

## Study of Clinicopathological Concordance in the Diagnosis of Papulosquamous Lesions in a Tertiary Care Hospital, Hyderabad

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### Abstract

**Background:** Papulosquamous disorders, characterised by scaly papules and plaques are one of the most common skin dermatoses seen by dermatologists. Some of the examples of papulosquamous skin disorders include lichen planus, psoriasis, pityriasis rosea, pityriasis rubra pilaris, parapsoriasis etc. Due to clinical and morphological overlap, it is sometimes difficult to make a straight forward clinical diagnosis without histological confirmation. Some of the histopathological features are specific and characteristic for each entity. Hence, combination of proper clinical observation and histopathological study will give a conclusive diagnosis.

**Aims and Objectives:** The present study aims to analyse various histopathological patterns of papulosquamous lesions of the skin based on the tissue reaction pattern and assess the concordance of provisional clinical diagnosis and histopathological diagnosis.

**Materials And Methods:** This is a hospital based retrospective study of 2 year duration from 2021-2022, at Department of pathology. Descriptive data on clinical history and histopathological examination of all the cases of papulosquamous lesions of skin was collected and results were drawn on various parameters using statistical analysis tools.

**Results:** Out of total 90 cases of clinically suspicious papulosquamous disorders, only 74 cases confirmed as various papulosquamous disorders histopathologically with a positive correlation of 82.2 % and negative correlation of 17.7%. Majority (23 cases) were in the age group of 31 to 40 years. There was slight male preponderance with male: female ratio being 1.14:1. The commonest diagnosis was Lichen planus and its variants (23 cases), followed by Psoriasis and its variants (19 cases), eczema (17 cases), pityriasis rosea (5 cases), Lichen nitidus (3 cases), Lichenoid dermatitis (3 cases), Parapsoriasis (2 cases), 1 case each of pityriasis rubra pilaris and chronic cutaneous lupus.

**Conclusion:** The present study is designed to know the correlation between the clinical patterns of various papulosquamous disorders and their histopathological diagnosis. There are many studies done on clinical correlation with histopathological diagnosis but still the positive correlation is not reaching up to 100%, some studies have negative correlation of around 40%. Therefore, more studies are required in this field to appropriately diagnose and manage the

papulosquamous disorders in order to reduce the disease burden and as a key to better patient care.

**Keywords:** Papulosquamous disorders, clinical data, Clinico-histopathological correlation.

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## Introduction

Papulosquamous skin disorders are a heterogeneous group of disorders that comprise the commonest group of diseases seen by dermatologists. The characteristic primary lesion of papulosquamous skin disorder usually includes papules and plaques with various amount of scaling on the surface. [1]

Because all papulosquamous disorders are characterized by scaling papules, clinical confusion may result during their diagnosis. The skin has a limited number of reaction patterns with which it can respond to various pathological stimuli: clinically different lesions may show similar histological patterns. Therefore, to obtain the precise diagnosis, skin biopsy should be accompanied by all clinical details [2]

Clinical features when considered alone may not be reliable, as they vary with both disease duration and treatment. In these circumstances an attempt at clinic-histopathological correlation should serve as an ideal approach. [3]

## Materials and Methods

The present study is a 2 year retrospective study, conducted in Department of Pathology, tertiary care centre, Hyderabad. Detailed clinical history, thorough physical examination of patients presenting with papulosquamous lesions were carried out as per the proforma. Informed consent was taken before biopsy. Before proceeding for the biopsy, xylocaine sensitivity test was done. Local anaesthesia was given by infiltration of 2% lignocaine solution with adrenaline under the lesion. Punch biopsy was done to obtain an adequate amount of tissue for diagnosis. Biopsy specimen was

kept in 10% formalin for 24hrs for fixation. After fixation, the specimens were processed in an automatic tissue processor. After processing, the paraffin blocks were made and cut on a rotary microtome into 5micron thick sections. Sections were stained with hematoxylin and eosin and were examined by conventional light microscopy. Detailed microscopic examination was undertaken for histopathological diagnosis of papulosquamous disorders of the skin.

Data generated were input into IBM-SPSS statistics for Windows version 23 for analysis. Statistical tools such as frequency, percentages and correlation values were used to assess the degree of relationship between clinical observations and histological confirmation of the disease.

## Results

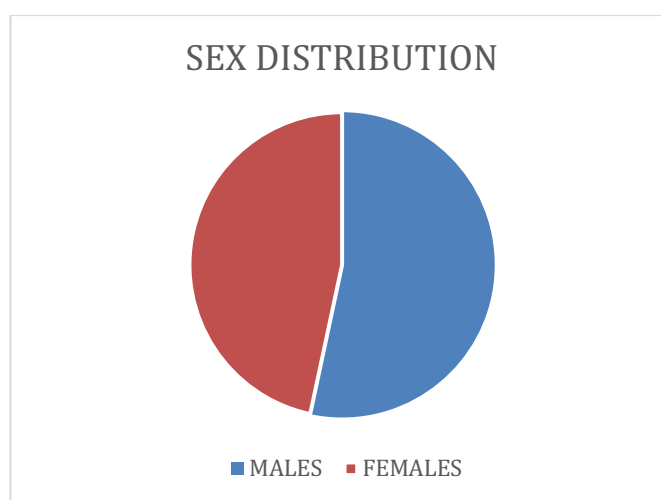
The current study was carried out in the Department of Pathology at a tertiary care centre, from January 2021 to December 2022. Out of 5559 histopathological specimens, 168 (3%) were skin biopsies and 90 (1.6% ) were papulosquamous disorders of the skin. Papulosquamous disorders of the skin constituted 53.57% of the total number of skin biopsies at our institute.

A total of 90 cases were studied. Majority (23 cases) were in the age group of 31 to 40 years. Youngest is 3 year old female diagnosed with Pityriasis rosea and oldest being 80 year old female patient diagnosed to have Irritant contact dermatitis. Distribution of cases among different age groups is shown in Table 1.

**Table 1: Distribution of cases among different age groups.**

Age	No. of Cases (Percentage)
0-10	4((4.4%)
11-20	13(14.4%)
21-30	19(21.1%)
31-40	<b>23(25.5%)</b>
41-50	16(17.7%)
51-60	7(7.7%)
61-70	5(5.5%)
71-80	3(3.3%)

Majority were males (53.3%) with male to female ratio being 1.14:1 which is shown in Fig 1.

**Figure 1: Sex distribution of cases.**

When it comes to site of occurrence of lesions, maximum number (43.3%) of cases were seen on the extremities. Table 2 shows the distribution of cases based on the site of occurrence. Scaly plaque was the commonest presentation clinically.

**Table 2: Distribution of cases based on the site of occurrence.**

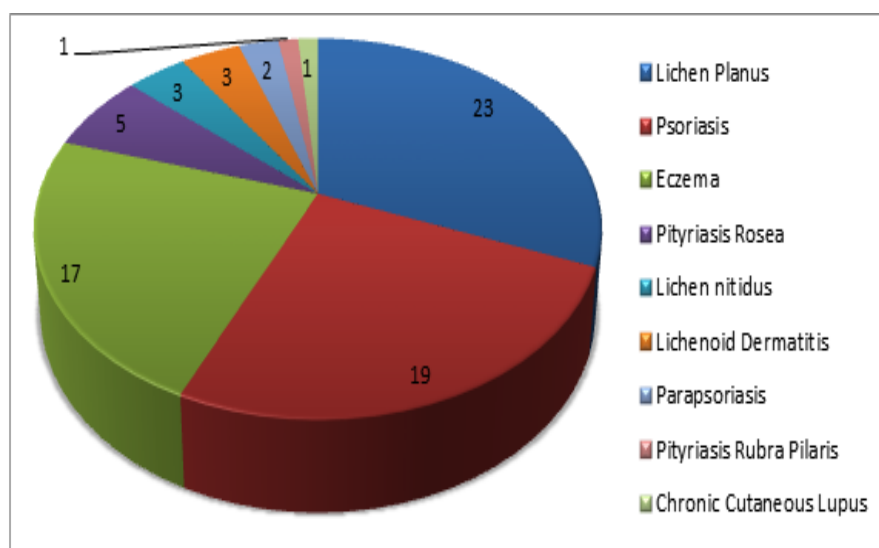
SITE	No. of Cases ( Percentage)
Head and neck	20(22.2%)
Trunk	9(10%)
Extremities	<b>39(43.3%)</b>
Entire body	13(14.4%)
Trunk +extremities	9(10%)

In our study of 90 cases of papulosquamous disorders of skin which were diagnosed clinically, only 74 were confirmed as various papulosquamous disorders histopathologically. 16 cases were not correlating with the clinical diagnosis. Among 74 histopathologically proven cases of papulosquamous disorders, majority(23

cases) were Lichen planus and its variants followed by Psoriasis and its variants(19 cases). The other diagnosis were Pityriasis rosea, Eczema, Pityriasis Rubra pilaris, Lichenoid dermatitis and chronic cutaneous lupus. The distribution of various papulosquamous disorders is shown in Table 3 and Figure 2.

**Table 3: Distribution of cases based on the Histopathological diagnosis**

S.N.	Diagnosis	Variants	No. of Cases	Percentage(%)
1.	Lichen planus (23 cases)	Lichen planus pigmentosus	12	16.2
		Hypertrophic lichen planus	04	5.4
		Classical lichen planus	03	4
		Lichen plano pilaris	03	4
		Erosive lichen planus	01	1.3
2.	Psoriasis (19 cases)	Plaque Psoriasis	10	13.5
		Palmoplantar Psoriasis	04	5.4
		Inverse Psoriasis	02	2.7
		Nail Psoriasis	01	1.3
		Guttate Psoriasis	01	1.3
		Verrucous Psoriasis	01	1.3
3.	Eczema (17)	Prurigo nodularis	04	5.4
		Lichen simplex chronicus	04	5.4
		Contact dermatitis	04	5.4
		Seborrheic dermatitis	01	1.3
		Chronic Lichenified eczema	03	4
		Hyperkeratotic eczema	01	1.3
4.	Pityriasis rosea		05	6.7
5.	Lichen nitidus		03	4
6.	Lichenoid dermatitis( 3 cases)	Lichenoid dermatitis	02	2.7
		Lichenoid drug eruption	01	1.3
7.	Parapsoriasis		02	2.7
8.	Pityriasis Rubra pilaris		01	1.3
9.	Chronic cutaneous lupus		01	1.3
		Total	74	100%

**Figure 2: Pie chart showing histopathologically diagnosed cases of papulosquamous disorders.**

On histopathological examination of 23 cases of lichen planus, 12 (52.1%) cases

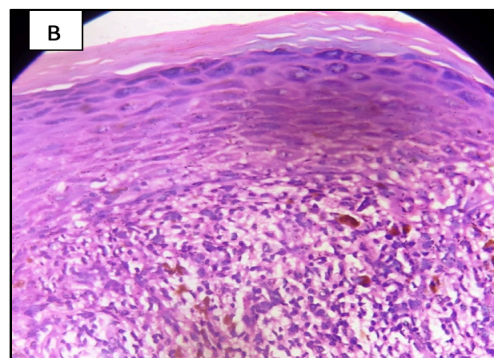
were of lichen planus pigmentosus that showed features of pigment incontinence

along with classical lichenoid dermatitis, 4 cases of Hypertrophic lichen planus variant that revealed marked acanthosis and hyperkeratosis as compared to classical lichen planus. Only 3 cases of Classical lichen planus were seen. 3 cases were of lichen planopilaris which showed follicular plugging and dense infiltration around

follicles along with changes of classical lichen planus. One case of Erosive lichen planus wherein saw tooth appearance of epidermal hyperplasia along with wedge shaped hypergranulosis was seen. Figure 3: shows gross and microscopic pictures of lichen planus.



**Figure 3 A :** Lower extremities showing lichen planus lesions- flat topped violaceous scaly papules and plaques on both the lower limbs.

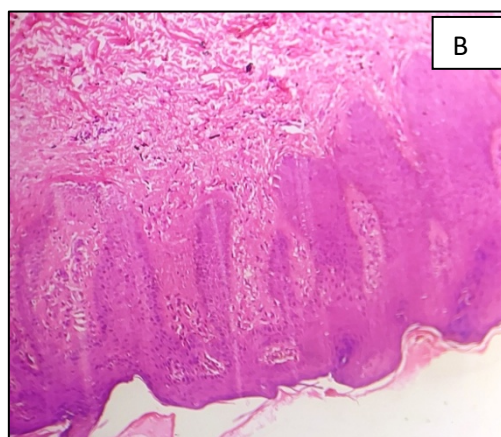


**Figure 3 B:** Lichen planus- Features of Hyperkeratosis, acanthosis, wedge shaped hypergranulosis, band like lymphoplasmacytic infiltrates obscuring the dermo-epidermal junction. H & E (40X)

Among 19 cases of psoriasis, majority i.e., 10 cases (52.6%) were Plaque psoriasis, followed by 4 cases of palmoplantar psoriasis, 2 cases of Inverse psoriasis and one case each of nail psoriasis, guttate psoriasis and verrucous psoriasis.

Histopathological examination of 10 cases of psoriasis vulgaris revealed that

parakeratosis, elongated rete ridges and lymphocytic infiltration in upper dermis were seen in all cases. Variants like Palmoplantar, Inverse plaque, Nail psoriasis and Guttate were classified according to the clinical description of lesions. Verrucous psoriasis was characterized by extensive hyperkeratosis.

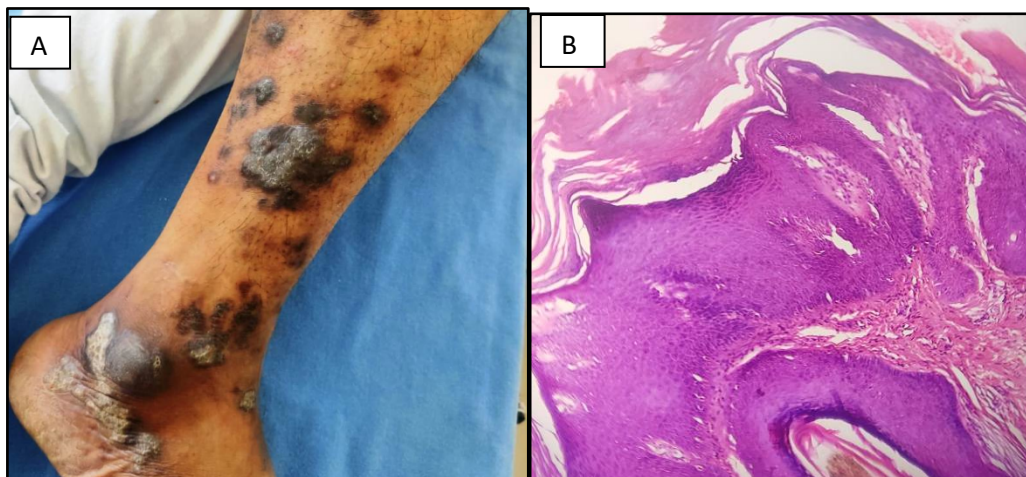


**Figure 4: Psoriasis A:** Clinical picture of Psoriasis showing multiple sharply demarcated, erythematous plaques with silvery scales on the back. **B.** Photomicrograph of Plaque Psoriasis showing acanthosis, elongated rete ridges, suprapapillary thinning, alternate hyper and hypogranulosis, dilated dermal capillaries, and lymphocytic infiltration in papillary dermis. (40X, H&E).

Out of 74 cases of papulosquamous disorders, 17 (22.9 %) cases were of eczema (Fig 5). Among eczema cases, 4 cases each of Lichen simplex chronicus, Prurigo nodularis, Contact dermatitis



were noted followed by 3 cases of Chronic lichenified eczema and 1 case each of Seborrheic dermatitis and Hyperkeratotic eczema.

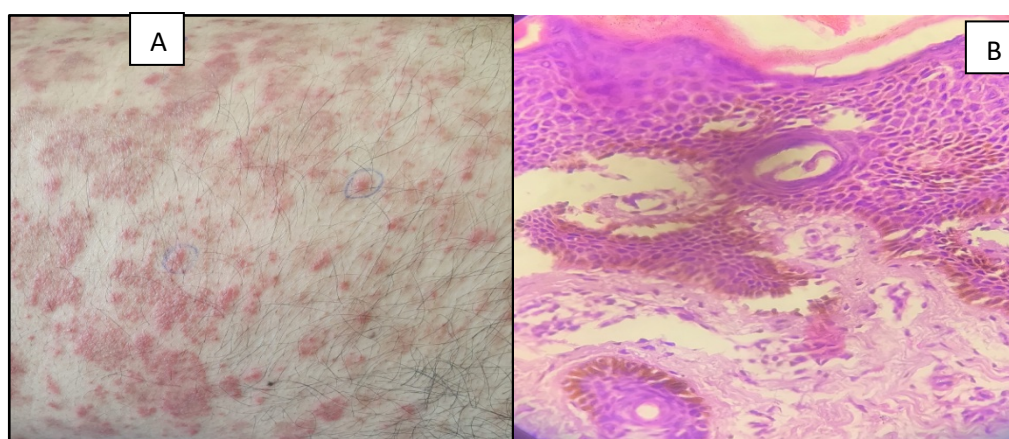


**Figure 5 : Prurigo Nodularis: A: Clinically presented as multiple chronic, excoriated and thickened nodules. B: Microscopy show Hyperkeratosis, Irregular acanthosis and vertical orientation of collagen fibres. (40X, H&E).**

Out of 74 cases of papulosquamous disorders of the skin, 5 (6.7%) cases were of Pityriasis rosea. Histopathological examination of Pityriasis rosea revealed following epidermal changes: focal parakeratosis, spongiosis, hyperkeratosis, acanthosis, exocytosis and hydropic degeneration. One of the two cases showed parakeratotic mound, basket weave hyperkeratosis, decreased granular layer, and erythrocytes in exudate. Dermal changes seen in both the cases were

inflammatory infiltrate in papillary and reticular dermis, RBCs in papillary dermis and dilated superficial plexus of blood vessels. One of the two cases showed edema in papillary collagen, melanin in upper dermis and eosinophils in dermal infiltrate.

Two (3.33%) cases of Pityriasis rubra pilaris.(Fig 6) were noted out of 74 cases of papulosquamous disorders of the skin.



**Figure 6: Pityriasis rubra pilaris-A- multiple well demarcated scaly plaques with characteristic reddish orange hue over the back. B. Microscopic picture showing acanthosis and follicular plugging.**

Our present study concluded with 82.2% of positive correlation and 17.7 % of negative

correlation between the clinical and histopathological diagnosis. This infers that

histopathology plays a pivotal role in differentiating various papulosquamous disorders and helps in the management of

the patients by giving accurate diagnosis. Table 4 shows correlation of clinical and histopathological diagnosis.

**Table 4: Correlation of Clinical diagnosis with Histopathological diagnosis.**

Correlation	Positive	Negative	Total
Number of cases	74	16	90
Percentage (%)	82.2%	17.7%	100%

## Discussion

Out of 90 cases of clinical diagnosis of papulosquamous disorders, 74 cases confirmed histopathologically as papulosquamous disorders. Rest 16 cases were not correlating with the clinical diagnosis.

The majority of the cases in the present study were in the age group of 31-40 years of age, accounting for 25.5% of cases. This observation is in concordance with the study done by Kedariseti.V.et al [4], Ramesh et al [5] and Pandit et al [6]. But the last 2 studies were done only on psoriasis.

Males are affected more than the females in our study with the male: female ratio being 1.14:1. Similar findings were seen in studies done by Raju G et al [7], Ramesh et al [5] and Narayankar et al [8]. Only Study by Barman DD et al [9] showed female preponderance.

In the present study extremities were commonly affected (43.3% of cases) which is in concordance with many studies done by Hosamane et al [10], Karumbaiah et al [11] and Patel et al [12].

Among 74 cases of histopathologically correlated cases, the majority of the cases were diagnosed as Lichen planus and its variants (31.08%) followed by Psoriasis and its variants( 25.6% ). Similar findings were seen in studies done by Ukonu et al [13],Barman DD et al [9], Raju G et al [7] and Chavhan et al [14].

Our study which was conducted in a tertiary centre situated in an industrial area showed a quite a good number of cases of Eczema and its various forms(22.9 % cases) next to

Lichen planus and psoriasis. Since skin is exposed to many chemicals in industries, we found many eczema cases in our study. Similarly Awake et al [15] also found that Eczema is the second common diagnosis in his study next to psoriasis. But in contrast many other studies by Kedarisetty et al [4] and Gandhi J et al [16] showed that eczema is less commonly found in their studies.

There was discordance in 16 (17.7%) cases between clinical diagnosis and histopathological confirmation. These comprise 7 cases of lichen planus which were opined as chronic nonspecific dermatitis and inconclusive cases. Also 2 cases of clinically diagnosed as psoriasis but histologically diagnosed as chronic non-specific dermatitis and inconclusive cases. This is similar to studies that have shown that there could be discordance between clinical manifestations and histological studies. Ukonu et al [13], Reddy et al [17], Younas et al [18] and Bhargava et al [19] showed similar correlation values with positive correlation of 76.5%, 86.25%, 76.30% and 58% respectively which is similar to our study where positive correlation is 82.2%.Other studies that are done by Barman D et al [9] and D costa et al [2] showed higher positive correlation of 92.3% and 97.52% respectively.

## Conclusion

The present study is designed to study the correlation between the clinical patterns of various papulosquamous disorders and their histopathological diagnosis, gender and age distribution, clinical subtypes and features of individual diseases. Lichen planus was the most common

papulosquamous disorder reported followed by psoriasis and eczema cases. Though eczema was third commonest diagnosis in our study its prevalence is more compared to other studies. This may be attributed to industrial area in which present study was conducted. There are many studies done on clinical correlation with histopathological diagnosis but still the positive correlation is not reaching up to 100%, some studies have negative correlation of around 40%. Therefore, more studies are required in this field to appropriately diagnose and manage the papulosquamous disorders in order to reduce the disease burden and as a key to better patient care.

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