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A Clinico-Histopathological Correlative Study of Non-Infectious and Erythematous Papulosquamous Lesions of Skin in a Tertiary Care Hospital

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Abstract

Context: Papulosquamous lesions of skin are the most frequently seen conditions encountered by both dermatologists and pathologists. These conditions have a similar clinical picture; hence a definite histopathological diagnosis can solve the overlapping clinical features of various papulosquamous lesions of skin.

Aims: To study the histopathological features of various subcategories of papulosquamous skin lesions and to assess the correlation between clinical diagnosis provided and the histopathological diagnosis obtained.

Settings and Design: The study is done in a Tertiary care hospital which includes 150 skin biopsies received from Department of Dermatology.

Methods and Material: The skin biopsy specimens were subjected to formalin fixation and paraffin embedding followed by staining with hematoxylin and eosin. The histopathological features of various papulosquamous lesions were analysed and clinicopathological correlation was done for the 150 cases of skin biopsies which were clinically suspected/ diagnosed as papulosquamous skin lesions.

Statistical analysis used: Universal sampling done and this is a clinico-histopathological correlative study done for a period of 18 months.

Results: Out of the 150 skin biopsies of papulosquamous lesions, psoriasis turned out to be the most common lesion. The papulosquamous skin lesions were commonly seen in males. 28% cases were of psoriasis vulgaris and 25% cases were of Lichen planus occupying the top two commonest papulosquamous skin lesions and a positive correlation with histopathological diagnosis turned out to be 76%.

Conclusions: The complexity in diagnosing papulosquamous lesions due to features of clinical overlap can be overcome by the histopathological examination and findings which helps to diagnose the various subcategories of papulosquamous skin lesions.

Keywords: Papulosquamous lesions; Psoriasis; Lichen planus.

Keymessages: Histopathology which remains the gold standard for diagnosis of papulosquamous lesions of skin aids in overcoming cases having features of clinical overlap and correlation with clinical details is mandatory for accurate diagnosis.

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Introduction

Papulosquamous lesions of skin are the largest heterogenous group of dermatologic disorders which are important because of their frequency of occurrence.[1] These include a wide spectrum of conditions such as Psoriasis vulgaris,Psoriasiform dermatitis, Parapsoriasis, Psoriasiform

erythroderma, Lichen planus, Lichenoid dermatitis,Lichen sclerosus et atrophicus,Lichen nitidus, Pityriasis lichenoides et varioliformis acuta (PLEVA), Lichen planopilaris, Lichen planus pigmentosus, Lichen striatus, Discoid Lupus Erythematosus, Erythema multiforme and Pityriasis Rubra Pilaris.[2] Histopathological examination is highly specific, sensitive and remains gold standard for papulosquamous skin lesions[3] which are complex to diagnose based on clinical findings as there is clinical overlap. To overcome the difficulty in diagnosing, distinct histopathological features as well as clinical correlation helps in accurate diagnosis.[4] The objectives of the study includes:

- To study the histopathological features of various subcategories of papulosquamous lesions of skin.
- To correlate the clinical diagnosis and the histopathological diagnosis of the various subcategories of papulosquamous skin lesions.

Materials and Methods

This study includes 150 skin biopsies from clinically diagnosed / suspected cases of papulosquamous skin lesions received in the department of pathology referred from dermatology department at a Tertiary care hospital during a period of 18 months.

The biopsy specimens were subjected to fixation by 10% formalin, processed and then embedded in paraffin blocks followed by preparation of tissue sections, staining with hematoxylin and eosin, followed by microscopic examination. Also studied is the correlation between clinical as well as histopathological diagnosis of 150 skin biopsies of papulosquamous skin lesions.

Inclusion criteria: The skin biopsies of cases clinically suspected / diagnosed as non-infectious, erythematous papulosquamous lesions of skin.

Exclusion criteria: The skin biopsies of cases with infectious papulosquamous lesions of skin and other skin lesions were excluded.

Results

Out of the 150 skin biopsies which were evaluated, 74 cases were diagnosed to be of psoriasiform lesions (Fig. 1) and 56 cases were diagnosed to be of lichenoid lesions (Table 2). Out of the 150 cases, 114 cases (76%) showed positive clinico-histopathological correlation and the remaining 36 cases (24%) showed histopathological findings which were different from that of clinical diagnosis which is shown in Table 5.

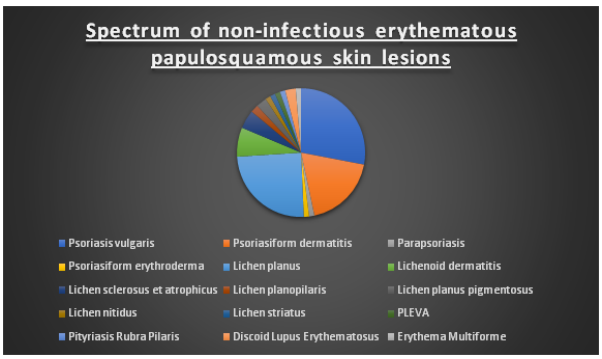

Fig1: Spectrum of non-infectious erythematous papulosquamous skin lesions.

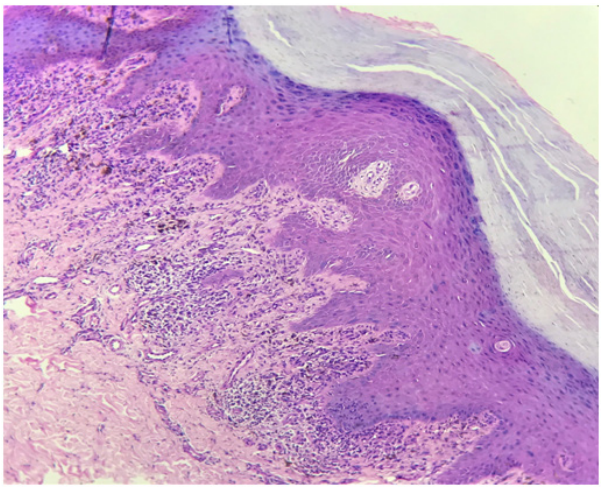

Fig. 2: Histopathological features observed in Lichen planus in this study showing hyperkeratosis, hypergranulosis, irregular acanthosis, saw toothed rete ridges and dermal band like infiltrate (Hematoxylin and Eosin, 20x).

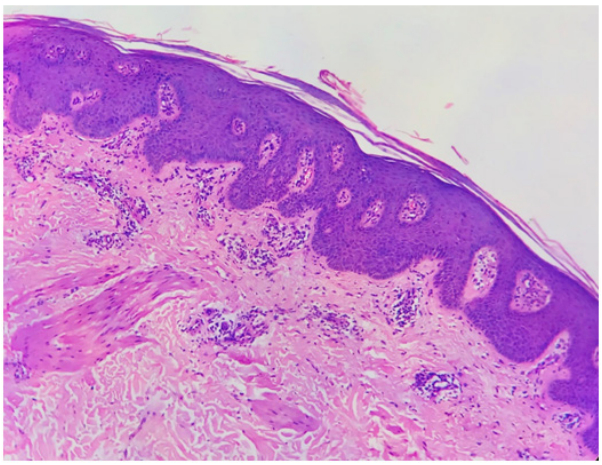

Fig. 3: Histopathological features observed in Psoriasis vulgaris in this study showing parakeratosis, suprapapillary thinning, acanthosis and attenuated granular layer (Hematoxylin and Eosin, 20x).

Table 1: Age distribution of non-infectious erythematous papulosquamous skin lesions.

Age Group (Years)	Number	Percentage
<10	5	3
11–20	15	10
21–30	38	25
31–40	62	42
41–50	12	8
51–60	10	7
>60	8	5
Total	150	100

Table 2: Incidence of non-infectious erythematous papulosquamous skin lesions.

Lesions	Number	Percentage
Psoriasis vulgaris	42	28
Psoriasiform dermatitis	28	19
Parapsoriasis	2	1
Psoriasiform erythroderma	2	1
Lichen planus	37	25
Lichenoid dermatitis	11	8
Lichen sclerosus et atrophicus	7	5
Lichen planopilaris	3	2
Lichen planus pigmentosus	4	3
Lichen nitidus	2	1
Lichen striatus	2	1
PLEVA	2	1
Pityriasis Rubra Pilaris	2	1
Discoid Lupus Erythematosus	4	3
Erythema Multiforme	2	1
Total	150	100

Table 3: Histopathological features observed in Psoriasiform lesions in this study.

Histopathological findings	Number of cases	Percentage %
Epidermal changes		
Acanthosis	67	91
Hyperkeratosis	60	81
Parakeratosis	65	88
Munro microabscess	39	53
Psoriasiform hyperplasia	51	69
Suprapapillary thinning	38	51
Attenuated/absent granular layer	37	50
Dermal changes		
Papillary edema	19	26
Vascular changes	59	79
Dermal inflammation	60	81

Table 4: Histopathological features observed in Lichen planus in this study.

Histopathological findings	Number of cases	Percentage %
Epidermal changes		
Irregular acanthosis	29	78
Saw toothed rete ridges	30	81
Hyperkeratosis	34	92
Hypergranulosis	30	81
Parakeratosis	2	5
Vacuolar degeneration of basal cells	36	97
Civatte bodies	27	73
Max Joseph Spaces	11	30
Dermal changes		
Band like dermal infiltrate	35	95
Vascular changes	1	2

Table 5: Clinico-histopathological correlation.

Disease	Clinico-histopathological correlation	
	Positive	Negative
Psoriasis vulgaris	34 (81%)	8 (19%)
Psoriasiform dermatitis	21 (75%)	7 (25%)
Parapsoriasis	1 (50%)	1 (50%)
Psoriasiform erythroderma	1 (50%)	1 (50%)
Lichen planus	30 (81%)	7 (19%)
Lichenoid dermatitis	7 (63%)	4 (37%)
Lichen sclerosus et atrophicus	4 (57%)	3 (41%)
Lichen planopilaris	2 (67%)	1 (33%)
Lichen planus pigmentosus	3 (75%)	1 (25%)
Lichen nitidus	1 (50%)	1 (50%)
Lichen striatus	2 (100%)	0 (0%)
PLEVA	1 (50%)	1 (50%)
Pityriasis Rubra Pilaris	2 (100%)	0 (0%)
Discoid Lupus Erythematosus	3 (75%)	1 (25%)
Erythema Multiforme	2 (100%)	0 (0%)
Total	114 (76%)	36 (24%)

Discussion

The various subcategories of papulosquamous lesions of skin show overlapping clinical features as a result of which histopathological examination helps in obtaining the precise diagnosis in skin biopsies.[5] The present study which included 150 skin biopsies was done to evaluate the histopathological features of various types of papulosquamous lesions of skin as well as to correlate with the clinical findings and presentation.

42 cases of psoriasis vulgaris were studied which showed male preponderance and the commonest age group affected is 31-40 years (Table 1). According to the study done by Dogra S and Yadav S, the incidence of Psoriasis is more common in the age group of 20 to 39 years.[6] Another study done by D'Costa and Bharambe BM, the incidence of Psoriasis is more common in the age group of 30 to 40 years.[7]

The study done by Schon MP and Boehncke WH revealed that patients with psoriasis have chronic erythematous plaques which are sharply

demarcated and are covered by white silvery scales are most commonly seen in knees, elbows, scalp and umbilicus.[8] The present study reveals the most common site of psoriasiform lesions to be extremities followed by trunk and scalp region.

The study done by Karumbaiah K.P et al revealed the commonest sites of lesion to be extremities followed by trunk and back.[4] The present study of papulosquamous skin lesions revealed the histopathological features of psoriasiform lesions (Table 3) to be hyperkeratosis (81%), parakeratosis (88%), acanthosis (91%), psoriasiform hyperplasia (69%), munro microabscess (53%), suprapapillary thinning (51%), attenuated or absent granular layer (50%). In cases of psoriasiform lesions, acanthosis, parakeratosis, hyperkeratosis, turns out to be the most common histopathological findings (Fig. 3).

In the present study, there were 37 cases of Lichen planus which accounted for 25% of papulosquamous lesions standing next to psoriasiform lesions. The histopathological features (Table 4) observed in lichen planus in this study include irregular acanthosis (78%) as shown in Fig. 2, saw toothed rete ridges (81%), hyperkeratosis (92%), hypergranulosis (81%), vacuolar degeneration of basal cells (97%), Civatte bodies (73%) and Max Joseph spaces (30%).

Male preponderance was observed in lichen planus biopsies. According to the study done by Younas M and Haque A, male preponderance was observed in lichen planus, similar to the present study.[9] The commonest age group affected in cases of lichen planus in our study is 30 to 40 years (Table 1).

Two cases of parapsoriasis were diagnosed which accounted for 1% of the papulosquamous lesions showing features of parakeratosis, acanthosis as well as dermal perivascular inflammatory infiltrate. Also noted are spongiosis and lymphocytic exocytosis.

11 cases of lichenoid dermatitis were reported in the present study which accounted for 8% of papulosquamous lesions in this study. 2 cases of Pityriasis rubra pilaris were diagnosed in this study and the common age group affected include 15 to 25 years which showed features of orthokeratosis, follicular plugging as well as perifollicular parakeratosis.

Two cases of Lichen nitidus were diagnosed in this study which accounted for 1% of the papulosquamous lesions in this study which showed features of hyperkeratosis, basal vacuolar degeneration, ball-shaped lichenoid infiltrate composed of lymphocytes and plasma cells.[10] Glorioso et al[11] conducted a study which revealed similar characteristic histopathological findings in cases of Lichen nitidus.

Two cases of PLEVA were diagnosed in this study which accounted for 1% of the papulosquamous lesions which showed features of edema, lymphocytic exocytosis, keratinocyte necrosis, dermal perivascular infiltrates of lymphocytes as well as histiocytes.

Two cases of Lichen striatus were diagnosed in this study which accounted for 1% of the papulosquamous lesions showed features of parakeratosis, acanthosis, spongiosis, perivascular and periadnexal dermal lymphohistiocytic infiltrate.[12]

Four cases of Discoid Lupus Erythematosus were diagnosed in this study which accounted for 3% of the papulosquamous lesions showed features of lichenoid band like infiltrate, perifollicular as well as peri infundibular inflammatory infiltrate noted. Thinning of the epidermis as well as keratotic follicular plugging noted.

Hence, histopathological examination helps in the diagnosis of papulosquamous lesions of skin and aids us in overcoming cases with clinical overlap and correlation with clinical details is mandatory for correct diagnosis.

Conclusion

Due to the overlap of clinical features in various papulosquamous skin lesions, the clinical diagnosis becomes difficult which can be supported by the histopathological diagnosis based on various characteristic features as histopathology is considered as gold standard for evaluation of papulosquamous lesions. Clinicopathological correlation is done which is always helpful in making the accurate diagnosis.

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Conflict of Interest: Nil

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