

Psoriasis and significance of clinicopathological correlation in a tertiary care hospital

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Abstract

Introduction: Psoriasis affects about 0.1-3% of world's population and causes significant morbidity. The clinical presentation can be variable and often makes clinical diagnosis difficult. Skin biopsies of these patients submitted to histopathology with clinical information and differential diagnosis and pathologist ability to identify the reaction pattern and histomorphological features, is key to better patient care.

Objective: To study histomorphological features of psoriasis of skin and to assess clinicopathological correlation.

Material and Methods: This study was done on 50 consecutive cases of patients of psoriasis in department of pathology of a tertiary care hospital. Detailed study of histomorphological features was conducted.

Results: Psoriasis accounted for 4% of the total skin biopsies received in the department of pathology. The male to female ratio was 1.2:1. In this study maximum number of cases occurred in the age group of 21-50yrs. Histopathological finding such as dilated capillaries, lymphocytic infiltrate and parakeratosis was seen in 100% cases.

Conclusion: There is a definite overlap between morphology and distribution of lesions leading to diagnostic dilemmas which can be solved by distinct histopathological features and clinical correlation.

Keywords: Psoriasis, Histopathology, Hyperkeratosis, Parakeratosis, Munro's microabscess.

Introduction

Psoriasis is derived from Greek word-itchy scaly, scabby disease of skin.⁽¹⁾ It is a chronic relapsing disorder with a complicated genetics and pathogenesis and multiple inciting factors and different treatment with variable efficacy.⁽²⁾

Prevalence of Psoriasis is 0.1% to 3% in the world. It is seen in 2nd and 3rd. decade of life.⁽³⁾ Men and women are equally affected.⁽¹⁾

Patients with psoriasis develop well defined, scaling plaques in the skin. They have oval or irregular shape, vary in size from one to several centimeters and lesions are distributed symmetrically on the extensor surfaces of limbs, lower back and the scalp.⁽⁴⁾ As the clinical presentation of psoriasis is varied, definitive diagnosis depends on the histopathological examination.

Hence a study was conducted to study the histopathological features of psoriasis of skin and to assess clinicopathological correlation.

Material and Methods

This prospective study was done on 50 consecutive cases of patients of psoriasis in the department of pathology of a tertiary care hospital for a period of 2yrs. Patients diagnosed clinically as psoriasis of skin who had not received treatment, patients who were unwilling for biopsy and pregnant women were excluded from the study. A detailed clinical history was taken and thorough physical and lesional examination was performed in each case. Informed consent was obtained before biopsy. Biopsy was processed in histopathology section and stained with Hematoxylin and eosin and various histomorphological features noted.

Results

Psoriasis is accounted for 4% of the total skin biopsies received in the department of pathology. The male to female ratio was 1.2:1. In this study maximum number of cases occurred in the age group of 21-50yrs (Table 1). There were 5 cases above 50yrs and one case of psoriasis in a 10yr old boy. Scaly, papules, plaques and erythematous lesions were the various presentation, predominantly involving hands, legs, back, scalp and arms (Table 2). Clinically the most common type of psoriasis was chronic plaque psoriasis, 82%, followed by pustular psoriasis 10%, guttate psoriasis 6%, and follicular psoriasis 4%. (Table 3)

Most common histological findings were parakeratosis, dilated capillaries and lymphocytic infiltrate which was seen in 100% cases, elongated rete ridges 96%. Spongiosis 70%, Kogoj pustules 20%, and hyperkeratosis 30% was seen in occasional cases (Table 4). Clinicopathological correlation was seen in 98% cases in this study, only one case of guttate psoriasis was diagnosed as lichen simplex chronicus.

Table 1: Age distribution

Age group	Number of cases
Birth -10Yrs.	1
11-20Yrs.	9
21-50Yrs.	35
>50Yrs.	5

Table 2: Sites of involvement – Psoriasis

Site involved	Number of patients	Percentage (%)
Face	25	50.00
Neck	17	34.00
Extremities	38	76.00
Trunk	36	72.00
Back	11	22.00
Groin	3	06.00
Genitalia	4	08.00

Table 3: Clinical variants of psoriasis

Type	Number of patients	Percentage (%)
Chronic plaque	41	82
Pustular psoriasis	05	10
Guttate psoriasis	03	6

Follicular psoriasis	02	4
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Table 4: Histopathological patterns of psoriasis of the skin

Histopathological feature	Number of cases	Percentage (%)
Acanthosis	49	98
Hyperkeratosis	41	82
Parakeratosis	50	100
Munro’s microabscess	22	44
Elongated rete ridges	48	96
Suprapapillary thinning	43	86
Hypogranulosis	42	84
Spongiosis	35	70
Kogoj pustules	10	20
Dilated capillaries	50	100
Lymphocytic infiltrate	50	100

Table 5: Comparison of histopathological findings with other studies

Histopathological feature	Present study (n=50)(%)	Lal et al ⁽¹⁵⁾ (n=25)%	Gordon and Jonson ⁽¹⁶⁾ n=100(%)	Raghuveer et al ⁽¹¹⁾ (n=100)	Ambadasrao P. et al ⁽¹²⁾ (n=42)%
Acanthosis	98	100	100	75	97.61
Hyperkeratosis	82	-	28	89	23.80
Parakeratosis	100	92	97	77	100
Munro’s microabscess	44	20	75	58	83.33
Elongated rete ridges	96	-	-	75	-
Suprapapillary thinning	86	88	98	-	95.23
Hypogranulosis	84	72	75	51	92.85
Spongiosis	70	-	84	-	95.23
Kogoj pustules	20	-	31	30	11.90
Dilated capillaries	100	-	96	90	97.61
Lymphocytic infiltrate	100	100	95	98	100

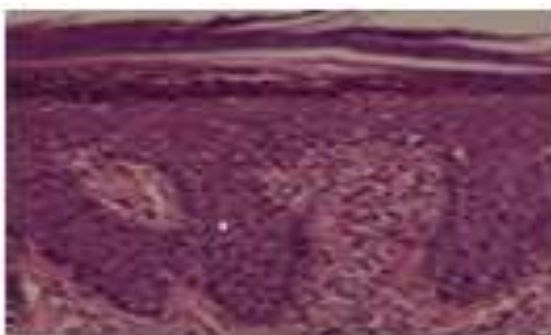


Fig. 1: Photomicrograph of psoriasis showing parakeratosis (H&E, X100)

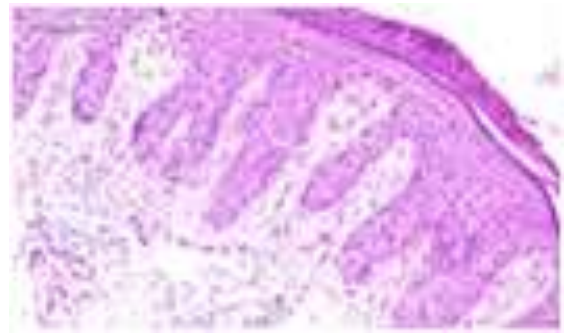


Fig. 2: Photomicrograph of psoriasis showing elongation of rete ridges and Munro’s microabscess (H&E, X100)

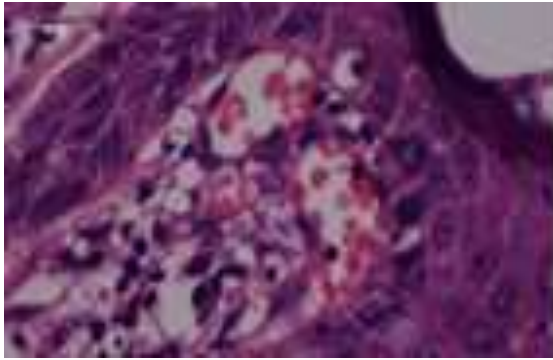


Fig. 3: Photomicrograph of psoriasis showing dilated capillaries (H&E, X100)

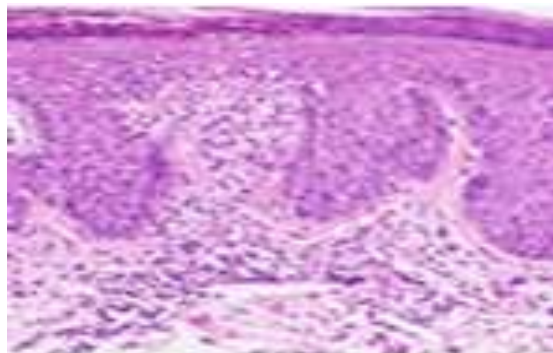


Fig. 4: Photomicrograph of psoriasis showing dermal lymphocytic infiltrate (H&E, X100)

Discussion

Psoriasis is a chronic relapsing inflammatory condition affecting 1.5-3% of the world's population, causing significant mortality. Psoriasis has many clinical variants that can be confusing with different dermatological diseases which requires histopathological confirmation.^(3,5,6)

Psoriasis accounted for 4% of the skin biopsies received in the department of pathology. According to published reports, prevalence in different population varies from 1.02 to 2.3.⁽⁵⁾ In India most of the prevalence from hospital based and Bedi et al conducted a study in north Indians and reported a prevalence of 0.8% among the skin patients.⁽⁷⁾ A study published by S kumar et al shows a point prevalence of psoriasis as 8%.⁽⁸⁾

In this study male to female ratio was 1.2:1, whereas Bedi et al⁽⁷⁾ reported 2.5:1 and Dogra et al reported 2.03-2.46:1.⁽⁶⁾

We observed in our study that majority of cases of psoriasis presented in the age group of 2nd and 4th decade. Usually the peak onset of disease is reported as third and fourth decade.⁽⁶⁾ Some studies have mentioned two peaks in age of onset, an early one at 16-22 yrs. and later one at 57-60yrs.⁽⁹⁾ In this study one case was observed in child aged 10yrs who presented with pustular palmoplantar psoriasis. Psoriasis in childhood is known but rare, it comprised of 1.4% of all pediatric dermatoses seen in patients less than 14 years of age at a referral hospital in South India.⁽¹⁰⁾ A chronic skin disease, such as psoriasis, in childhood is likely to have profound

emotional and psychological effects, and hence requires special attention. In this study the child had pustular type of psoriasis which is again a very rare entity in childhood.

In this study most common site of presentation was on extremities and trunk as documented by other studies.⁽⁶⁾

Chronic plaque psoriasis was the main clinical variant observed in this study similar to other studies like Raghuvveer et al.⁽¹¹⁾

David Elder has considered histopathological examination as the gold standard for definitive diagnosis of the various dermatological and one of them is psoriasis.⁽¹²⁾ Due to varied clinical presentation there can be diagnostic dilemma which can be clarified by histopathological evaluation. In this study 100% cases had parakeratosis, dilated capillaries and lymphocytic infiltrate. However the most diagnostic finding Munro's microabscess and Kogoj pustules were seen only in 44% and 20% of the cases respectively. Hence at times when clinicians have diagnostic dilemma even histopathology cannot resolve the issue and the microscopic picture is more compatible with rather than diagnostic of a particular disease such instances a clinicopathological correlation is a must. In this study there was 98% clinicopathological correlation only one case of chronic plaque psoriasis was diagnosed as lichen simplex chronicus. Usually late lesions of plaque type psoriasis are characterized mainly by acanthosis with elongation of the rete ridges, compact orthokeratosis, bridging of the rete ridges which may simulate lichen simplex chronicus hence a careful observation and clinical history, treatment history and age of lesion should be correlated to arrive at a correct diagnosis. An experienced dermatopathologist should know that psoriasis is a dynamic process and consequently the morphological changes vary during the evolution and subsequent resolution of the individual lesions.⁽¹³⁾

Karumabaiah et al reported acanthosis, hyperkeratosis, parakeratosis and psoriasiform hyperplasia as most common histologic findings. Suprapapillary thinning and Munro's microabscess which is diagnostic of psoriasis were seen in a few cases in their study. Hence the authors emphasize that for interpretation of such skin biopsies, the pathologist should identify and integrate tissue reaction pattern and pattern of inflammation.^(11,14,15,16)

Nikhil et al in their study tried to correlate histological parameters of psoriasis and pathogenesis of the disorder. They found 100% cases with inflammatory infiltrate and significant correlation between degree of epidermal hyperplasia and inflammatory infiltrate, grade of inflammation and pustule of Kogoj, inflammatory infiltrate and grade of capillary proliferation.⁽¹⁷⁾ Authors conclude that immunopathogenesis of psoriasis is predominantly based on the inflammatory response. We found 100% cases with inflammatory infiltrate in this study.

The clinical and histopathological features of chronic plaque psoriasis are adequate for accurate diagnosis; however diagnostic doubts may arise in clinical variants and when psoriatic lesions are localized in sites such as palm, soles, body folds, penis, nails and scalp. The main differential diagnosis of psoriasis are some of the papulosquamous disorders such as pityriasis lichenoides chronica, secondary syphilis, lymphomatoid papulosis and pityriasis rosea.⁽⁴⁾ There is a definite overlap of both clinical pattern and distribution and accurate diagnosis depends on ability of pathologist to correlate clinical and histopathological findings. Prasad et al have reported in their study on pityriasis rosea, absence or decrease of the granular cell layer, extravasation of red blood cells in papillary dermis and partly into the epidermis, dyskeratosis, liquefaction of basal cells, homogenization of papillary collagen, intraepidermal vesicles in apparently dry skin as the characteristic features.⁽¹⁸⁾

Prominent basal cell degeneration and perivascular infiltrate were the histological hallmarks seen in a study done by Nair PS in pityriasis lichenoides.⁽¹⁹⁾

Conclusion

Psoriasis is chronic relapsing and remitting disorder with varied clinical presentations. Male and female are equally affected and commonly seen in second and third decade. Clinically it can be confused with disorders like lichen planus, parapsoriasis which can be ruled out by histopathological examination. At times the diagnostic features such as Munro's microabscess and Kogoj pustule may be absent and requires clinicopathological correlation to arrive at a diagnosis.

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