

## Original Article:

# Clinical spectrum of Muco-cutaneous manifestations of HIV infected patients, during attending Anti-Retroviral Therapy (ART) center, BSMMU

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## Abstract

**Background:** Mucocutaneous manifestations are one of the most important clinical markers and may be the first clue of HIV infection and disease progression. A wide range of infectious, noninfectious, and neoplastic skin lesions develop during the course of the disease. These mucocutaneous manifestations may indicate the worsening of immune status. **Objective:** To explore the mucocutaneous manifestations among HIV patients of Bangladesh. **Methods and Materials:** A cross sectional study was conducted during the period of January 2020 to June 2021. Ninety-Seven HIV patients attending in at Anti-Retroviral Therapy (ART) center of Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh were enrolled in this study based on exclusion and inclusion criteria. Mucocutaneous manifestations of all the patients were clinically diagnosed. Consecutive type of sampling technique was applied to collect the sample from the study population. **Results:** Majority of the patients belonged to the age group between 31- 40 years (37.1 %) and most of the patients were male 61 (62.8 %). Most common infectious mucocutaneous manifestations were fungal infection in 71(73.2%) followed by parasitic infections in 13(13.4%), bacterial infection in 5(5.2%), viral infections in 3 (3.1%) and among the fungal infections Tinea Corporis 40 (41.2%) was most common, followed by Tinea Cruris, Oral candidiasis 10(10.3%) each and among the noninfectious manifestations Seborrheic Dermatitis 16 (16.5%) was the most common. Conclusion: Most common mucocutaneous manifestations were fungal infection (Tinea corporis, Tinea cruris, Oral candidiasis) followed by Seborrheic Dermatitis and Scabies.

**Key words:** Muco-cutaneous manifestations of HIV, infectious mucocutaneous manifestations of HIV, non-infectious mucocutaneous manifestations of HIV.

## Introduction

Human immunodeficiency virus infection and acquired immune deficiency syndrome (HIV/AIDS) is a spectrum of conditions caused by infection with the human immunodeficiency virus.<sup>1</sup> Human immunodeficiency virus (HIV) infection was first described in North America in 1981, rapidly followed by a worldwide epidemic.<sup>2,3</sup>

HIV is transmitted by sexual contact, by exposure to blood (e.g. injection drug use, occupational exposure in health-care workers) and blood products, or to infants of HIV-infected mothers (who may be infected in utero,

perinatally or via breastfeeding).<sup>4</sup> Worldwide, the major route of transmission is heterosexual. After mucosal exposure, HIV is transported via dendritic cells to the lymph nodes, where infection becomes established. This is followed by viraemia and dissemination to lymphoid organs, which are the main sites of viral replication.<sup>3,4</sup> A huge number of HIV patients are living throughout the world. It is stated that around 37.6 million people were living with HIV among them around 27.4 million people were accessing antiretroviral therapy and 6,90,000 people died from AIDS related illness in 2020.<sup>5,6</sup> In

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Bangladesh estimated people living with HIV is 14,000. Approximately 1600 people were newly infected with HIV and 580 people died due to AIDS related illness in Bangladesh in 2018.<sup>7</sup>

More than 90% of HIV infected patients show at least one mucocutaneous manifestation during the course of their disease.<sup>8,9</sup> Skin manifestations not only act as markers but also reflect the underlying immune status and help to determine the stage of the disease.<sup>10</sup> Skin conditions may indicate progression of HIV disease and they can be disabling, disfiguring, or even life-threatening.<sup>11</sup> Many skin diseases can be considered as HIV indicators, disease stage marker and antiretroviral therapy efficacy.<sup>12,13</sup> Some dermatological manifestations are good markers of HIV infection such as generalized prurigo and herpes zoster of the young adult, oral hairy leukoplakia other have a prognostic value such as Kaposi sarcoma.<sup>14,15</sup> Oral hairy leukoplakia are good indicators of the diagnosis, stage and prognosis of HIV infection.<sup>16,17</sup>

HIV contributes significantly to patient morbidity in terms of quality of life and may also reflect the progress of HIV disease.<sup>18</sup> If CD4 T cell count >500 cell/mm<sup>3</sup>, the common mucocutaneous manifestations are Acute retroviral syndrome, Herpes zoster infection (non-disseminated), Seborrheic dermatitis.<sup>19,20</sup> If CD4 T cell count 200-500 cells/mm<sup>3</sup>, the common mucocutaneous manifestations are recurrent or persistent Dermatophyte infections, Oral candidiasis, Oral hairy leukoplakia, Disseminated Herpes Zoster infection etc.<sup>21,22</sup> If CD4 T cell count <200 cells/mm<sup>3</sup>, the common mucocutaneous manifestations are Bacillary angiomatosis, Cutaneous Miliary Tuberculosis, Hyperkeratotic scabies, Eosinophilic folliculitis, Herpes simplex virus infection (>1 month's duration), Idiopathic pruritus, Invasive fungal infections, Papular pruritic eruption etc.<sup>21,23</sup> In current world, with advancement of treatment of HIV, patients' life expectancy increasing due to dramatic decline in immunodeficiency related events and death.<sup>15</sup>

## Materials & Methods

A cross sectional study was conducted at Anti-Retroviral Therapy (ART) center of Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. This study was conducted during the period of January 2020 to June 2021. Data were collected from adult HIV infected patients attending at ART center at Bangabandhu Sheikh Mujib Medical University. Adults living with HIV, Aged ≥18 years, patients with mucocutaneous finding were the study population. Consecutive type of sampling technique was applied

to collect the sample from the study population during the study period. Semi-structured questionnaire was the research instrument. Mucocutaneous manifestations of all the patients were clinically diagnosed. Ethical clearance for the study was taken from the Institutional Review Board (IRB) of BSMMU. Permission for the study was taken from ART center, BSMMU from where study subjects were selected. All the subjects were thoroughly appraised about the nature, purpose and implications of the study, as well as entire spectrum of benefits and risks of the study. His/her privacy were ensured, and information did not be disclosed to any source. Subjects were assured about the confidentiality of data and freedom to withdrawn them from the study anytime. Informed written consent of all the subjects was taken. Patients' identity did not disclosed while analyzing the results of this study. Data was analyzed and calculated using the Statistical Package for Social Sciences (SPSS version 26). Continuous variables were reported as the mean ± standard deviation. Absolute and relative frequency of mucocutaneous manifestation was computed.

## Result

This cross-sectional study was conducted in the Department of Dermatology and Venereology and ART centre, Bangabandhu Sheikh Mujib Medical University, during the period of January 2020 to June 2021. A total of ninety-seven HIV patients were included in this study. The observations and results were as follows:

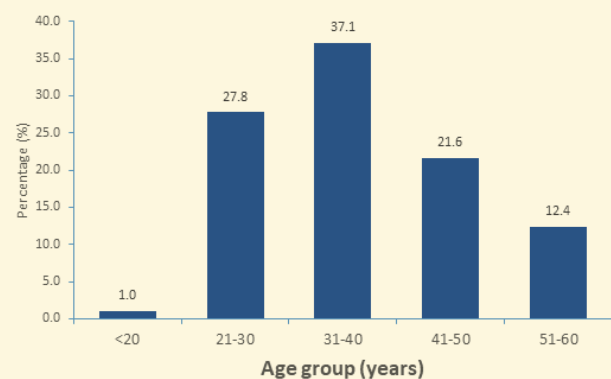


fig 1. Age distribution of the study patients

Figure1 showed that majority of the patients belonged to the age group between 31- 40 years (37.1 %) followed by 21-30 years (27.8%), 41-50 years (21.6%), 51-60 years (12.4%) and <20 years (1%).

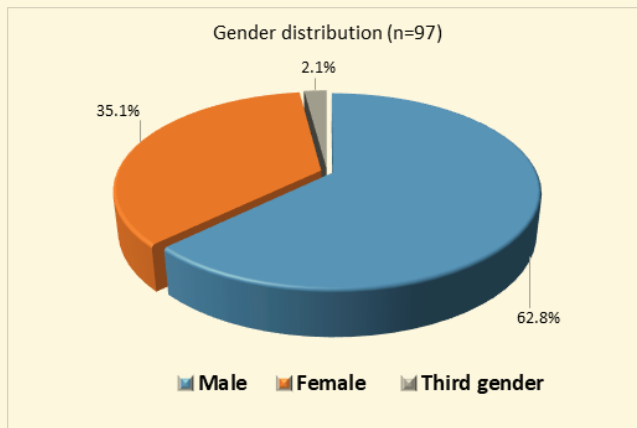


fig 2. Pie diagram showing the gender distribution of the study patients

Figure 2 showed that most of the patients were male 61 (62.8 %) followed by female 34 (35.1 %) and third gender 2 (2.1%).

**Table-I: Distribution of HIV patients among infectious mucocutaneous manifestations (n=97)**

Mucocutaneous manifestation in HIV patients	No. of disease (%)
Fungal infection	71 (73.2%)
Tinea Corporis	40 (41.2%)
Tinea Cruris	10 (10.3%)
Tinea pedis	2 (2.1%)
Onychomycosis	4 (4.1%)
Pityriasis Versicolor	5 (5.2%)
Oral candidiasis	10 (10.3%)
Viral infection	3(3.1%)
Herpe simplex	1 (1.0%)
Wart	2 (2.1%)
Parasitic	13 (13.4%)
Scabies	13 (13.4%)
Bacterial	5(5.2%)
Paronychia	3 (3.1%)
Folliculitis	2 (2.1%)

**Table I:** Showed most common infectious mucocutaneous manifestations were fungal infection in 71(73.2%) followed by parasitic infections in 13(13.4%), bacterial infection in 5(5.2%), viral infections in 3 (3.1%). Among the fungal infections Tinea Corporis 40 (41.2%) were more common, followed by Tinea Cruris, Oral candidiasis 10(10.3%) each, Pityriasis Versicolor 5(5.2%) and Onychomycosis 4 (4.1%).

**Table-II: Distribution of HIV patients among non-infectious type mucocutaneous manifestation (n=97)**

Mucocutaneous manifestation in HIV patients (non-infectious)	No. of disease (%)
Seborrheic Dermatitis	16 (16.5%)
Eczema	1 (1.0%)
Acne	2 (2.1%)
Melanonychia	5 (5.2%)
Apthous stomatitis	2 (2.1%)
Cheilitis	2 (2.1%)
Oral pigmentation	1 (1.0%)
Alopecia	2 (2.1%)

**Table II:** Showed among the noninfectious manifestations Seborrheic Dermatitis 16 (16.5%) were the most common followed by Melanonychia in 5(5.2%), Acne in 2(2.1%), Aphthous stomatitis 2(2.1%), Cheilitis 2(2.1%), Oral pigmentation in 1(1.0%) and Eczema 1(1.0%).

## Discussion

This cross-sectional study was conducted with ninety-seven patients attending in the ART center, Bangabandhu Sheikh Mujib Medical University, from January 2020 to June 2021 to find out the pattern of mucocutaneous manifestations of HIV infected patients at Bangladesh.

Majority of the patients in this study, belonged to the age group between 31- 40 years (37.1%) whereas Khat et al. reported majority of the patients (42%) belonged to the age group between 31-40 years, Chandrakala et al. reported majority of the patients (36%) were in the age group of 31-40years.<sup>24,25</sup> Malkud et al. reported majority of the patients 43.3% were in the age group of 30-39 years. Kore et al. reported majority of the patients (49.7%) were in the age group of 31-40 years.<sup>26,27</sup> Singh et al. reported higher prevalence age group of 30-39.<sup>28</sup> These findings were almost similar to the current study.

Most of the patients in this study were male 62.9 % followed by female 34 35.1 % and third gender 2.1%. Vijaya et al. reported 63 were male, 60 were female and third gender 2 were enrolled to their study.<sup>29</sup> Malkud et al. 2016 reported male (68.3%) predominant.<sup>26</sup> Kore et al. 2013, reported male (66.8%) predominant.<sup>27</sup> These findings were almost similar to the current study where male patients were predominant.

Common fungal infections were Tinea Corporis 41.2% followed by Tinea cruris 10.3% and Tinea pedis 2.1%. Khat et al. reported the most common fungal

infection was dermatophytosis (59.1%). The presentation of dermatophytosis was very much similar to non HIV patients and hot climate in this region had claimed to higher prevalence of Dermatophytosis in immunosuppression condition.<sup>24</sup> Similar result was found in the study of Kore et al. 2013, where statistically significant association found between immunological stage of HIV infections and Dermatophytosis ( $p < 0.008$ ).<sup>27</sup>

Oral candidiasis was found in 10.3% cases in this study. Similar result found in the study of Boushab et al. where oral candidiasis 11.6%.<sup>30</sup> Ashrif et al. reported Oral Candidiasis in 16%.<sup>31</sup> Halder et al. reported Oral candidiasis 17% cases.<sup>32</sup> These findings were almost similar to the current study. In this study, Pityriasis Versicolor was found 5.2%, similar result found in the study of Vijaya et al. reported six cases of Pityriasis Versicolor infection among 125 patients and Khat et al. reported Pityriasis Versicolor 2.3%.<sup>29,24</sup> Onychomycosis 4.1% was found in this study, similar result was found in the study Rajput et al. where onychomycosis reported in 3.8% cases.<sup>10</sup>

In this study one case of Herpes simplex virus infection was found, similar result was found in the study of Vijaya et al. reported one case of Herpes simplex virus infection among 125 patients.<sup>29</sup> Khat et al. reported Herpes Simplex Virus infection 3.8%, which is slightly higher than this study.<sup>24</sup> In this study, wart 2.1% was found. Khat et al. reported wart 5.4%.<sup>24</sup> In this study, Scabies 13.4% was found in immunocompetent patient (CD4 count above 500). No Crusted Scabies was found in this study because this occurred in immunosuppression condition. Malkud, et al., reported Scabies in 11.6% among 120 HIV patients.<sup>26</sup> Similar result was found in the study of Khat et al., where Scabies was statistically significant ( $p < 0.012$ ).<sup>24</sup>

Seborrheic Dermatitis 16.5% was the most common noninfectious manifestations encountered in this study. Similar result was found in the study of Kore et al. found Seborrheic Dermatitis 22% patient among 352 patients.<sup>27</sup> Shikur et al. found 11% Seborrheic Dermatitis patients among 572 patients.<sup>33</sup> Williams et al. reported Seborrheic Dermatitis in 30.6% among 36 patients.<sup>34</sup> In this study, Melanonychia was found 5.2% cases Khat et al. reported melanonychia in 6.9% patients among the 130 patients.<sup>24</sup>

## Conclusion

Most common mucocutaneous manifestations were fungal infection (Tinea corporis, Tinea cruris and Oral candidiasis) followed by Seborrheic Dermatitis and

Scabies. Further studies are recommended to include large number of patients with a multi centered evaluation.

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