

Comparison between Clinical and Histopathological Diagnosis of Papulosquamous Dermatoses

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Papulosquamous dermatoses presume considerable importance because of their frequency of occurrence. These lesions are commonly misdiagnosed because of their certain common clinical presentations. There is an overlap in histopathology and distribution of these lesions leading to difficulty in diagnosis. Combination of proper clinical observation and histopathological study gives a conclusive diagnosis. This cross sectional observational study was done to find the histopathological diagnosis of papulosquamous dermatoses and their comparison with clinical diagnosis. A total of 60 cases were studied. Lesions occurred in all age groups but were common in age group 51-60 years. Males were commonly affected (63.3%). The most frequently encountered lesion was psoriasis followed by lichen planus. This study showed a high concordance (68.3%) and low discordance (31.7%) between clinical and histopathological diagnosis. Specific histopathological diagnosis is important to distinguish these lesions as the treatment and prognosis vary significantly from other lesions with similar clinical presentations.

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Key words: Papulosquamous dermatoses, Clinical diagnosis, Histopathological diagnosis

Introduction

Skin is a complex organ. As for any other organ system, diagnosis of skin disease involves history and examination. The visibility of skin allows an instant diagnosis in some cases, using a variety of visual clues such as site distribution, color, scaling and arrangement of lesions. Papulosquamous dermatoses assume considerable importance because of their frequency of occurrence.¹ The papulosquamous skin disorders are a heterogeneous group of disorders comprising the largest group of diseases seen by a

dermatologist. The characteristic primary lesion of these disorders is a papule, usually erythematous, that has a variable amount of scaling on the surface. Plaques or patches form through coalescence of the primary lesions.^{2,3} The papulosquamous disorders include psoriasis, lichen planus, parapsoriasis, pityriasis rubra pilaris, pityriasis rosea, seborrheic dermatitis, atopic dermatitis, psoriasiform eczema, dermatophytoses, allergic dermatitis, lichen nitidus, lichen striatus, lichenoid drug eruptions.^{2,4}

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Few papulosquamous conditions like psoriasis mimics diverse dermatological conditions as they present with numerous clinical variants and pose to be a diagnostic dilemma for the clinician. Some conditions like lichen planus is well defined in general population, however its pathogenesis is not exactly defined. Separation of each of these becomes important because the treatment and prognosis for each tend to be disease specific.¹ Histopathological study is considered to be the gold standard in the diagnosis of various skin lesions. Histopathological features are specific and characteristic for each papulosquamous skin lesion.⁵ Hence, combination of proper clinical observation and histopathological study can provide a conclusive diagnosis.

Methods

This cross sectional observational study was done in the department of pathology in collaboration with department of dermatology and venereology of Sylhet MAG Osmani Medical College during the period from July 2016 to June 2017 with a view to study the histopathology of papulosquamous disorders and to compare with clinical diagnosis. For this purpose, 60 cases were selected with a clinical diagnosis of papulosquamous skin disorders. Relevant clinical information of each case were noted with special emphasis on age, sex, characteristics of the lesions, drug history, family history and any systemic manifestations. The differential diagnosis was obtained from the dermatologist in skin outpatient department and verified by senior professor of department of dermatology and venereology. Incisional or punch biopsy from the lesional site was taken by the dermatologist and the specimen was preserved in 10% formalin for histopathological examination. The formalin fixed biopsy specimens were collected from the dermatology department and were taken to the pathology department for histopathological examination. Tissue sections were prepared from paraffin block and stained with hematoxylin and eosin

stain. The diagnoses of papulosquamous skin lesions were done according to histopathological findings under light microscope (Model-OLYMPUS CX 23) under the supervision of professor of pathology. All histopathological reports were recorded for further analysis. Finally clinical and histopathological findings of each patient were analysed and comparison was done.

Results

The age of the patients ranged from 7 to 90 years with a mean of 41.22 (SD \pm 19.80) years. The highest number of patients 12 (20%) were in the age group 51-60 years and the lowest number of patient 1(1.66%) was in the age groups 71-80 and 81-90 years. Male preponderance was noted, 38 (63.3%) were males and 22 (36.7%) were females with male to female ratio of 1.72:1. Among 60 cases of papulosquamous dermatoses, 31(51.7%) were diagnosed clinically as psoriasis followed by lichen planus 17(28.3%), parapsoriasis 3(5%), pityriasis rubra pilaris 3(5%), seborrheic dermatitis 3(5%), lichen simplex chronicus 2 (3.3%) and erythema dischromicum perstans 1(1.7%).

Erythematous, scaly, plaque and papule were the commonest lesions. Most of the cases 40 (66.6%) were sporadically present all sites of the skin followed by 10 (16.6%) at both extremities, 4 (6.6%) at lower extremities and 1 (1.7%) case each at face, right ankle joint, scalp, shoulder, trunk and distal phalanges of both extremities. Out of 60 histopathologically diagnosed cases, 22 (36.7%) were diagnosed as psoriasis, 12 (20%) as lichen planus, 8 (13.3%) as chronic non specific dermatitis, 5 (8.3%) as lichen simplex chronicus, 4 (6.7%) as pityriasis rubra pilaris, 3 (5%) as parapsoriasis, 2 (3.3%) as granulomatous inflammation, 1 (1.7%) case each as erythema dischromicum perstans, prurigo simplex, discoid lupus erythematosus and seborrheic dermatitis.

Acanthosis and parakeratosis were observed in 100% cases of psoriasis. Munro microabscesses were found in 18.1% of cases and spongiform pustule of Kogoj in 9 % of cases. In lichen planus, majority of them showed wedge-shaped

hypergranulosis, irregular acanthosis, vacuolar alteration of the basal layer, irregular elongation of rete ridges and band like lymphocytic infiltrate in upper dermis.

Table I: Contingency (cross) table showing the correlation between clinical and histopathological diagnosis of papulosquamous dermatoses

		Histopathological diagnosis											
		Psoriasis	Lichen planus	Chronic non specific	Lichen simplex chronicus	Pityriasis rubra pilaris	Parapsoriasis	Ganulomatous inflammation	Erythema dischromicum	Prurigo simplex	Discoid lupus	Seborrheic dermatitis	Total
Clinical diagnosis	Psoriasis	21	-	6	2	-	-	1	-	-	1	-	31
	Lichen planus	1	12	1	1	1	-	-	-	1	-	-	17
	Parapsoriasis	-	-	-	-	1	2	-	-	-	-	-	3
	Pityriasis rubra pilaris	-	-	-	-	2	1	-	-	-	-	-	3
	Seborrheic dermatitis	-	-	1	-	-	-	1	-	-	-	1	3
	Lichen simplex chronicus	-	-	-	2	-	-	-	-	-	-	-	2
	Erythema dischromicum perstans	-	-	-	-	-	-	-	1	-	-	-	1
	Total	22	12	8	5	4	3	2	1	1	1	1	60

In 5 cases of lichen simplex chronicus, wedge-shaped hypergranulosis, irregular elongation of rete ridges and vertically oriented collagen bundles were observed. Basket weave cornified layer and spongiosis were observed in all 3 (100%) cases of parapsoriasis. Histopathologically, parakeratosis, broad and short rete ridges and thick suprapapillary plates were found in 75% of cases and spongiosis in 25% of cases of pityriasis rubra pilaris.

Of the 60 cases, 31 were clinically suspected to be psoriasis of which 21 were confirmed histopathologically as psoriasis, 6 as chronic nonspecific dermatitis, 2 as lichen simplex chronicus, 1 as granulomatous inflammation and 1 as discoid lupus erythematosus. Out of 17 clinically suspected lichen planus, 12 were confirmed histopathologically as lichen planus, 1 case each as chronic nonspecific dermatitis, lichen simplex chronicus, pityriasis rubra pilaris, prurigo simplex and psoriasis. Of the three cases of parapsoriasis suspected

clinically, 2 were histopathologically confirmed as parapsoriasis and 1 as pityriasis rubra pilaris. Out of clinically diagnosed 3 cases of pityriasis rubra pilaris, 2 were histopathologically confirmed as pityriasis rubra pilaris and 1 as parapsoriasis. Among the clinically diagnosed 3 cases of seborrheic dermatitis, 1 was diagnosed histopathologically as seborrheic dermatitis, 1 as chronic nonspecific dermatitis and 1 as granulomatous inflammation. Clinically diagnosed one case of erythema dischromicum perstans and two cases of lichen simplex chronicus showed concordance with histopathological diagnosis.

Histopathologically diagnosed 8 cases of chronic nonspecific dermatitis, 1 case of discoid lupus erythematosus, 2 cases of granulomatous inflammation and 1 case of prurigo simplex showed discordance with clinical diagnosis in 100% of cases (Table I).

Concordance between clinical diagnosis and histopathological diagnosis was observed in 41 (68.3%) cases and discordance in 19 (31.7%) cases. Clinical diagnosis of 60 study cases of papulosquamous dermatoses had tendency to express concordance with histopathological diagnosis but was not statistically significant ($p=0.791$) which is shown in Table II.

Table II: Comparison between clinical and histopathological diagnosis of 60 study cases of papulosquamous dermatoses.

Clinical diagnosis	Number of Cases	Histopathological diagnosis		*p
		Concordance	Discordance	
Psoriasis	31	21(67.7%)	10(32.3%)	
Lichen planus	17	12(70.6%)	5(29.4%)	
Parapsoriasis	3	2(66.7%)	1(33.3%)	
Pityriasis rubra pilaris	3	2(66.7%)	1(33.3%)	
Seborrheic dermatitis	3	1(33.3%)	2(66.7%)	0.791
Lichen simplex chronicus	2	2(100%)	0(0%)	
Erythema dischromicum perstans	1	1(100%)	0(0%)	
Total	60	41(68.3%)	19(31.7%)	

*Pearson Chi-Square test was employed to analyze the data.

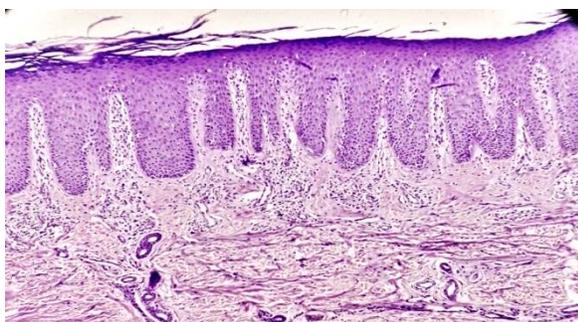


Figure 1. Photomicrograph of histopathological section of psoriasis (H & E stain, high power)

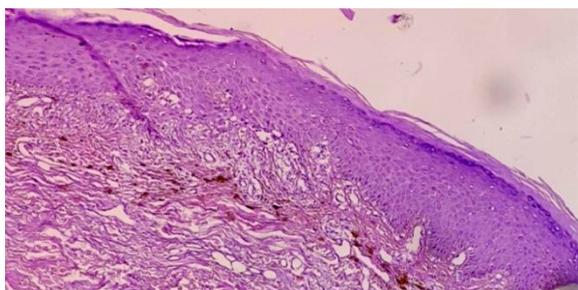


Figure 2. Photomicrograph of histopathological section of lichen planus (H & E stain, high power).

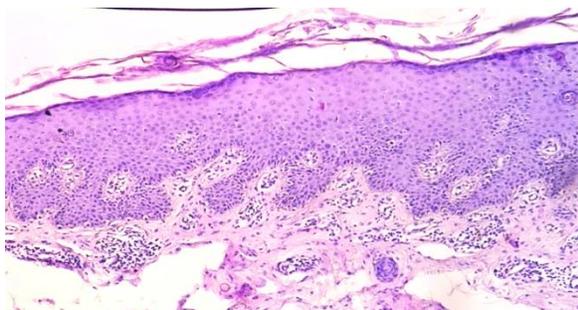


Figure 3. Photomicrograph of histopathological section of pityriasis rubra pilaris (H & E stain, high power).

Discussion

Histopathological study is considered to be the gold standard for the diagnosis of skin lesions. The goal of improving diagnostic accuracy is achieved by comparison of histopathological findings with clinical diagnosis.² In this study, histopathological diagnoses of skin biopsies

were compared with clinical diagnoses in all 60 cases of papulosquamous dermatoses. Age ranged from 7 to 90 years with a mean of 41.22 (SD \pm 19.80) years, maximum number of cases were found in 6th and 3rd decades which are close to the findings of studies done by Chichani et al and Chavhan et al.^{6,7} Male preponderance was observed with male to female ratio of 1.72:1 which are similar to findings reported by other authors.⁶⁻⁸

Erythematous lesions were maximum and constituted 65% of the total study cases. Reddy et al¹ observed 40% erythematous lesions in their study which is less than the erythematous lesions of this study. Psoriasis (51.7%) was the commonest papulosquamous lesion in the present study followed by lichen planus (28.3%) which are consistent with the study of Chichani et al⁶ who observed psoriasis in 51.28% of cases followed by lichen planus in 32.05% of cases. In the study done by Reddy et al,¹ out of 80 cases of papulosquamous disorders psoriasis (42.5%) was the commonest followed by lichen planus (30%).

Psoriasis showed male preponderance and highest number of patients were in the sixth decade in our series and has been described similarly in the other literatures,^{6,7} who also observed male preponderance. In our study, 31 patients of psoriasis presented as erythematous sharply demarcated plaques covered with silvery scales over the extremities, back and sporadically at other sites of the skin which has concordance with the findings of other studies.^{2,9} Out of 22 (36.7%) cases of histopathologically diagnosed psoriasis, clinicohistopathological correlation was seen in 21 cases and 1 case was clinically diagnosed as lichen planus. Most common histopathological findings of psoriasis in all 22 (100%) cases were acanthosis and parakeratosis. Thinning of suprapapillary epidermis, regular elongation of rete ridges and diminished granular layer were observed in 77.2 % of cases. Absent granular

layer was observed in 18.1 % of cases, hyperkeratosis in 9 % of cases, Munro microabscesses in 18.1% of cases and spongiform pustule of Kogoj in 9 % of cases. Perivascular dermal infiltrate was observed in 100 % of cases. Nearly similar findings have been described in other studies.^{1,2,7,8,10}

In this study, out of 31 clinically diagnosed psoriasis, 21(67.7%) had clinicohistopathological concordance while 10 (32.3%) cases showed discordance with histopathological diagnosis. Raju et al² observed concordance in 74% of cases and discordance in 26% of cases of psoriasis. Chichani et al⁶ observed 57.5% concordance in psoriasis.

We found no sex predilection in cases of lichen planus. Highest number of patients was in the second decade which has consistence with the study of Chichani et al⁶ who observed highest number of patients in the second decade and male to female ratio was 1: 1.08. Lichen planus presented as flat topped, violaceous papule with scaly lesions over the lower extremities and shoulder in this study, which was similiarly described by Raju et al.² Wedge-shaped hypergranulosis, irregular acanthosis, vacuolar alteration of the basal layer and irregular elongation of rete ridges were found in all 12 cases of histologically diagnosed lichen planus, similar findings have been described by other authors^{1,2,7,8} with addition of hyperkeratosis, focal parakeratosis, Max Joseph space and civatte bodies. Raju et al² found 92.9% clinicohistopathological concordance in 39 clinically diagnosed lichen planus which was maximum clinicohistopathological concordance in their study. In this study, we found 70.6% clinicohistopathological concordance in 17 clinically diagnosed lichen planus.

Among 5 cases of lichen simplex chronicus, histopathology revealed acanthosis, parakeratosis, wedge-shaped hypergranulosis,

irregular elongation of rete ridges and increased number of fibroblasts and vertically oriented collagen bundles in the upper dermis, which are nearly close to the findings of Rathod et al.⁹ 4 cases were histologically diagnosed as pityriasis rubra pilaris with male to female ratio of 1:1 and maximum patients were in the third decade. Chichani et al⁶ observed highest number of patients in the second decade with male to female ratio of 2:1 which are discordant with the findings of the present study. Histopathology of pityriasis rubra pilaris revealed parakeratosis, acanthosis, broad and short rete ridges, focal hypergranulosis, thick suprapapillary plate, spongiosis and dermal infiltrate which are nearly similar to those of the reported series.^{8,9} 66.7% clinicohistopathological concordance was observed in the diagnosis of pityriasis rubra pilaris. Hosamane et al⁸ observed 60% clinicohistopathological concordance in pityriasis rubra pilaris which is nearly close to the findings of our study.

Basket weave cornified layer, spongiosis, acanthosis, hypergranulosis and exocytosis were observed in parapsoriasis but elongation of rete ridges and parakeratosis were not seen in any case, which were described in the study of Rathod et al.⁹ Of the 3 cases of clinically diagnosed parapsoriasis, 2 (66.7%) were histopathologically confirmed and 1(33.3%) was diagnosed as pityriasis rubra pilaris. One case of clinically suspected parapsoriasis turned out to be subacute spongiotic dermatitis in the study of Hosamane et al.⁸

Histopathologically diagnosed 8 cases of chronic non specific dermatitis, 1 case of discoid lupus erythematosus, 2 cases of granulomatous inflammation and 1 case of prurigo simplex showed 100% discordance with clinical diagnosis. 68.3% of clinically diagnosed papulosquamous lesions were confirmed histologically while 31.7% of cases had different histological diagnosis. Raju et al²

reported 68.72% concordance and 31.28% discordance and Reddy et al¹ reported 86.25% concordance and 13.75% discordance between clinical and histopathological diagnosis.

Conclusion

There is overlap of clinical pattern and distribution of papulosquamous skin disorders which often makes clinical diagnosis difficult. Some of the histological features overlap in lesions like pityriasis rosea, prurigo nodularis and prurigo simplex. However, some of the histopathological features are specific and characteristic for some skin lesions. Hence, combination of proper clinical observation and histopathological study gives a conclusive diagnosis. We found maximum cases were in the age group 51-60 years, with a male preponderance. The most frequently encountered lesion was psoriasis followed by lichen planus. This study showed a high concordance (68.3%) and low discordance (31.7%) between clinical and histopathological diagnosis. So knowledge of the histopathological features and a clinicohistopathological comparison is helpful for better patient care.

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