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Original Research Article

Clinicopathological Study of Psoriasis Cases in A Tertiary Care Hospital

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Abstract

Introduction: Psoriasis is a chronic papulosquamous disorder characterized by erythematous scaly plaques. The prevalence of psoriasis according to WHO ranges between 0.9% -11.4%. In India prevalence ranges from 0.44-2.8%. It affects all the age group with no sex predilection, still two age related peaks have been reported, first around 20-30 years of age and second around 50-60 years of age. It usually affects the extensor aspects of the extremities. There are many clinical variants chronic plaque psoriasis, others being guttate psoriasis, pustular psoriasis, unstable psoriasis and erythrodermic psoriasis.

Aims and Objectives: To determine the incidence of psoriasis according to the age, gender, site of lesion and analysis of various types of clinical presentation.

Materials and Methods: Fifty clinically and histopathologically confirmed cases were taken and its incidence of age, sex, site and type of clinical presentation were analysed**.**

Observation and Results: Out of 50 patients, 17 patients (34%) belongs to 41-60 years, 24 patients were males(48%), site of lesion being lower limb (82%) and erythematous scaly lesion occupied (80%) among the various clinical presentation.

Conclusion: In our study group, Males were found to be predominant, the age group was 41-60 years, the most common site being lowerlimb and erythematous scaly lesion was the most common type of clinical presentation.

Keywords: Psoriasis, Erythematous Plaque.

Introduction

The skin is largest organ of the body and constitutes 15% of the body weight.[1,2] Skin serves as mechanical barrier against external physical, chemical and Biologic toxic substance and as immunologic organ.[3] It participates in body temperature and electrolyte regulation. Psoriasis is a chronic inflammatory dermatosis that appears to have an autoimmune basis. [5] Prevalence of psoriasis in worldwide ranges from 0.9 -11.4. In India it ranges about 0.44 -2.8%.[4] Psoriasis has a bimodal distribution

of age of onset. Early peak between 6- 22 years, later being at 54- 60 years of age. Individual with early onset have more severe disease and more likely to have affected first degree relatives with psoriasis.

Psoriasis is a chronic, disfiguring, inflammatory dermatosis in which both genetic and environmental influences have a critical role. Interaction between the genes and environment are important in disease causation. Physical, chemical, electrical, surgical, infective and inflammatory agents have been recognized to elicit psoriatic lesion [6]. Streptococcal infection may be important in chronic plaque psoriasis and in acute guttate psoriasis.[7,8] Drugs chiefly Lithium salt, Antimicrobial, Beta blocker, NSAIDS, ACE inhibitor are responsible for onset or exacerbation of psoriasis. Alcohol may exacerbate preexisting disease but doesn't appear to induce psoriasis.[10] Smoking is associated with palmo pustular psoriasis. Prognosis of AIDS in patients with psoriasis is poor and psoriasis in HIV positive patients found to flare severely. Psoriasis may actually improve during pregnancy and worse in postpartum period.

Clinically the characteristic lesion of psoriasis consists of circumscribed erythematous scaly plaques. Scales are silvery white with varying thickness. Auspitz's sign is a characteristic bleeding point develops when scales are removed. There is a predilection for extensor surface of extremities including elbow and knees. It also involves sacrum, nail, scalp, face. [9]. Psoriasis can develop at the sites of physical damage or chemical damage known as Koebner phenomenon. Uncontrolled psoriasis leads to generalized exfoliative erythroderma.

The most common presentation remains as chronic plaque psoriasis (psoriasis vulgaris). The sites involved are in following order as trunk, scalp, face, palm, sole and flexural areas. The second most common form being palmoplantar psoriasis followed by inverse psoriasis.

Materials and Methods

This study was conducted at Government Mohan Kumaramangalam Medical College, Salem, Tamilnadu from January 2018 to June 2020 and includes totally of 50 clinically and histopathologically confirmed cases of psoriasis.

A total of 50 patients who are attending the outpatient clinic in Dermatology department with scaly lesion and diagnosed clinically as psoriasis were included for this study. Punch biopsy was taken after getting consent and application of local anesthesia using disposable punch of size 4mm. The biopsy tissue was transferred to container with 10% neutral buffered formalin with great care. The tissue was further processed using tissue processor and embedded in paraffin. Embedded paraffin blocks were sectioned with microtome into 3- 5-micron thickness and stained with hematoxylin and eosin stain. After staining, the slides were examined under light microscope and various histological parameters were studied and observations were recorded.

Observation and Results

The present study shows the following results while analyzing various parameters.

Table 1: Age wise distribution of cases of psoriasis

Age (In Years)	No. of patients	%
<20	8	16.0
20-40	15	30.0
41-60	17	34.0
>60	10	20.0
Total	50	100.0

Out of 50 patients majority (34%) of them belongs to 41-60 yrs and the least number of patients were in < 20yrs with prevalence of 16%. Youngest patient was 14 yrs old and oldest patient was 80 years old. Table: 1

Table 2: Gender-wise distribution of cases of psoriasis

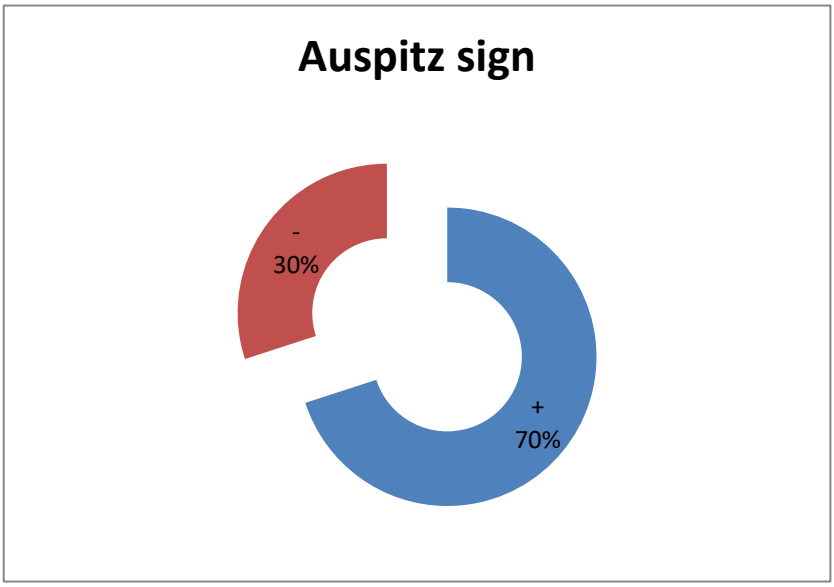
Gender	No of patients	%
Male	24	48.0
Female	22	44.0
Mch	2	4.0
Fch	2	4.0
Total	50	100.0

Out of 50 cases that were studied, 24 (48%) were males and 22 (44%) were females. Pediatric cases (8%) were four in number. Table:2

Table 3: Site of distribution of cases of psoriasis

Sites of involvement #	*No of patients*	*%*
Upper limb	33	66
Lower limb	41	82
Trunk	17	34
Head & neck	13	26
Scalp	2	4

#multiple response



Graph 1: Percentage of Auspitz Sign Demonstration

In the present study, lower limb (82%) were the most common site involved, followed by upper limb involving 66%. Other sites involved were trunk, head & neck in 34% and 26% cases respectively. Scalp was the least commonly involved site in about 4% of cases. (ref: Table: 3)

In the present study majority (80%) of patients presented with plaque, erythema in 72%, scales in 68%, papule in 20% and hypo pigmented lesions in 22%

Out of 50 patients in the study 70% demonstrated the presence of auspitz sign and absent in 30% of the cases. Graph :1

Table : 4 Histomorphological features of psoriasis

Histopathological appearance#	No of patients	%
Parakeratosis	46	92
Acanthosis	48	96
Hyperkeratosis	45	90
Hypo granular	41	82
Suprapapillary thinning.	43	86
Elongated rete ridges	41	82
Munro micro abscess	33	66
Spongiform pustules	28	56
Dermal inflammation	48	96
Dermal capillary dilatation	40	80

In the present study, out of 50 patients, 46 (92%) patients showed parakeratosis, 48 (96%) showed acanthosis, 45 (90%) showed hyperkeratosis, 41 (82%) showed hypo granular layer, 43 (86%) showed supra papillary thinning, 41 (82%) showed elongated rete ridges, 33 (66%) showed munromicro abscess, 28 (56%) showed spongiform pustules of kogoj. Dermis showed inflammatory infiltrate in 48 (96%) cases and 40 (80%) showed dermal capillary dilatation.(Ref. Table:4)

Discussion

Psoriasis is a chronic immunological mediated disorder with significant disability. It affects people of all age group without any gender predilection. Clinically they present as erythematous scaly plaques with auspitz sign.[11]

Chronic Plaque Psoriasis:

Psoriasis vulgaris forms the most common presentation. The patient presented with sharply demarcated round to oval or nummular plaque with loosely adherent silvery white scales specially affecting elbow, knees, lumbosacral areas, interdigital cleft and scalp. They usually begin as erythematous macules or plaques extend peripherally and coalesces to form plaque. Plaque encircled by a clear peripheral zone, halo or ring of worn off. These lesions are steady over time and as they regress, they start with central clearing with a peripheral activity margin which produces an annular polycyclic appearance of the lesions.[12]

Guttate Psoriasis:

Guttate psoriasis came from the Greek word ‘gutta’ which means droplet. Guttate psoriasis accounts for 2% of the total psoriasis.[13] Acute variant often seen in young patient, children, young adults and are associated with beta hemolytic streptococci. These are small lesion ranging from 2 – 3mm to 1 cm in diameter, oval to round which are abrupt in onset. They are evenly scattered over the body particularly on trunk and proximal limbs. In children the acute form of guttate is self-limiting illness, while in adults it forms complicating long standing chronic psoriatic plaques.

Flexular (Inverse) Psoriasis:

It is chronic plaque psoriasis mainly affecting flexures. These lesions mainly involves groin, vulva, axilla, sub mammary fold, gluteal cleft and on the body folds. It is more common in older adult. Scaling is greatly

reduced or absent and appear as red, shiny, well-demarcated plaques and may be confused with candidal intertrigo and dermatophytic infections. The surface of the lesion has glazed hue and fissuring at the depth of the fold. The edges of the lesions are well defined.

Generalised Pustular Psoriasis: Acute generalized pustular psoriasis (Von Zumbush type & exanthematous type):

They are diagnosed when pustules eruption occurs in a patient with preexisting psoriasis. It occurs after the withdrawal of steroid therapy [10].

The exanthematous type is seen in patients with late-onset psoriasis. These lesions are atypical in distribution.

Palmoplantar Pustulosis: It is a chronic relapsing disorder of palms, sole or both. They are characterized by crops of small deep-seated pustules within areas of erythema and scaling. They begin as vesicles and vesiculopustular, then gives the appearance as brown macules. An acute variant of this condition known as Pustular Bacterid, is characterized by eruption of large sterile pustules on hand and feet. It is predominant in females and strongly associated with smoking [14]. This disease has been associated with pustulotic artho osteitis involving anterior chest wall, sacro-ileitis and peripheral synovitis.[15,16]

Palmoplantar pustulosis is also an element of SAPHO syndrome characterized by synovitis, acne, pustulosis, hyperostosis and osteitis[17].

Psoriasis is a systemic, chronic inflammatory disorder occurring due to complex interplay of genetic, environmental and immunologic factors, predominately affecting skin but can involve any organ system of the body. Psoriasis is associated with wide range of other cutaneous and systemic disease. Psoriatic arthritis is the frequent and classical association. Psoriatic arthritis is defined as an inflammatory arthritis occurring during course of psoriasis and characterized by negative rheumatoid factor [19]. Affects all age group without gender predilection. Arthritis follows chronic psoriasis of about 7 -12 years duration. Psoriatic arthritis is commonly associated with psoriatic vulgaris. Conventionally psoriatic arthritis affects both peripheral and as well as axial skeleton. The psoriatic arthritis is divided into five subtypes: distal interphalangeal joint predominant, symmetrical polyarthritis, single or few fingers or toe joints involved (asymmetrical oligo arthritis and mono arthritis), predominant spondylitis and arthritis mutilans.[20]

Psoriatic patients can be associated with wide range of comorbidities that include metabolic disease such as diabetes, cardiovascular disease, lung cancer, colon and renal cancer, psychological disorder such as depression. These co-morbidities influence the health and quality of life and contribute to 3 – 4 years reduction in life expectancy in patients with severe psoriasis. Established psoriasis have several components of metabolic syndrome including hypertension, dyslipidemia, obesity and impaired glucose tolerance.

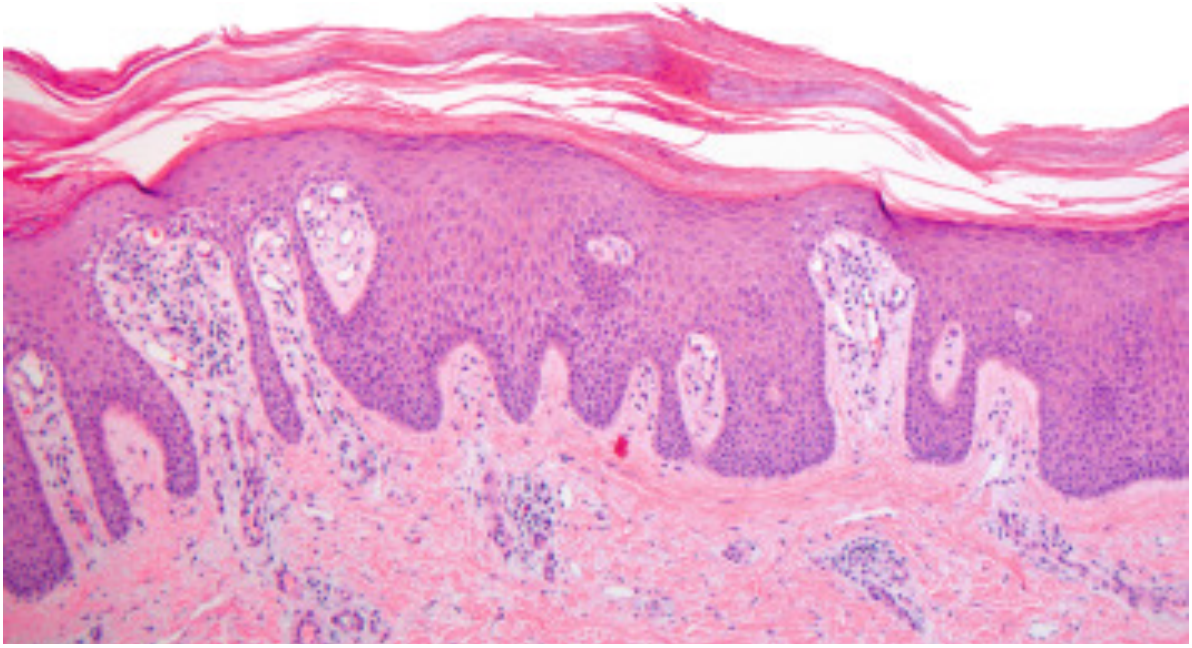


Figure 1: hyperkeratosis with mounds of parakeratosis showing elongated rete ridges, suprapapillary thinning with dilated capillaries in the dermal papillae.

Histologically these lesions shows acanthosis, parakeratosis, munro micro abscess, spongiform pustules, supra papillary thinning and dilated capillaries in dermal papillae. (Figure: 1) Apart from epithelial proliferation as a main event in disease, the pathogenesis is mainly due to imbalance in immunological response and angiogenesis.[10] T lymphocytes are found to play a significant role in pathogenesis of the disease.

Age of the patient:

In the present study, majority 17 (34%) of the patients were in the range of 41-60 years which is followed by 15 (30%) patients between 20-40 yrs. Prevalence of cases above 60 years were 10 (20%). Patients in age group less than 20 years constitutes 8 (16%). So, present study reported majority of cases in age group of 41- 60yrs which correlated with the study by Choi et al., Vijayan et al. and Dr. Medha Yadhav et al. However, Ghafoor et al and Lakshmy et al reported commonest age as 20-30 years and 31-40 years respectively.

Gender:

In the present study majority 22 (48%) were males followed by 22 (44%) were female. Pediatric cases were also included in the study comprised 8 cases. In a present study there is a male preponderance which in accordance with the study done by Choi et al, Vijayan et al, Narayan kar et al and Bai et al.

Site:

In the present study, lower limb (88%) were most commonly involved, followed by upper limb (66%), trunk (34%), head & neck (26%) and scalp (4%). As, presented study reported lower limb as common site which correlated with Raghuveer et al and Dr. Medha Yadhav et al. reported lower limb in 87% and 75% respectively. Scalp was reported in 4% cases which in contrast to study by Raghuveer et al reported 75% of cases in their study. Singh et al (79.82%) reported scalp as predominant site of involvement. Hence most of the findings in present study concurs with above studies.

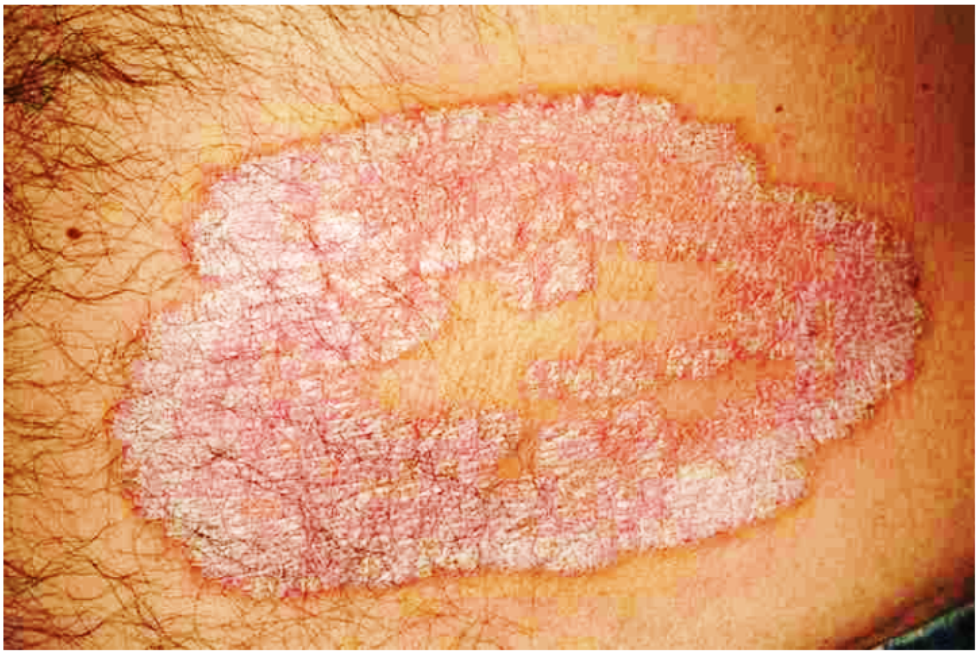


Figure 2: well circumscribed erythematous plaques

In the present study plaques were seen in 80% of patients, erythema in 72%, scales in 68% papules in 20% and hypopigmentation in 22% of patients. Majority of the other studies showed scaly plaques as common presentation. (fig. 2) Erythema also seen in majority of the studies. Thus, majority of macroscopic appearance concords with the above other studies. Other important clinical sign (i.e.) auspitz sign seen in 70% of the patients in the present study, this concords with reports from Dr. Medha Yadhav & Narayankar et al. demonstrated it in 62.3% and 64.28% respectively.

Conclusion

In our study group, the gender most commonly affected were males than those of females, the most commonly affected age group was around 41-60 years. In our study, the most common site of lesion being lower limb with erythematous scaly lesion being the most common type of clinical presentation.

Limitation: Small group of patients studied from one tertiary care hospital for a short period of time (18 months) would not be the real representation of the incidence of the lesion.

The validity of this study could be improved, if accompanied with large sample size and for longer duration**.**

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