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A clinicopathological study of papulosquamous skin lesion at tertiary care hospital

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Abstract

Background: Papulosquamous diseases present with scaly papules and plaques, often leading to diagnostic challenges due to their similar clinical appearances. A definitive histopathological examination is crucial for accurate diagnosis and effective treatment.

Methods: This retrospective study analysed 200 cases of papulosquamous skin lesions over 2.5 years. A detailed patient history was recorded, emphasizing age, sex, and macroscopic tissue examination. Specimens were preserved in 10% formalin for 24 hours, embedded in paraffin, and sectioned at 5 microns for histopathological (microscopic) evaluation using haematoxylin and eosin (H&E) staining.

Results: Among the 200 cases, clinicopathological correlation was established in 167 cases (83.5%), while 33 cases (16.5%) showed discrepancies. Lichen planus (107 cases, 53.5%) was the most prevalent disorder, followed by psoriasis (54 cases, 27%) and lupus erythematosus (20 cases, 10%).

Conclusion: Due to overlapping clinical and histological features, a definitive diagnosis of papulosquamous skin disorders relies on clinicopathological correlation. These disorders are frequently encountered in dermatology, emphasizing the necessity of an integrated diagnostic approach for improved patient outcomes.

Keywords: Papulosquamous skin lesion, psoriasis, lichen planus

Introduction

The skin, being the body's largest organ, exhibits a limited range of histopathological reactions to pathological stimuli [1]. Consequently, lesions with varying clinical presentations may display similar histological patterns. Accurate diagnosis requires a thorough clinical history and examination, considering factors such as lesion distribution, color, type, and arrangement. Despite the skin's visibility facilitating diagnosis in some cases, overlapping clinical features often lead to diagnostic dilemma [2]. Histopathological examination remains the gold standard for dermatological diagnoses. However, without clinical context, establishing a precise diagnosis can be challenging. In these cases, correlation of histopathological findings with clinical findings makes the diagnosis possible [3]. The Papulosquamous skin disorders are a heterogenous group of disorders which comprise the largest group of diseases seen by dermatologist. The nosology of these disorders is based on a descriptive morphology of clinical lesions characterized by scaly papules and plaques. [4] Due to complex nature of papulosquamous disorder it often results in misdiagnosis. [5] A combination of distinct histopathological features and clinical correlation is essential for accurate identification.

Globally, psoriasis prevalence ranges from 0.09% to 11.4%, with an incidence rate of 100 cases per 100,000 people [6, 7] In India, psoriasis affects approximately 0.44% to 2.8% of the population, while lichen planus has a prevalence of 0.92% to 1.8% [8, 9] Papulosquamous diseases comprise the largest conglomerate of diseases seen by the dermatologist [10]. Given the frequent misdiagnosis of papulosquamous diseases and the limited research available in India, histopathological analysis combined with clinical assessment is critical for appropriate treatment and prognosis.

Aim and Objectives

1. To analyse the age- and sex-based incidence of papulosquamous skin disorders.
2. To document the clinical presentations of papulosquamous skin disorders.
3. To examine the histopathological patterns associated with these disorders.

4. To assess the correlation between clinical and histopathological findings in papulosquamous skin disorders.

Materials and Methods

A retrospective study was conducted on 200 cases of papulosquamous skin disease at the Pathology Department, B.J. Medical College, Civil Hospital, Ahmedabad, from August 1, 2020, to December 31, 2022. Clinical data included patient demographics and lesion characteristics. Histopathological examination involved macroscopic and microscopic analysis, with special stains applied as necessary. Tissue specimens were fixed in 10% buffered formalin, processed, sectioned, and stained with H&E. Microscopic evaluation focused on diagnosing lesions and identifying histological characteristics.

Inclusion Criteria

Patients with papulosquamous lesions undergoing skin biopsy at Civil Hospital, Ahmedabad, with biopsy samples submitted to the histopathology section.

Exclusion Criteria

Biopsy samples measuring less than 2mm or inadequately preserved specimens were excluded.

Results

Among the 200 cases, the most common diagnosis was lichen planus (107 cases), followed by psoriasis (54 cases), lupus erythematosus (20 cases), parapsoriasis (10 cases), pityriasis rosea (5 cases), and pityriasis rubra pilaris (2 cases). Clinicopathological correlation showed positive results for psoriasis (87.1%), lichen planus (80.4%), pityriasis rubra pilaris (100%), lupus erythematosus (90%), parapsoriasis (86.7%), and pityriasis rosea (100%).

The highest prevalence was observed in individuals aged 41-50 years (23.5%), with a male-to-female ratio of 1.02:1. The most common clinical presentation was plaques (46.5%), while ulcers and nodules were the least common (1%). The most frequent histopathological findings were acanthosis and inflammatory infiltrates (79.5%), whereas Munro's micro abscesses were observed in only 23% of cases. Hyperkeratosis and band-like inflammatory infiltrates were prominent in 63.5% of lichen planus cases, with Civatte bodies identified in 4.5%. These findings underscore the necessity of clinicopathological correlation for accurate diagnosis.

Discussion

In this study, the most affected age group was the third to fourth decade, with a male predominance, consistent with findings from prior research by Raja Sekhar Reddy *et al.* and S.D. Chavhan *et al*. The highest incidence was observed for lichen planus (53.7%), aligning with previous studies, though some research, such as that by Sushil Chichani *et al*., reported psoriasis as the most common disorder. Differences in prevalence may be attributed to geographical variations in papulosquamous skin disorders.

Figure with Legends

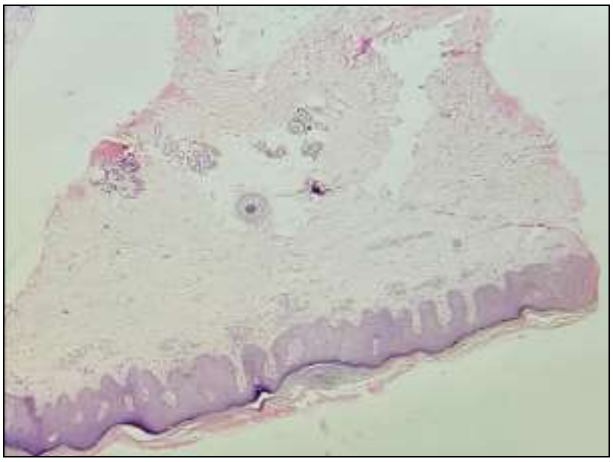

Fig 1: (Psoriasis) H&E-stained section show cup shaped rete ridges and sprapappilary thinning and hyperkeratosis (10x).

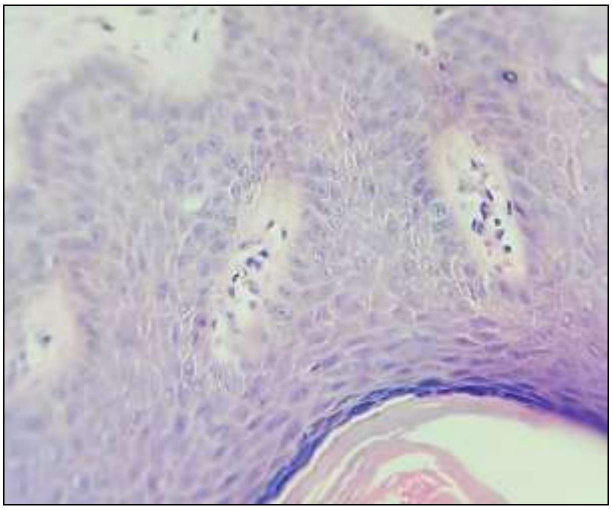

Fig 2: (Psoriasis) H&E-stained section show cup shaped rete ridges and mild acanthosis (40x).

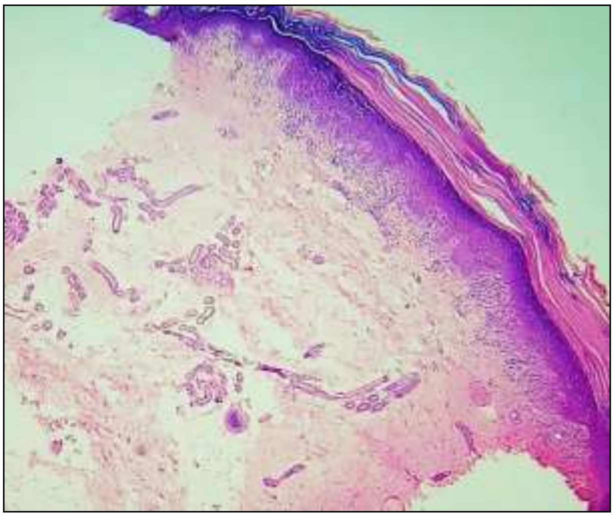

Fig 3: (Lichen planus) H&E-stained section show hyperkeratosis, SW toothed rete ridges and band like inflammatory infiltrate in superficial dermis (10x)

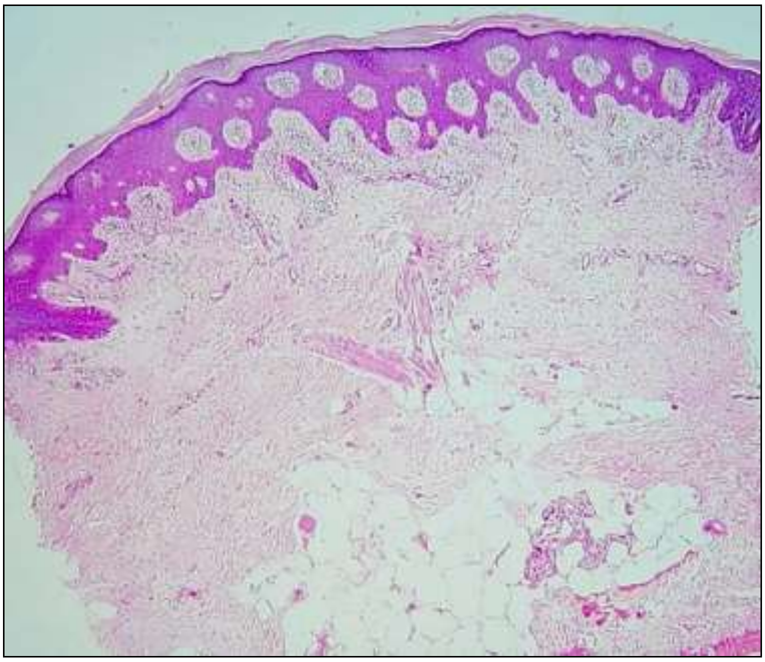

Fig 4: (Pityriasis lichenoid) H&E-stained section show mild hyperkeratosis, elongation of rete ridges and papillomatosis (10x).

Table 1: Age and sex distribution across different studies

Parameter	Study 1	Study 3	Present Study
Age Group (Years)	31-40	21-40	31-50
Male-to-Female Ratio	Male Dominant	Male Dominant	Male Dominant

Table 2: Clinical and Histopathological Correlation

Disease	Total Cases	Positive (correlated with clinical diagnosis)	Negative (not correlated with clinical diagnosis)
Lichen Planus	107	86 (80.4%)	21 (19.6%)
Psoriasis	54	47 (87.1%)	7 (12.9%)
Pityriasis Rosea	2	2 (100%)	-
Lupus Erythematosus	20	18 (90%)	2 (10%)
Parapsoriasis	15	13 (86.7%)	2 (13.3%)
Pityriasis Rubra Pilaris	2	2 (100%)	-

Table 3: Prevalence of Papulosquamous skin disorders across various studies

Disease	Study 2	Study 3	Study 4	Present Study (%)
Psoriasis	40 (51%)	20 (33%)	27 (15%)	54 (27%)
Pityriasis Rosea	6 (8%)	NI	11 (6%)	2 (1%)
Lupus Erythematosus	NI	NI	100 (6%)	20 (10%)
Parapsoriasis	4 (5%)	NI	6 (3%)	15 (7.5%)
Other Disorders	3 (4%)	6 (10%)	83 (47%)	2 (1%)
Total Cases	78 (100%)	61 (100%)	179 (100%)	200 (100%)

Table 4: Comparison of clinical and histopathological correlation across different studies

Disease	Study 5	Study 4	Present Study
Lichen Planus	48%	93%	80.4%
Psoriasis	45%	74%	87.1%
Pityriasis Rosea	0%	0%	100%
Lupus Erythematosus	-	60%	90%
Parapsoriasis	0%	50%	86.7%
Pityriasis Rubra Pilaris	60%	72%	100%

- **Study-1:** Raja Sekhar Reddy *et al.*
- **Study 2:** Sushil chinchani *et al.* (2016)
- **Study-3:** S.D. Chavan *et al* (2014)
- **Study-4:** Chaudhary *et al* (2015)
- **Study-5:** Sushma Hosamane *et al.*

Conclusion
Due to the overlapping clinical and histopathological features of papulosquamous skin disorders, a combined diagnostic approach is crucial. Some disorders, such as pityriasis rosea and parapsoriasis, share similar histological patterns, whereas others exhibit distinct histological characteristics. Given the high prevalence of these conditions, emphasizing clinicopathological correlation improves diagnostic accuracy and patient management. Submitting biopsy specimens with comprehensive clinical information and differential diagnoses is key to optimal

patient care.

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Competing Interests
The authors declare no conflicts of interest

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