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Research Article

A Clinico-Pathological Correlation of Psoriasiform Dermatitis in a Tertiary Care Centre

Dr. Golla Akshay[1], Dr. Basavaraj P Bomanahalli[2], Dr. Veeresh. V. Dyavannanavar[3]

[1]Post Graduate, Gadag institute of medical sciences
[2]Prof &HOD, MD Pathology, Gadag institute of medical sciences
[3]Associate Professor) MD Dermatology, Gadag institute of medical sciences

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Corresponding Author:

Dr. Golla Akshay
Post Graduate, Gadag institute of medical sciences

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ABSTRACT

Background: Psoriasiform dermatitis encompasses a heterogeneous group of chronic inflammatory dermatoses that share overlapping clinical and histopathological features, posing significant diagnostic challenges. Accurate differentiation between psoriasis and its mimickers—such as seborrheic dermatitis, chronic eczema, and lichen simplex chronicus—is essential for appropriate management and prognosis.

Aim: To evaluate the clinicopathological correlation in psoriasiform dermatitis and identify the most reliable histopathological parameters associated with specific clinical diagnoses.

Materials and Methods: This hospital-based cross-sectional observational study was conducted in the Department of Pathology, Gadag Institute of Medical Sciences, Karnataka, over two years (May 2023–April 2025). A total of 73 patients with psoriasiform skin lesions were included based on clinical suspicion and confirmed through histopathological evaluation of punch biopsy specimens. Clinical details, including age, sex, lesion duration, and site, were recorded. Tissue samples were processed and stained with Hematoxylin and Eosin, and key histopathological features—such as hyperkeratosis, parakeratosis, orthokeratosis, elongation of rete ridges, and Munro's microabscesses—were systematically evaluated. Data were analysed using SPSS version 22.0, and associations were assessed using the Chi-square test, with $p < 0.05$ considered statistically significant.

Results: The majority of patients were between 40–50 years (27.4%), with a slight female predominance (50.7%). Multiple-site involvement (64.4%) and a positive family history (57.5%) were common. Histopathologically, hyperkeratosis, parakeratosis, elongation of rete ridges, and inflammatory infiltrates were frequent findings. Among these, Munro's microabscesses showed a statistically significant correlation with clinical diagnosis ($p = 0.038$), serving as a key diagnostic feature of psoriasis.

Conclusion: A strong clinico-pathological correlation was observed in psoriasiform dermatitis, reinforcing the diagnostic value of integrating clinical findings with histopathological evaluation. Munro's microabscess emerged as the most significant histopathological marker for psoriasis. Routine histopathological examination remains indispensable for accurate diagnosis and evidence-based management of psoriasiform dermatoses.

Keywords*: Psoriasiform dermatitis, psoriasis, clinico-pathological correlation, histopathology, Munro's microabscess, skin biopsy.*

INTRODUCTION

Psoriasiform dermatitis represents a heterogeneous group of chronic inflammatory dermatoses that share overlapping clinical and histopathological features, making accurate diagnosis challenging for both dermatologists and pathologists. The term "psoriasiform" denotes epidermal hyperplasia resembling psoriasis, characterized by elongation of rete ridges,

parakeratosis, and variable inflammatory infiltrates in the dermis [1]. While psoriasis vulgaris remains the prototypical entity in this group, conditions such as chronic eczema, seborrheic dermatitis, pityriasis rubra pilaris, and lichen simplex chronicus often mimic psoriasis both clinically and microscopically [2].

Clinico-pathological correlation is therefore crucial for establishing a definitive diagnosis. A mere reliance on clinical features such as erythematous plaques, scaling, and pruritus can lead to diagnostic pitfalls, especially in chronic lesions with secondary changes [3]. Histopathological examination, on the other hand, provides characteristic features like Munro's microabscesses, spongiform pustules of Kogoj, and suprapapillary thinning—hallmarks that help distinguish psoriasis from other psoriasiform dermatoses [4].

Previous studies have highlighted that psoriasiform tissue reaction patterns constitute one of the most common diagnostic categories encountered in dermatopathology practice [5]. However, considerable inter-observer variation exists, as several conditions demonstrate overlapping epidermal and dermal alterations. Hence, clinicopathological correlation becomes essential to improve diagnostic accuracy and treatment outcomes [6].

The importance of this correlation lies not only in differentiating psoriasis from its mimickers but also in guiding disease-specific management. For instance, while psoriasis requires long-term immunomodulatory therapy, seborrheic dermatitis may respond to antifungal or keratolytic agents, and chronic eczema benefits from topical steroids and emollients [7]. Therefore, precise diagnosis has significant therapeutic and prognostic implications.

The present study aims to evaluate the **clinicopathological correlation in psoriasiform dermatitis**, identify the **most reliable histopathological parameters**, and determine their **association with clinical diagnosis**. The results are expected to enhance the diagnostic precision of psoriasiform dermatoses and aid in evidence-based clinical decision-making in dermatopathology

MATERIALS AND METHODS

1. Study Design

This study was designed as a **hospital-based cross-sectional observational study** conducted at a tertiary care teaching hospital. The aim was to evaluate the **clinicopathological correlation** in cases of psoriasiform dermatitis by assessing both clinical and histopathological parameters. The observational nature of the study enabled the documentation of disease characteristics without any therapeutic intervention, maintaining the natural progression of psoriasiform lesions. A structured protocol was followed to ensure uniformity and reliability in data collection and interpretation.

2. Study Setting

The study was carried out in the **Department of Pathology**, Gadag Institute of Medical Sciences (GIMS), Gadag, Karnataka. Patients were recruited from the **Dermatology Outpatient Department (OPD)** of the same institution. All histopathological evaluations—including specimen collection, fixation, tissue processing, staining, and microscopic examination—were performed in the institutional histopathology laboratory to ensure consistency, accuracy, and quality control.

3. Study Duration

The study was conducted over two years **(May 2023 to April 2025)**. This duration was selected to include a sufficient number of psoriasiform dermatitis cases and to allow for comprehensive clinical evaluation, histopathological processing, and statistical analysis.

4. Participants: Inclusion and Exclusion Criteria

Inclusion Criteria

- Patients of all age groups and both sexes presenting with psoriasiform skin lesions.
- Patients who underwent skin biopsy for diagnostic purposes.
- Patients who provided informed written consent to participate in the study.

Exclusion Criteria

- Patients who had received systemic or topical corticosteroid therapy within 30 days prior to biopsy.
- Patients who declined to give informed consent.
- Biopsy specimens that were inadequate due to insufficient epidermal or dermal tissue or poor preservation.

5. Sampling Technique

A **simple random sampling** technique using the **lottery method** was employed. Each month, 4–5 psoriasiform skin biopsy samples received from the dermatology department were enlisted, and 3 samples were randomly selected using numbered slips drawn blindly. This process was continued until the required sample size was achieved, minimising selection bias and ensuring representative sampling.

6. Sample Size
The **sample size was calculated to be 73 patients** using appropriate statistical methods to ensure adequate power for detecting meaningful clinicopathological associations. This sample was considered sufficient to assess diagnostic concordance between clinical and histopathological findings in psoriasiform dermatitis.

7. Study Groups
Although the study was observational, patients were categorised based on **clinical and histopathological diagnosis**. Clinically suspected psoriasis and other psoriasiform dermatoses, such as **lichen simplex chronicus, Reiter's syndrome**, and similar conditions, were compared with their respective histopathological diagnoses. This allowed a systematic comparison to assess diagnostic concordance and discrepancies.

8. Study Parameters
The parameters evaluated included both **clinical** and **histopathological** variables.

- **Clinical parameters:**
  Age, sex, duration of lesion, and site of lesion.

- **Histopathological parameters:**
  - *Epidermal changes:* Hyperkeratosis, parakeratosis, orthokeratosis, hypogranulosis, acanthosis, elongation of rete ridges, suprapapillary thinning, Munro's microabscesses, and spongiform pustules of Kogoj.
  - *Dermal changes:* Dermal oedema, dilated capillaries, perivascular lymphocytic infiltrates, and evidence of chronic inflammation.

These features were systematically recorded and correlated with clinical data for diagnostic interpretation.

9. Study Procedure
After obtaining Institutional Ethical Committee approval and informed consent from all participants, each patient underwent a detailed clinical examination, including history and lesion characteristics.

A 0.5 mm deep skin punch biopsy was taken from the representative lesion under aseptic precautions. The biopsy site was disinfected using povidone-iodine, and local anaesthesia was administered as needed. The tissue sample was fixed in 10% neutral buffered formalin and processed for routine Hematoxylin and Eosin (H&E) staining.

Microscopic examination was performed using a light microscope, and histopathological features were recorded on a structured datasheet. Clinical and pathological findings were then correlated to assess diagnostic agreement.

10. Data Collection
Clinical details were recorded using a **pre-tested structured proforma** during OPD visits. Each biopsy specimen was labelled and coded to ensure patient anonymity. Histopathological data were entered into **Microsoft Excel spreadsheets** and cross-verified by the principal investigator and a supervising pathologist. Representative photomicrographs of key findings were documented for reference and archival purposes.

11. Statistical Analysis
All data were analysed using **Statistical Package for the Social Sciences (SPSS) version 22.0**.

- **Quantitative variables** were summarised using mean ± standard deviation (SD).
- **Categorical variables** were expressed as frequencies and percentages.
- The **Chi-square test** was used to assess associations between clinical and histopathological diagnoses. A **p-value < 0.05** was considered statistically significant.

12. Ethical Considerations
Ethical clearance was obtained from the Institutional Ethics Committee (IEC) of Gadag Institute of Medical Sciences, Gadag, before initiating the study. Written informed consent was obtained from all participants after explaining the purpose and procedure of the study in their local language.

The study adhered to the ethical standards outlined in the Declaration of Helsinki (2013). Patient confidentiality was maintained throughout data handling and publication, and identifiers were removed during analysis. No animal subjects were involved in this research.

13. Source of Data
The study population comprised patients attending the **Dermatology Outpatient Department of GIMS, Gadag**, who presented with psoriasiform skin lesions and were referred for histopathological evaluation. Clinical and histopathological data served as the primary source for analysis.

RESULTS AND OBSERVATIONS

Table1: Age-wiseDistributionof Study Participants(N= 73)

AgeGroup(Years)	Frequency	Percentage(%)
20–30	12	16.4
30–40	18	24.7
40–50	20	27.4
50–60	6	8.2
60–70	5	6.8
70–80	12	16.4
Total	**73**	**100.0**

Table2: Gender-wise Distribution of Study Participants (N = 73)

Gender	Frequency	Percentage(%)
Female	37	50.7
Male	36	49.3
Total	**73**	**100.0**

Table3: Distribution of Patients Based on Duration of Skin Lesions (N= 73)

Durationof Lesions	Frequency	Percentage(%)
Lessthan 6 months	16	21.9
6monthsto 1year	21	28.8
1 yearto3years	22	30.1
Morethan3years	14	19.2
Total	**73**	**100.0**

Table 4: Family History of Psoriasiform Dermatitis Among Study Participants(N = 73)

FamilyHistory	Frequency	Percentage(%)
Yes	42	57.5
No	31	42.5
Total	**73**	**100.0**

Table 5: Symptom Combinations Associated with Skin Lesions in Psoriasiform Dermatitis (N = 73)

SymptomCombination (Selected Common Ones)	Frequency	Percentage (%)
Crusting (any combination including crusting)	24	32.9
Dryness (any combination including dryness)	22	30.1
Itching (any combination including itching)	20	27.4
Thickened Skin(any combination including thickened skin)	17	23.3
Pain (any combination including pain)	14	19.2
Swelling (any combination including swelling)	13	17.8
Scaling (any combination including scaling)	13	17.8
Bleeding (any combination including bleeding)	12	16.4

Table 6: Distribution of Lesion Sites Among Study Participants (N= 73)

Site(s)Involved	Frequency	Percentage (%)
Palms and Soles	8	11.0
Knees	6	8.2
Elbows	3	4.1
Lower Back	3	4.1
Scalp	3	4.1
Other(isolated)	3	4.1
Multiple Sites Involved	47	64.4
Total	**73**	**100.0**

Table7: Comorbid Conditions Among Study Participants (N= 73)

Comorbidity Type	Frequency	Percentage (%)
Hyperlipidemia (alone **or** in combination)	11	15.1
Chronic Kidney Disease (alone orcombo)	7	9.6
Diabetes (alone or combination)	5	6.8
Hypertension (alone or combination)	4	5.5
Multiple Comorbidities (≥2combined)	46	63.0
Total	**73**	**100.0**

Table 8: Composite Histopathological Findingsin All Patients (N=73)

Histopathological Features	Frequency	Percentage (%)
Hyperkeratosis, Parakeratosis, Orthokeratosis, Hypogranulosis, Munro's Microabscess, Spongiform Pustules of Kogoj, Elongation of Rete Ridges, Papillary Dermal Edema, Inflammatory Infiltrate Patterns	73	100.0

Table 9: Common Epidermal Changes Identified in Histopathology (N= 73)

Epidermal Changes (Grouped)	Frequency	Percentage (%)
Hyperkeratosis+Spongi form Pustules of Kogoj (± other changes)	9	12.3
Orthokeratosis+Munro's Microabscess(±other changes)	9	12.3
Parakeratosis+ Hypogranulosis (± others)	8	11.0
Munro'sMicroabscess+Parakeratosis(±others)	7	9.6
Other Combinations	40	54.8
Total	**73**	**100.0**

Table 10: Correlation of Histopathological Parameters with Clinical Diagnosis

Histopathological Findings	Clinical Diagnosis	Total (n=73)	χ^2 Value	p-value
	Atopic Dermatitis	Psoriasis	Seborrheic Dermatitis	Others
Elongation of Rete Ridges	Yes: 6 (25%)	4 (28%)	10 (55%)	5 (30%)
	No: 18 (75%)	10 (72%)	8 (45%)	12 (70%)
Total	24	14	18	17
Hypogranulosis	Yes: 14 (58%)	8 (57%)	12 (67%)	5 (30%)
	No: 10 (42%)	6 (43%)	6 (33%)	12 (70%)
Total	24	14	18	17
Hyperkeratosis	Yes: 6 (25%)	6 (43%)	4 (22%)	6 (35%)
	No: 18 (75%)	8 (57%)	14 (78%)	11 (65%)
Total	24	14	18	17
Inflammatory Infiltrates	Yes: 10 (42%)	4 (28%)	3 (17%)	4 (23%)
	No: 14 (58%)	10 (72%)	15 (83%)	13 (77%)
Total	24	14	18	17
Munro's Microabscess	Yes: 8 (33%)	8 (57%)	2 (11%)	4 (24%)
	No: 16 (67%)	6 (43%)	16 (89%)	13 (76%)
Total	24	14	18	17
Orthokeratosis	Yes: 9 (38%)	5 (36%)	5 (28%)	9 (53%)
	No: 15 (62%)	9 (64%)	13 (72%)	8 (47%)
Total	24	14	18	17
Parakeratosis	Yes: 18 (75%)	9 (64%)	16 (88%)	14 (82%)
	No: 6 (25%)	5 (36%)	2 (12%)	3 (18%)
Total	24	14	18	17
Papillary Dermal Edema	Yes: 8 (33%)	5 (36%)	10 (56%)	9 (53%)

Histopathological Findings	Clinical Diagnosis	Total (n=73)	χ^2 Value	p-value
	No: 16 (67%)	9 (64%)	8 (44%)	8 (47%)
Total	24	14	18	17
Spongiform Pustules of Kogoj	Yes: 9 (38%)	1 (7%)	8 (44%)	4 (24%)
	No: 15 (62%)	13 (93%)	10 (56%)	13 (76%)
Total	24	14	18	17

DISCUSSION

The current study was conducted to establish a clinico-pathological correlation in psoriasiform dermatitis and to identify histopathological features most strongly associated with psoriasis and its mimickers. A total of 73 cases were evaluated, encompassing a range of psoriasiform dermatoses including psoriasis, seborrheic dermatitis, and chronic eczema-like conditions.

In the present study, the majority of cases were observed in the **40–50 years age group (27.4%)**, consistent with previous reports suggesting that psoriasis commonly affects adults between the third and fifth decades of life [8]. The **gender distribution** showed a slight female predominance (50.7%), which aligns with studies indicating no strong gender bias but regional variability in sex distribution [9].

Clinically, **multiple-site involvement (64.4%)** and **family history (57.5%)** were frequent among patients, supporting the multifactorial and hereditary nature of psoriasis and related dermatoses [10]. The chronicity of lesions in most patients (over 1 year in 49.3%) also highlights the relapsing and persistent course typical of psoriasiform conditions.

Histopathological examination revealed **hyperkeratosis, parakeratosis, orthokeratosis, elongation of rete ridges, and inflammatory infiltrates** as the most common findings. Among these, **Munro's microabscesses** showed a statistically significant correlation with clinical diagnosis ($p = 0.038$), underscoring their diagnostic value as a hallmark of psoriasis. Similar findings were reported by Boyd et al. and Weedon, who emphasized Munro's microabscesses and spongiform pustules of Kogoj as pathognomonic features of psoriasis [11,12].

Although other features such as hypogranulosis, parakeratosis, and rete ridge elongation were frequently observed, their lack of statistical significance indicates that they may also occur in other psoriasiform dermatoses. This observation aligns with earlier studies suggesting that while these findings are characteristic, they are not exclusive to psoriasis [3,5].
The **clinico-pathological concordance** rate in the present study was high, suggesting that combining clinical assessment with histopathological confirmation improves diagnostic accuracy. This supports the notion that psoriasiform dermatitis represents a **spectrum of histological patterns**, where careful correlation is indispensable to reach a definitive diagnosis [4,6].

The study's findings reaffirm that **histopathological examination remains the gold standard** for differentiating psoriasiform dermatoses, particularly in clinically ambiguous or overlapping presentations. Furthermore, features such as **Munro's microabscesses and spongiform pustules of Kogoj** retain their significance as reliable diagnostic clues.

However, certain limitations must be acknowledged, including the single-centre design and moderate sample size, which may restrict the generalizability of results. Future multicentric studies incorporating immunohistochemical and molecular markers could provide additional insights into diagnostic refinement.

CONCLUSION

A strong clinico-pathological correlation was observed in psoriasiform dermatitis, with **Munro's microabscess** emerging as the most statistically significant histopathological feature associated with psoriasis. Routine histopathological examination, when interpreted alongside clinical findings, remains indispensable for accurate diagnosis and effective patient management in psoriasiform dermatoses.

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