distinctive from racial oral pigmentation, have been reported in up to 23% of HIV-positive individuals [7]. Our study showed 83 cases (39%) with oral pigmentation with the maximum cases having CD4 count of 200-500 with a mean CD4 cells/mm³ of 386.

HIV infection is associated with three characteristic presentations of periodontal disease: necrotizing periodontal disease, linear gingival erythema, and exacerbated attachment loss [7]. Thirty-three out of 200 patients showed periodontal infections with maximum cases in CD4 cell count of 200-500. In the case of periodontal infections, the bacterial flora is same as that in a healthy individual with periodontal disease. Thus, the clinical lesion is a manifestation of the altered immune response to the pathogens.[8]

We did not find any case of neoplastic lesion, i.e., Kaposi's sarcoma, lymphoma, or any other cutaneous malignancies. Chawhan et al., [3] Wiwanitkit, [12] Lanjewar 2011, [13] also found striking low prevalence of cutaneous and other malignancies in their studies.

5. Conclusion

There is a strong negative association between CD4 counts and the incidence and severity of mucocutaneous lesions in HIV/AIDS patients. Fluctuations in CD4 levels observed in mucocutaneous disease require further studies to establish the underlying pathophysiology [14]. HIV infection should be suspected when a cutaneous lesion tends to be chronic, severe, bizarre and involves more than one dermatome [15]. This small cross-sectional study highlights that there are myriads of mucocutaneous lesions associated with HIV/AIDS and low CD4 counts. It is necessary to plan and execute studies using larger sample size in different areas which would help in the better interpretation and also the use of CD4 counts may provide guidelines for possible intervention [4].

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