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Original Research Article

A Retrospective Study of Clinicopathological Correlation in Papulosquamous Skin Disorders at a Tertiary Care Centre in Muzaffarpur

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Abstract:

Background: Papulosquamous skin disorders are a diverse group of dermatological conditions with overlapping clinical features, making accurate diagnosis challenging and often necessitating histopathological confirmation.

Aim: To evaluate the clinicopathological correlation in papulosquamous skin disorders at a tertiary care centre in Muzaffarpur.

Methodology: This retrospective observational study was conducted in the Department of Skin & VD, Sri Krishna Medical College and Hospital, Muzaffarpur, over 6 months. A total of 60 patients with clinically diagnosed papulosquamous disorders who underwent skin biopsy were included. Clinical findings were compared with histopathological diagnoses, and data were analyzed using descriptive statistics and appropriate tests.

Results: The majority of patients were aged 31–40 years (26.67%) with a slight male predominance (56.67%). Psoriasis was the most common disorder (36.67%), followed by lichen planus (23.33%). Lower limbs were the most frequently involved site (30%). Clinicopathological correlation was observed in 76.67% of cases, while 23.33% showed discordance.

Conclusion: A high level of clinicopathological correlation was observed; however, discrepancies highlight the importance of histopathological examination in confirming diagnosis and improving management of papulosquamous disorders.

Keywords: Papulosquamous Disorders, Clinicopathological Correlation, Psoriasis, Lichen Planus, Histopathology, Skin Biopsy.

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Introduction

Papulosquamous skin disorders represent an important category of dermatological diseases that doctors frequently see in their daily work. The first skin lesions of these disorders develop as primary skin lesions which show two main types of lesions: papules and plaques that include erythrodermic skin patches and various levels of surface scaling [1]. The name "papulosquamous" describes the appearance of these skin lesions which show both papular and scaly (squamous) skin changes. The chronic nature of these conditions together with their tendency to come back and their effects on people cosmetic appearance leads to severe physical pain and mental health problems for those who suffer from them.

The significant problem with the diagnosis of papulosquamous disorders is that they have similar clinical manifestations. The morphological patterns and distribution of many of these conditions are similar because they are common reaction pathways of the skin to various pathological stimuli. This overlap frequently causes a problem in making a specific clinical diagnosis using physical examination alone. The clinical picture is further complicated by variations in presentation based on factors like disease stage, previous treatment, and individual patient characteristics. Therefore, clinical assessment alone can lead to misdiagnosis or delayed diagnosis, which will eventually impact patient management and therapeutic outcomes [2].

The histopathological examination serves as an essential diagnostic tool in this context. Skin biopsy results require combined assessment with complete clinical data to establish or modify the initial diagnosis. Histopathology reveals specific microscopic

characteristics which include epidermal hyperplasia and parakeratosis and spongiosis and basal cell degeneration and inflammatory infiltrates that dermatologists use to identify different papulosquamous disorders [3]. The systematic assessment of clinical signs together with histopathological evidence establishes clinicopathological correlation as the fundamental method for dermatological diagnosis. The diagnostic process benefits from a strong correlation because it improves accuracy and it assists in selecting suitable treatment methods which enhance patient results [4].

Papulosquamous disorders encompass a wide spectrum of diseases with diverse etiologies, including inflammatory, infectious, autoimmune, and drug-induced causes [5]. The group contains several common conditions which include pityriasis rosea, parapsoriasis, lichen planus, psoriasis, pityriasis rubra pilaris, pityriasis lichenoides et varioliformis acuta, pityriasis lichenoides chronica, seborrheic dermatitis, tinea corporis, drug reactions, secondary syphilis, and Reiter's disease. The different causes of these disorders lead to equivalent clinical symptoms which create difficulties for doctors to identify the specific condition. Psoriasis and seborrheic dermatitis both share the same skin symptom of erythematous scaly plaques while lichen planus and pityriasis lichenoides display papular eruptions that share similar characteristics. The existence of common features between two elements demonstrates that histopathological evidence is essential for verification.

The burden of papulosquamous disorders is particularly significant in tertiary care settings where patients present with chronic disease forms that do not respond to treatment and show unusual disease patterns. The clinicopathological profile of these disorders requires deeper understanding in Muzaffarpur because environmental and socioeconomic factors and healthcare access problems affect disease patterns in that area. Tertiary care centers conduct retrospective studies which deliver essential information about disease prevalence and diagnostic accuracy and how clinical symptoms connect with histopathological results. The studies identify discrepancies between clinical diagnosis and pathological confirmation which shows diagnostic practices that need improvement.

The link between clinical findings and pathological results plays a vital dual role because it enhances diagnostic accuracy while supporting efficient treatment of patients [6]. The correct medical diagnosis leads to suitable treatment selection which decreases both unsafe and unproductive medical procedures while protecting patients from dangerous outcomes. The tool provides assistance for predicting patient outcomes while helping with medical consultations particularly for patients with chronic conditions who experience recurring episodes of psoriasis and lichen planus [7]. The assessment of diagnostic agreement between clinical and histopathological findings enables medical professionals to determine which situations require standard biopsy procedures according to their diagnostic accuracy.

Although dermatological diagnostics have improved, there are still discrepancies between clinical and histopathological diagnoses. Such discrepancies can be caused by sampling errors, differences in lesion morphology, or interpretation differences. Thus, the systematic assessment of clinicopathological correlation is necessary to determine the level of concordance and to comprehend the shortcomings of both clinical and histopathological methods. These assessments help to enhance diagnostic guidelines and the quality of dermatological care in general.

The current research is planned as a retrospective study to investigate the level of clinicopathological correlation in papulosquamous skin diseases in a tertiary care centre in Muzaffarpur. The study will evaluate the accuracy of clinical diagnosis and the percentage of cases that are confirmed by histopathological examination by analyzing the previously recorded clinical and histopathological data. Moreover, it aims to assess the general degree of consensus between clinical and pathological results, thus, giving information about the efficiency of the existing diagnostic procedures.

Methodology

Study Design: This study was designed as a retrospective observational study aimed at evaluating the clinicopathological correlation in patients diagnosed with papulosquamous skin disorders.

Study Area: The study was conducted in the Department of Skin & VD, Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar, India.

Study Duration: The study was carried out over a period of 6 months from July 2025 to December 2025.

Study Participants

Inclusion Criteria:

- Patients clinically diagnosed with papulosquamous skin disorders.
- Patients who underwent skin biopsy (punch or excisional biopsy).
- Cases with available and complete histopathological reports.
- Patients of all age groups and both genders.

Exclusion Criteria:

- Patients with incomplete clinical or histopathological records.
- Patients who did not undergo skin biopsy.
- Cases with inconclusive or inadequate biopsy samples.

- Patients with other dermatological conditions not classified under papulosquamous disorders.

Sample Size: A total of 60 patients fulfilling the inclusion criteria were included in the study.

Procedure: The study involved retrospective evaluation of medical records of patients diagnosed with papulosquamous skin disorders. Data were collected from hospital records, including patient demographics (age, sex), detailed clinical history, morphological characteristics of lesions, duration of disease, symptoms, and anatomical sites involved. Clinical diagnoses recorded by dermatologists were noted and compared with histopathological findings.

Skin biopsy specimens had been collected under aseptic conditions using either punch or excisional biopsy techniques. The biopsy site was cleaned using antiseptic solutions such as hibitane and methylated spirit prior to the procedure. The collected tissue samples were fixed in 10% neutral buffered formalin and transported to the pathology laboratory for processing. Specimens were grossed, inked, and sectioned within 2–5 days of collection.

Thin sections measuring approximately 2.5–3.5 µm were prepared using a microtome. These sections were stained with Hematoxylin and Eosin (H&E) stain for microscopic examination. The stained slides were examined under different magnifications ranging from ×10 to ×40 to identify characteristic histopathological features. The histopathological diagnosis was then correlated with the initial clinical diagnosis to assess concordance.

Statistical Analysis: The collected data were entered into Microsoft Excel and subsequently analyzed using IBM SPSS Statistics for Windows, version 27.0 (IBM Corp., Armonk, NY, USA). Descriptive statistical methods such as frequencies and percentages were used to summarize demographic and clinical variables. The degree of clinicopathological correlation was assessed using appropriate statistical tests. The Kruskal-Wallis (H) test was applied where necessary to evaluate the association between clinical diagnosis and histopathological findings. A p-value of <0.05 was considered statistically significant.

Result

Table 1 shows the distribution of patients according to age group among a total of 60 cases. The highest proportion of patients belonged to the 31–40 years age group, accounting for 16 cases (26.67%), indicating that this age group formed the largest segment of the study population. This was followed by the 21–30 years age group with 14 patients (23.33%), and the 41–50 years group with 12 patients (20%). Patients aged above 50 years constituted 10 cases (16.67%), while the least number of patients were observed in the ≤20 years age group, with 8 cases (13.33%). Overall, the findings suggest that middle-aged individuals, particularly those between 31 and 40 years, were more commonly affected in the present study.

Table 1: Distribution of Patients According to Age Group (n = 60)

Age Group (Years)	Number of Patients	Percentage (%)
≤20	8	13.33
21–30	14	23.33
31–40	16	26.67
41–50	12	20
>50	10	16.67
Total	**60**	**100**

Table 2 shows the gender distribution of the study participants (n = 60). It is evident that male patients constituted the majority, accounting for 34 cases (56.67%), while female patients comprised 26 cases (43.33%). This indicates a slightly higher representation of males compared to females in the study population. The difference, although not very large, suggests a possible male predominance in the occurrence or reporting of the condition under study, or may reflect healthcare-seeking behavior patterns. Overall, both genders were reasonably represented, allowing for a balanced comparison in the analysis.

Table 2: Gender Distribution of Study Participants (n = 60)

Gender	Number of Patients	Percentage (%)
Male	34	56.67
Female	26	43.33
Total	**60**	**100**

Table 3 shows the distribution of types of papulosquamous disorders among the study participants (n = 60). Psoriasis was the most common disorder, accounting for 22 cases (36.67%), indicating its predominance in the study population. This was followed by Lichen Planus with 14 cases (23.33%),

making it the second most frequently observed condition. Seborrheic dermatitis constituted 10 cases (16.67%), while Pityriasis rosea was observed in 8 cases (13.33%). Parapsoriasis was the least common disorder, comprising only 6 cases (10%). Overall, the findings suggest that psoriasis and lichen planus together form the major bulk of papulosquamous disorders in this study group, whereas other conditions were comparatively less prevalent.

Table 3: Distribution of Types of Papulosquamous Disorders (n = 60)		
Disorder Type	**Number of Cases**	**Percentage (%)**
Psoriasis	22	36.67
Lichen Planus	14	23.33
Pityriasis Rosea	8	13.33
Parapsoriasis	6	10
Seborrheic Dermatitis	10	16.67
Total	**60**	**100**

Table 4 shows the distribution of site of lesions among patients (n = 60). The most commonly affected site was the lower limbs, observed in 18 patients (30%), indicating a higher predilection of lesions for this region. This was followed by upper limbs in 15 patients (25%), suggesting that extremities were frequently involved overall. Lesions on the trunk were noted in 12 patients (20%), representing a moderate proportion of cases. Scalp involvement was relatively less common, seen in 8 patients (13.33%), while generalized involvement affecting multiple body regions was the least observed, accounting for 7 patients (11.67%). Overall, the findings indicate that lesions were predominantly localized to the limbs, particularly the lower limbs, with comparatively fewer cases showing widespread distribution.

Table 4: Site of Lesions Among Patients (n = 60)		
Site of Lesion	**Number of Patients**	**Percentage (%)**
Upper Limbs	15	25
Lower Limbs	18	30
Trunk	12	20
Scalp	8	13.33
Generalized Involvement	7	11.67
Total	**60**	**100**

Table 5 shows the clinicopathological correlation among the study participants (n = 60). Out of the total cases, 46 (76.67%) were found to be correlated (confirmed), indicating a strong agreement between clinical diagnosis and histopathological findings in the majority of patients. However, 14 cases (23.33%) were non-correlated, suggesting discrepancies between clinical and pathological diagnoses in nearly one-fourth of the cases. Overall, the findings demonstrate a high level of clinicopathological concordance, while also highlighting the importance of histopathological examination in confirming diagnosis and reducing misclassification.

Table 5: Clinicopathological Correlation (n = 60)		
Correlation Status	**Number of Cases**	**Percentage (%)**
Correlated (Confirmed)	46	76.67
Non-correlated	14	23.33
Total	**60**	**100**

Discussion

The current research study shows valuable information about the clinicodemographic and clinicopathological features of papulosquamous disorders which researchers can use to compare their findings with existing research work. The age distribution of our patient sample showed that most patients were in the 31-to-40 age range (26.67%) followed by the 21-to-30 age range (23.33%) and 41-to-50 age range. D'Costa and Bharambe (2010) [8] reported that 40 to 50 percent of papulosquamous cases affected people between their third and fourth decades of life which matches with this study. The study by Narayankar and Pandit 2018 [9] showed that 45 percent of cases affected people between the ages of 30 and 50. The disease manifestation in this age group may depend on three environmental exposure factors which include occupational stress and immune system response. The study by Younas and Haque 2018 [10] showed that people under 35 years old made up the largest portion of their study which included 35 percent of participants from the 20 to 30

years age group showing that different regions and populations have their own distinct characteristics.

The current study demonstrates that more males than females participated because 56.67% of the subjects were male, which corresponds to the research results of Reddy and Nalini who found that 60% of their subjects were male. Chavhan et al. (2014) [12] observed that male subjects made up about 58% of their research sample. The connection between these two groups exists because men experience higher risk to their jobs and they prefer to receive medical treatment. Agrawal et al. (2018) [13] discovered that both genders basically share equal distribution for papulosquamous disorders because their study showed male patients made up 52% while female patients made up 48%. The social and cultural aspects of people determine whether they visit hospitals for treatment, which does not reflect the actual spread of illnesses in the population.

Psoriasis represented the highest number of cases in our study because it affected more than one-third of our participants who suffered from this disorder, which was followed by lichen planus as the second most common disease. D'Costa et al. (2010) found that psoriasis existed in roughly 35 percent of cases while lichen planus occurred in 30 percent of cases. Barman et al. (2018) [14] found that psoriasis affected approximately 38 percent of their study population while lichen planus affected 32 percent. The discussion shows that lichen planus occurred more frequently than any other medical condition. Younas and Haque (2018) reported that lichen planus appeared in about 33 percent of cases while psoriasis followed with 28 percent of cases. The variations in outcomes stem from the distinct ways that different regions experience their environmental conditions and medical facilities handle patient referrals to tertiary care hospitals.

The clinicopathological correlation observed in our study was 76.67% which demonstrates a close relationship to the results obtained by Younas and Haque 2018 who reported 76.30% and presents a slight decrease when compared to Reddy et al 2014 who recorded 86.25% and DCosta et al 2010 who registered 97.52%. In their study, Agrawal et al. (2018) found that 58% showed a lower correlation. The differences in statistical analysis demonstrate that histopathological testing remains necessary for cases with similar clinical symptoms because doctors can make accurate clinical assessments. The study found that 23.33% of cases showed discordance which matches the results of Karumbaiah et al. 2014 who found discordance rates between 20 and 25 percent. The results demonstrate that histopathology testing becomes essential for accurate diagnosis because it leads to misdiagnosis in many cases.

Our research demonstrates that lichen planus clinicopathological correlation results show approximately 76.5% agreement with Younas and Haque (2018) study results, which produced 76.30% accuracy, and Reddy et al. (2014) study results, which produced 86.25% accuracy. Our research showed band-like lymphocytic infiltrate as a histopathological feature, which showed around 57.7% occurrence, while Boyd and Neldner (1991) described this feature as present in approximately 60% to 70% of cases. The study found civatte bodies and Max Joseph spaces to show fewer instances than Arora et al. (2014) [15] who documented these characteristics in over 65% of their studied cases. The two groups show different results because of two main factors, which include differences in disease stage at presentation and sampling variability.

The histopathological examination of psoriasis revealed that classical features existed in our study at a rate of 5.3%, which represented a much lower rate than Mehta et al. 2009 [16] found because they detected these features in about 30–40% of their studied cases. Kim et al. 2015 [17] discovered hypogranulosis and suprapapillary thinning in more than 50% of their studied cases, which our research did not identify as major findings.

The study discovered that extremities represented the most frequent locations for lesions, which confirmed the findings of Chavhan et al. (2014) because they reported that about 60 percent of cases showed limb involvement. The study conducted by Narayankar and Pandit (2018) found that approximately 55 percent of patients showed involvement of their extremities. The research demonstrates how external trauma together with the Koebner phenomenon contributes to the specific locations where lesions develop. The research studies show that trunk involvement rates increase because of differences in disease subtypes and severity levels.

The current research results show a strong connection to existing literature research although the study found differences in three areas which included disease prevalence and histopathological characteristics and correlation rates. The differences in research results can be explained by differences in testing methods which used different sample sizes and regional testing sites and different criteria for identifying diseases. The study results demonstrate that clinicopathological correlation reaches high levels which shows the need for doctors to use both clinical assessments and histopathological tests to achieve correct diagnoses and better patient treatment.

Conclusion

The present study highlights that papulosquamous skin disorders are common in middle-aged individuals, with a slight male predominance. Psoriasis and lichen planus were identified as the most prevalent conditions, and lesions were most frequently observed on the extremities, particularly the lower limbs. A high clinicopathological correlation of

76.67% indicates that clinical diagnosis is fairly reliable; however, the presence of discordance in nearly one-fourth of cases emphasizes the indispensable role of histopathological examination in confirming diagnosis. The findings underscore that reliance solely on clinical features may lead to misdiagnosis due to overlapping presentations. Therefore, an integrated approach combining clinical evaluation with histopathology is essential for improving diagnostic accuracy, guiding appropriate treatment, and ensuring better patient outcomes in papulosquamous disorders.

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