

# Clinical and histopathological study of psoriasis

Noshin N Abdu<sup>1</sup>, Gangadhar Bugude<sup>2\*</sup>, Mallikarjun M<sup>3</sup>, Deepadarshan K<sup>4</sup>

<sup>2</sup>Assistant Professor, <sup>3</sup>Professor and HOD, Department of Dermatology, KVG Medical College, Sullia, Karnataka, INDIA.

Email: [ganges.dvl@gmail.com](mailto:ganges.dvl@gmail.com)

## Abstract

**Background:** Psoriasis is a common, genetically determined, inflammatory and proliferative disease of the skin, the most characteristic lesions consisting of chronic, sharply demarcated, dull red, scaly plaques, particularly on the extensor prominences and in the scalp. The disease is enormously variable in duration and extent and morphological variants are common. **Objectives:** 1.To Study various clinical presentations of psoriasis. 2.To Study the histopathological features in various forms of psoriasis to differentiate other papulosquamous disorders. **Methods:** A random of 50 patients who attended the outpatient Department of Dermatology and Venereology K.V.G Medical College and Hospital, Sullia, during a period extending from Jan 2012 to June 2013 and clinically diagnosed as psoriasis were selected consecutively for study. Name, age, sex, occupation and full address were recorded. The presenting complaints and their duration was noted with detailed history with reference to age of onset, site of onset, past treatment, seasonal variation, triggering factors, family history of the disease, other systemic diseases, habits and development of lesions at the site of trauma. Patients not willing for biopsy, patients with systemic illness and pregnant women were excluded from the study. A complete general physical examination was done and the findings were recorded. Skin examination was done in detail with special reference to the morphology and the sites of involvement. A fresh lesion was scraped with a clean glass slide to find out the type of scaling and to look for Auspitz sign. Nails, mucous membranes and scalp were examined. In addition, thorough systemic examination was done in all patients. **Results:** In our study, chronic plaque psoriasis (84%) was the commonest clinical type seen followed by guttate(8%), palmoplantar psoriasis(2%), erythrodermic (2%), generalised pustular psoriasis(4%) and psoriatic arthropathy(1%). one patient with erythrodermic psoriasis and one patient with chronic plaque psoriasis had concomitant arthritis. Majority of patients(23%) were in the age group of 21-40yrs. Male to female ratio was 2.84:1. Majority of the patients(32%) were agriculturists. **Conclusion:** The study concludes that psoriasis is commonly seen in the third and fourth decade and more number of males were affected than females. Onset being earlier in females than males. More number of patients affected were agriculturists, who are more prone for trauma and agriculturists constitute a predominant group in this area. Because the clinical presentation is varied, the definitive diagnosis may depend on histological examination. However, the histological changes of psoriasis are as varied as the clinical presentations. So, combination of clinical and histopathological features must be present for diagnosis of psoriasis to be made.

**Key Word:** chronic plaque psoriasis, erythrodermic psoriasis, Micromunro abscesses, Spongyform pustules of Kogoj

## \*Address for Correspondence:

Dr. Gangadhar Bugude, Assistant Professor, Department of Dermatology, KVG Medical College, Sullia, Karnataka, INDIA.

Email: [ganges.dvl@gmail.com](mailto:ganges.dvl@gmail.com)

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## INTRODUCTION

Psoriasis is a common disease of unknown etiology characterized by well defined erythematous papules and plaques surmounted by silvery white scales over elbows,

knees, scalp and extensor surfaces. It follows an irregular course characterized by remissions and exacerbations. The disease has a worldwide distribution and affects men and women of all ages, races and social strata. Accelerated epidermopoiesis has been considered to be fundamental pathological process in psoriasis and regular epidermal hyperplasia is the characteristic histological feature. The pathogenesis of psoriasis involves both genetic predisposition, including the influences of genes of the human leucocyte antigen complex and T cell dependent mechanisms. The enigma in the pathogenesis of psoriasis however is whether the disease is primarily one of keratinocytes or of the immune system. Though a major genetic component is present in psoriasis, the pattern does not follow a simple mendelian mode of

inheritance. Psoriasis is exacerbated by stress, extremely variable in its duration and course. A single lesion may persist for life or many lesions may be present. Some patients are never completely free of the disease whereas others experience long term remission. The cutaneous lesions are usually so distinct that a clinical diagnosis is easy to make. The lesions are classified as erythemosquamous, which indicates that both the vasculature (erythema) as well as the epidermis (increased scale formation) are involved. Regardless of the time of onset of the disease, the patient faces a lifelong struggle to eradicate the erythematous scaling plaques that are a source of anxiety and embarrassment. On the basis of age at onset curves of psoriasis, it has been proposed that there are two types of psoriasis vulgaris, one with an early and one with a late age of onset. It may or may not be associated with itching. Nail changes are seen in 30% of the patients and range from pitting to onycholysis in severe cases. Arthritis resembling rheumatoid arthritis develops in 1-2% of patients. Psoriatic arthropathy is the only recognized non-cutaneous manifestation of the disease. Psoriatic arthropathy is defined as the association of psoriasis of skin and/or nails with peripheral and/or spinal arthropathy and usually with a negative serological test for rheumatoid factor. Generalized exfoliative dermatitis is a serious complication of psoriasis. Generalized pustular psoriasis (GPP) is a form of severe psoriasis characterized by widespread eruption of pustules on an erythematous base. Other uncommon complications include secondary infection of the lesions, nephritis and renal failure, hepatic failure, atypical pulmonary fibrosis and amyloidosis. As quoted by Shelly and Shelly, "Psoriasis is a diagnostician's delight as it has an honest forthright portrait, just a glance is enough to diagnose the disease most of the time". Histologically, it is characterized by hyperkeratosis and parakeratosis, absent granular layer, suprapapillary epidermal thinning, elongation of rete ridges and presence of Munro microabscesses and spongiform pustules of Kogoj. In the dermis, thin elongated papillae are prominent and these papillae contain dilated, tortuous capillaries embedded in an oedematous papillary stroma. Psoriatic inflammation

consists of perivascular oedema at the dermal papillae, extravasation and upward chemotaxis of leucocytes and formation of microscopic and macroscopic pustules. Considerable evidence indicates that the microvascular changes observed in psoriasis are a result of angiogenesis. However an entirely typical histopathological picture is not always found even in a typical lesion and skin biopsy is not always helpful in the diagnosis of psoriasis because many of its histopathological features are shared with other skin diseases. Over the last few decades, meaningful advances have been made in studying this protean cutaneous illness, however the etiology and pathogenesis remain an enigma. Several studies regarding the clinical patterns of the disease have been reported from India and other parts of the world. The treatment for psoriasis is targeted at both inflammatory and hyperproliferative aspects of the disease. Usually the aim of treatment is to produce clearing of the lesions, but the patient sometimes has to settle for a compromise of partial clearing when complete clearing and prolonged remission can be achieved only at the expense of unaccepted treatment toxicity. Recently development of new generation therapy like monoclonal antibodies, fusion proteins, recombinant cytokines etc., which will gain importance in the routine treatment of psoriasis in the near future. Hence it is worthwhile to study various clinical forms and their characteristic histopathological features which will help in planning the correct treatment of this common papulosquamous disorder.

## MATERIALS AND METHODS

The study was conducted on patients who attended the outpatient Department of Dermatology and Venereology, KVG Medical College and Hospital, Sullia, during a period extending from Jan 2012 to June 2013. Fifty patients who attended the outpatient department and clinically diagnosed as psoriasis were selected consecutively for the study, which were attended only by the investigator. Patients belonged to all age groups, both sexes and different economic strata. Patients not willing for biopsy, patients with systemic illness and pregnant women were excluded from the study.

## OBSERVATIONS AND RESULTS

**Table 1:** Incidence (of psoriasis in hospital patients)

Total number of patients	Number of psoriasis patients	Percentage
27212	296	1.087

Psoriasis accounted for 1.087% of the total dermatology outpatients during the period of years from Jan 2012 to June 2013.

**Table 2:** Age and Sex distribution

Age(In Years)	Males		Females		Total
	No.of cases	%	No.of cases	%	
Upto 10	1	02.7	1	07.7	2
11 to 20	4	10.8	3	23.1	7
21 to 30	8	21.6	4	30.7	12
31 to 40	8	21.6	2	15.4	10
41 to 50	6	16.3	1	07.7	7
51 to 60	8	21.6	1	07.7	9
>60	2	05.4	1	07.7	3
<b>Total</b>	<b>37</b>	<b>100</b>	<b>13</b>	<b>100</b>	<b>50</b>

**Table 3:** Relation of psoriasis to occupation

Occupation	No.of Patients	Percentage
Agriculturists	16	32.0
Students	10	20.0
Coolies	6	12.0
House Wives	5	10.0
Government Employees	7	14.0
Businessmen	2	04.0
Mechanics	2	04.0
Teachers	2	04.0
<b>Total</b>	<b>50</b>	<b>100</b>

**Table 4:** age of onset

Age(in years)	Males		Females		Total
	No.of cases	Percentage	No.of cases	Percentage	
Upto 10	3	08.2	1	07.7	4
11 to 20	4	10.8	4	30.8	8
21 to 30	9	24.3	4	30.8	13
31 to 40	8	21.6	2	15.3	10
41 to 50	8	21.6	1	07.7	9
51 to 60	4	10.8	1	07.7	5
>60	1	02.7	0	00.0	1
<b>Total</b>	<b>37</b>	<b>100.0</b>	<b>13</b>	<b>100</b>	<b>50</b>

**Table 5:** Duration of the disease

Duration(in years)	No.of patients	Percentage
<1	21	42.0
1 – 6	22	44.0
7 – 12	03	06.0
>12	04	08.0
<b>TOTAL</b>	<b>50</b>	<b>100</b>

**Table 6:** Symptoms

Symptoms	No.of patients	Percentage
Asymptomatic	04	08.0
Mild itching	19	38.0
Moderate itching	11	22.0
Severe itching	16	32.0
<b>TOTAL</b>	<b>50</b>	<b>100</b>

**Table 16:** Histopathology of Psoriasis

Histopathological findings	No.of patients	Percentage
Hyperkeratosis	44	88.0
Parakeratosis		
Focal -23(60.52%)	38	76.0
Confluent -15(39.47%)		

Acanthosis	37	74.0
Hypogranulosis	25	50.0
Agranulosis	09	18.0
Hypergranulosis	08	16.0
Normal Granular layer	07	14.0
Elongation of rete ridges	38	76.0
Munro-Micro abscess	29	58.0
Kogoj abscess	15	30.0
Capillary dilatation	45	90.0
Dermal infiltration		
Mild -40(81.63%)	49	98.0
Moderate -07(14.28%)		
Dense -02(04.08%)		

**Table 17:** Histopathology of various clinical types of psoriasis

Histopathology	Clinical Type					Total
	Chronic Plaque N=42(%)	Guttate N = 4(%)	Erythrodermic N = 1(%)	Palmoplantar N = 1(%)	Pustular N = 2(%)	
Hyperkeratosis	37 (88.09)	4(100)	1(100)	1(100)	1(50)	44
Parakeratosis	33 (78.57)	2(50)	1(100)	1(100)	1(50)	38
Acanthosis	31 (73.80)	2(50)	1(100)	1(100)	2(100)	37
Hypogranulosis	19 (45.23)	1(25)	0	0	0	20
Agranulosis	6 (14.28)	1(25)	1(100)	0	1(50)	09
Hypergranulosis	6 (14.28)	1(25)	0	1(100)	0	08
Normal granular layer	6(14.28)	1(25)	0	0	0	07
Elongation of rete ridges	32(76.19)	3(75)	1(100)	1(100)	1(50)	38
Micro Munro abscess	23(54.76)	2(50)	1(100)	1(100)	2(100)	29
Kogoj abscess	12(28.57)	1(25)	0	0	2(100)	15
Capillary dilatation	39(92.87)	3(75)	1(100)	1(100)	1(50)	45
Dermal infiltration	41(97.61)	4(100)	1(100)	1(100)	2(100)	49

## DISCUSSION

### Incidence (of psoriasis in hospital patients):

Genetic and environmental factors greatly influence the clinical development of psoriasis. This results in wide differences in the prevalence of this disease among different ethnic groups and in different parts of the world. Most studies on prevalence are based on information from clinical examinations, interviews, census studies and mailed questionnaires. Psoriasis accounted for 1.087% of the total dermatology outpatients during the period from Jan 2012 to June 2013 in KVG Medical College and Hospital, Sullia. Kaur *et al*<sup>1</sup>, in their study reported that psoriatics accounted for 1.4% of the total dermatology outpatients. Mehta *et al*<sup>2</sup>, in their study reported the incidence of psoriasis as 1.5% of the total skin cases of the OPD attendance. Bedi<sup>3</sup> in his study reported that prevalence of psoriasis among dermatology outpatients as 2.8%.

### Age Distribution

In the present study 12 (24%) patients belonged to the age group of 30 years, followed by 10 (20%) patients in the age group of 31-40 years. Thus majority of patients (44%) belonged to the age group of 21-40 years.

Incidence in age group of 11-20 years was 14% whereas upto 10 years, it was only 4%. Patients above the age of 50 years constituted to 24% of the total cases. The number of patients between 11 and 50 years were 36 (72%). Average age of patients in the present study was 34.86 years: 24.4 in female patients and 38.34 years in male patients. Sharma and Sepaha<sup>[4]</sup> in their study had revealed that psoriasis was commonest (76.6%) in the middle age groups between 15 to 45 years, maximum being in 15-30 years age period. The incidence was much lower above the age of 45 years and below the age of 15 years (16.67 and 6.66% respectively). Mehta *et al*<sup>2</sup>, in their study of 300 patients revealed maximum number of patients (86.67%) between the age of 11 years and 50 years and number of patients below 10 years and above 50 years were minimum. Thus the results of the present study are almost in concurrence with the above mentioned studies.

### Sex distribution

In the present study, number of males with psoriasis were 37 (74%), as compared to 13 (26%) females. Thus male to female ratio was 2.84:1. Inderjeet Kaur *et al*<sup>1</sup>, in their study of 782 patients revealed a male to female ratio of 2.3:1. Bedi<sup>3</sup> in his study of 530 patients of psoriasis from

North India revealed a male to female ratio of 2.4:1. Mehta *et al*<sup>2</sup>, in their study reported a male to female ratio of 4:1. Nevitt and Hutchinson<sup>5</sup> in their study reported that the patient sex ratio showed a slight preponderance towards females (0.54: 0.46), but there was no statistical evidence against an equal sex incidence. Thus the results of the present study are in concurrence with most of the above studies, and indicate a higher preponderance of psoriasis in males than females.

### Occupation

According to the present study 32% of patients with psoriasis were agriculturists, 20% were students, 14% were employees, 12% were coolies, 10% were housewives, 04% were mechanics, 04% were businessmen and 04% were teachers. Sharma and Sepaha<sup>4</sup>, in their study reported highest incidence of frequency in farmers (23.33%).

Zrnic *et al*<sup>6</sup> in their study reported highest incidence of frequency in workers (66.64%), followed by pupils (including students) (12.3%), agricultural workers (10.99%) and pensioners (7.04%). In their study majority of patients were workers and agriculturists. Thus the present study correlates well with study of Sharma and Sepaha<sup>4</sup>. The higher incidence among agriculturists may be due to occupational trauma and higher number of agriculturists in this part.

### Age of onset

In the present study majority of patients had onset of the disease between 21-30 years (26%), followed by 20% of patients in the age group of 31 to 40 years. Mean age of onset in the present study was 31.2 years. Mehta *et al*<sup>2</sup>, in their study observed the onset of the disease highest between the age of 21 and 30 years (36%). Nevitt and Hutchinson<sup>5</sup> in their study reported, that the disease had started at a wide variety of ages, with a mean of 33.2 years. Zrinc *et al*<sup>6</sup> in their study reported an average age of onset as 27.21 years. Hence the results of the present study are in concurrence with the above studies. In the present study, mean age of onset in females was 23.2 years and in males it was 33.8 years. Hence females have an early age of onset than males. Inderjeet Kaur *et al*<sup>11</sup>, in their study reported the mean age of onset for females and males as 29.34±15.10 and 36.9±15.10 years respectively. Zrnic *et al*<sup>6</sup> in their study reported age of onset in females as 26.93 years and in males as 27.29 years. Hence the results of the present study are almost in concurrence with the above studies.

### Duration of the disease

In the present study 21% of the patients had the disease for less than 1 year and 58% of the patients had the disease for longer than 1 year of whom 14% had the disease with remissions and exacerbations for more than 7 years. In 44% of the patients duration of the disease was

between 1 to 6 years. Mean duration was 3.6 years with range of 1 week to 40 years. Sharma and Sepaha<sup>4</sup> in their study reported 83.33% of patients having duration of above 1 year and 46.6% of patients had the duration of disease between 1 to 6 years.

In the present study most of the patients reported early as compared to study of Sharma and Sepaha<sup>4</sup> probably because the awareness regarding the disease and eagerness to come forward for treatment was more. The prolonged duration of the disease reveals the chronicity of the disease with frequent remissions and exacerbations.

### Symptoms:

In the present study, skin lesions were asymptomatic in 4 patients and itching was present in 46 (92%) patients. Mild itching was present in 19 (38%) patients, moderate itching in 11 (22%) patients and severe itching in 16 (32%) patients. Kalla *et al*<sup>7</sup>, in their study, reported itching in 259 (86.33%) patients while only 41 (13.67%) patients were asymptomatic. Gupta *et al*<sup>8</sup>, in their study of 82 patients of psoriasis, revealed mild or no itching in 27 (32.7%) patients, moderate itching in 30 (36.4%) patients and severe itching in 25 (30.9%) patients. Nevitt and Hutchinson<sup>5</sup> in their study reported itching in 75% of patients, with mild itching in 20%, moderate itching in 21% and severe itching in 14% patients. Thus, a slightly higher number of patients presented with itching when compared with studies of above mentioned authors. 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.

### CONCLUSION

Psoriasis is commonly seen in the third and fourth decade and more number of males were affected than females. The age of onset was more common between the third and fourth decade, with the onset being earlier in females as compared to males. More number of patients affected were agriculturists, who are more prone for trauma and agriculturists constitute a predominant group in this area. Patients with family history had early age of onset compared to patients without family history and females with family history showed early age of onset when compared to males with positive family history. In more than half the patients, the disease was of longer than 1 year duration, and some patients had the disease with remissions and exacerbations for more than 7 years. Positive family history was noted in few patients, indicating a possible role of genetic factors in etiology of the disease.



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