

A Clinico-Pathological Study of Psoriasis and Psoriasiform Dermatitis

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ABSTRACT

BACKGROUND

Psoriasis is a chronic skin condition, which can have varied presentation either per se or because of various treatment modalities, which can closely simulate any different dermatological conditions. Hence, a clinicohistopathological correlation is necessary for confirmation of diagnosis and treatment. Very few studies are available in the indexed journals on this subject matter. The present study is aimed to study the clinical and histological features of psoriasiform dermatitis and psoriasis.

METHODS

This was a longitudinal study consisting of 60 subjects divided into two classes based on clinical diagnosis. Class A patients with diagnosed psoriasis and class B subjects with psoriasiform dermatitis. Many patients have had specific examination and skin biopsy.

RESULTS

Majority of the cases (40 %) were in the age group of 31 - 40 years. Most common clinical diagnosis was psoriasis (56.7 %) followed by allergic contact dermatitis (13.3 %), pityriasis rosea (8.3 %), lichen simplex chronicus (5 %), seborrheic dermatitis (3 %), Devergie's disease (3 %), and pityriasis lichenoides chronica (1.6 %). Clinicopathological concordance with psoriasis was seen in 68 cases (68 %) and discordance in 32 cases (32 %).

CONCLUSIONS

Clinically psoriasis vulgaris can be diagnosed (> 80 %) by presence of micaceous scales, along with grattage test and Auspitz's sign. But in few, morphological variants of psoriasis and psoriasis modified due to various treatment modalities, we may not see the classical presentation and may mimic various other conditions (psoriasiform dermatitis), in which case a histopathological conformation is essential for diagnosis and treatment.

KEYWORDS

Psoriasis, Psoriasiform Dermatitis, Auspitz's Sign, Histopathology

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DOI: 10.18410/jebmh/2020/629

How to Cite This Article:

Venna AB, Chittla S, Malkud S. A clinico-pathological study of psoriasis and psoriasiform dermatitis. J Evid Based Med Healthc 2020; 7(51), 3085-3089. DOI: 10.18410/jebmh/2020/629

Submission 03-09-2020,

Peer Review 11-09-2020,

Acceptance 02-11-2020,

Published 21-12-2020.

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BACKGROUND

Psoriasis is a chronic papulosquamous disorder with remissions and exacerbations.¹ Varying population prevalence rates of the disease vary from 0.1 to 0.3 percent in various parts of the world.^{2,3} Most commonly psoriasis presents as a chronic bilaterally symmetrical dry erythematous, well defined scaly papules and plaques. It can be diagnosed clinically along with Grattage test and Auspitz's sign.¹ Different morphological variants of psoriasis are also described that mimic diverse dermatological conditions. Apart from this the clinical findings in psoriasis may differ depending on the age of lesions, varieties of treatments received (allopathic, ayurvedic, homeopathic), which may make the condition unstable (erythrodermic, pustular), in which case the diagnosis becomes difficult and primarily depends on histopathological examination.

Histologically, the distinction between psoriasis vulgaris and psoriasiform dermatitis is important. The term psoriasiform means that the lesions resemble psoriasis either clinically or histologically.^{4,5} This group includes seborrheic dermatitis, allergic dermatitis, nummular eczema, prurigo nodularis, lichen simplex chronicus, Devergie's disease, atopic eczema, pityriasis rosea, inflammatory linear verrucous epidermal nevus and mycosis fungoides, where psoriasiform epidermal proliferation with variable spongiosis and lymphocytes predominant. In secondary syphilis, plasma cells are predominant. In exfoliative dermatitis and cutaneous T cell lymphoma, eosinophils are predominant. In psoriasis vulgaris, Reiter's, acute generalized exanthematous pustulosis and dermatophytosis, neutrophils are predominant.⁶

Psoriasiform proliferation is a form of epithelial hyperplasia characterized by uniform elongation of the rete ridges, the prototype is psoriasis, with thinning of the supra papillary plates. In most other psoriasiform cases, the suprapapillary plates are thickened with unevenly elongated rete ridges, spongiosis and absence of Munro's and Kogoj's abscess but in psoriasiform dermatitis these have been consistently found.^{7,8,9}

Histopathological changes often vary considerably with the stage and clinical appearance of the disease.¹⁰ A correlation of psoriasiform changes with clinical symptoms also helps to achieve a conclusive diagnosis of different types of psoriasiform dermatitis. This research was conducted to learn about the different clinical, morphological and histopathological characteristics of psoriasiform dermatitis.

METHODS

The study group comprised of sixty consecutive patients of either sex, and they were divided into 2 classes (class A and class B). Class A constituted of patients, clinically diagnosed as psoriasis on the basis of well-defined erythematous plaques with non-adherent micaceous scale and positive Auspitz's sign, two or more features. Class B constituted of patients, clinically diagnosed as psoriasiform dermatitis,

presented with ill or well defined erythematous scaly plaques irrespective of presence of Auspitz's sign, clinically diagnosed as psoriasiform dermatitis, who have reported to the out-patient Department of Dermatology, Venereology and Leprology in Mamata Medical College and Hospital during the period of September 2016 to July 2017.

Inclusion Criteria

Patients who had given informed consent to undergo required investigations in the study.

Exclusion Criteria

- Nonconsenting patients
- Patients who are on treatment for the last 30 days.

Class A constituted patients with clinical diagnosis of psoriasis, class B constituted patients with psoriasiform dermatitis. A detailed clinical history including age, sex, occupation, duration of the disease, progression, precipitating factors like trauma, psychological stress, drug intake were noted. General physical and cutaneous examination was done in all patients. Psoriasis Area and Severity Index (PASI) was calculated for each and every case.

After taking informed consent, all the patients were subjected to skin biopsy under local anaesthesia using 5 mm disposable punch. Biopsy specimen was collected in bottle containing 10 % formalin and sent for histopathological examination. Slides were stained with haematoxylin and eosin (H & E). All slides were examined under light microscopy.

Statistical Analysis

The experimental data was subjected for appropriate statistical analysis, to obtain valid conclusions. P value calculated by using chi-square test, if P value is less than 0.05 it is regarded as statistically significant.

RESULTS

Out of 60 patients studied, 35 (58.3 %) patients were clinically diagnosed as psoriasis (class A) and 25 (41.6 %) patients as psoriasiform dermatitis (class B). (As per the criteria mentioned in inclusion criteria). Majority of the cases (40 %) were in the age group of 31 - 40 years. There is male preponderance, male to female ratio 7:3. Auspitz's and micaceous scale were found statistically significant (p -value < 0.05) in class A. Different morphological features of class A and class B are mentioned in Table 1. The PASI score ranged from 1 to 55. The presence of nail pitting and onycholysis were noted in 22 and 6 in class A which is statistically significant ($p < 0.05$).

The histological evidence of hypogranulosis, tortuous blood vessels, Munro's micro abscess, regular epidermal hyperplasia, supra papillary thinning were found more

frequently in class A, as compare to class B. Spongiosis, lymphocytic exocytosis, irregular epidermal hyperplasia were found to be more significant in class B.

Morphology of Lesion	Class A (35 Patients)	Class B (25 Patients)	P-Value
Macule	5 (%)	5 (%)	0.7908
Patch	2 (%)	3 (%)	0.3851
Papule	25 (%)	23 (%)	0.4953
Plaque	35 (%)	25 (%)	-
Erythematous	30 (%)	20 (%)	0.7908
Skin Coloured	16 (%)	08 (%)	0.2850
Violaceous	-	-	-
Hyperpigmented	19 (%)	14 (%)	0.8953
Micaceous Scale	35 (%)	4 (%)	0.00001*
Auspitz's Sign	25 (%)	2 (%)	0.00001*
Koebnerisation	10 (%)	7 (%)	0.9613

Table 1. Different Morphological Features in Class A and Class B

Histopathological Features	Class A (35 Patients)	Class B (25 Patients)	P-Value
Hyperkeratosis	19 (54.3 %)	14 (56 %)	0.8943
Parakeratosis	34 (97.1 %)	21 (84 %)	0.0693
Munro microabscess	27 (77.1 %)	7 (28 %)	0.0001*
Hypo / agranulosis	30 (85.7 %)	9 (36 %)	0.000069*
Hypergranulosis	5 (14.3 %)	5 (20 %)	0.7908
Acanthosis	34 (97.1 %)	20 (80 %)	0.02909*
Spongiosis	16 (45.7 %)	19 (76 %)	0.00029*
Lymphocyte exocytosis	13 (37.1 %)	21 (84 %)	0.0003*
Kogoj's microabscess	5 (14.3 %)	0 (0 %)	0.0483*
Regular epidermal hyperplasia	27 (77.1 %)	5 (20 %)	0.00001*
Irregular epidermal hyperplasia	5 (14.3 %)	15 (60 %)	0.0002*
Supra papillary thinning	31 (88.6 %)	6 (24 %)	0.00001*
Tortuous blood vessels	35 (100 %)	19 (76 %)	0.2327
Vertical orientation of collagen bundles	9 (25.7 %)	7 (28 %)	0.8435
Lymphocyte infiltration in dermis	35 (100 %)	22 (88 %)	0.0354*

Table 2. Histopathological Findings in Class A and Class B

Most common clinical diagnosis was psoriasis (56.7 %) followed by allergic contact dermatitis (13.3 %), pityriasis rosea (8.3 %), lichen simplex chronicus (5 %), seborrheic dermatitis (3 %), pityriasis rubra pilaris (3 %), pityriasis lichenoides chronica (1.6 %).

Out of 60 patients, histological diagnosis of psoriasis was made in 34 (56.7 %), psoriasiform dermatitis in 21 (35 %) and non-specific dermatitis in 5 (8.3 %) patients. (Table 3)

Histological Diagnosis	Class A	Class B	Total
Psoriasis	27 (77.1 %)	7 (28 %)	34 (56.7 %)
Psoriasiform Dermatitis	6 (17.1 %)	15 (60 %)	21(35%)
Non-Specific Dermatitis	2 (5.7 %)	3 (12 %)	5 (8.3 %)
Total	35	25	60

Table 3. Histopathological Diagnosis in Class A and Class B

DISCUSSION

Psoriasiform dermatitis refers to a series of disorders, which clinically and / or histologically, simulates psoriasis and exhibit lesions resembling psoriasis, either in the beginning or in the course of progression / resolution. These group of disorders are characterized histologically by the presence of parakeratosis, accompanied by a variable amount of hyperkeratosis, epidermal hyperplasia with elongation of the rete ridges and a superficial perivascular inflammatory infiltrate.

Most prominent among them includes psoriasis, seborrheic dermatitis, Devergie's disease, lichen simplex chronicus, chronic spongiotic dermatitis (allergic contact dermatitis, nummular eczema, dermatophytosis, etc.), pityriasisform dermatitis (pityriasis rosea, parapsoriasis etc.); and T-cell dysplasias and mycosis fungoides etc.

Given that adequate condition, treatment requires both symptomatic and detailed therapy which should be supported by conclusive diagnosis. When considering alone, clinical characteristics cannot be consistent, since they differ for both the length and treatment of the disease. In this situation where there is a diagnostic confusion, most of the times histopathology helps in diagnosis. In situations where even histopathology could not clinch a diagnosis, then a clinicohistopathological concordance has to be considered. In the present study, in class A patients, positive family history of psoriasis was noted in 11.4 % patients, which is in agreement with earlier study by Bedi¹¹, showing discrepancy with study of Kaur et al.¹² which may be due to the variation in the number of patients studied.

In this study, class A (psoriasis) patients, the predominant morphological pattern was observed to be erythematous papules and plaques with micaceous scales, which is in agreement with Meier and Seth study.¹³ Presence of Auspitz's sign (0.00001) and micaceous scales (p = 0.00001), were found statistically significant (p < 0.05), in class A patients which is in accordance with Hellgren et al study.¹⁴ The nail changes pitting, transverse grooves, nail dystrophy and sub unguial hyperkeratosis were in accordance with Kaur et al.¹²

In the present study the histopathological findings in class A (Table 1) are in near agreement with studies by Lal et al.¹⁵, Gordon and Johnson¹⁶, Mehta et al¹⁷ and Narayankar, et al.¹⁸ This near agreement may be due to size of sample and nature of biopsies obtained.

The histopathological findings in class B (Table 2) are near agreement with previous study of Mehta et al.¹⁷ the minor variation could be due to the variation of patients studied and the nature of lesion obtained.

In class A (psoriasis), out of 35 patients studied, 27 patients showed clinicohistologically concordant for psoriasis i.e., showed consistent and characteristic features as mentioned earlier, as regular epidermal hyperplasia, dilated tortuous blood vessels, and presence of Munro's and / or Kogoj's abscess. Six out of 35 patients fulfilled the criteria for psoriasiform dermatitis i.e. presence of spongiosis, irregular epidermal hyperplasia, and absence of Munro microabscess and Kogoj's abscess. The other 2 patients could not be grouped into any of the histological categories using these criteria i.e., non-specific dermatitis. This is in near agreement with Mehta et al.

Similarly in class B (psoriasiform dermatitis), out of 25 patients studied, 15 patients showed clinicohistologically concordant for psoriasiform dermatitis i.e. fulfilled the criteria, by the presence of spongiosis, irregular epidermal hyperplasia, and absence of Munro's and Kogoj's abscess, 7 out of 25 patients fulfilled the histologic criteria for psoriasis. The remaining 3 could not be classified into either of the two groups based on these criteria i.e. nonspecific dermatitis. This is in near agreement with Mehta et al. This minor

discrepancy noted in the present study and study of Mehta et al, may be due to variation in number of patients studied or variation in the incidence of these diseases presenting to clinics in different localities.

Histopathological features, in most of the dermatological diseases are helpful in confirmation of diagnosis. But in the present study, it couldn't give any confirmative diagnosis in 8.3 % patients (5 / 60), which is quite a noticeable proportion. This was found more in psoriasis cases, where in normal condition histology is confirmative in more than 90 % of cases and helps to differentiate from other conditions (psoriasiform dermatitis). This could be due to wrong selection of the lesion or the biopsy site. The sensitivity and precision of the psoriasis and psoriasiform dermatitis, clinical diagnosis is to be 81.8 % and 68.2 %, respectively, while the histological diagnosis is 61.8 % and 60 %, respectively in the selection. These findings substantiate and support the normally followed sequence of histopathological analysis accompanied by clinical perception, while for initial screening a more responsive form of technique is used, and for the subsequent confirmation, a more precise one.

Finally, an effort has been made to establish the key determinants, for diagnosing psoriasis (class A) and psoriasiform dermatitis (class B) after statistical evaluation of data. The key determinants for diagnosing psoriasis, strongly associated are clinically, with Auspitz's sign (0.00001), silvery white scales ($p = 0.00001$), nail pitting ($p = 0.0003$) and onycholysis ($p = 0.0291$) and histopathologically, with of Munro microabscess ($p = 0.001$), hypogranulosis ($p = 0.000069$), acanthosis ($p = 0.02909$), Kogoj's microabscess ($p = 0.0483$), regular epidermal hyperplasia ($p = 0.00001$), supra papillary thinning ($p = 0.00001$) and infiltration of lymphocytes in dermis ($p = 0.0354$). Similarly, for diagnosing psoriasiform dermatitis, the key determinants were spongiosis ($p = 0.00029$), lymphocyte exocytosis ($p = 0.0003$) and irregular epidermal hyperplasia ($p = 0.0002$).

In patients with suspected psoriasis, these findings confirm the diagnostic accuracy as pathognomonic clinical signs and their presence may even obviate the requirement for the examination histopathologically in settings which have limited resource. However, the lack of these characteristics in a clinical setting indicative of psoriasis require a thorough histological review. In addition to Munro's abscess, Kogoj's abscess and normal epidermal hyperplasia, acanthosis, suprapapillary thinning, hypogranulosis and lymphocyte infiltration in dermis, may be added to the list of important histopathological criteria i.e., for psoriasis. On the other hand, in conjunction with spongiosis and abnormal epidermal hyperplasia, the existence of lymphocytic exocytosis point towards a diagnosis of psoriasiform dermatitis.

CONCLUSIONS

The major determinants for the diagnosis of psoriasis includes Auspitz's sign, micaceous scales, nail pitting, onycholysis clinically, Munro's abscess, hypogranulosis, acanthosis, Kogoj's microabscess, regular epidermal

hyperplasia, supra papillary thinning and lymphocytes infiltration in dermis histologically and a positive clinicohistopathological correlation was observed in majority of the patients (77.1 %) in class A (psoriasis). The major determinants for the diagnosis of psoriasiform dermatitis includes spongiosis, lymphocyte exocytosis, irregular epidermal hyperplasia histologically and positive histopathological correlation was observed in 60 % of the patients in class B (psoriasiform dermatitis).

Data sharing statement provided by the authors is available with the full text of this article at jebmh.com.

Financial or other competing interests: None.

Disclosure forms provided by the authors are available with the full text of this article at jebmh.com.

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