

# Dermatological Manifestations of HIV/AIDS Individuals in Shiraz, South of Iran

Mohammad Ali Davarpanah, Nasrin Motazedian<sup>1</sup>, Farideh Jowkar<sup>2</sup>

Shiraz HIV/AIDS Research Center, Shiraz University of Medical Sciences, <sup>1</sup>Shiraz Transplant Research Center, Shiraz University of Medical Sciences, <sup>2</sup>Department of Dermatology, Molecular Dermatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

## Abstract

**Introduction:** HIV infection remains as a major challenge facing medical sciences in the world today. Mucocutaneous manifestation was first observed in patients with HIV/AIDS in the early 1980s. The aim of this study was to identify various skin manifestations based on making careful clinical observations and performing the necessary tests. **Materials and Methods:** A total of 240 patients whose disease was diagnosed using WB and ELISA tests, with dermatologic manifestations and were older than 18 years, participated in this study. These patients had referred to the voluntary counseling and testing center in Shiraz for routine examinations. **Results:** From the total of 240 participants, 158 were males (65.8%) and 82 were females (34.2%). The mean age was  $40.87 \pm 8.04$  years. Dermatologic manifestations were of infectious origin in 79 (33%) of the participants. As the most common viral skin infections, herpes simplex was seen in 16 patients (6.7%), with herpes zoster ranking second with 15 patients (6.3%). No relationship was found between CD4 cell count and infectious or noninfectious dermatologic manifestations ( $P = 0.274$ ). **Conclusion:** No association was found between CD4 cell counts and dermatologic manifestations. Many skin disorders may appear in HIV/AIDS patients with normal CD4 cell counts.

**Keywords:** Dermatologic, HIV, manifestations

## INTRODUCTION

HIV infection remains as a major challenge in the field of medical sciences. Mucocutaneous manifestation was first observed in patients with HIV/AIDS in the early 1980s. Nevertheless, there is no specific skin disease which is merely caused by HIV; however, diseases such as Kaposi's sarcoma (KS) and eosinophilic folliculitis are highly suggestive of HIV/AIDS. In general, skin diseases which are usually self-limiting become chronic, recurrent, and resistant to treatment in HIV/AIDS.<sup>[1]</sup>

Dermatological manifestations are common in different stages of HIV/AIDS and they appear as cutaneous infection or inflammation, malignancy, or drug-related diseases. Since the advent of combination antiretroviral therapy (cART), some dermatologic manifestations appear as immune restoration diseases.<sup>[2]</sup> Cutaneous manifestations as mollusca contagiosum, oral hairy leukoplakia, oral candidiasis, chronic ulcerating herpes simplex, and KS are strongly associated with HIV with progressive immunodeficiency. In the past decade, highly active ART has greatly changed the course of HIV

infection by strengthening the immune system and reducing skin symptoms. On the other hand, sexually transmitted infections are on the rise, especially among homosexual men with HIV.<sup>[3]</sup>

Dermatological discomfort is more common among HIV-positive patients compared with HIV-negative patients. Their symptoms are more complicated, abnormal, and difficult to treat. These dermatological disorders change HIV-positive patient's quality of life.<sup>[4]</sup>

A study in India showed that cutaneous manifestation in 63.34% of patients had infectious origin, drug reactions 20.66%, and inflammatory disorders 16.66%. In HIV-positive

**Address for correspondence:** Dr. Nasrin Motazedian, Shiraz Transplant Research Center, Shiraz University of Medical Sciences, Shiraz, Iran, Seventh Floor, Transplant Research Center, Mohammad Rasulallah Research Tower, Mollasadra St., Khalili Ave., Shiraz, IR Iran. E-mail: motazedian@yahoo.com

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**For reprints contact:** reprints@medknow.com

**How to cite this article:** Davarpanah MA, Motazedian N, Jowkar F. Dermatological manifestations of HIV/AIDS individuals in Shiraz, South of Iran. J Global Infect Dis 2018;10:80-3.

### Access this article online

#### Quick Response Code:



**Website:**  
www.jgid.org

**DOI:**  
10.4103/0974-777X.233000

patients with noninfectious skin disorder, pruritic papular eruption was the most common skin disease.<sup>[5]</sup> A study was conducted in Pakistan to find the pattern and prevalence of mucocutaneous lesions in HIV patients. Their result revealed that fungal infections had prevalent with oral candidiasis and onychomycosis ranking second and third, respectively. Viral infections caused by herpes zoster had highest observed prevalence followed by viral warts. Bacterial infections seen in these patients were mostly folliculitis type. Generalized xerosis was observed among 22.6% patients. However, among clinical manifestations, photosensitivity, scabies, and hyperpigmentation were less prevalent.<sup>[6]</sup>

The dermatologic manifestations of 276 HIV-positive patients in Tehran included dermatitis 22.3%, seborrheic dermatitis 13.8%, folliculitis 6.7%, dermatophytosis 6.7%, oral candidiasis 6.7%, warts 6.7%, and herpes zoster 3.6% of all the cases.<sup>[7]</sup>

Another cross-sectional study was conducted in Tehran to evaluate the first skin disorder among 25 newly diagnosed HIV-positive patients. The most common dermatological findings were warts (anogenital and generalized warts) 36% and psoriasis and cutaneous abscess in the second place.<sup>[8]</sup>

In HIV infection, skin becomes vulnerable to neoplastic disorders and opportunistic infections due to reduction in the number of antigen-presenting cells and CD4 lymphocytes. Oral candidiasis, hyperpigmentation, KS, xerosis, folliculitis, and herpes zoster were frequently seen in patients with low CD4 cell counts.<sup>[9]</sup>

In Pakistan, skin diseases were observed in 19 patients (86.36%) with high CD4 cell counts and in 33 patients (82.5%) with low CD4 cell counts, but had no significant correlation with CD4 cell counts.<sup>[6]</sup>

A previous study mentioned in Iran showed that the 32% of HIV-infected patients had CD4 cell count lower than 300 cells/ml. The participants with lower CD4 were described with more frequent and rigorous symptoms. In this study, CD4 cell counts had positive and significant correlation with skin diseases.<sup>[7]</sup> Specific skin abnormalities can help physicians to diagnose HIV.<sup>[10]</sup> Consequently, awareness about these abnormalities is critical. Since information about various skin abnormalities in HIV-positive individuals were inadequate in Shiraz, we decided to conduct a cross-sectional study to identify various skin manifestations based on clinical observations and laboratory tests.

## MATERIALS AND METHODS

Two hundred and forty HIV-positive patients who referred to the voluntary counseling and testing center (VCT) in Shiraz for routine examinations were invited to participate in this cross-sectional study conducted during 2012–2014.

HIV-positive individuals who were diagnosed HIV positive by using WB and ELISA tests and with dermatologic manifestations older than 18 years were included in this study.

HIV-positive individuals with other diseases such as chronic liver disease, chronic renal failure, diabetes mellitus, and vascular diseases were excluded from the study.

The study objectives were first explained to all participants, and a written informed consent was obtained from every individual. All participants underwent a thorough dermatologic evaluation by an experienced general practitioner. As a part of the study, complete medical history of each participant was taken, and patient information such as HIV transmission method, history of addiction, and history of comorbidities was recorded. The necessary laboratory data to verify the absence of comorbidities were extracted from patient's records. CD4 cell counts were also extracted from the patient's medical records.

If the general practitioner was not sure about the diagnosis, patients were sent to a dermatologist in the dermatology clinic of Shahid Faghihi Hospital to confirm the possible causes of skin manifestation. Samples were taken under the supervision of a dermatologist, and the specimens were sent to the laboratory of Shahid Faghihi Hospital for dermatopathologic examination.

The study was approved by the Ethics Committee of Shiraz University of Medical Sciences.

Statistical analysis was performed by SPSS-18, and the data were analyzed using descriptive statistics and Chi-square test.

## RESULTS

In all, 240 patients including 158 males (65.8%) and 82 females (34.2%) participated in this study. Participants were 23–69 years old, and the mean age was  $40.87 \pm 8.04$  years.

As for the HIV transmission method, 38 patients (16%) were infected through sharing needles, while 93 patients (39.1%) were infected as a result of sexual contact. Two hundred and twenty-five participants were from Fars Province and the rest were referred to the VCT from the southern provinces of Iran [Table 1].

Our findings were classified into infectious and noninfectious classes based on their etiologies. Those manifestations with infectious origin were observed in 79 (33%) of all cases. The most common type of viral infections were herpes simplex 16 (6.7%) and herpes zoster 15 (6.3%).

Bacterial infections were diagnosed in 18 cases (7.5%). The most common bacterial infections were infected wounds in 6 (2.5%) patients [Table 2].

One hundred and seventeen (49.2%) patients were under ART. Most of these cases (67%) had dermatologic manifestations with noninfectious causes.

Dermatologic manifestations were compared between treated and untreated patients, but no statistically significant differences were found ( $P = 0.552$ ).

The mean CD4 cell count was  $268.57 \pm 190.41/\text{mm}^3$ . According to the results, no correlation was found between

**Table 1: Characteristics of HIV/AIDS Individuals with Cutaneous Findings in Fars Province**

Variables	n (%)
Age	41±8.1
Sex	
Male	158 (65.8)
Female	82 (34.2)
Clinical stage of HIV/AIDS	
Stage 1	51 (21.3)
Stage 2	117 (48.8)
Stage 3	58 (24.2)
Stage 4	14 (5.8)
Mode of transmission	
IDU	38 (16)
Sex	93 (39.1)
IDU + sex	91 (38.2)
IDU + tattoo	5 (2.1)
Others	11 (4.6)

IDU: Injection drug user

CD4 cell count and infectious or noninfectious dermatologic manifestations ( $P = 0.274$ ).

Three patients with tumors (two with KS and one with basal cell carcinoma), two patients with scabies, and four patients with cutaneous leishmania had CD4 cell counts of fewer than 200 cells/mm<sup>3</sup>.

About half of the patients (48.8%, 117 patients) were in the second stage of the disease. No significant correlation was observed between clinical staging and infectious or noninfectious dermatologic manifestations ( $P = 0.799$ ).

## DISCUSSION

More than 90% of HIV-infected patients are affected by mucocutaneous complaints during the course of their disease.<sup>[11]</sup>

In total, 240 HIV-positive patients with skin abnormalities were included in this study.

Among all patients, the most common skin diseases were noninfectious. Viral infections were the main cause of infectious skin diseases, herpes simplex was the most common viral cause followed by herpes zoster. Oral candidiasis and dermatophytosis were the most common infections found in Pakistan and India respectively.<sup>[6,12]</sup>

Xerosis associated with pruritus was the most common cause of noninfectious skin diseases followed by drug reaction and seborrheic dermatitis in this study. Non-infectious finding were very similar to those in previous reports. Xerosis was reported in two other studies as the most common finding among HIV-positive patients (73.3% and 37.6%, respectively).<sup>[3,13]</sup> However, the reason for the presence of xerosis in HIV patients is unclear, but it could be related to nutrient deficiencies, chronic diseases, and immune system deficiency.<sup>[14,15]</sup> This could be due to the removal of the peptide part of the nerve which supplies the epidermis or it could be due to decrease

**Table 2: Cutaneous Manifestation in HIV/AIDS Individuals in Fars Province**

Cutaneous manifestation	n (%)
Viral infections	43 (17.9)
Herpes simplex	16 (6.7)
Herpes zoster	15 (6.3)
Wart	11 (4.6)
Herpes simplex + wart	1 (0.4)
Bacterial infections	18 (7.5)
Impetigo	1 (0.4)
Folliculitis	4 (1.7)
Lymphadenitis	1 (0.4)
Chronic granulomatous disease	1 (0.4)
Infected ulcer	6 (2.5)
Cellulitis	5 (2.1)
Fungal infections	8 (3.3)
Candida dermatitis	4 (1.7)
Tinea versicolor	3 (1.3)
Candida onychomycosis	1 (0.4)
Infestations	8 (3.3)
Scabies	4 (1.7)
Cutaneous leishmaniasis	4 (1.7)
Tumors	4 (1.7)
BCC	2 (0.8)
Kaposi sarcoma	2 (0.8)
Other dermatomes	159 (66.3)
Xerosis and prurities	47 (19.6)
Drug reaction	26 (10.8)
Seborrheic dermatitis	24 (10)
Allergy reaction	19 (7.9)
Eczema	12 (0.5)
Urticaria	8 (3.3)
Psoriasis	7 (2.9)
Stasis dermatitis	6 (2.5)
Xerosis	2 (0.8)
Vitiligo	2 (0.8)
Lichen planus	1 (0.4)
Steroid acne	1 (0.4)
Spider angioma	1 (0.4)
Hyper pigmentation	1 (0.4)
Alopecia areata	1 (0.4)
Ecchymosis (thrombocytopenia)	1 (0.4)

BCC: Basal cell carcinoma

in *P* substance in the nerves of sweat glands that affects their secretory activities.<sup>[6]</sup>

Psoriasis occurred in 2.9% of the patients which was similar with other studies. Psoriasis affects 1%–4% of HIV-infected patients which is more than the general population. Psoriasis is aggressively presented in HIV patients.<sup>[16]</sup>

KS was found in 0.8% of all cases with CD4 cell counts <200 cells/mm<sup>3</sup>, and whom HIV/AIDS was transmitted through sexual contact. KS can be transmitted through sexual contact which is more common in homosexuals than heterosexuals. Anal sex is a major risk factor. The leading cause of HIV transmission in India was heterosexual activities and

this could explain the relatively low prevalence of KS in India which is consistent with our findings.<sup>[17]</sup>

In a study starting antiretroviral drugs in HIV-positive patients led to many skin reactions.<sup>[18]</sup> In this study, 26 patients (10.8%) had a history of drug reaction.

Dermatologic manifestations not only act as symptoms, but also act as an important indicator of the immune system status. CD4 cell count is a proper criterion for the diagnosis of a weakened immune system or disease progression.<sup>[19]</sup>

Our results showed that 75% of tumors and infestations (scabies and cutaneous leishmaniasis) were observed in those with CD4 <200 cells/mm<sup>3</sup>. In two patients with KS, the number of CD4 cells was below 200/mm<sup>3</sup>.

Several skin disorders such as Mollusca contagiosum, oral hairy leukoplakia, and KS are dependent on CD4 cell counts, and HIV/AIDS advancement can be predicted by them. Herpes zoster and seborrheic dermatitis tend to occur in the early phases of HIV infection and are related to large numbers of CD4 cells, i.e. about 380–450 cells/mm<sup>3</sup>.<sup>[11,20]</sup>

Among our participants, most dermatologic manifestations were either infectious or noninfectious were seen in the second phase of the disease. A study from Nigeria showed that dermatologic manifestations were commonly seen in phases 2 and 3. Most skin infections in people with HIV/AIDS are exacerbated with an increasing trend, become resistant to treatment, and this could be a sign of disease progression.<sup>[21]</sup>

Dermatologic manifestations can be considered as good clinical indices to predict the status of immunity in HIV-positive patients in less developed countries. At present, there are ample amount of evidence about the relationship between dermatologic manifestations and weakened immune system in adults and children.<sup>[22]</sup>

## CONCLUSION

Skin disorders are very common among patients with HIV/AIDS; however, the pattern of these disorders varies greatly from region to another. All HIV/AIDS patients need to be examined for skin diseases. However, the present study found no association between CD4 cell counts and dermatologic manifestations. Many skin disorders can be seen in HIV/AIDS patients with normal CD4 cell counts.

Therefore, knowledge of dermatologic manifestations in HIV infection is important for physicians, especially for dermatologists and gynecologists in developing countries.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Rajeev A, Fuller C. Cutaneous manifestations of human

immunodeficiency virus infection. *Dermatol Nurs* 2011;10:12-7.

2. Han J, Lun WH, Meng ZH, Huang K, Mao Y, Zhu W, *et al.* Mucocutaneous manifestations of HIV-infected patients in the era of HAART in Guangxi Zhuang Autonomous Region, China. *J Eur Acad Dermatol Venereol* 2013;27:376-82.

3. Bjekić M, Šipetić S. Skin diseases and sexually transmitted infections among patients with HIV infection/AIDS referred at the city institute for skin and venereal diseases in belgrade: A case series of 38 patients. *Serbian J Dermatol Venerol* 2013;5:125-30.

4. Kanmani CI, Udayashankar C, Nath AK. Dermatology life quality index in patients infected with HIV: A comparative study. *Egypt Dermatol Online J* 2013;9:3.

5. Bosamiya SS, Vaishnani JB, Momin AM. Dermatological manifestations of human immunodeficiency virus/acquired immunodeficiency syndrome in era of highly active antiretroviral therapy. *Indian J Sex Transm Dis* 2014;35:73-5.

6. Azfar NA, Khan AR, Zia MA, Humayun A, Malik LM, Jahangir M. Frequency of mucocutaneous manifestations in HIV positive Pakistani patients. *J Pak Assoc Dermatol* 2011;21:149-53.

7. Foroughi M, Koochak HE, Roosta N, Paydary K, Khatami A, Shahriari S, *et al.* Prevalence of dermatologic manifestations among people living with HIV/AIDS in Imam Khomeini Hospital in Tehran, Iran. *J AIDS HIV Res* 2012;4:56-9.

8. Balighi K, Soori T, Fouladi N. Mucocutaneous manifestations as the first presentations of HIV infection. *Iran J Dermatol* 2013;16:105-8.

9. Altuntas Aydin Ö, Kumbasar Karaosmanoglu H, Korkusuz R, Özeren M, Özcan N. Mucocutaneous manifestations and the relationship to CD4 lymphocyte counts among Turkish HIV/AIDS patients in Istanbul, Turkey. *Turk J Med Sci* 2015;45:89-92.

10. de Vries HJ. Skin as an indicator for sexually transmitted infections. *Clin Dermatol* 2014;32:196-208.

11. Chawhan SM, Bhat DM, Solanke SM. Dermatological manifestations in human immunodeficiency virus infected patients: Morphological spectrum with CD4 correlation. *Indian J Sex Transm Dis* 2013;34:89-94.

12. Vasudevan B, Sagar A, Bahal A, Mohanty A. Cutaneous manifestations of HIV-a detailed study of morphological variants, markers of advanced disease, and the changing spectrum. *Med J Armed Forces India* 2012;68:20-7.

13. Blanes M, Belinchón I, Merino E, Portilla J, Sánchez-Payá J, Betlloch I. Current prevalence and characteristics of dermatoses associated with human immunodeficiency virus infection. *Actas Dermosifiliogr* 2010;101:702-9.

14. Serling SL, Leslie K, Maurer T. Approach to pruritus in the adult HIV-positive patient. *Semin Cutan Med Surg* 2011;30:101-6.

15. Cedeno-Laurent F, Gómez-Flores M, Mendez N, Ancer-Rodríguez J, Bryant JL, Gaspari AA, *et al.* New insights into HIV-1-primary skin disorders. *J Int AIDS Soc* 2011;14:5.

16. Jeong YS, Kim MS, Shin JH, Cho JK, Lee HI, Kim HJ, *et al.* A case of severe HIV-associated psoriasis successfully treated with acitretin therapy. *Infect Chemother* 2014;46:115-9.

17. Mehta S, Garg A, Gupta LK, Mittal A, Khare AK, Kuldeep CM. Kaposi's sarcoma as a presenting manifestation of HIV. *Indian J Sex Transm Dis* 2011;32:108-10.

18. Prabhakaran N, Jaisankar TJ, Hamide A, Malathi M, Kumari R, Thappa DM. Effect of antiretroviral therapy on mucocutaneous manifestations among human immunodeficiency virus-infected patients in a tertiary care centre in South India. *Indian J Sex Transm Dis* 2015;36:166-73.

19. Singh N, Yadav N, Kar S, Madke B, Prasad K, Chandekar P. Spectrum of skin disorders in human immunodeficiency virus-infected patients in a rural area of Maharashtra and the relation to CD4 lymphocyte counts. *Health Agenda* 2014;4:120-124.

20. Levy TH, Jacobson DF. Dermatologic manifestations as indicators of immune status in HIV/AIDS. *J Gen Intern Med* 2012;27:124.

21. Oninla OA. Mucocutaneous manifestations of HIV and the correlation with WHO Clinical Staging in a Tertiary Hospital in Nigeria. *AIDS Res Treat* 2014;2014:360970.

22. Emadi SN, Bhatt SM, M'Imunya JM, Suleh AJ, Raeskarami SR, Rezai MS, *et al.* Cutaneous manifestation in children with HIV/AIDS. *J Pediatr Rev* 2014;2:17-28.