ORIGINAL RESEARCH PAPER

Dermatology

PATTERN OF CUTANEOUS MANIFESTATIONS IN PATIENTS OF HIV WITH SPECIAL REFERENCE TO SEXUALLY TRANSMITTED INFECTIONS ATTENDING A TERTIARY HEALTH CARE CENTRE

KEY WORDS: HIV, Cutaneous manifestations, STI, PLHIV

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ABSTRACT

BACKGROUND: Cutaneous manifestations are one of the common presenting features in Human Immunodeficiency Virus (HIV) infection. Many common as well as rare conditions may present atypically or in an exaggerated form in the background of immunosuppression due to HIV. Various sexually transmitted infections are inadvertently higher in occurrence in the background of HIV and are largely attributed to the higher chance of acquisition of infection due to favorable circumstances in the presence of HIV. **AIMS:** To estimate the occurrence and pattern of different cutaneous manifestations in patients living with HIV.

INTRODUCTION

Human Immunodeficiency Virus (HIV) was first identified in 1983 and by 1984, it had been amply proven to be the cause of Acquired Immuno-deficiency Syndrome (AIDS). Every nation on the planet is dealing with the serious health issue of HIV. HIV may exist in Langerhans cells and has been shown to be present in the dermis of infected people.[1] Different cutaneous manifestations are seen at all stages in people infected with HIV.[2]

Cutaneous manifestations are one of the common presenting features in Human Immunodeficiency Virus (HIV) infection. Many common as well as rare conditions may present atypically or in an exaggerated form in the background of immunosuppression due to HIV[3]

Cutaneous manifestations seen in HIV range from infectious to inflammatory conditions of skin.

Among Infectious diseases, bacterial, viral, fungal and parasitic infections are not uncommon and often present in disseminated form. Psoriasis, seborrheic dermatitis, papular eruptions, reactive arthritis, xerosis, drug reactions and cutaneous malignancy are few of the many among Non-infectious dermatoses. Opportunistic infections and cancers increase in frequency as immune function gradually declines.[4]

Sexually transmitted infections are persistent plight and constant challenge to the global healthcare system. Genital ulcer diseases are inadvertently high in occurrence in the background of HIV. This is largely attributed to the higher chances of acquisition of infection and a favourable circumstance for these to develop.[5]

METHODS:

Prior to study, ethical clearance was taken from Institutional Ethics Committee.

As per the prevalence of cutaneous manifestations in HIV available, 95 % confidence interval and margin of error 10, using cochran's formula 73 individuals were included according to sample size calculation.[6]

$$N0 = \frac{Z^2PQ}{E_2}$$

A hospital-based cross-sectional was conducted over a period of one year. Institutional ethics committee clearance has been taken beforehand. All patients who met the inclusion criteria were enrolled. Thorough mucocutaneous and genital examination was done to study the type of dermatoses. Their morphologies were studied and atypical presentations (if any) were recorded. Dermatological conditions were diagnosed clinically and whenever required was confirmed by microbiological and/or histopathological examination.

RESULTS AND ANALYSIS

The Present Study of "Pattern of Cutaneous manifestations in patients living with HIV with special reference to Sexually transmitted infections attending a tertiary health care centre" was done over a period of 1 year from March 2023 to February 2024 and included a total of 73 patients.

The following results and observations were recorded from the study

Table 5.1: Distribution of Age

Age Group (in years)	No. of Patients	%
10-19	5	6.9
20-29	29	39.7
30-39	20	27.4
40-49	15	20.5
50-59	4	5.5
Total	73	100

In the present study, 5 patients (6.9%) were 10-19 years old, 29 patients (39.7%) were 20-29 years old, 20 patients (27.4%) were 30-39 years old, 15 patients (20.5%) were 40-49 years old and 4 patients (5.5%) belonged to 50-59 years

Table 5.2: Distribution of Sex

Sex	No. Of patients	%
Male	66	90.4
Female	7	9.6
Total	73	100

In the present study, there were 90.4 % males and 9.6% females.

Table 5.3: Marital Status

Marital status	No of patients	%
Married	38	52
Unmarried	33	45.2
Divorced	1	1.4
Widow	1	1.4

52% of participants were married, 45.2 % were never married, 1.4% were each for divorced and widow at the time of study.

Table 5.4: Occupation

Occupation	No. of patients	%
Unemployed	19	26
Government employee	18	24.7
Laborer	16	21.9

Business	12	16.5
Vehicle driver	5	6.8
Farmer	3	4.1

26% of participants were unemployed, casual labor job and business accounted for 21.9% and 16.5% respectively, 24.7% were government recruited, 6.8% were vehicle driver and 4.1% were involved in farming

Table 5.5 Socio-economic status

S-E status	No. of patients	%
Middle class	37	50.6
Upper middle class	15	20.6
Lower middle class	21	28.8

Majority of the participants (50.6%) belonged to middle class family, followed by 28.8% belonging to lower middle class, 20.6% to upper middle class.

Table 5.6: H/O multiple Sexual partners

Multiple sexual partners	No. Of patients	%
Yes	42	61.8
No	26	38.2
Total	68	100

68 participants had history of sexual exposure, among whom 61.8% had history of multiple sexual partners. 5 patients never had history of sexual contact.

Table 5.7: H/O Unprotected Intercourse

H/o unprotected intercourse	No. of Patients	%
Yes	61	89.7
No	7	10.3
Total	68	100

61(89.7%) of sexually active participants had history of unprotected sexual exposure

Table 5.8: H/O Homosexuality

h/o homosexuality	No of patients	%
Yes	21	30.9
No	47	69.1

21 (30.9%) of sexually active participants had h/o homosexuality.

Table 5.9: Distribution of participants having h/o IV drug abuse

H/O IV drug abuse	No. of Patients	%
Yes	25	34.2
No	48	65.8

25 (34.2%) of participants had history of IV drug abuse

Table 5.10: Distribution of 25 participants having h/o IV drug abuse and concomitant needle sharing

H/o needle sharing	No of patients	%
yes	25	100

All of the participants with history of IV drug abuse had history of needle sharing.

Table 5.11: Distribution of participants having Hepatitis C and Hepatitis B

	No of patients	%
Hepatitis C amongst all participants	20(73)	27.4
Hep C amongst IV drug abusers	20(25)	80
Hep B amongst all Participants	2(73)	2.7

20 patients were found harboring Hepatitis C infection and all of them were found to be IV drug abusers. 5 patients amongst IV drug abusers were not infected with Hepatitis C. 2 participants (2.7%) were found to be infected with Hepatitis B.

Table 5.12: ART status of participants

	No. of patients	%
On ART	61	83.6
Not on ART	12	16.4

Most of the participants (83.6%) were on ART at presentation.

Table 5.13: CD4 counts in participants

CD4 count (cells/mm3)	No. of patients	%
<50	1	1.4
50-200	7	9.6
201-500	50	68.5
>500	15	20.5

50(68.5%) participants had CD4 count between 201-500 cells/mm3,15 patients had the count more than 500 cells/mm3, 7 patients (9.6%) had CD4 count b/w 50-200 cells/mm3 and only 1 patient (1.4%) had it below 50 cells/mm3.

Table 5.14: Skin disorders

	No of patients	%
Adnexal	2	3
Inflammatory	20	26
Infectious	52	68
Drug Reaction	2	3

Most common skin disorders were infections 52(68%), followed by inflammatory dermatoses 20(26%) and adnexal disease and drug reaction each being 2(3%)

Table 5.15: Number of skin lesions

	No of patients	%
More than 1	13	17.8
1	60	82.2

17.8% patients had more than 1 skin condition, whereas rest 60 (82.2%) patients had only single skin condition at time of study.

Table 5.16: Spectrum of Infectious disorders

	No of patients	%
Bacterial Infections	16	26.6
Fungal Infections	23	37.1
Viral Infections	12	19.3
Protozoal Infections	11	17
Total	62	100

The range of infectious dermatoses among the participants included Bacterial, Fungal, Viral and Protozoal infections found in 23(37.1%), 16(26.6%), 12(19.3%) and 11(17%) participants respectively.

Table 5.17: Distribution of infectious dermatoses

Disease	No of patients	%
Fungal Infections		
Tinea corporis/cruris/incognito/faciei	16	25.8
Pityriasis Versicolor	2	3.2
Onychomycosis	1	1.6
Oral Candidiasis	2	3.2
Vulvovaginal Candidiasis	1	1.6
Chronic Paronychia	1	1.6
Protozoal Infections		
Scabies	11	17.7
Viral infections		
Genital Wart	8	13
Herpes genitalis	4	6.5
Bacterial Infections		
Syphilis	10	16.2

Chancroid	1	1.6
Gonococcal Urethritis	1	1.6
Furuncle	2	3.2
Abscess	1	1.6
Impetigo	1	1.6
Total	62	100

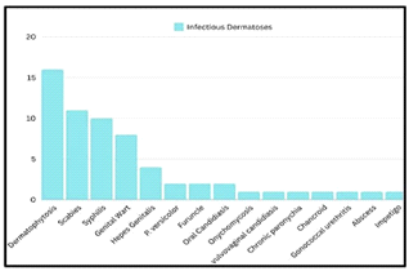

Fig 1. Distribution of Infectious Dermatoses

Various Tinea infections were most prevalent infection seen in 16 (25.8%) patients, followed by scabies in 11 (17.7%) patients, Syphilis in 10 (16.2%) patients, Genital wart in 8 (13%) patients, Herpes genitals in 4 (6.5%) patients. 2 (3.2%) patients had Pityriasis Versicolor, 2 (3.2%) patients had Oral candidiasis, 2 (3.2%) patients had Furunculosis. Onychomycosis, Chronic paronychia, Vulvovaginal candidiasis, Chancroid, Gonococcal urethritis. Abscess and Impetigo were other infections found and each accounted for 1.6% of infectious dermatoses.

Table 5.18: Distribution of Inflammatory dermatoses

Disease	No of patients	%
Xerotic Dermatitis	8	44.5
Seborrheic Dermatitis	4	22.3
Urticaria	1	5.5
Atopic Dermatitis	1	5.5
Pruritic Papular Eruption	1	5.5
Lichen planus / Lichenoid eruption	3	16.7
Total	18	100

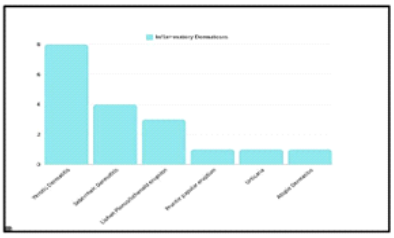

Fig 2. Distribution of Inflammatory Dermatoses

Xerotic dermatitis was the most common inflammatory dermatosis, found in 8 patients (44.5%). This was followed by seborrheic dermatitis and lichenoid dermatitis, observed in 4 patients (22.3%) and 3 patients (16.7%), respectively. Pruritic Papular Eruption, Urticaria, Atopic Dermatitis were other conditions and consisted of 5.5 % of all inflammatory dermatoses.

Table 5.19: Adnexal disease

Disease	No. Of patients
Acne/Acneiform eruption	2

In this study, 2 patients had Acne/Acneiform eruptions.

Table 5.20: Drug Reaction

	No of patients	%
Maculopapular drug rash	1	1.4
DRESS	1	1.4

2 patients (2.8%) had Cutaneous drug reaction following ART. 1 patient (1.4%) developed maculopapular drug rash and another 1 patient (1.4%) had DRESS syndrome following ART.

Table 5.21: Sexually Transmitted Diseases

Disease	No of patients	%	Mean CD4 (cells/mm3)
Ulcerative STIs			
Syphilis	10	62.4	332 (234,474)
Chancroid	1	6.3	360
Herpes genitalis	4	25	265 (196,486)
Non-ulcerative STIs			
Gonococcal urethritis	1	6.3	338
Total	16		

In the current study, 16 patients had Sexually transmitted infections. Most common STI was found to be Syphilis seen in 10 patients (62.4% of all STIs) followed by Herpes genitalis in 4 (25%) patients, Chancroid in 1 (6.3%) patient and Gonococcal urethritis in 1 (6.3%) patient.

Median CD4 count in patients infected with Syphilis was 332 cells/mm3, whereas it was 360 cells/mm3, 265 cells/mm3, 338 cells/mm3 respectively in patients of Chancroid, Herpes genitalis and Gonococcal Urethritis.

Miscellaneous:

In this study 1 patient (1.4%) had Aphthous Stomatitis and 1 patient (1.4%) had Alopecia Areata.

DISCUSSION:

The patients belonged in age range from 12 to 55 years, with a mean age of 32.4 years. The highest prevalence of mucocutaneous manifestations was observed in the 20–29 year age group.

This can be attributed to possible high risk sexual behaviour like Premarital sex, multiple sexual partners, anonymous sexual partners, accessibility to recreational drugs in this age group.

Males outnumbered Females in the present study. It shows that 66 (90.4%) males were affected, and 7 (9.6%) females were affected. The ratio of male to female in our study is 9.4

In the present study, 52% of participants were married, while 45.2% were unmarried. A relatively high prevalence in married people may be due to normalizing deviant sexual practices in form of unsafe practices, infidelity.

The higher prevalence of HIV in unemployed individuals suggests that perceived disadvantages of employment may include an increased risk of HIV discrimination, potential challenges in adhering to complex medication regimens, and heightened stress.

Most of participants (89.7%) had h/o unprotected intercourse at least once in past. 30.9% of participants had history of illicit MSM contact. Uprising MSM and bisexual population along with high-risk practice especially anal sex is contributory to such prevalence.

In our study, a strikingly High 34.2% of participants had history of IV drug abuse either with heroin, cocaine or Methamphetamine. A high prevalence of IV drug abusers in the region may be due to geographical bordering and easy availability.

In the present study, most common dermatoses found were infectious ones prevalent in 68% cases. Inflammatory dermatoses were seen in 26% cases. Adnexal diseases and ADRs were seen in 3% cases each.

Lokhande A et al [7] in their research found Infectious dermatoses in 69.71% and Non-infectious dermatoses in 29.58% of their participants. This is in accordance to our study.

In present study, fungal infections were most prevalent among infectious dermatoses. Different Tinea infections were most prevalent (25.8%) followed by P.Versicolor. Scabies was most prevalent and only found protozoal infection. Genital wart (Condyloma Accuminata) was most prevalent viral infection followed by Genital Herpes. Syphilis was most common bacterial infection (16.2%) followed by superficial pyodermas like Furuncle, abscess, Impetigo.

In a study conducted by Chawhan SM et al [8] they found Viral infection in 27.28%, Bacterial infection in 12.72 %, Parasitic infection in 6.36 % and Fungal Infection 5.45 % of patients.

Ashwini PK et al[9] in their study found Fungal infection to be as common as 36.4% in patients living with HIV, followed by Viral infection in 25%, Bacterial infection in 6.8% of participants, Parasitic infestations in 1.8 % of all participants. Most prevalent Fungal infection in their study was Oral Candidiasis in 22.7% followed by Dermatophytosis in 8.7%. In the present study, Xerosis was the most prevalent Non-infectious dermatoses found in 44.5% participants followed by Seborrheic Dermatitis in 22.3%, Lichenoid eruption in 16.7%, Urticaria in 5.5%, Atopic Dermatitis in 5.5%, PPE in 5.5 %.

A study by Lokhande A et al [7] found noninfectious dermatoses in 30.15 % cases. In their study, the most prevalent non-infectious disorder observed was xerosis-ichthyosis in 4.74% of patients, followed by PPE in 4.56%, seborrheic dermatitis in 4.37%, pruritus in 4.18%, and diffuse hair loss in 2.85% of patients.

In the present study, 2 patients (2.8%) had Adverse drug reaction from ART. 1 patient had benign ADR of maculopapular drug rash. Another patient had severe manifestation with DRESS Syndrome.

The study by Chopra S et al[10] found drug rash in 2.22% of all patients on ART.

In the present study, 21.9 % had sexually transmitted infections. Ulcerated STIs were more prevalent, most common being Syphilis in patients having mean CD4 count of 332, followed by Herpes genitalis and chancroid. Amongst non-ulcerated STIs, only a single case of Gonococcal urethritis was documented.

A study conducted by Jaiswal AK et al[11] in North-east India in 2002 revealed that chancroid accounted for 25.77% of cases, carcinoma (CA) for 19.6% (108 cases), non-gonococcal urethritis (NGU) for 13.97% (77 cases), lymphogranuloma venereum (LGV) for 9.98% (55 cases), and syphilis for 9.26% (51 cases). The remaining 21.42% of cases included gonorrhea, herpes genitalis, balanoposthitis, and mixed infections.

CONCLUSION:

Cutaneous manifestations are common in HIV-positive patients, some of which could be applicable as useful clinical indicators to predict the immune status of the patients. Therefore, regular skin examinations are recommended as routine HIV-infected patients' healthcare programs. Early identification can lead to treatment of affected individuals as well as tracing of contacts, thus reducing the transmission . Health care providers should be trained in common skin disorders among HIV infected patients and patients should be encouraged to adhere to HAART therapy as promising in the management of HIV as well as prevention of acquiring muco-cutaneous diseases.

Despite widespread campaign on importance of safe sexual practice, illicit sexual practice was found to be the major cause of transmitting HIV infection in the present study.

Besides, Injection drug use was found to be a major driver of acquiring HIV infection.

Community-led interventions from other parts of India with active engagement of underserved population groups such as sex workers and IV drug abusers in programme planning, implementation and monitoring could be drawn upon in this regard. Addressing the societal aspects of high-risk behaviour in HIV transmission may need a multifaceted approach that includes education, legal reform, community engagement, and the reduction of stigma and discrimination.

The study recommends further research on cutaneous manifestations in HIV infected people.

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Fig 3. Secondary Syphilis lesions in a PLHIV

Fig 4. Ulcerative Herpes Genitalis in a PLHIV

Fig 5. Condyloma Accuminata in a PLHIV

Fig 6. Severe Xerosis in a PLHIV

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