

Study Of Histomorphological Pattern in Non-Infectious Erythematous Papulosquamous Lesion of Skin Atterriary Care Hospital, Up.

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Abstract- Papulosquamous lesions of the skin are encountered with considerable frequency. The Papulosquamous diseases characterized by scaling papules or plaques are a heterogeneous group of skin disorders which comprise the largest group of diseases seen by dermatologists.

There is overlap of both clinical pattern and distribution of papulosquamous skin disorders, which often makes clinical diagnosis difficult. As all these are characterized by scaling papules, clinical confusion after result in their diagnosis; therefore dermatopathology is important for more definate differentiation. Separation of each of these becomes important because the treatment and prognosis for each tends to be disease specific. Here comes the effective role of Histopathology which is highly specific and sensitive for many lesions and it remains the gold standard for most dermatological diagnosis. (1)

High prevalence of skin disease in northern India suggests requirement of more number of in-depth and investigative studies, which will improve the quality of treatment. The correlation of histopathological findings with clinical findings will aid in arriving at a plausible diagnosis and thereby help in the disease treatment in better way. Skin biopsies are easy to perform, can be done under direct visual control, allow precise clinic-histopathological correlation and accordingly, the significance of skin biopsies is very high.

The present study was undertaken to study the histopathological features of erythematous, papulosquamous lesions of the skin and to help the clinician to make correct diagnosis of these lesions. It is found that the correlation of histopathological findings with clinical findings will aid in arriving at a plausible diagnosis and thereby help in the disease treatment in better way.

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I. Introduction

Response to various pathological stimuli leads to various tissue reaction patterns which show different sets of clinical features which may have different histopathological findings. Clinico-histopathological correlation are very useful in evaluating different group of cutaneous disorders of same tissue pattern reaction. Histopathological study is considered to be the gold standard for the diagnosis of skin lesions. The goal of improving diagnostic specificity will be achieved by a detailed correlation of histopathological findings with physical findings and clinical history.(2)

The skin has a limited number of reaction patterns with which it can respond to various pathological stimuli; clinically different lesions may show similar histologic patterns. Therefore to obtain the precise diagnosis of a skin biopsy, it should be accompanied by all relevant clinical details (3) In our opinion it is undeniably crucial to classify these lesions.

Non-infectious erythematous papulosquamous diseases of skin

Skin lesions clinically present as hypopigmented or hyperpigmented macules, papules, nodules or patches. Each clinical presentation has different histopathological features, hence understanding the histopathology is important for confirmation of the clinical diagnosis.

This group of diseases includes:

- Psoriasis
- Lichen planus and lichenoid reactions,
- Pityriasis Rosea,
- Pityriasis Rubra Pilaris,
- Prurigo Nodularis,

- Parapsoriasis
- Erythema Annulare Centrifugum
- Erythema Gydatum Repens
- Erythema Dyschronicum Perstans
- Lichen Planopilaris,
- Lichen Nitidus and
- Seborrheic Dermatitis

Recognition of these commonly encountered cutaneous problems depends upon the familiarity of clinical presentation and the diagnosis can be confirmed with histopathology. The pathologist's ability to render an accurate diagnosis depends on the available clinical information. Biopsy specimens of these lesions submitted for histopathology with clinical information & clinical differential diagnosis and a clinico-pathological correlation is the key to final diagnosis and hence better patient care.

II. Aim And Objectives

To estimate the frequency of various non infectious erythematous, papulosquamous skin lesions with respect to each other among skin biopsies which will be received and to study the pattern of histopathological findings in these lesions of the skin.

III. Material And Method

The Study is Performed at Pathology Department Of Sarojini Naidu Medical College, tertiary care hospital Agra.,in coloboration with Dermatology Department between the Period Jan 2017 To June 2018. The study was conducted on all skin biopsies from patients of all age groups clinically labelled as non-infective papulosquamous lesions.Total 186 skin biopsies received,out of these , 38 were found to be of erythematous papulosquamous lesions accounting for 20.43% cases.

Study design: Analytical Cross sectional study

Inclusion criteria: clinically suggestive/suspicious cases of non-infectious erythematous papulosquamous skin disorders.

Exclusion criteria:

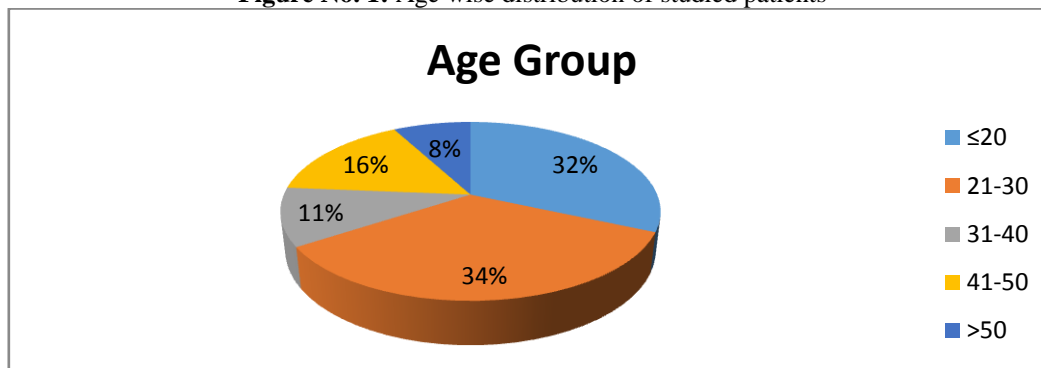
1. Skin disorders with infective etiology were excluded from the study
2. Other skin lesions which are not papulosquamous disorders were excluded

Method of collection of data

Biopsy of clinically diagnosed/suspected cases of non infectious erythematous, papulosquamous lesions were performed in the Department of Dermatology and sent to the Department of Pathology in 10 % formal saline. The specimen obtained was subjected for tissue processing after fixation. Tissue sections were prepared from paraffin block and stained with haematoxylin and eosin stain followed by microscopic examination.

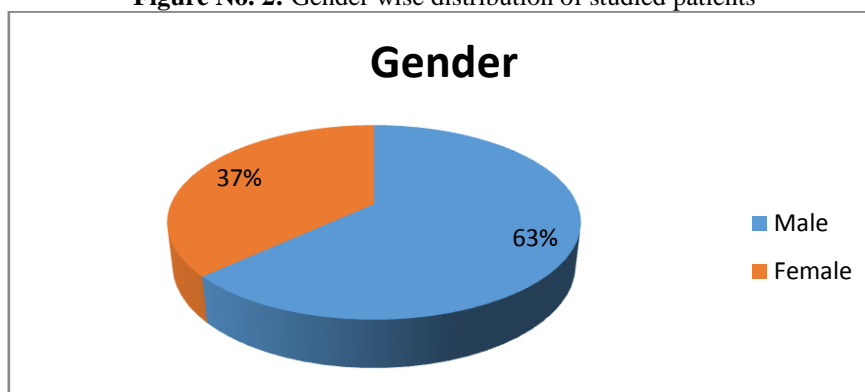
IV. Results

Figure No. 1: Age wise distribution of studied patients



The above figure shows the distribution of cases on the basis of age group and the maximum numbers of patients were in age group 21-30 years (34.2%) followed by age group ≤20 years (31.6%), age group 41-50 years (15.8%), age group 31-40 (10.5%) and least age group >50 (7.9%) with mean age 29.97±15.35 (10-75). Majority of patients were belongs to 21 – 30 age group and least was in >50 years of age.

Figure No. 2: Gender wise distribution of studied patients



The above figure shows the distribution of patients on the basis of their gender and male patients were in majority (63.2%) whereas female were (36.8%).

Table No. 1: Type of Lesion wise distribution of studied patients

Type of Lesion	Frequency	Percentage
Papule	32	84.2%
Macule	3	7.9%
Plaque	2	5.3%
Patch	1	2.6%
Total	38	100.0%

The above figure shows the maximum number of type of lesion were papular 32 (84.2%) followed by macule 3 (7.9%), plaque 2 (5.3%) and least patch 1 (2.6%).

Co-relation on the basis of diagnosis with type of anatomic site was done. We found that most commonly affected part was leg (14/38) followed by back (9/38) and forearm (8/38) while the least effected parts were glans penis, hand and thigh with 1 patient each.

Table No.2: Epidermal Changes wise distribution of studied patients

Epidermal Changes	Frequency	Percentage
Hyperkeratosis	35	92.1%
Parakeratosis	10	26.3%
Orthokeratosis	13	34.2%
Acanthosis	23	60.5%
Spongiosis	11	28.9%
Hypergranulosis	15	39.5%
Epidermal Hyperplasia	7	18.4%
Suprapapillary Thinning	10	26.3%
Hypogranulosis	3	7.9%
Papillomatosis	9	23.7%
Munro Microabscess	2	5.3%
Follicular Plugging/Keratin Filled Cyst	12	31.6%
Elongated Rete Ridges	13	34.2%
Vacuolar Degeneration	23	60.5%
Civatte Bodies	5	13.2%
Max Joseph Spaces	2	5.3%

The above table show that epidermal changes, most frequent was hyperkeratosis 35 (92.1%) followed by acanthosis 23 (60.5%).

Table No.3: Dermal Changes wise distribution of studied patients

Dermal Changes	Frequency	Percentage	
Papillary Edema	9	23.7%	
Prevascular Infiltrate	23	60.5%	
Dermal Infiltrate	34	89.5%	
Collagenisation	6	15.8%	
Level of Dermal Infiltrate	Superficial	16	42.1%
	Deep dermis	1	2.6%
	Superficial ,Mid dermis	1	2.6%

Distribution of Infiltrate	Band Like	10	26.3%
	Focal	5	13.2%
Nature of Infiltrate	Lymphocyte	16	42.1%
	Lymphocyte, Histiocyte	13	34.2%
	Lymphocyte, Histiocyte, Eosinophil	1	2.6%
	Lymphocyte, Macrophage, Eosinophil	2	5.3%
Periadnexal Inflammation		15	39.5%
Pigment Incontinence		18	47.4%

Above table no. 3 shows that among dermal changes, most common change was that of dermal infiltration 34 (89.5%) followed by perivascular infiltration 23 (60.5%).

The association between final diagnosis and the gender is also established in the present study and the most prevalent diagnosis was found to be lichen planus (11/38) and males (14/38) were predominant over females (14/38) regarding the sufferings

Co-Relation in the study population on the basis of diagnosis with duration of illness was done. It is observed that out of the total 38 patients, the duration of illness in majority was from more than 12 months (17/38) followed by less than 6 months (13/38) and the least were having the problem from duration ranging between 0-6 months (8/38).

Table No.4: Co-Relation in the study population on the basis of histopathological diagnosis with type of Lesion

Final Diagnosis	Type of Lesion				Total
	Papule	Macule	Plaque	Patch	
Psoriasis	2 (6.3%)	0 (0.0%)	1 (50.0%)	0 (0.0%)	3 (7.9%)
Lichen Planus	11 (34.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	11(28.9%)
Lichen Simplex Chronicus	4 (12.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4(10.5%)
Lichen Planus Pigmentosus	4 (12.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4(10.5%)
Lichen Sclerosus et Atrophicus	2 (6.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (5.3%)
Lichen Planopilaris	1 (3.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.6%)
Lichen Planus Hypertrophicus	1 (3.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.6%)
Lichen Striatus	1 (3.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.6%)
Linear Lichen Planus	1 (3.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.6%)
Seborrhoeic Keratosis	1 (3.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.6%)
Pityriasis Rosea	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)	1 (2.6%)
PityriasisLichenoides Chronicus	1 (3.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.6%)
Atopic Dermatitis	3 (9.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (7.9%)
Erythema Dyschronicum Perstans	0 (0.0%)	3 (100.0%)	0 (0.0%)	0 (0.0%)	3 (7.9%)
Allergic Contact Dermatitis	0 (0.0%)	0 (0.0%)	1 (50.0%)	0 (0.0%)	1 (2.6%)
Total	32 (100.0%)	3 (100.0%)	2 (100.0%)	1 (100.0%)	38 (100.0%)

Chi-square test/Fisher exact test (P<0.001)

Table 4 correlates the patients on the basis of type of lesion and the final diagnosis and the majority of patients were having papule lesion (32/38) followed by macule lesion (3/38), plaque (2/38) and the least were having patch type of lesion (1/38).table show that popular lesion can be specifically categorised by histopathological Co-relation.

Table shows that popular lesion can be specifically categorised by histopathological correlation.

Table No. 5: Final histopathological diagnosis of the study population

Final Diagnosis	Frequency	Percentage
Psoriasis	3	7.9%
Lichen Planus	11	28.9%
Lichen Simplex Chronicus	4	10.5%
Lichen Planus Pigmentosus	4	10.5%
Lichen Sclerosus Et Atrophicus	2	5.3%
Lichen Planopilaris	1	2.6%
Lichen PlanusHypertrophicus	1	2.6%
Lichen Striatus	1	2.6%
Linear Lichen Planus	1	2.6%
SeborrhoeicDermatitis	1	2.6%
Pityriasis Rosea	1	2.6%
Pityriasis LichenoidesChronicus	1	2.6%
Atopic Dermatitis	3	7.9%
Erythema Dyschronicum Perstans	3	7.9%
Allergic Contact Dermatitis	1	2.6%
Total	38	100.0%

The above table 5 shows the maximum number of type of lichen planus were 11 (28.9%) followed by lichen simplex chronicus 4 (10.5%).

V. Discussion

Type of Lesion Wise distribution of studied patients

In present study, a great majority of cases (84.2%) had papule type of lesion. However, 7.9%, 5.3% and 2.6% of cases had Macule, Plaque, and Patch type of lesions.

Anatomic Site wise distribution of studied patients

Majority of patients (36.8%) had manifestations of lesions in leg, followed by 23.6%, 21.1%, 5.3% and 5.3% of patients who had lesions on back, forearm, trunk and scalp respectively. Moreover, skin lesions had appearances at glans penis, hand, and thigh in 2.6% of patients each & this finding coincided with D' Costa G, Bharambe BM (8)

Distribution of Epidermal and Dermal changes of studied patients

Presenting lesion on the skin accompanied with changes in the skin. In present study, we noted that 57.9% of patients had the complications of pruritis. The epidermal changes in patients were closely studied. We found hyperkeratosis as the most prevalent in 92.1% of patients followed by acanthosis and vacuolar degeneration each in 60.5% of cases. Moreover, Hypergranulosis, Elongated Rete Ridges, Orthokeratosis, Follicular Plugging, Spongiosis, Parakeratosis were the major changes observed in 39.5%, 34.2%, 34.2%, 31.6%, 28.9% and 26.3% of patients respectively. However, Max Joseph Spaces, Munro Microabscess and Hypogranulosis were the among the least common changes that were observed in only 5.3%, 5.3% and 7.9% of patients respectively.

In present study, Dermal Infiltrate was seen in 89.5% of patients followed by Prevascular Infiltrate, Pigment Incontinence, Periadnexal Inflammation, Papillary Edema and Collagenisation in 60.5%, 47.5%, 39.5%, 23.5% and 15.8% of patients respectively. The level of dermal infiltrate was superficial in 42.1% of patients whereas each deep dermis and Superficial with Mid dermis was seen in 2.6% of patients. Infiltrate was band like 26.3% of patients while 13.2% were focal. Nature of Infiltrate was Lymphocytic in 42.1% of patients while Lymphohistiocytic pattern was observed in 34.2%. Only in 2.6% patients infiltrate nature was Lymphocytic with Histiocytic and Eosinophils.

In a similar study OF epidermal and dermal changes separately in lichen planus and psoriasis. reported that considering the cases of Lichen planus, the epidermal changes showed hyperkeratosis and vacuolar degeneration of basal cells in 100% cases. 76.47% cases showed irregular acanthosis with saw toothed ridges and hypergranulosis(3). Max Joseph spaces were found in 23.52% cases. 11.76% cases showed focal parakeratosis and Civatte bodies. The dermal changes showed band like infiltrate in 76.47% cases and spotty infiltrate in 17.64% cases. While in case of psoriasis epidermal changes reported were Hyperkeratosis(77.27%), Parakeratosis (72.72%), Acanthosis (86.56%), Hypogranulosis (22.72%) and dermal changes were papillary edema (27.27%), vascular changes(86.36%) and dermal inflammation (81.81%).

Histopathology findings of the study population

In present study, final diagnosis was performed through histopathology. Lichen Planus was found to be most prevalent skin lesions observed in the study population. Lichen Planus was seen in 28.9% of patients followed by Lichen Simplex Chronicus, Lichen Planus Pigmentosus, Atopic Dermatitis, Erythema Dyschronicum Perstans and Psoriasis in 10.5%, 10.5%, 7.9%, 7.9%, and 7.9% of patient's respectively. Interestingly, Lichen Sclerosus Atrophicus was noticed in 5.3% of patients while, each Lichen Planus papularis, Lichen Planus Hypertrophicus, Lichen Striatus, Linear Lichen Planus, Seborrheic Keratosis, Pityriasis Rosea and Pityriasis Lichenoides Chronicus were observed in 2.6% of patients.

Similarly, in a study on spectrum of non-infectious erythematous, papular and squamous lesions of the skin found that the most frequently encountered lesion was the lichenoid group of lesions constituting 46.58% followed by psoriasis forming 23.60% of cases(4). Moreover, another corroborating study found that lichenoid group (46.57%) was the common noninfectious skin lesions followed by psoriasis form lesion (23.60%) (5).

A similar study on clinico-pathological evaluation of non-neoplastic skin disorders published that most frequently encountered lesion among non-infectious. erythematous, papular and squamous disorders was psoriasis constituting 60% of all the cases followed by lichen planus which constituted 26.66% of cases, one case each of pustular psoriasis and lichen planus hypertrophicus was also seen (6).

In another study the psoriasis form lesions formed the bulk with 66.67% of cases which is in contrast to our findings, we found lichen planus as the frequently observed skin disorder(6). Varying demography, sample size variation, attrition of cases might have resulted in such contrast.

VI. Conclusion

- Analysis of the skin biopsies from the study population (38 cases) show a wide histopathological spectrum with lichen planus being the most common lesion accounting for about 28.9% followed by lichen simplex chronicus and lichen planus pigmentosus with 10.5% each.
- Duration of the disease was found to be greater than 12 months in majority of the patients 44.7% followed by less than 6 months with 34.2% cases while between 7 to 12 months 21.10% cases were observed.
- It is a well known fact that there is an overlap of both clinical pattern and distribution of various papulosquamous skin disorders, which often makes clinical diagnosis difficult. Recognition of these commonly encountered cutaneous problems depends upon the familiarity of clinical presentation and histopathology play a major role for making the final diagnosis

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