

Prevalence of Dermatophytosis in HIV Positive Patients Attending Antiretroviral Therapy Centre in a Tertiary Care Hospital



Medical Sciences

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ABSTRACT

Background: It is common in HIV patients, a multitude of fungal infection, many of which has cutaneous manifestations.

Aim: To find out the prevalence of dermatophytosis in HIV infected patients.

Method: Observational Cross sectional study was done 200 serologically confirmed HIV patients attending ART centre for HIV in Madurai.

Result: Prevalence of dermatophytosis was 12.5%. Most of the cases were from the age group of 31-40 years. Tinea corporis was the commonest dermatophyte infection followed by tinea cruris and Tinea faciei.

Conclusion: This study focused on the variations in dermatophytosis presentation and the species involved.

INTRODUCTION

Dermatophytes are fungi causing superficial mycosis. Three species of Dermatophytes namely Trichophyton, Microsporum, and Epidermophyton commonly cause infections in man. The incidence of fungal infections is increasing with the increase in the number of immunocompromised individuals especially Acquired immunodeficiency syndrome. They have emerged as an important etiological agent of opportunistic infections.¹ Immuno compromised individuals are more susceptible to severe or refractory dermatophytosis and advances in chemotherapy and transplant medicine has led to an increase in opportunistic infections by previously non pathogenic dermatophytes.² Interestingly only the severity of dermatophytosis is increased with HIV disease and not the prevalence.³ Impaired cell mediated immunity is one among the major factors that play a role in the acquisition of Dermatophytosis. HIV disease causes profound immunosuppression. Hence the present study was undertaken to find out the prevalence and pattern of dermatophytosis among HIV positive individuals.

AIM

To find out the prevalence of dermatophytosis in HIV infected patients.

MATERIALS AND METHODS

Observational cross sectional study done in 200 serologically confirmed HIV positive cases attending (Antiretroviral therapy) ART centre in Government Rajaji Hospital, Madurai. Ethics committee approval and informed consent from the consent was obtained. Fungal scrapings were obtained from patients, attending. Patients were screened for fungal infections. The fungal scrapings from skin, hair, scalp and nail were obtained. CD4 count was also performed for these cases Processing of specimens was done on the same day of the collection of specimen. Direct KOH mount was done for all the specimens and culture was done in Sabouraud's dextrose agar, containing chloramphenicol (0.04gms/litre) and cycloheximide (0.5g/litre) was used. For observing the microscopic appearance, using teasing needle, mounts from the culture were made in Lactophenol cotton blue [LCB]. Slide culture was done when needed.

RESULTS

A total of 200 HIV patients, attending ART centre, 25 patients with dermatophytosis were included for the study. In this study the prevalence rate of dermatophytosis is 12.5%.

Table 1 Age Wise Distribution

AGE IN YEARS	No. of cases	%
0 - 10	-	-
11 - 20	-	-
21 - 30	11	44
31 - 40	14	56
41 - 50	-	-
51 - 60	-	-

Table 2 Sex wise distribution in HIV individuals

Sex	No. of cases	%
Male	18	72
Female	7	28

56% of dermatophytosis in this study was seen in 31-40 years age group and 60% of the affected were males. (Table 1 and 2)

Table 3 CD4 count in PLHA cases with dermatophytosis

CD4 count	No. of cases	Percentage
0 - 99	5	20
100 - 199	6	24
200 - 299	6	24
300 - 399	4	16
400 - 499	4	16

No correlation could be made out between dermatophyte incidence and CD4 count. (Table 3) Occurrence of dermatophytosis does not depend on levels of CD4 count in the individual. 60% of HIV cases presented with tinea corporis as clinical manifestation. 85% of specimen was positive by KOH mount and 69% by culture method. Commonest species of Dermatophytes isolated was T. rubrum 76% and the common clinical lesion by T. rubrum was tinea corporis. (Table 4)

Table 4 Dermatophyte Species Isolated

SPECIES	HIV	%
T. rubrum	13	76
T. mentagrophytes	4	24
T. violaceum	-	-
E. floccosum	-	-
M. gypseum	-	-

DISCUSSION

India is a large subcontinent with remarkably varied topography, situated within the tropical and subtropical belts of the world. It's climate is conducive to the acquisition and maintenance of mycotic infections. Impaired cell mediated immunity is one among the various factors that play a role in acquisition of dermatophytosis. Rook's text book of dermatology says, there is strong evidence that the development of cellular immunity via sensitized T lymphocytes is a key factor in immunological defense against dermatophytosis. HIV is one disease which shows definite defective cell mediated immunity. So in this study efforts were made to find the prevalence of dermatophytosis in HIV patients attending ART unit GRH Madurai.

In the initial screening of HIV cases in the present study the prevalence of dermatophytosis is 12.5% which is similar to the prevalence of dermatophytosis in non HIV individuals as seen in various studies. Also there is no increase in the prevalence of dermatophytosis with decreased CD4count in HIV patients. It is the same irrespective of the CD4 count. In this study, it was observed that 56.25% HIV cases were affected with Dermatophytosis in the age group 31-40 years. The present observation correlates with previous publications.^{4,5}It is obvious that the mean age of 30 years is the period where the laborers exert more physically, resulting in increased perspiration which produces a hot, humid, environment in the body, favoring the growth of Dermatophytes. Excessive perspiration also washes away fungus killing oils in the skin making it more prone to dermatophyte infection. In the present study males were more affected with dermatophytosis 72 than females 28. The male female ratio was 2.5: 1. It is said that higher incidence in males might be due to greater physical activity and increased sweating^{6,7}. In this study, 64% of HIV patients with dermatophytosis were in group II and 36% in group I. This correlates with a similar study by Kaviarasan et al⁸. The group II in this study also involved drivers, skilled laborers and peons who attended ART clinic in GRH regularly. Long distance drivers represent one of the risk groups for acquisition of HIV. Ultimately, drivers with HIV infection and added physical exertion might have resulted in increased incidence of dermatophytosis in this group. It was shown in this study that *T. corporis* was present in 60% and *T. cruris* in 36%. Rippon's text book of mycology⁹ states that complete un-aeration due to tight clothing, maceration and high rate of sweating in waist, groin and other hairy regions makes these sites more vulnerable to dermatophytosis. Constant sweating keeps the temperature in these regions at 27°C which is a favorable condition for the growth of dermatophytes. All these factors might have contributed to the increased incidence of *T. corporis* and *T. cruris*. In the present study, the commonest species isolated was *T. rubrum* 74% followed by *T. mentagrophytes* 22%. Presence of mannan in the cell wall of *T. rubrum*, inhibits CMI, hinders proliferation of keratinocytes and enhances its resistance to skin's innate immunity, *T. rubrum* resists eradication. Fitz Patrick et al¹⁰ in his study has explained that *T. rubrum* is an anthropophilic fungus (man loving)

adapted to humans as hosts. Anthropophilic infections are transmitted via direct contact or fomites. They are usually non inflammatory which results in a clinically silent carrier state that delays diagnosis and propagate the infection. All these factors might be responsible for the same finding in this study also. In this study 85% of specimen was positive by KOH mount and 69% by culture method.

CONCLUSION

Clinically the prevalence of dermatophytosis among HIV cases was 12.5% which is similar to the prevalence of dermatophytosis in HIV negative individuals. The impaired cell mediated immunity in HIV infections doesn't have an impact on the prevalence of dermatophytosis. The distribution of dermatophytosis with respect to CD4 count shows that dermatophytosis prevalence has no correlation with CD4 count.

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