

“Dermatopathic Lesions in HIV Patients with Special Reference to Pruritic Papular Eruption in Correlation with CD4 Counts” :A Study of 100 cases in a tertiary care centre

CCC, Dr.U.Arunajyothi MD.,

[Pathology]Asst prof of pathology

Corresponding Author: Dr.K.Madhuri Asst prof ... MD. siddhartha medical college Vijayawada

Abstract:

Introduction: Skin is the largest organ of the body and is most commonly affected Organ in patient with HIV.A wide range of infections and non infectious skin lesions may develop during the course of disease. In a study at least single cutaneous lesion was found in AIDS.The altered host immunity may result in atypical and aggressive presentation of common skin manifestations.So the study of DERMATOPATHIC LESIONS in HIV infected patients with special reference to PRURITIC PAPULAR ERUPTION in correlation with CD4 counts was done

Materials and methods: Total number of 100 cases were studied over a period of 2years from Jan 2017 to feb 2019 in the departments of Pathology Anti Retroviral Therapy (ART) center, Sexually Transmitted Diseases, Government General Hospital siddhartha Medical College, vijayawada.

Results: Total number of 100 cases were studied, Of which majority of the cases were PPE constituting about 69% of total cases followed by Eosinophilic Folliculitis -8% of cases, Molluscum Contagiosum – 2%, Pemphigus foliaceus – 2%, Papular Urticaria – 2%, Psoriasis Vulgaris - 1%, Pemphigus Vulgaris – 1%, Cutaneous Fibrous Histiocytoma – 1% and Non Specific Dermatitis constituting – 14% .

The most common cutaneous manifestations are Pruritic Papular Eruptions^{13,26,27,28} 54% of cases had CD4 count below 200 cells / cmm and only 3% of cases, which includes each one case of **Pruritic papular eruption**, Majority of the patients (54%) had advanced degree of immunosuppression with CD4 counts below 200 cells / cmm.

Conclusion: Skin is the most commonly affected organ in patient with HIV infection. Pruritic Papular Eruption is the most common manifestation and constituted (69%) of the total cases in the present study. There is correlation between prevalence of Dermatological findings and immunosuppressive status in AIDS patients. Majority of these skin lesions especially Pruritic Papular Eruption are associated with advanced degree of Immunosuppression with CD4 count below 200 cells/cmm.

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I. Introduction

The emergence and pandemic spread of AIDS have posed greatest challenge to public health in modern times¹. HIV infection breaks down the body immune system leading the victim vulnerable opportunistic infections, neurological disorder and unusual malignancies. Skin is the largest organ of the body and is most commonly affected organ in patient with HIV.

Recognition of skin manifestations is very important task due to It may be the only problem that these patients may suffer from much of the course of HIV infection. These lesions often represent atypical and florid manifestations of common skin manifestations and may occur before a frank decline in patients immunological and clinical status

Hence HIV infection should be considered in case of unusually aggressive cutaneous lesions in an apparently healthy patients. So the study of DERMATOPATHIC LESIONS in HIV infected patients with special reference to PRURITIC PAPULAR ERUPTION in correlation with CD4 counts was done.

II. Aims And Objectives

To study the pattern and type of cutaneous lesions occurring in HIV infected individuals. Clinical and Histopathological study of these skin lesions. correlation of these skin lesions with CD4 counts. To assess that the appearance of Pruritic Papular Eruption on exposed parts of the body can be used to predict fall in CD4 count and impending immunodeficiency in HIV/AIDS individuals.

III. Materials And Methods

Total number of 100 cases were studied over a period of 2years from Jan 2017 to feb 2019 in the departments of Pathology Anti Retroviral Therapy (ART) center, Sexually Transmitted Diseases, Government General Hospital siddhartha Medical College, vijayawada.

A detailed history of the patient was taken including name, age, sex, address, occupation. Confidential counselling was done to all patients in this study about HIV infection and skin disorders.

Punch Biopsies were taken from representative skin lesions .Hematoxylin and Eosin stains were done for all sections.

CD4 counts were done for all the patients with CD4 machine.

The machine used in the present study was PARTEC's CY FLOW counter. HIV serological Testing: Data obtained from case sheet

For confirmation of HIV 3 different kits were used

- 1) Capillus HiV-I / HIV-2 method
- 2) Immuno Comb-II HIV 1 & 2 Bispot method
- 3) Tridot Method

OBSERVATIONS

Total No. of 100 cases were studied.

TABLE-1

Name of the Lesion	Number
Pruritic Papular Eruption	69 {69% }
Eosinophilic folliculitis	08 {08% }
Pemphigus foliaceus	02 {02% }
Pemphigus vulgaris	01 {01% }
Papular urticaria	02 {02% }
Molluscum contagiosum	02 {02% }
Cutaneousfibroushistiocytoma	01 {01% }
Psoriasis vulgaris	01 {01% }
Non specific Dermatitis	14 {14% }
TOTAL	100 {100% }

Total number of 100 cases were studied, Of which majority of the cases were PPE constituting about 69% of total cases followed by Eosinophilic Folliculitis -8% of cases, Molluscum Contagiosum – 2%, Pemphigus foliaceus – 2%, Papular Urticaria – 2%, Psoriasis Vulgaris - 1%, Pemphigus Vulgaris – 1%,

. Pruritic Papular Eruption: It is the most common manifestation observed in the present study constituting about 69% of total cases. These eruptions appeared on the exposed parts of the body in these individuals who are exposed to repeated insect bite.

Clinical findings:

20% of the cases had multiple erythematous papules on upper extremities.

43% of cases had papules on upper extremities and on trunk and 37% of patients presented with itchy papules on upper extremities, lower extremities trunk and on back.

HPE:

Epidermis: Hyperkeratosis, hyperplasia of epidermis and spongiosis is noted.

Dermis shows: Perivascular and periadnexal collection of inflammatory cells predominantly lymphocytes in the dermis was observed and these inflammatory cells extend into the subcutaneous layer.

AGE DISTRIBUTION OF THE LESIONS

TABLE-2

Age in years	Cases	Percentage
1.0- 20	----	-----
2 .21-30	33	33%
3.31-40	38	38%
4.41-50	22	22%
5.51-60	05	05%
5.61-70	02	02%
TOTAL	100	100%

SEX DISTRIBUTION OF THE LESIONS

TABLE - 3

CASES	MALES	(%)	FEMALES	(%)	Total
Pruritic Papular Eruption	28	28	41	41	69%
Eosinophilic folliculitis	03	03	05	05	08%
Pemphigus foliaceus	02	02	--	--	02%
Pemphigus vulgaris	01	01	--	--	01%
Papular urticaria	01	01	01	01	02%
Molluscum contagiosum	--	--	02	02	02%
Cutaneous fibrous histiocytoma	--	--	01	01	01%
Psoriasis vulgaris	--	--	01	01	01%
Non specific Dermatitis	06	06	08	08	14%
TOTAL	41	41	59	59	100%

CD4 COUNTS IN ALL CASES

TABLE - 4

CD4 COUNTS	CASES (%)
101-200	54%
201-300	24%
301-400	12%
401-500	7%
501-600	3%
TOTAL	100%

54% of cases had CD4 count below 200 cells / cmm and only 3% of cases, which includes each one case of Pruritic papular eruption, Eosinophilic folliculitis and Non specific dermatitis showed CD4 counts above 500 cells / cmm. Majority of the patients (54%) had advanced degree of immunosuppression with CD4 counts below 200 cells/cmm.

CD4 COUNTS IN PPE CASES ONLY

TABLE - 5

CD4 COUNTS	CASES (%)
100-200	42 – 60.8%
201-300	12 – 17.4%
301-400	8 – 11.6%
401-500	6 – 5.7%
> 501	1 – 1.5%
TOTAL	100%

In the present study out of 69 cases, 42 cases (60.8%) had CD4 counts below 200 cells/cmm, 12% of cases had CD4 counts between 200-300 cells/cmm and only 1.5% of cases had CD4 count above 500 cells/cmm.

p value: Statistical analysis was performed using chi-square test. A p-value of <0.05 was considered statistically significant.

TABLE-6

	PPE	Non PPE	TOTAL
CD4<200	O.V= 42 (cell-1) E.V =37.26	O.V= 12 (cell-2) E.V =16.74	54
CD4>200	O.V = 27 (cell-3) E.V =31.74	O.V = 19 (cell-4) E.V =14.26	46
TOTAL	69	31	100

O.V =Observed Value

Expected value { E.V}= Row total x column total /Grand total .

CELL –1 E.V = 54 X69/100 =37.26

CELL –2 E.V =54 X 31/100 =16.74

CELL-3 E.V =46 X69/100 =31.74

CELL-4 E.V =46 X 31/100=14.26 .

Chi-square test – $\chi^2 = (\text{Observed Value} - \text{Expected value})^2 / \text{Expected value}.$

TABLE-7

X ² for CELL-1	(47-37.26)/37.26 = 0.6
X ² for CELL-2	(19- 14.26)/ 14.26 = 1.5
X ² for CELL-3	(27- 31.74)/ 31.74 = 0.7
X ² for CELL-4	(19- 14.26)/ 14.26 = 1.5
TOTAL	= 4.1

Degree of Freedom = (Rows-1) x (Columns-1)
 = (2-1) x (2-1)
 = 1 x 1
 = 1.

Chi-square test –X² = 4.1

Degree of Freedom = 1

As Chi-square value is greater than 3.84 p value is < 0.05.

(A p-value of <0.05 was considered statistically significant.)

IV. Discussion

Cutaneous manifestations of HIV/AIDS can occur through all stages of HIV infection⁸. These dermatological lesions can serve as usual prognostic criteria for suspecting and monitoring the disease progression and its managements (NACO modules)⁸. In Many cases presence of a skin disorder is the first manifestation of HIV /AIDS infection. Cutaneous manifestations serves as an early indicator of clinical T-Cell deficiency^{24,29}

The most common cutaneous manifestations are Pruritic Papular Eruptions^{13,26,27,28}. To assess various skin disorders that are commonly seen in HIV individuals, present study was done on “Dermatopathic lesions in HIV patients with special reference to Pruritic Papular Eruption in correlation with CD4 counts.

Total number of 100 cases were studied over a period of 2years from Jan 2017 to feb 2019 in the departments of Pathology Anti Retroviral Therapy (ART) center, Sexually Transmitted Diseases, Government General Hospital siddhartha Medical College, vijayawada.

Correlation of the Present study with other studies:

TABLE-9

Study	Total cases	PPE cases (%)
1. Jack .s. Resneck et.al Uganda. {December-2004}	102	86 (84.3%)
2. Wichai supanaranond et al Thailand. {March-2001}	129	66(51.1%)
3. Wiwanikit Viroj et al Thailand {April-2004}	120	44 (6.6%)
4. Ajay Sharma et al Vadodhara, India	120	43 (35.8%)
5. Present Study smc,vja India (Jan 2017 to feb 2019]	100	69 (69%)

In the present study PPE constituted most (69%) of the cases, which was almost identical with other studies done by Jack .s. Resneck¹⁵ et.al (84.3%), and Wichai supanaranond¹³ et al (51.1%).

Correlation of CD4 counts of the present study with other studies:

PPE is associated with low CD4 counts. In the present study out of 69 cases 42 cases (60.8%) had CD4 counts below 200 cells/cmm and only 1.5% of cases had CD4 count above 500 cells/cmm.

Ajith Kumar¹⁴ et al study on “Abnormal insect bite reactions: A manifestation of immunosuppression of HIV infection”. CD4 counts were done in 10 serial patients. Out of 10 cases, 8 cases showed CD4 counts below 400 cells/cmm and 2 cases had CD4 count 320 cells/cmm and 170 cells/cmm.

Waranya Boonchai¹² et al A study on Pruritic papular eruption in HIV seropositive patients: A cutaneous marker for immunosuppression in 20 HIV patients, 81.25% of PPE patients has an advanced degree of immunosuppression with a CD4 count below 100 cells/cmm. There is a significant association between PPE and CD4 cell counts.

Statistical analysis was performed using chi-square test. As Chi-square value in the present study is greater than 3.84 p value is < 0.05.

A p-value of <0.05 was considered statistically significant.

V. Conclusion

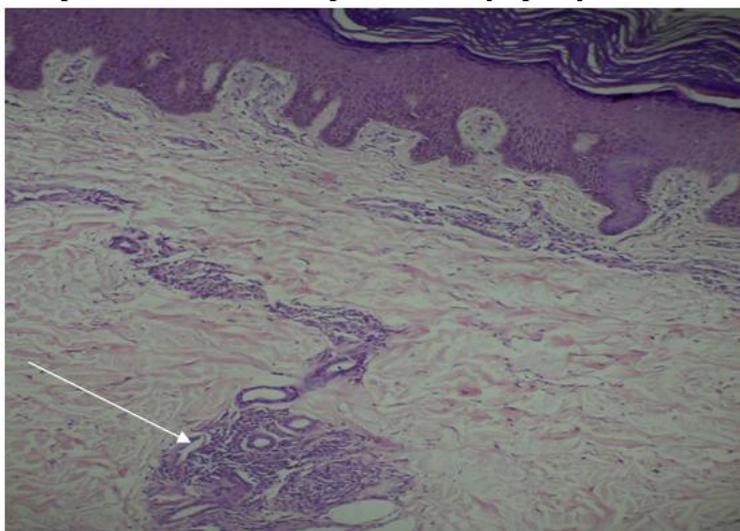
Skin is the most commonly affected organ in patient with HIV infection. Skin disorders may be cosmetically disfiguring and they are very distressive to the patients and virtually destroy individual's quality of life.

Pruritic Papular Eruption is the most common manifestation and constituted (69%) of the total cases in the present study. There is correlation between prevalence of Dermatological findings and immunosuppressive status in AIDS patients. Majority of these skin lesions especially Pruritic Papular Eruption are associated with advanced degree of Immunosuppression with CD4 count below 200 cells/cmm.

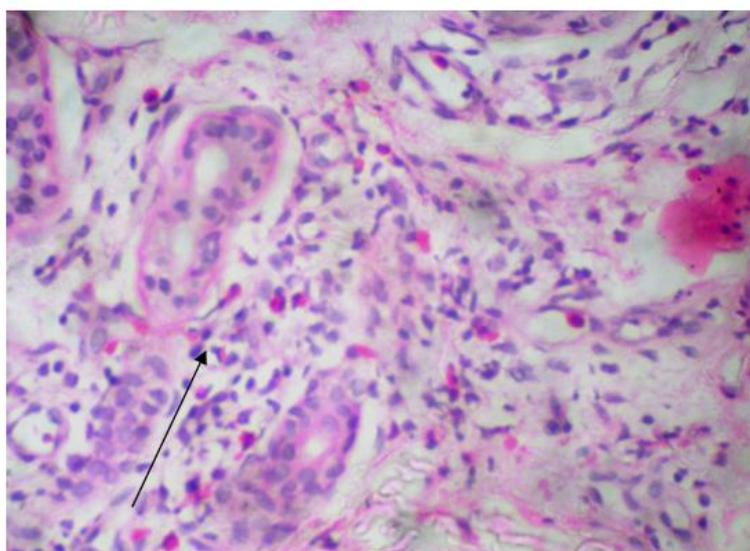
There was significant association between CD4 counts and Pruritic Popular Eruption ($P = <0.05$, - using chi-square test)

Thus the appearance of Pruritic Papular Eruption on exposed parts of the body is used to predict fall in CD4 count and impending immunodeficiency in HIV infected individual

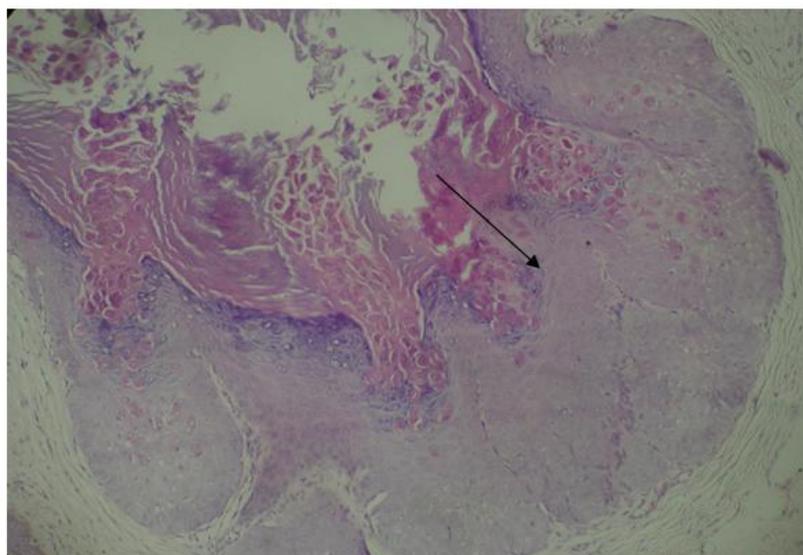
Pruritic Papular Eruption: Periadnexal and perivascular lymphocyte infiltration H&E- 10 X 10



Eosinophilic folliculitis: Periadnexal collection of eosinophils H&E -40 X 10



Molluscum contagiosum: Cup like invagination of epidermis and molluscum bodies H&E:10 X 10.



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