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Original Research Article

Proportion of psoriasis among the patients with psoriasiform disorders

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ABSTRACT

Background: Psoriasis is a prevalent chronic inflammatory skin disease with several clinical symptoms. Psoriasis has clinical forms that resemble a variety of dermatological disorders and may necessitate histological confirmation of the diagnosis. The aim of the study was to assess the proportion of psoriasis among patients with psoriasiform disorders.
Methods: This cross-sectional observational study was carried out at the department of dermatology and venereology, Shahid Syed Nazrul Islam Medical College, Kishoreganj during the period from January 2021 to December 2021 on 200 patients with psoriasiform disorders was enrolled in this study. Detailed history along with relevant family history and drug history was obtained. All the patients underwent skin biopsy followed by a histopathological examination to reveal the actual pathology of dermal lesions. Statistical analyses of the results were obtained by using window-based computer software devised with statistical packages for social sciences (SPSS-25).
Results: The proportion of psoriasis among the patients with psoriasiform disorders was found at 53.5%. The majority of patients (72.0%) had extensor surfaces and a well-demarcated border was found in 166 (83.0%) patients. Subungual hyperkeratosis was found in 30 (28.0%) and 16 (17.3%) in psoriasis and non-psoriasis groups respectively. Regular epidermal hyperplasia was 2 (1.9%) in psoriasis but not found in non-psoriasis. Spongiosis was 45 (42.1%) in psoriasis and 30 (32.3%) in non-psoriasis. The vertical orientation of the collagen bundle was 2 (1.9%) and 2 (2.2%) in psoriasis and non-psoriasis respectively. Perivascular lymphocyte infiltration was 75 (70.1%) in psoriasis and 63 (67.7%) in non-psoriasis. The difference was not statistically significant ($p>0.05$) between the two groups.
Conclusions: All clinical features were significantly associated with psoriasis in patients who presented with psoriasiform disorders except subungual hyperkeratosis. In histopathology, all features were significantly associated with psoriasis excluding regular epidermal hyperplasia, spongiosis, vertical orientation of collagen bundle, and perivascular lymphocyte infiltration.

Keywords: Psoriasis, Dermatitis, Keratosis, Hyperkeratosis, Hyperplasia

INTRODUCTION

The psoriasiform pattern is distinguished histologically by the presence of elongated rete ridges of about equal lengths that alternate with long dermal papillae.[1] The psoriasiform pattern is a prominent subgroup of perivascular dermatitis, the biggest category of inflammatory skin disorders, according to Ackerman et al.[2] Perivascular dermatitis is often linked with epidermal abnormalities such as psoriasis, interface/lichenoid dermatitis, ballooning, or spongiotic patterns.[1] Psoriasis is a common systemic inflammatory disorder affecting primarily the skin, nails, and occasionally the joints.[3] It is characterized by well-demarcated indurated, red, scaly plaques that may be limited or widespread.[4] Psoriasis is the model for a collection of cutaneous illnesses characterized by

psoriasiform epidermal hyperplasia, defined as regular rete ridge elongation with retention of the rete ridge-dermal papillae pattern.[5] It is a common chronic inflammatory skin disease characterized by a wide range of clinical symptoms caused by a combination of genetic, environmental, and immunological variables.[6] Psoriasis has many different clinical variants and can resemble other skin diseases like secondary syphilis, dyshidrotic eczema, seborrhoeic dermatitis, pityriasis rosea, and psoriasiform drug rash. Sarac et al discovered that plaque-type psoriasis was the most prevalent presentation, which may need histological confirmation.[3] There have been no studies to show a clinic-histopathological concordance in psoriasis and psoriasiform dermatitis.[7] In Western nations, psoriasis affects 2% to 4% of the population, with prevalence rates varied by age, geographic area, and genetic background.[8] Adults have a larger prevalence (from 0.91% to 8.5%) than children (from 0% to 2.1%), with a twin peak of incidence at 30–39 years and 60 years of age, respectively.[9,10] Psoriasis has historically been thought to affect both genders equally; however, research on age stratification within gender reveals a greater frequency in girls under the age of 18, and a lower incidence in men under the age of 18.[11] Sarac et al reported that females were predominant, and the mean age of onset was lower in women.[3] However, positive family history was more frequent in males. In a population-based survey, Bhuiyan et al reported that the prevalence of psoriasis in Bangladesh was 0.7%.[12] Psoriasis is a papulosquamous disease with variable morphology, distribution, severity, and course.[13] Tinea infections, pityriasis rosea, and lichen planus are other papulosquamous illnesses to consider in the differential diagnosis.[3] Despite the characteristic appearance, the morphology can range from tiny tear-shaped papules (guttate psoriasis) to pustules (pustular psoriasis), as well as widespread erythema and scale (erythrodermic psoriasis). Comorbidities associated with the illness's systemic presentation include, but are not limited to, metabolic syndrome, cardiovascular disease (CVD), diabetes, depression, and cancer.[14] The traditional risk factors for CVD such as smoking, excessive alcohol intake, hypertension, hyperlipidemia, obesity, and insulin resistance are also reported to be higher in psoriasis patients.[15] There is still a lack of research work carried out in Bangladesh, however, in a recent population-based survey, Bhuiyan et al reported that psoriasis is fairly common in Bangladesh and comparable to the findings of other Asian countries.[12]

Therefore, the present study is aimed to find out the proportion of psoriasis among the patients with psoriasiform disorders and to correlate the clinicohistopathological features of psoriasis and psoriasiform disorders.

Objective

General objective of the study was to assess the proportion of psoriasis among patients with psoriasiform disorders.

METHODS

This cross-sectional observational study was conducted at the department of dermatology and venereology (DV), Shahid Syed Nazrul Islam Medical College, Kishorganj, Bangladesh. The study duration was 1 year, from January 2021 to December 2021.

The aims and objective of the study along with its procedure, alternative diagnostic methods, risks, and benefits were explained to the patients in an easily understandable local language and then informed consent was taken from each patient. Ethical approval was obtained from the ethical review committee of the study hospital. Psoriasiform disorders were diagnosed by clinical manifestations mimicking the presentation of any pattern characteristic of psoriasis. Detailed history along with relevant family history and drug history was obtained. A thorough examination was done to determine the morphological presentation of dermatological disorder and to detect any associated disorder related to the skin condition. All the data that was obtained was documented in a structured questionnaire. The proportion of actual psoriasis based on histology among the patients presented with psoriasiform disorders. The demographic pattern of histologically proven psoriasis was obtained and its contrast was evaluated against that of psoriasiform disorders. The clinical profile of both psoriasis and psoriasiform disorders was also analyzed statistically to determine the association of objective signs significantly with histologically proven psoriasis.

The statistical analysis of the results was obtained by using a Windows-based computer software devised with statistical packages for social sciences (SPSS-25). Continuous variables were expressed as mean, standard deviation, and categorical variables as frequencies and percentages. The differences between groups were analyzed by Chi-square (χ^2) test cross-tabulation and Fisher's exact test. A p value <0.05 was considered significant.

Inclusion criteria

Patients with age ≥18 years, having psoriasiform lesions, who did not receive any treatment within 3 months prior to participation and patients who had given consent to participate in the study were included.

Exclusion criteria

Patients who received topical or systematic therapy within 3 months prior to participation, aged <18 years, mentally ill, unable to answer the criteria question, and patients affected with other chronic diseases were excluded.

RESULTS

Nearly a half (47.0%) of the patients belonged to the age group of 21-30 years and the mean age was found to be

38.7±12.3 years with a range from 20 to 68 years. The male and female ratio was 1.53:1. Regarding the history, it was observed that 85.0% had a history of symmetry, 77.5% had itching, 45.5% had seasonal factors, 25.0% had drug history, 13.0% had a recent history of infection and 12.5% had a positive family history. The most common occupation was businessman 54 (27.0%), housewife 48 (24.0%), farmer 33 (16.5%) and student 23 (11.5%).

More than a half (50.5%) of the patients had suffered from the disease belonged from 6 months to 3 years, followed by 29 (14.5%) <6 months, 25 (12.5%) from 3 years to 5 years, 23 (11.5%) from 5 years to 10 years, 14 (7.0%) from 10 years to 15 years and 8 (4.0%) >15 years of the disease.

Psoriasis was found in 107 (53.5%) and no psoriasis was found in 93 (46.5%) of the study patients.

Table 1: Association between clinical features of proven psoriasis among patients presented with psoriasiform disorders (n=200).

Clinical features	Psoriasis (n=107)		Non psoriasis (n=93)		P value
	N	%	N	%	
Surface					
Extensor	105	98.1	39	41.9	0.001[s]
Flexural	2	1.9	54	58.1	
Well demarcated border					
Yes	107	100.0	59	63.4	0.001[s]
No	0	0.0	34	36.6	
Dry silvery-white lamellar scale					
Yes	103	96.3	3	3.2	0.001[s]
No	4	3.7	90	96.8	
Auspitz's sign					
Yes	107	100.0	3	3.2	0.001[s]
No	0	0.0	90	96.8	
Koebner phenomenon					
Yes	107	100.0	20	21.5	0.001[s]
No	0	0.0	73	78.5	
Nail pitting					
Yes	47	43.9	8	8.7	0.001[s]
No	60	56.1	85	91.3	
Oil spot					
Yes	40	37.4	0	0.0	0.001[s]
No	67	62.6	93	100.0	
Subungual hyperkeratosis					
Yes	30	28.0	16	17.3	0.069[ns]
No	77	72.0	77	82.7	

[s]=Significant; [ns]=not significant; p value reached from Chi square test.

Table 2: Association between histopathological features of proven psoriasis among patients presented with psoriasiform disorders (n=200).

Histopathological features	Psoriasis (n=107)		Non-psoriasis (n=93)		P value
	N	%	N	%	
Munro's microabscess					
Yes	70	65.4	0	0.0	0.001[s]
No	37	34.6	93	100.0	
Hyperkeratosis					
Yes	46	43.0	59	63.4	0.003[s]
No	61	57.0	34	36.6	
Parakeratosis					
Yes	105	98.1	30	32.3	0.001[s]
No	2	1.9	63	67.7	
Hypogranulosis					
Yes	60	56.1	0	0.0	0.001[s]
No	47	43.9	93	100.0	

Continued.

Histopathological features	Psoriasis (n=107)		Non-psoriasis (n=93)		P value
	N	%	N	%	
Suprapaillary thinning					
Yes	78	72.9	0	0.0	0.001[s]
No	29	27.1	93	100.0	
Regular epidermal hyperplasia					
Yes	2	1.9	0	0.0	0.185[ns]
No	105	98.1	93	100.0	
Acanthosis					
Yes	88	82.2	53	57.0	0.001[s]
No	19	17.8	40	43.0	
Dilated blood vessels					
Yes	36	33.6	0	0.0	0.001[s]
No	71	66.3	93	100.0	
Elongation of the rate ridges					
Yes	82	76.6	10	10.8	0.001[s]
No	25	23.4	83	89.2	
Spongiosis					
Yes	45	42.1	30	32.3	0.153[ns]
No	62	57.9	63	67.7	
Irregular epidermal hyperplasia					
Yes	0	0.0	0	0.0	-
No	107	100	93	100	
Vertical orientation of collagen bundle					
Yes	2	1.9	2	2.2	0.887[ns]
No	105	98.1	91	97.8	
Perivascular lymphocyte infiltration					
Yes	75	70.1	63	67.7	0.719[ns]
No	32	29.9	30	32.3	
Kogoj's abscess					
Yes	65	60.7	0	0.0	0.001[s]
No	42	39.3	93	100.0	
Increased mitotic activity					
Yes	17	15.9	4	4.3	0.007[s]
No	90	84.1	89	95.7	

[s]=Significant; [ns]=not significant; p value reached from Chi square test.

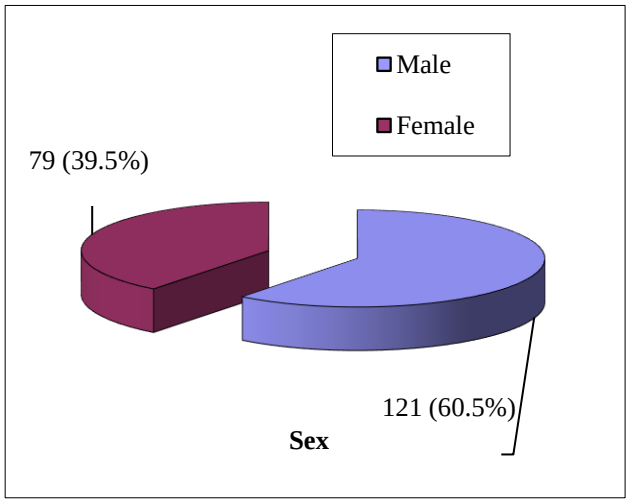

Figure 1: Sex distribution of the patients.

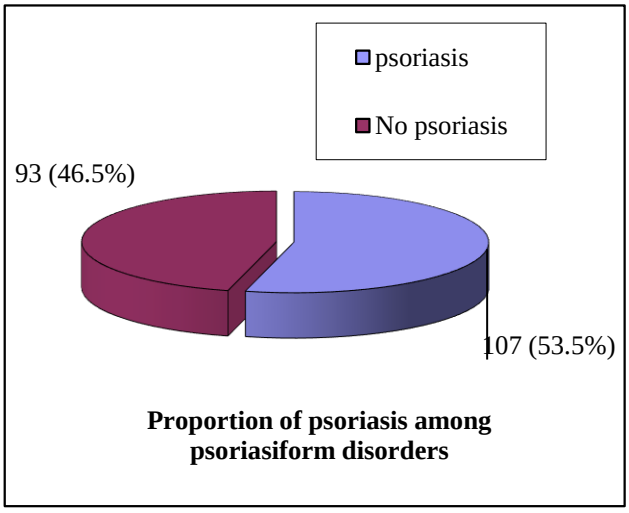

Figure 2: Proportion of psoriasiform disorders.

DISCUSSION

Psoriasis is an anti-inflammatory cutaneous disease with an incidence of about 1.3-2.2% of the total world population. The exact incidence of psoriasiform dermatitis is not known per se.[16] Since psoriasis is a disease of the bimodal age group it is mostly seen in the age group of fewer than 30 years, 30-50 years. In Jayalakshmy et al's study, the most common age group was less than 30 years of age in psoriasis, in psoriasiform dermatitis most common age group was 30-50 years and in psoriasis.[16] Khandpur et al reported the majority of the cases (66.8%) in the age group of 21-50 years.[17] In another study Chanadanwale et al showed the mean age was found 44.56±15.70 years, and the age groups of the patients varied between 17 and 75 years of age, which was higher than the current study.[18] It could be due to geographical variations, racial and ethnic differences, genetic causes, and different lifestyles in their studied patients. Psoriasis is a disease of male preponderance. in Jayalakshmy et al's study also, males were most commonly affected by psoriasis vulgaris.[16] Males were more commonly affected than females in both psoriasis and psoriasiform dermatitis in the study by Chanadanwale et al which was similar to the present study.[18] Similar observations were also made by Icen et al, Dogra and Yadav et al, Khandpur et al, and Singh et al.[19-21] On the other hand, Rahier et al observed that 32.0% and 68.0% of patients were male and female respectively.[22] Rahier et al reported that palmoplantar psoriasiform lesions were observed in 22 patients including palmoplantar pustulosis.[22] With the exception of the scalp, the well-known "predilection" sites of psoriasis (the area sacrum and the extensor surfaces of the elbows and knees) were afflicted in 20 individuals. In two individuals, the nails were involved. The above findings were comparable with the current study. Pityriasis rosea was the most common, with nine lesions, followed by psoriasiform hyperplasia with seven, lichen simplex chronicus with three, pityriasis rubra pilaris, and parapsoriasis with two each, and exfoliative dermatitis and inflammatory linear with two each.[18] Acanthosis, hyperkeratosis, parakeratosis, and dilated tortuous blood vessels in the dermis were seen in all cases of psoriasis. In psoriasiform dermatitis, the most common histological feature was hyperkeratosis 68.0% followed by acanthosis and parakeratosis each in 60.0% of cases. In another study by Rahier et al, histological data were obtained from 16 patients.[22] In 12 patients, skin biopsies revealed classic psoriasis symptoms such as parakeratosis, agranulosis, epidermal hyperplasia, elongation of the rete ridges, dilated capillaries in the dermis, perivascular infiltration, and a lichenoid pattern in 4 individuals. Munro's microabscess and/or Kogoj's abscess have been identified as the most consistent or distinctive histological characteristics in psoriasis skin biopsy.[23,24] Similarly, psoriasiform dermatitis is characterized by spongiosis, uneven epidermal proliferation, and the lack of Munro's micro and Kogoj's abscess.[23,24] In clinical practice, the most prevalent reasons for obtaining histological assessment are diagnostic uncertainty and the exclusion of life-threatening cancers. In a study on the prevalence of psoriasis in the American population, Gelfand et al reported that 2.5 percent of Caucasian patients had psoriasis and 1.3 percent of African American patients had psoriasis among 27,220 participants, 21,921 of whom were Caucasian and 2443 of whom were African American.[25] When compared to Caucasians, African Americans had a 52.0% lower prevalence of psoriasis ($p<0.05$). In another research, Chanadanwale et al said that psoriasis is likely one of the oldest known human ailments, as well as one of the most misunderstood.[18] The prevalence varies amongst populations, ranging from 0% to 11.8. Males are twice as likely as females to be affected, and the majority of patients are in their third or fourth decade when they appear.[20] Regarding the association between clinical features of proven psoriasis among patients presented with psoriasiform disorders, Singh obtained in their study that nail pitting is a well-known nail change in psoriasis.[21] It is more prevalent in arthritic psoriasis. Nail pitting can develop in otherwise healthy people. Nail alterations occur in 25% to 50% of all instances.[7] In Singh et al's research group, fingernail pitting was evident in 37% of patients, with the total number of nail pits being fewer than 20 in 17%, 20-60 in 8%, and more than 60 in 12%. In the control group, 9.7% of patients had nail pitting, and the total number of nail pits was fewer than 20.[21] This incidence disparity was statistically significant ($p<0.05$). According to another research by Langley et al, psoriasis is a papulosquamous illness with varied appearance, location, severity, and course.[13] Scaling papules (raised lesions <1 cm in diameter) and plaques (raised lesions >1 cm in diameter) are the hallmarks of papulosquamous illnesses. Tinea infections, pityriasis rosea, and lichen planus are other papulosquamous illnesses to consider in the differential diagnosis. Psoriasis lesions are frequently round, red papules or plaques with a grey or silvery-white, dry scale, which distinguishes them from these other conditions. Furthermore, the lesions are usually symmetrically distributed on the scalp, elbows, knees, lumbosacral region, and body folds. Psoriasis can sometimes appear near the site of trauma or injury, a condition called the Koebner phenomenon. Psoriasis can develop or become uncontrolled, resulting in a widespread exfoliative erythroderma. Nail involvement is possible, especially if psoriatic arthritis (PsA) is present. Psoriasis can sometimes affect the oral mucosa or the tongue. The dorsal surface of the tongue may show strongly defined gyrate red spots with a white-yellow border when the tongue is implicated. The patches can expand and spread, altering on a daily basis, and can take on different annular patterns, giving rise to the phrase geographic tongue. Psoriasis can vary greatly in terms of shape, distribution, and severity. Despite the above-mentioned characteristic appearance, the morphology can range from tiny tear-shaped papules (guttate psoriasis) to pustules (pustular psoriasis) and widespread erythema and scale (erythrodermic psoriasis). Furthermore, these various types of psoriasis might be localized or widespread and severe. Furthermore, psoriasis can emerge as chronic, persistent plaques or as an acute condition with fast

advancement and broad involvement. Psoriasis may be symptomatic with patients complaining of intense pruritus or burning.[13] Regarding the association between histopathological features of proven psoriasis among patients presented with psoriasiform disorders, Chanadanwale et al's study showed that Munro's micro abscess and spongiform pustule of Kogoj were noted in 56.0% and 20.0% cases of psoriasis respectively, while they were absent in all psoriasiform dermatitis.[18] Five cases of psoriasis had both Munro's microabscess and spongiform pustule of Kogoj. Jayalakshmy et al and Puri et al found Munro's microabscess to be of diagnostic significance, whereas De Rosa and Mignogna stated that though Munro's micro abscess and Kogoj micro pustules are diagnostic clues of psoriasis, they are not always present.[16,26,27] Inflammatory cells were noted in the dermis of all cases of psoriasis and psoriasiform dermatitis. Chanadanwale et al found that there was an almost equal distribution of neutrophils, lymphocytes, or a mixture of both in psoriasis, whereas psoriasiform dermatitis lesions showed predominantly lymphocytes in 84% (n=21) patients.[18] Mehta et al and Toussaint and Hideko, in their studies, found lymphocytes as the predominant infiltrate in psoriatic biopsies, whereas Gyanchandani et al and Chopra et al found neutrophils as predominant inflammatory cells in psoriasis.[7,23,28,29] In another study, Mehta et al demonstrated that patients in group A were compared to patients in group B in terms of individual clinical and histological parameters.[7] Auspitz's sign and silvery-white scales were found to be substantially more common in group A ($p<0.05$). Those with a single clinical diagnosis of psoriasis (group A) had greater histological evidence of Munro's microabscess ($p<0.05$), lack of granular cell layer ($p<0.05$), suprapapillary thinning ($p<0.05$), regular epidermal hyperplasia ($p<0.05$), and dilated blood vessels ($p<0.05$) than patients in group B. Spongiosis ($p<0.05$), lymphocytic exocytosis ($p<0.05$), vertical orientation of collagen bundles ($p<0.05$), and irregular epidermal hyperplasia ($p<0.05$) were all shown to be substantially more common in individuals with psoriasis as a differential diagnosis. Dermal edema, perivascular infiltration, erythrocyte extravasations, mitotic figures, keratinocyte pallor, and Kogoj's abscess were not statistically significant in either of the two groups.

Limitations

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

The proportion of psoriasis among the patients with psoriasiform disorders was found at 54.0%. Most of the patients were in their third and above decade at the time of presentation and incidence is predominant in male subjects. The present study confirms the diagnostic accuracy of the well-demarcated border, koebner phenomenon, and Auspitz's sign as clinically reliable signs of psoriasis. Similarly, in histopathology parakeratosis, Munro's microabscess, hypogranulosis, suprapaillary thinning, scanthosis, elongation of the rate ridges, and Kogoj's abscess toward a diagnosis of psoriasis. This may help clinicians not to miss the diagnosis of clinically insignificant psoriasis in order to start early treatment and prevent the poor prognosis in these patients.

Recommendations

Through psoriasis is a chronic disease with multiple complications, early detection of psoriasiform disorders and proper treatment reduces morbidity. Further studies can be undertaken by including a larger number of patients.

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