Original Article

DOI: 10.17354/ijss/2015/472

A Clinico-histopathological Study of Psoriasis

C Raghuveer[1], Doddarangaiah R Shivanand[2], Nadiga Rajashekar[3]

[1]Associate Professor, Department of Dermatology and Venereology, Vijayanagara Institute of Medical Sciences, Bellary, Karnataka, India, [2]Associate Professor, Department of Dermatology and Venereology, Sreedevi Institute of Medical Sciences, Tumkur, Karnataka, India, [3]Professor, Department of Dermatology and Venereology, J. J. M. Medical College, Davangere, Karnataka, India

Abstract

Background: Psoriasis is a common disease of unknown etiology, worldwide in distribution affecting men and women of all ages, races, and social strata.

Aim: To study various clinical presentations of psoriasis, and to study the histopathological features in various clinical forms.

Methods: A 100 consecutive patients with psoriasis, who attended the out-patient department, were selected for the study. A detailed clinical history and a complete general physical examination were done, and the findings were recorded.

Results: Psoriasis accounted for 1.2% of the total dermatology outpatients during the period of 2-year from July 2002 to June 2004. Chronic plaque type was seen in 83% of cases, followed by guttate type in 8% of cases. Considering only Munro-microabcesses and Spongiform pustules of Kogoj to be truly diagnostic, only 25% showed definitive evidence of psoriasis. The Most common clinical type of psoriasis remains to be chronic plaque type. Though most of the biopsy specimen showed histopathological features suggestive of psoriasis, only a few specimens showed diagnostic features, i.e., Munro-microabcesses and spongiform pustules of Kogoj.

Conclusion: Because the clinical presentations of psoriasis are varied, the definitive diagnosis may depend on the histological examination. However, the histological changes of psoriasis are as varied as the clinical presentations. Therefore, a combination of clinical and histopathological features must be present for the diagnosis of psoriasis to be made in doubtful cases.

Key words: Histopathology, Parakeratosis, Psoriasis

INTRODUCTION

Psoriasis is a common disease of unknown etiology characterized by well-defined erythematous papules and plaques surmounted by silvery white scales over the elbows, knees, scalp, and extensor surfaces. It is a chronic disease marked by periods of remissions and exacerbations.[1] The disease has worldwide distribution and affects men and women of all ages, races, and social strata. Psoriasis is a multifactorial disorder and has a polygenic inheritance.[2,3] It is often believed to be initiated or exacerbated by stressful life event and is extremely variable in its duration and course.[4,5] Some patients are never completely free of the disease, whereas others experience long-term remission. Typical histological picture is not always found. Despite the advances in pathogenesis, the etiology is yet to be identified. Hence, we conducted a clinical and histopathological study among 100 patients clinically diagnosed as psoriasis.

Access this article online

www.ijss-sn.com

Month of Submission : 08-2015
Month of Peer Review : 09-2015
Month of Acceptance : 10-2015
Month of Publishing : 10-2015

METHODS

The 100 consecutive patients with psoriasis who attended the outpatient department for a period of 2-year were included. Patients unwilling for biopsy, those with systemic illness and pregnant women were excluded. A detailed clinical history with special references to age, site of onset, past treatment, seasonal variation, triggering factors, family history of disease, other systemic diseases, and habits were noted. General physical examination, detailed mucocutaneous, and systemic examination were done and the findings were recorded. Skin biopsy was done in all the patients for histopathological studies.

Corresponding Author: C Raghuveer, OPD No.123, Department of Dermatology and Venereology, Vijayanagara Institute of Medical Sciences, Bellary - 583 104, Karnataka, India. Phone: +91-9739678553/+91-8095003755. E-mail: c_raghuveer@yahoo.com

RESULTS

Psoriasis accounted for 1.2% of total dermatology outpatients. The male to female ratio was 3:1. The high prevalence and onset of disease was seen in the age group between 21 and 30 years. The disease was present for less than a year in 42 patients. Mild, moderate, and severe itching was seen in 37%, 22%, and 32%, respectively.

Half of the study population had seasonal variation with most of them having winter exacerbation. Six patients had familial psoriasis. History of smoking was present in 48% of patients while 33% were alcoholics.

Scalp (40%) was the most common site of onset followed by lower extremities (28%) and trunk (85%). Extremities (lower and upper) (86.5%) were the most common site of involvement followed by trunk (85%) and scalp (75%) (Table 1).

Nail involvement was seen in 75 cases. Pitting was the commonest finding (72%) followed by nail discoloration (46.66%), subungual hyperkeratosis (29.33%) and longitudinal ridging (20%) (Table 2).

Clinically, the most common type of psoriasis was chronic plaque (83%) followed by guttate (8%), palmoplantar (3%), pustular (3%), erythrodermic (2%), and inverse psoriasis (1%) (Table 3).

Koebners phenomenon was seen in 24% of cases and Auspitz sign in 29%. Hypopigmented halo (Woronoffs ring) around the lesions was seen in 24% of cases (Table 4). On histopathological examination following features were seen: Hyperkeratosis (89%), parakeratosis (75%), acanthosis (75%), hypogranulosis (51%), agranulosis (19%), hypergranulosis (16%), normal granular layer (14%), elongation of rete ridges (75%), Munro-micro abscess (58%), spongiform pustules of Kogoj (30%), capillary dilatation (90%) and lymphocytic dermal infiltration (98%). Among the parakeratosis focal was seen in 59.75%, and confluent in 40.25%. Dense lymphocytic infiltration was seen in 5.10%, moderate infiltration in 14.28% and in the majority, i.e., 81.63% mild dermal infiltration (Tables 5 and 6).

Table 1: Sites of involvement

Site	Number of patients	Percentage
Scalp	75	75.0
Face and neck	31	31.0
Trunk	85	85.0
Upper extremities	86	86.0
Lower extremities	87	87.0
Palms and soles	12	12.0
Mucous membrane	03	03.0
Periumbilical region	01	01.0
Axilla	01	01.0
Nails	75	75.0

Table 2: Nail changes

Nail changes	Number of patients	Percentage
Pitting	54	54.0
Longitudinal ridging	15	15.0
Subungual hyperkeratosis	22	22.0
Yellowish discoloration	34	34.0
Shiny	08	08.0
Onycholysis	02	02.0
Transverse ridges	02	02.0
Normal	25	25.0

Table 3: Clinical types of psoriasis

Type	Number of patients	Percentage
Chronic plaque	83	83.0
Guttate	08	08.0
Palmo-plantar	03	03.0
Inverse	01	01.0
Erythrodermic	02	02.0
Generalized pustular	02	02.0
Palmo-plantar pustulosis	01	01.0
Total	100	100

Table 4: Cutaneous features of psoriasis

Clinical features	Number of patients	Percentage
Papules	38	38.0
Plaques	82	82.0
Scales	98	98.0
Erythema	76	76.0
Hypopigmented halo	24	24.0
Exfoliation	02	02.0
Pustules	03	03.0
Koebner response	24	24.0
Auspitz sign	29	29.0

DISCUSSION

Genetic and environmental factors greatly influence the clinical development of psoriasis. This results in wide differences in the prevalence of the disease among different ethnic groups and in different parts of the world. Further, patients with minimal clinical manifestations often do not seek medical attention. Most studies on prevalence are based on information from clinical examinations, interviews, census studies, and mailed questionnaires. Estimates of occurrence of psoriasis in different parts of the world vary from 0.3 to up to more than 2%.[6,7] A few studies that have been performed in India to determine the incidence of psoriasis have been on patients attending the clinics and hospitals.[8,9] Hence, these findings do not reflect the true incidence of psoriasis in the general population.

In our study, psoriasis accounted for 1.2% of the total dermatology out-patients.

Onset of psoriasis is most common in the second to fourth decades of life though it can appear just after birth or in old age.[1] In our study, majority of the patients (47%) had the onset of the disease between 21 and 40 years. some studies have revealed two peaks in age of onset: An early one at 16-22 years and a later one at 57-60 years.[10,11]

The incidence of psoriasis in adult men and women is usually reported to be about equal.[12,13] However, male to female ratio of psoriasis in different studies from India varied from 2 to 4:1.[8,9,14] The lower incidence observed in females from these parts of world may be due to their being less attentive to health, and occurrence of psoriasis over covered parts. The higher incidence of psoriasis among agriculturists in our study may be related to occupational trauma. Itching is variable in psoriasis.[15] It ranges from complete absence to severe pruritus in the minority of patients. It is more common in unstable forms. The high prevalence and intensity of itching in our psoriatic population may be partially related to the high ambient temperatures existing in our tropical climate throughout the year.

Most patients experienced worsening of their skin lesions during winter. Presumably the xerosis associated with low humidity in winter months explains in part, the seasonal changes in the activity of psoriasis.[16] High humidity is usually beneficial. Although sunlight is generally beneficial, the small minority of psoriatics is provoked by strong sunlight and suffer summer exacerbations in exposed skin.

Smoking is a known risk factor for the development of psoriasis.[17] An association between psoriasis and alcohol consumption has been noted. Because of social and psychological burden, persons with psoriasis may be at higher risk of alcohol abuse.[18] Alcohol consumption may also lead to reduced therapeutic compliance and may interfere with treatment.[19]

Chronic plaque psoriasis continues to be the major type of psoriasis followed by guttate psoriasis. In our study, erythematous scaly plaques were noted more commonly over extremities, trunk, and scalp, and this could be explained by these areas being more prone for trauma and the same reason holds good for the scalp being the most common site of onset in the majority of patients. Psoriatic arthritis may be under diagnosed because of the fact that symptoms of psoriatic arthritis can be very slight causing little discomfort to the patient so that the condition is never diagnosed and also may be because the criteria for evaluating arthritis differ widely. The incidence of Koebners phenomenon has varied between 20% and 33% in different studies.[20,21] We found Koebners phenomenon in 24 cases. There are limitations to historical ascertainment of the Koebners response. An injury or the development of psoriasis at the site of injury may not be recalled. If recalled, the injury and the time course

Table 5: Histopathology of psoriasis

Histopathological findings	Number of patients	Percentage
Hyperkeratosis	89	89.0
Parakeratosis	77	77.0
Focal	46	59.7
Confluent	31	40.2
Acanthosis	75	75.0
Hypogranulosis	51	51.0
Agranulosis	19	19.0
Hypergranulosis	16	16.0
Normal granular layer	14	14.0
Elongation of rete ridges	75	75.0
Munro-micro abscess	58	58.0
Kogoj abscess	30	30.0
Capillary dilatation	90	90.0
Dermal infiltration	98	98.0
Mild	80	81.63
Moderate	14	14.28
Dense	4	5.10

Table 6: Histopathology of various clinical types of psoriasis

Histopathology	Clinical type (%)						Total
	Chronic plaque *n*=83	Guttate *n*=8	Erythrodermic *n*=2	Pustular *n*=3	Palmo-plantar *n*=3	Inverse *n*=1	
Hyperkeratosis	73 (89.02)	7 (87.5)	2 (100.0)	3 (100.0)	3 (100.0)	1 (100.0)	89
Parakeratosis	64 (77.10)	6 (75.0)	2 (100.0)	3 (100.0)	2 (66.66)	0	77
Acanthosis	60 (72.28)	7 (87.5)	2 (100.0)	2 (66.66)	3 (100.0)	1 (100.0)	75
Hypogranulosis	46 (55.42)	5 (62.5)	0	0	0	0	51
Agranulosis	13 (15.66)	1 (12.5)	2 (100.0)	3 (100.0)	0	0	19
Hypergranulosis	12 (14.45)	1 (12.5)	0	0	2 (66.66)	1 (100.0)	16
Normal granular layer	12 (14.45)	1 (12.5)	0	0	1 (33.33)	0	14
Elongation of rete ridges	63 (75.90)	5 (62.5)	2 (100.0)	2 (66.66)	2 (66.66)	1 (100.0)	75
Micro-munro abscess	47 (56.62)	5 (62.5)	2 (100.0)	3 (100.0)	1 (33.33)	0	58
Kogoj-abscess	24 (28.91)	1 (12.5)	2 (100.0)	3 (100.0)	0	0	30
Capillary dilatation	76 (91.56)	7 (87.5)	2 (100.0)	3 (100.0)	2 (66.66)	0	90
Dermal infiltration	81 (97.59)	8 (100.0)	2 (100.0)	3 (100.0)	3 (100.0)	1 (100.0)	98

of the resulting psoriasis may not be standardized. A higher incidence of Auspitz sign demonstrated in our study may be because of more cases with acute flare.

The histopathological findings in the present study showed features consistent with psoriasis, but there was disparity between findings of other studies.[22,23] This can be explained on the basis of varying degrees of activity of the disease. It is clear that there is a wide spectrum of histologic change recognizable in psoriatic plaques, even when they have not been subjected to specific treatment and also when the clinical appearance does not deviate from the usual. In guttate psoriasis, lesions showed more pronounced inflammatory infiltrate and mononuclear dermal infiltration was seen in all 8 (100%) patients as compared to 81 (97.59%) in chronic plaque psoriasis. Guttate psoriasis shows more pronounced inflammatory infiltrate as the lesions are usually early or active.[24] Though most of the biopsy specimen showed histopathological features suggestive of psoriasis, only few specimen showed diagnostic features, i.e. Munro-micro abscess and Spongiform pustules of Kogoj, although all the specimen were from clinically diagnosed lesions. This indicates that the entirely typical histological features are found only in a small percentage of biopsy specimen, even if only clinically typical lesions of psoriasis are examined. This also concurs with Cox and Watsons[23] observation that a substantial proportion of clinically active psoriatic plaques lack the classical histologic pattern of the disease. Because the clinical presentation is varied, the definitive diagnosis may sometimes depend on the histologic examination. However, the histological changes of psoriasis are as varied as the clinical presentations. Therefore, a combination of clinical and histopathologic features must be present for the diagnosis of psoriasis to be made in doubtful cases.

CONCLUSION

Psoriasis is a chronic dermatological disorder with chronic remissions and exacerbations. It is commonly seen in the third and fourth decades with a male preponderance. Cutaneous lesions consisted of well-defined erythematous papules and plaques covered with scales. Hypopigmented halo, Koebner phenomenon, and Auspitz sign were the associated features. In different types and at different stages of psoriasis, the histological manifestations are present in varying degrees, and often it is the combination of these manifestations that helps the clinician and a pathologist, arrive at the diagnosis of psoriasis.

REFERENCES

1. Pavithran K. Disorders of keratinization. In: Valia RG, Ameet RV, editors. IADVL Textbook and atlas of Dermatology. 2nd ed., Vol. II. Mumbai: Bhalani Publishing House; 2001. p. 799-846.
2. Kumar A, Mohan L, Singh KK, Pandey ON. Modes of inheritance in psoriasis. Indian J Dermatol Venereol Leprol 1992;58:179-82.
3. Elder JT, Nair RP, Guo SW, Henseler T, Christophers E, Voorhees JJ. The genetics of psoriasis. Arch Dermatol 1994;130:216-24.
4. Malhotra SK, Mehta V. Role of stressful life events in induction or exacerbation of psoriasis and chronic Urticaria. Indian J Dermatol Venereol Leprol 2008;74:594-9.
5. Koo JY, Pham CT. Psychodermatology. Practical guidelines on pharmacotherapy. Arch Dermatol 1992;128:381-8.
6. Farber EM, Nall L. Epidemiology: Natural history and genetics. In: Roenigk HH, Maibach HL, editors. Psoriasis. 3rd ed. New York: Marcel Dekker Inc.; 1998. p. 107-57.
7. Nevitt GJ, Hutchinson PE. Psoriasis in the community: Prevalence, severity and patients' beliefs and attitudes towards the disease. Br J Dermatol 1996;135:533-7.
8. Bedi TR. Clinical profile of psoriasis in North India. Indian J Dermatol Venereol Leprol 1995;61:202-5.
9. Kaur I, Kumar B, Sharma VK, Kaur S. Epidemiology of psoriasis in a clinic from North India. Indian J Dermatol Venereol Leprol 1986;52:208-12.
10. Henseler T, Christophers E. Psoriasis of early and late onset: Characterization of two types of psoriasis vulgaris. J Am Acad Dermatol 1985;13:450-6.
11. Smith AE, Kassab JY, Rowland Payne CM, Beer WE. Bimodality in age of onset of psoriasis, in both patients and their relatives. Dermatology 1993;186:181-6.
12. Kavli G, Førde OH, Arnesen E, Stenvold SE. Psoriasis: Familial predisposition and environmental factors. Br Med J (Clin Res Ed) 1985;291:999-1000.
13. Nall MC, Farber EM. World epidemiology of psoriasis. In: Farber EM, Cox AF, Jacobs MD, Nall ML, editors. Psoriasis. Proceedings of the 2nd International Symposium. New York: Yorke Medical Books; 1979. p. 331-3.
14. Sharma TP, Sepaha GC. Psoriasis - A clinical study. Indian J Dermatol Venereol Leprol 1964;30:191-203.
15. Habif TP, editor. Psoriasis and other papulosquamous diseases. 4th ed. Philadelphia: Mosby; 2004. p. 209-39.
16. Anderson TF, Voorhees JJ. Psoriasis. In: Theirs BH, Dobson RL, editors. Pathogenesis of Skin Disease. New York: Churchill Livingstone; 1986. p. 6-84.
17. Naldi L, Parazzini F, Brevi A, Peserico A, Veller Fornasa C, Grosso G, *et al*. Family history, smoking habits, alcohol consumption and risk of psoriasis. Br J Dermatol 1992;127:212-7.
18. Higgins EM, du Vivier AW. Cutaneous disease and alcohol misuse. Br Med Bull 1994;50:85-98.
19. Camp RD. Psoriasis. In: Champion RH, Burton JL, Burns DA, Breathnach SM, editors. Text Book of Dermatology. 6th ed., Vol. 2. London: Blackwell Science; 1998. p. 1589-649.
20. Christopher E, Mrowietz U. Psoraisis. In: Freeberg IM, Eisen AZ, Wolff K, Austen KF, Goldsmith LA, Katz SI, editors. Fitzpatrick's Dermatology in General Medicine. 6th ed., Vol. I. New York: McGraw-Hill; 2003. p. 407-27.
21. Melski JW, Bernhard JD, Stern RS. The Koebner (isomorphic) response in psoriasis. Associations with early age at onset and multiple previous therapies. Arch Dermatol 1983;119:655-9.
22. Lal S, Sandana SR, Chitkara NL. Histopathology of psoriasis at various stages. Indian J Dermatol Venereol Leprol 1965;31:216-22.
23. Cox AJ, Watson W. Histological variations in lesions of psoriasis. Arch Dermatol 1972;106:503-6.
24. Toussaint S, Kamino H. Non-infectious erythematous, popular and squamous disease. In: Elder D, Elenitsas R, Jaworsky C, Johnson B, editors. Lever's Histopathology of the Skin. 8th ed. Philadelphia: Lippincott-Raven Publishers; 1997. p. 151-84.

How to cite this article: Raghuveer C, Shivanand DR, Rajashekar N. Clinico-histopathological Study of Psoriasis. Int J Sci Stud 2015;3(7):176-179.

Source of Support: Nil, **Conflict of Interest:** None declared.