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Aditi Suseelan
Assistant Professor,
Department of Pathology, Sree
Gokulam Medical College and
Research Foundation, Kerala,
India

Limi Mohandas
Associate Professor,
Department of Pathology, Sree
Gokulam Medical College and
Research Foundation, Kerala,
India

Vivek George
Professor, Department of
Pathology, Sree Gokulam
Medical College and Research
Foundation, Kerala, India

Ramadevi AV
Professor, Department of
Pathology, Sree Gokulam
Medical College and Research
Foundation, Kerala, India

Simi SM
Professor, Department of
Dermatology, Sree Gokulam
Medical College and Research
Foundation, Kerala, India

Sheela Vasudevan
Professor, Department of
Pathology, Sree Gokulam
Medical College and Research
Foundation, Kerala, India

Aswathy Chandramohan
Associate Professor,
Department of Pathology, Sree
Gokulam Medical College and
Research Foundation, Kerala,
India

Corresponding Author:
Aditi Suseelan
Assistant Professor,
Department of Pathology, Sree
Gokulam Medical College and
Research Foundation, Kerala,
India

A clinicopathological study of psoriasiform dermatitis

Aditi Suseelan, Limi Mohandas, Vivek George, Ramadevi AV, Simi SM, Sheela Vasudevan and Aswathy Chandramohan

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Abstract

Background: Psoriasis being an autoimmune disease, affecting almost 3% of the world's population has been an agonizing problem both to the patient and to the doctor who treat them. It has been confusing to the world since biblical times as to its origin and course. Though not contagious, contrary to the beliefs of our forefathers, the disease is still associated with social stigma and thus has a negative psychological effect on the patient.

Though not completely curable, the modern medicine can help in bringing down the severity of the disease if diagnosed correctly and thus uplift the sufferers.

Methodology: This study was conducted on 75 patients who attended the OPD of the Department of Dermatology, Sree Gokulam Medical College and Research Foundation, with an aim to decrease the dilemma of diagnosing psoriasis and differentiating it from psoriasiform dermatitis for a period of one year.

Results: The histopathological parameters were compared among the 53 patients who were divided into two groups, psoriasis and psoriasiform dermatitis. The different histopathological parameters were compared among these two groups. Of these parameters, parakeratosis, hypogranulosis, acanthosis, regular elongation of rete ridges, mitosis extending beyond the basal layer of epidermis, pallor in the upper layers of epidermis, suprapapillary thinning, dermal oedema and dilated and tortuous blood vessels in the papillary dermis have been evaluated as significant determinants to the diagnosis of psoriasis even in the absence of Munro microabscess and spongiform pustule of Kogoj.

Conclusion: The study proved helpful in assessing the determinants that would favor the diagnosis of psoriasis in the absence of a classical histopathological picture, thus aiding in the treatment of the patient.

Keywords: psoriasis, psoriasiform dermatitis, autoimmune disease, histopathological picture

Introduction

Psoriasis is an ancient and universal inflammatory skin disease, initially described in the 'Corpus Hippocraticum' (460-377 B.C). Hippocrates used the synonym psora with a word meaning "to itch" to describe the same.

Psoriasis is a chronic inflammatory disease of the skin affecting 2-3% of the population. Today, psoriasis has been recognized as a genetically determined, autoimmune, T-cell mediated systemic disease manifesting on the skin, nails and joints. It is also associated with a number of co-morbidities.

Erythematous plaques with a well-defined margin and silvery white scales overlying a glossy homogenous membrane are clinically diagnostic of chronic plaque psoriasis. Auspitz's sign is characterized by a glossy red membrane with multiple pinpoint bleeding points, as a result of tearing off of the suprapapillary thinned out epidermis when the psoriatic plaques are gratted. Auspitz's sign is positive in chronic plaque psoriasis. It is not seen in other clinical types of psoriasis like pustular psoriasis, flexural psoriasis etc.

Patient's variability of clinical features of the disease may be at the cost of a definite or correct diagnosis. This may prove to be a diagnostic dilemma to the clinician and also to warrant a histopathological confirmation [1].

Histopathologically, standard textbooks give importance to the regular epidermal hyperplasia, dilated and tortuous blood vessels, presence of Munro microabscess and spongiform pustule of Kogoj as the most consistent and characteristic features in a skin biopsy of psoriasis. On the other hand, presence of spongiosis, irregular epidermal hyperplasia and

absence of Munro micro abscess or spongiform pustule of Kogoj may favour the diagnosis of a psoriasiform dermatitis [1]. Histopathological changes may vary according to the stage, clinical presentation and previous treatments, if any taken [1, 2]. In a study conducted by Mehta *et al* in 2009 on 73 patients with a single clinical diagnosis of psoriasis, only 49 (69%) had a histopathological confirmation of the same [1]. Psoriasis, being a common dermatological condition which puts a substantial population to morbidity, this study is a humble attempt to distinguish psoriasis from psoriasiform dermatitis, histopathologically. It has also tried to correlate the features of psoriasis and psoriasiform dermatitis, to identify any more determinants of the same which can thus contribute to the diagnosis and management of the disease [1].

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1. To study the histopathological findings of Psoriasis and Psoriasiform Dermatitis of patients attending Dept. Of Dermatology, Sree Gokulam Medical College and Research Foundation.
2. To study the agreement between clinical and histopathological findings.
3. To identify the determinants that contribute to the diagnosis of psoriasis and psoriasiform dermatitis.

Materials and Methods

A descriptive study was conducted in the department of Pathology and 75 patients were included in the study. Inclusion Criteria were, patients of both sexes with skin lesions diagnosed clinically as Psoriasis on the basis of one or more of the following features:

- Mainly, erythematous plaques with well defined border.
- Non-adherent or loosely adherent silvery white scales and positive Auspitz sign.

Or

- With Psoriasiform Dermatitis (ill-defined or well-defined erythematous scaly plaques without positive Auspitz sign) in which Psoriasis is one of the differential diagnosis.

Exclusion Criteria

- Age less than 10 years.
- All patients on topical or systemic therapy for the dermatological condition in the preceding 4 weeks.
- Patients with lesions restricted to the palms, soles and scalp.
- Patients not willing for investigations.

All new patients with Psoriasis or Psoriasiform Dermatitis attending the Dept of Dermatology till the sample size is met were taken. History and clinical data were collected using a structured proforma after taking an informed

consent. The level of significance were assessed using chi-square test for proportions and student's 't' test for means. Kappa statistics were computed for agreement.

Observation and Results

75 patients who attended the out patient department of Department of Dermatology during the time period of November 2012 to October 2013 were included in the study. The general, clinical and pathological analysis showed the following features.

In our study the mean age of the population was 40.61 and male to female ratio of 1.4:1. the distribution of lesion is tabulated below.

Table 1: Distribution of lesion

Distribution of Lesions	Frequency	Percentage
. Scalp	31	41.3
Face	14	18.7
Trunk	40	53.3
Upper limb	41	54.7
Lower limb	34	45.3

Auspitz sign was seen only in 21.3% of cases.

The histopathological parameters used to differentiate between psoriasis and psoriasiform dermatitis are listed below.

Table 2: Histopathology Parameters

Serial Number	Histopathological Parameters	Frequency	Percentage
1	Parakeratosis	61	81.3
2	Hypogranulosis	40	53.3
3	Acanthosis	68	90.7
4	Rete ridges	40	53.3
5	Mitosis extending beyond the basal layer	34	45.3
6	Spongiform pustule of Kogoj	10	13.3
7	Munro microabscess	18	24.0
8	Pallor in upper layers of epidermis	31	41.3
9	Suprapapillary thinning	35	46.7
10	Exocytosis of neutrophils	31	41.3
11	Dermal oedema	39	52.0
12	Dilated and tortuous blood vessels	54	72.0
13	Perivascular & periappendageal inflammation	74	98.7
14	Spongiosis	42	56.0
15	Basal layer cell vacuolation	24	32.0
16	Pigment incontinence	11	14.7
17	Follicular plugging	4	5.3
18	Exocytosis of lymphocytes	15	20.0
19	Fungal bodies	7	9.3
20	Neutrophils in dermis	21	28
21	Eosinophils in dermis	14	18.7
22	Plasma cells in dermis	8	10.7
23	Histiocytes in dermis	20	26.7

Of these parameters, parakeratosis, hypogranulosis, acanthosis, regular elongation of rete ridges, mitosis extending beyond the basal layer of epidermis, pallor in the upper layers of epidermis, suprapapillary thinning, dermal oedema and dilated and tortuous blood vessels in the papillary dermis have been evaluated as significant determinants to the diagnosis of psoriasis even in the absence of Munro microabscess and spongiform pustule of

Kogoj. On the other hand, spongiosis, basal layer cell vacuolation and exocytosis of lymphocytes helped in the diagnosis of psoriasis in the current study.

Discussion

The word "Psora" means itch. Psoriasis is an increasingly common papulosquamous disorder. It has a worldwide distribution and its prevalence varies. It is estimated that around 125 million people throughout the world and approximately 2–3% of the population in the United States are affected by it. Prevalence among Asian populations is also lower as compared to Caucasians [3]. Among Indian

studies, as per Raghuveer C *et al.*, 1.2% of their out patients had psoriasis [4].

In the present study maximum number of patients belonged to the age group of 20 to 39 years (38.7%). The next age group was 40-59 years (30.7%). The mean age was 40.61 years. This was in accordance with Al humidi *et al.*, with a mean of 31.5 years [5]. In another study done by Moorchung *et al.* in 2014 [6], the mean age was 38.9 years. In our study, there was female preponderance as opposed all other studies. Our study showed maximal involvement in upperlimb which was comparable with Hesari *et al.* [7]

Table 3: Comparative analysis of clinical features

Clinical parameters	Present study	Hesari <i>et al.</i> [7]	Chandanwale <i>et al.</i> [8]	Al Humidi <i>et al.</i> [5]	Mehta <i>et al.</i> [1]	Younas <i>et al.</i> [9]
Mean age	40.61	44.5	-	31	-	31.5
Peak age	20-39	41-60	-	-	-	21-30
Gender	1:1.4	1.8:1	1.4:1	-	1.5:1	1.9:1
Distribution of lesions	Upperlimb	Upperlimb	Lowerlimb	Lower limb	-	-
Auspitz sign	21.3	-	-	-	42	-

The histopathological parameters were compared among the 53 patients who were divided into two groups, the patients whose lesions were histopathologically proven to be psoriasis (28 patients) and the other group where the lesions were histopathologically diagnosed as psoriasiform dermatitis (25 patients). The different histopathological parameters were compared among these two groups. Corresponding to the study done by Moorchung *et al.*, where parakeratosis was found to be significantly associated with psoriasis, our study also showed significant parakeratosis [6]. In another study by Mehta *et al.* [6], microabscess with parakeratosis was significantly found in patients diagnosed with psoriasis [1]. In our study absent granular layer was seen in 78.6%. Absent or decreased granular layer was a significant finding in the study by Mehta *et al.* (83.6%) [1], Hesari *et al.* (75%) [7]. Epidermal hyperplasia was seen in 28 patients with psoriasis (100%). This is in accordance with similar the studies done by Alhumidi *et al.* [5]. Regular epidermal hyperplasia was seen in 96.4% of patients. Regular epidermal hyperplasia was seen in 88.52% of psoriasis with a significant in the study done by Mehta *et al.* and in 78.57% study done by Younas *et al.* [9].

mitosis extending beyond the basal layer of epidermis and this was statistically significant was seen in 85.7% patients diagnosed. Parakeratosis, hypogranulosis, acanthosis, regular elongation of rete ridges mitosis extending beyond the basal layer, pallor in the upper epidermis and dermal oedema were found to be determinants in the diagnosis of psoriasis in the present study.

Pallor in the upper dermis proved to be highly significant even though no study was available for comparison.

Summary and Conclusion

A clinicohistopathological study of Psoriasis and Psoriasiform dermatitis was conducted in the Department of Pathology and Department of Dermatology, Sree Gokulam Medical College and Research Foundation over a period of one year.

The histopathological evidence of parakeratosis, acanthosis, hypogranulosis, regular elongation of rete ridges, mitosis extending beyond the basal layer, pallor in the upper

epidermis, suprapapillary thinning and dermal oedema were found to be statistically significant contributors to the clinicohistopathological concordance in cases of Psoriasis.

Spongiosis, basal layer cell vacuolation and exocytosis of lymphocytes were found to be significantly associated with the diagnosis of psoriasiform dermatitis.

After logistic regression, suprapapillary thinning and pallor in the upper epidermis were found to be independent contributors to the diagnosis of Psoriasis with R² value of less than 2.

Recommendations

Biopsy for histopathological diagnosis is better appreciated if the patient takes complete abstinence from any type topical application for more than 1 month.

Skin biopsies should be properly handled including proper orientation of the biopsy, cutting of the biopsy to better appreciate the epidermal changes.

Pallor in the upper epidermis can be taken as one of the determinants for the diagnosis of psoriasis though it has not been given emphasis.

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