CLINICOPATHOLOGICAL STUDY OF PAPULOSQUAMOUS SKIN LESIONS

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ABSTRACT

BACKGROUND

Papulosquamous lesions form the largest group of skin diseases. Since, they are all characterized by scaling papules or plaques, clinical confusion may result in their diagnosis, hence definitive histopathological analysis is important for their differentiation.

MATERIALS AND METHODS

The study includes skin biopsies from 108 clinically diagnosed /suspected non-infectious, erythematous, papulosquamous skin diseases which were received in the Department of Pathology, Andhra Medical College, Visakhapatnam for a period of two years from January 2016 to December 2017. The specimens obtained were subjected to formalin fixation and was subjected to routine processing and sections were stained with haematoxylin and eosin (H&E). The lesions were classified as Lichen Planus, Psoriasis, along with rare conditions like Pityriasis Rosea, Parapsoriasis, Pityriasis Rubra Pilaris, Prurigo Nodularis and Lichen Simplex chronicus and clinicopathological correlation was done.

RESULTS

A total of 108 cases were studied. Lichen planus (51 cases- 47.22%) was the most common lesions followed by Psoriasis (34 cases - 31.48%) and with majority of cases in the age group of 21 to 30 years (25 cases– 23.15%). Females were more commonly affected with a male to female ratio of 0.89:1. Out of 108 cases, clinicopathological correlation was seen in 68 cases (62.96%).

CONCLUSION

The importance of specific histopathological diagnosis lies in distinguishing these lesions into different entities as the treatment and prognosis varies widely and is disease-specific.

KEYWORDS

Papulosquamous, Lichen Planus, Psoriasis.

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BACKGROUND

The papulosquamous lesions of skin are a group of heterogeneous non-infectious erythematous scaly lesions characterized by papules and plaques.[1] These lesions have unknown aetiology and are significant/notorious clinically for their chronicity and recurrence.

The papulosquamous lesions include a complex spectrum of conditions like Psoriasis, Lichen Planus along with rare conditions like Pityriasis Rosea, Parapsoriasis, Pityriasis Rubra Pilaris, Prurigo Nodularis and Lichen Simplex chronicus. Some papulosquamous conditions like psoriasis present with numerous clinical variants and mimic various dermatological conditions.[2]

This leads to a diagnostic dilemma for the clinician. As most of these lesions have similar presentation, clinical with histomorphological correlation gives a better diagnosis. Definitive and specific histopathological diagnosis is essential in these conditions as treatment and prognosis varies respectively.[3]

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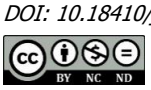

Aims and Objectives

To study the age, sex distribution and histopathological spectrum of non-infectious, erythematous, Papulosquamous Skin Diseases with clinico-histopathological correlation.

MATERIALS AND METHODS

The present study is a Hospital-based prospective observational study comprising of 108 clinically diagnosed /suspected non-infectious, erythematous, papulosquamous

skin diseases which were received in the Department of Pathology, Andhra Medical College, Visakhapatnam for a period of two years from January 2016 to December 2017.

After obtaining the informed consent from the patients, the patients were examined by the dermatologist to identify the site, size, colour and distribution of the lesion/lesions.

Following the clinical examination and data collection in the Department of Dermatology, lesion all punch or excisional biopsy was done on the patient clinically diagnosed to have scaly skin lesion of non-infectious aetiology.

Inclusion Criteria- Patients clinically diagnosed with non-infectious scaly lesions consenting for biopsy.

Exclusion Criteria- Patients clinically diagnosed with infectious scaly lesions, Patients with non-infectious scaly lesions not consenting for biopsy and all non-scaly lesions.

The skin specimen biopsies were sent to the Department of Pathology and fixed in 10% formalin. The skin specimens received were given a proper gross description which include tissue size, presence or absence of epidermis, colour, presence and absence of hair and alterations to the epidermal surface.

The tissue is then thinly sliced, processed and embedded in paraffin blocks, after which sections were cut and then subjected to haematoxylin and eosin staining, followed by mounting and proper labelling of the slides. The slides were then subjected to meticulous microscopic examination by the reporting pathologist.

The lesions were classified as Psoriasis, Lichen Planus along with rare conditions like Pityriasis Rosea, Parapsoriasis, Pityriasis Rubra Pilaris, Prurigo Nodularis and Lichen Simplex chronicus and clinicopathological correlation was done.

RESULTS

The present study comprised of 108 cases. Majority of cases were in the age group of 21 to 30 years (25 cases – 23.15%) followed by 31 to 40 years (24 cases -22.22%). (Table 1) The mean age was 38.96 years. Females were more commonly affected with 57 cases (52.77%) compared to males with 51 cases (47.23%) and with a male to female ratio of 0.89:1. (Table 2)

In the present study, among females the most common age group were seen in 21-30 years comprising of 18 cases (16.67%) and among males the most common age group were seen in 31-40 years comprising of 10 cases (9.25%). (Table 3)

In the present study, out of 108 cases studied, 51 cases were diagnosed as Lichen planus (47.22%) (Figure 1, 2), 34 cases as Psoriasis (31.48%) (Figure 3, 4), 5 cases each of Lichen simplex chronicus (4.62%), Pityriasis rosea (4.62%) and Parapsoriasis (4.62%), 4 cases of Pityriasis lichenoides chronica (3.70%), 2 cases of Pityriasis rubra pilaris (1.85%) and 1 case each of Prurigo nodularis (0.92%) and Papular Urticaria (0.92%). (Table 4)

The most frequently encountered tissue reaction pattern was the psoriasiform reaction pattern comprising of total 55 cases. In the present study, Psoriasiform reaction pattern entities were Psoriasis, Lichen simplex chronicus, Pityriasis rosea, Parapsoriasis, Pityriasis rubra pilaris and Pityriasis lichenoides chronica. The second most common tissue reaction pattern was Lichenoid reaction pattern comprising of 51 cases of Lichen planus and its variants.

Out of 51 cases of Lichen Planus, 30 cases (58.82%) were females and 21 (41.18%) were females with male to female ratio of 0.7:1. Lichen Planus was most commonly seen in the age group of 21-30 years age group comprising of 15 cases (29.41%). The variants of Lichen planus seen were 17 cases of classical lichen planus, 12 cases of Lichen planus pigmentosus, 7 cases of Lichen planus hypertrophicus, 5 cases each of Lichen Planopilaris (Figure 5) and Erythema dyschromicum perstans, 4 cases of Atrophic Lichen planus and 1 case of Bullous lichen planus.

Out of 34 cases of Psoriasis, males (20 cases – 58.82%) were more commonly affected compared to females (14 cases– 41.18%) with male to female ratio of 1.42:1. Psoriasis was most commonly seen in the age group of 31-40 years age group comprising of 9 cases (26.47%).

In the present study, out of 108 cases, clinicopathological correlation was seen in 68 cases (62.96%). (Table 5) Out of 48 cases clinically suspected to be lichen planus, 40 cases (83.33%) turned out to be lichen planus histopathologically. 5 cases turned out to be Psoriasis and 3 cases were diagnosed as Pityriasis rosea.

Out of 26 cases clinically suspected to be Psoriasis, only 18 cases (69.23%) turned out to be Psoriasis histopathologically. 5 cases turned out to be lichen planus and 3 cases were diagnosed as one case each of Lichen Simplex chronicus, Parapsoriasis and Pityriasis rubra pilaris.

Out of 4 cases clinically suspected as Parapsoriasis (Figure 6), only 2 were confirmed on histopathology whereas the other two cases turned out to be one case each of Pityriasis rosea and Psoriasis.

Out of 3 cases clinically suspected as pityriasis rosea, only one case was consistent with histopathological diagnosis, whereas the other two cases turned out to be one case each of Parapsoriasis and Psoriasis.

One case of 30-year-old female clinically suspected as Prurigo Nodularis was diagnosed as Lichen Planus on histopathology. One case of 32-year-old male clinically suspected as Pityriasis rubra pilaris was diagnosed as Psoriasis on histopathology.

Age in Years	No. of Cases	Percentage
0-10	2	1.85 %
11-20	12	11.11%
21-30	25	23.15%
31-40	24	22.22%
41-50	18	16.67%
51-60	19	17.59%
61-70	6	5.56%
>70	2	1.85%
Total	**108**	**100**

Table 1. Age Distribution in Papulosquamous Lesions (n=108)

Gender	No. of Cases	Percentage
Males	51	47.23%
Females	57	52.77%
Total	**108**	**100**

Table 2. Gender Distribution in Papulosquamous Lesions (n=108)

Age in Years	Female	Male	Total
0-10	1 (0.92%)	1 (0.92%)	2 (1.85 %)
11-20	6 (5.55%)	6 (5.55%)	12 (11.11%)
21-30	18 (16.67%)	7 (6.48%)	25 (23.15%)
31-40	14 (12.96%)	10 (9.25%)	24 (22.22%)
41-50	9 (8.33%)	9 (8.33%)	18 (16.67%)
51-60	9 (8.33%)	10 (9.25%)	19 (17.59%)
61-70	-	6 (5.55%)	6 (5.56%)
>70	-	2 (1.85%)	2 (1.85%)
Total	**57 (47.23%)**	**51 (52.77%)**	**108 (100%)**

Table 3. Age and Sex Distribution in Papulosquamous Lesions (n=108)

Lesions	Female	Male	Total No. of Cases	%
Lichen Planus	30	21	51	47.22%
Psoriasis	14	20	34	31.48%
Lichen Simplex chronicus	3	2	5	4.62%
Pityriasis rosea	2	3	5	4.62%
Pityriasis rubra pilaris	1	1	2	1.85%
Parapsoriasis	3	2	5	4.62%
Pityriasis lichenoides chronica	2	2	4	3.70%
Prurigo nodularis	1	0	1	0.92%
Papular Urticaria	1	0	1	0.92%
Total	**57**	**51**	**108**	**100%**

Table 4. Incidence of types of Papulosquamous Lesions (n=108)

Histo-pathological Diagnosis n= 108	No. of Cases	Clinical Diagnosis	
		Correlated	Not correlated
Lichen Planus	51	37	14
Psoriasis	34	21	13
Lichen Simplex chronicus	5	1	4
Pityriasis rosea	5	2	3
Pityriasis rubra pilaris	2	0	2
Parapsoriasis	5	2	3
Pityriasis lichenoides chronica	4	3	1
Prurigo nodularis	1	1	0
Papular Urticaria	1	1	0
Total	**108**	**68 (62.96%)**	**40 (37.04%)**

Table 5. Correlation of Histopathological Diagnosis with Clinical Diagnosis (n=108)

Study	Correlation
Younas et al[5]	76.30%
Grace et al[2]	97.52%
Sushma Hosamane et al[1]	46.67%
Rajasekhar et al[7]	86.5%
Chaudhary Raju G et al[19]	68.72%
Present study	62.96%

Table 6. Clinical and Histopathological Correlation in Various Studies

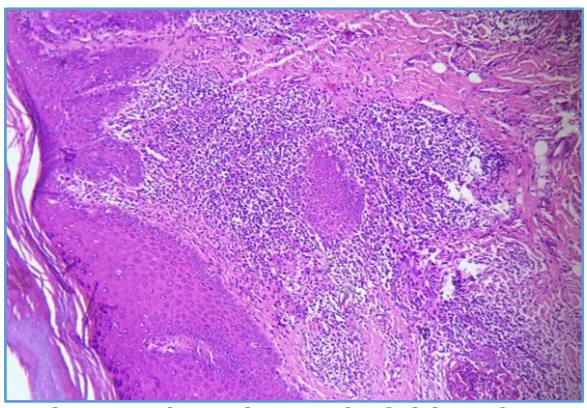

Figure 1. Photomicrograph of Lichen Planus Showing Hyperkeratosis, Irregular Acanthosis & Band Like Lymphocytic Infiltrate at the Dermoepidermal Junction. H & E (100x)

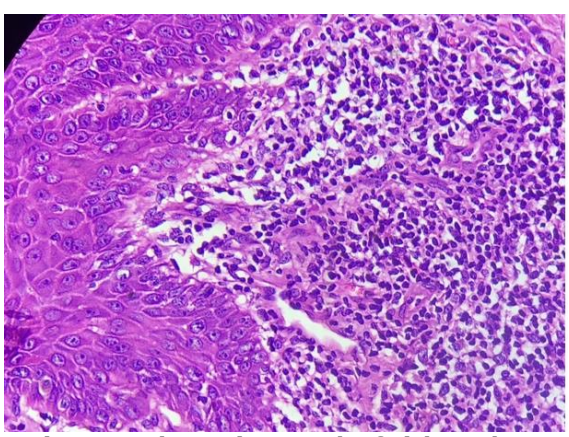

Figure 2. Photomicrograph of Lichen Planus Showing Basal Cell Vacuolar Degeneration and Lymphocytic Infiltrate at the Dermoepidermal Junction. H & E (400x)

Figure 3. Photomicrograph of Psoriasis Vulgaris Showing Hyperkeratosis, Acanthosis, Hypogranulosis and Elongated Rete Ridges. H & E (100x)

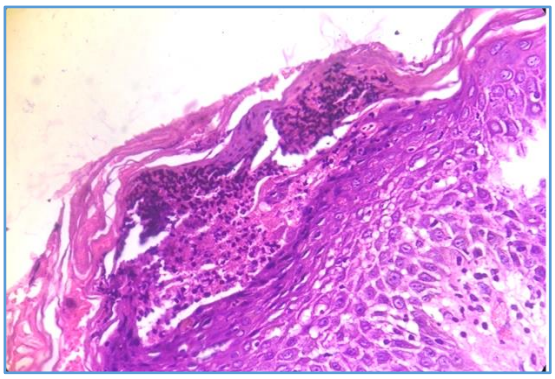

Figure 4. Photomicrograph of Psoriasis Vulgaris Showing Parakeratosis with Munro-micro abscess. H & E (400x)

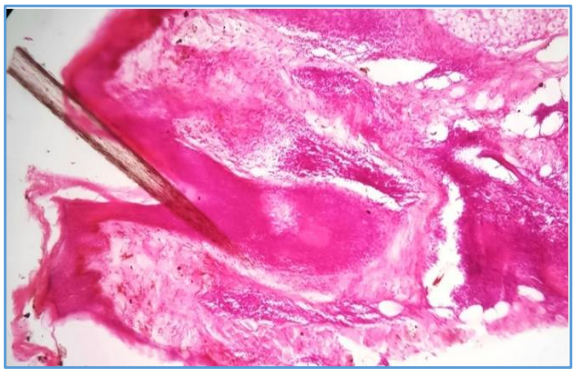

Figure 5. Photomicrograph of Lichen Planopilaris Showing Follicular Plugging, Hypergranulosis and Dense Band Like Perifollicular Lymphocytic Infiltrate. H & E (100x)

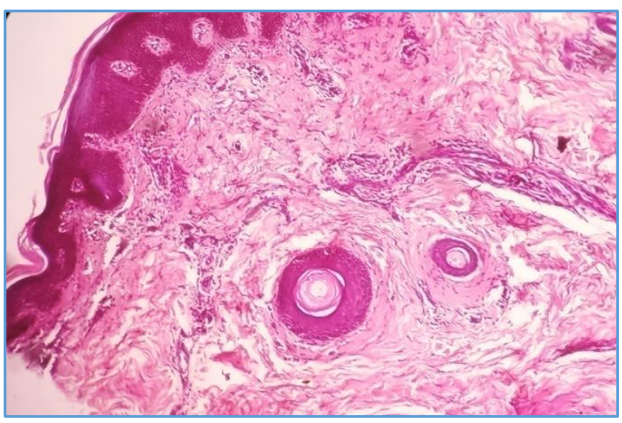

Figure 6. Photomicrograph of Small Plaque Parapsoriasis Showing Parakeratosis, Hyperkeratosis and Minimal Acanthosis with Preserved Granular Layer and Sparse Superficial Perivascular Lymphocytic Infiltrate. H & E (400x)

DISCUSSION

The skin has a limited number of reaction patterns with which it can respond to various pathological stimuli; clinically different lesions may show similar histologic patterns. Therefore to obtain the precise diagnosis of a skin biopsy, it should be accompanied by all relevant clinical details.[4]

The accurate diagnosis of any non-infectious scaly papulosquamous skin lesion is important for their effective treatment and evaluation of their prognostic significance. Most of these papulosquamous skin lesions have a similar clinical presentation, hence histopathology is considered as the gold standard for the evaluation of these lesions.

The present study was conducted to study the age, sex distribution and histopathological spectrum of non-infectious, erythematous, Papulosquamous Skin Diseases with clinico-histopathological correlation.

In the present study, majority of cases were in the age group of 21 to 30 years (25 cases– 23.15%) which was similar to studies done by Yonus et al[5] and Vijay et al[6] whereas lower compared to Rajasekhar et al[7] and Grace et al[2] in which 31 to 40 years was the most common age group seen.

In the present study, females were more commonly affected with a male to female ratio of 0.89:1 which was similar to Anand et al[8] study which had female preponderance whereas studies by Grace et al[2] and Rajasekhar et al[7] study showed male preponderance.

In the present study, lichen planus accounts for 47.22%, which is the most common lesion. In the study by Younas et al[5], lichen planus account for about 31.5% while Rajasekhar et al[7] reported lichen planus in 30% of their cases. In the study of Vijay et al[6], lichen planus accounted for 26% of the total study population. Lichen planus presents as flat topped, violaceous to erythematous lesions over the extremities and trunk and on histopathology showed hyperkeratosis, hypergranulosis, sometimes focally, irregular acanthosis, vacuolar degeneration of the basal layer and a band-like infiltrate in the papillary dermis. Max Joseph spaces and Civatte bodies are also seen.[9]

In the present study, Psoriasis was the second most common disease accounting for 31.48% which was similar to studies done by Younas et al[5] and Rajasekhar et al[7] which accounted to 36.8% and 42.5% respectively while it accounted for about 11.95% of cases in Vijay et al[6] study.

In the present study, Psoriasis was most commonly seen in the age group of 31-40 years age group comprising of 9 cases (26.47%) which was similar to Dogra S et al[10] and grace et al[2] studies whereas Younas et al[5] study reported the highest incidence in the age group of 21-30 years. Psoriasis vulgaris presented as erythematous sharply demarcated plaques covered with silvery scales over the buttocks, ankles, soles and shin.[11] The most frequent histopathological findings were hyperkeratosis, parakeratosis, irregular thinning and focal elongation of the

rete ridges, Munro's micro abscesses, dermis showed a dense chronic perivascular and periadnexal infiltrate in plaque psoriasis.[12] One case of Guttate Psoriasis was seen in a 34 year old female patient.

In the present study, out of five patients of Pityriasis rosea, one case showed psoriasiform changes while others showed lichen planus like changes. The clinical findings are in accordance with Chuh et al[13] and Sharma et al[14]. Histopathological findings correlated with Prasad et al[15] and Dayrit et al[16]. Additional findings noted by Prasad et al were delling (depression of surface epidermis not related to opening of sweat duct or pilosebaceous duct), intracorneal microabscesses, papillomatosis, intraepidermal vesicles, dyskeratosis and homogenisation of papillary collagen.[15]

In the present study, two cases of Pityriasis rubra pilaris were seen in 13 year old female and 85 year old male patient. Gerhaz et al stated that Pityriasis rubra pilaris has bimodal age distribution pattern with peak incidences in the first and fifth decades of life.[17] It affects all races and affects both sexes equally. Fung et al[18] stated that the three most common histological features noted in pityriasis rubra pilaris were alternating orthokeratosis and parakeratosis in both vertical and horizontal directions, focal or confluent hypergranulosis and follicular plugging.[18]

The predominant reaction patterns which were noted in the present study were psoriasiform reaction pattern followed by lichenoid reaction pattern. In the present study, a total of 108 cases were analysed to assess the correlation between clinical and histopathological diagnoses. A concordance was observed in 62.96% (68 cases out of 108 cases) which was similar to study by Chaudhary Raju G et al[19] which showed 68.72% (123 cases out of total 179 cases) study.

In studies done by Younas et al[5] and Grace et al[2], clinicopathological correlation carried out showed compatible clinical as well as histopathological diagnosis in 76.30% and 97.52% of the cases respectively. (Table 6)

The reason for the low concordance in the present study may be the following: In cases like lichen planus and psoriasis, where there were classical tissue reaction patterns, histopathological diagnoses confirmed the clinical diagnoses. But in other conditions without classical patterns, there was a considerable overlap in the clinical presentation, due to which many cases clinically suspected as papulosquamous skin lesions turned out to be other conditions.

Another reason could be that if a biopsy is taken at an early stage or from inappropriate site, there is likely to be discordance between clinical and histopathological observations. Although these clinical cases were reported as untreated, the chances that some of these cases had taken treatment cannot be ruled out. The histopathological results might have been affected partially by the effect of treatment.

CONCLUSION

Papulosquamous lesions are the most common skin diseases encountered. Most of these papulosquamous skin lesions have a similar clinical presentation characterized by scaling papules or plaques. Histopathology is considered as the gold standard for the evaluation of these lesions. The importance of specific histopathological diagnosis also lies in distinguishing these lesions into different entities as the treatment and prognosis varies widely and is disease-specific.

REFERENCES

[1] Hosamane S, Pai MK, Philipose TR, et al. Clinicopathological study of non-infectious erythaematous papulosquamous skin diseases. Journal of Clinical and Diagnostic Research 2016;10(6):EC19-22.

[2] D'Costa G, Bharambe BM. Spectrum of non-infectious erythaematous, populosquamous lesions of the skin. Indian J Dermatol 2010;55(3):225-228.

[3] Karumbaiah KP, Anjum A, Danger K, et al. A Clinicopathological study of Psoriasis. Sch J App Med Sci 2014;2(1C):298-302.

[4] Murphy GF. Histology of the skin. In: Elder DE, Elenitsas R, Johnson Jr, et al. eds. Lever's histopathology of skin. 9th edn. Philadelphia: Lippincott Williams and Wilkins 2005: p. 9-58.

[5] Younas M, Anwar ul Haque. Spectrum of histopathological features in non-infectious erythematous and papulosquamous diseases. International Journal of Pathology 2004;2(1):24-30.

[6] Veldurthy VS, Shanmugam C, Sudhir N, et al. Pathological study of non-neoplastic skin lesions by punch biopsy. International Journal of Research in Medical Sciences 2015;3(8):1985-1988.

[7] Reddy BR, Krishna N. Histopathological spectrum of non-infectious erythematous, papulo-squamous lesions. Asian Pac J Health Sci 2014;1(4S):28-34.

[8] Anand M. Histological spectrum of papulosquamous lesions of skin, encountered at M.S. Ramaiah Medical College from January 2003 to December 2005.

[9] Boyd AS, Neldner KH. Lichen planus. J Am Acad Dermatol 1991;25(4):593-619.

[10] Dogra S, Yadav S. Psoriasis in India: prevalence and pattern. Indian Journal of Dermatology, Venereology and Leprology 2010;76(6):595-601.

[11] Griffiths CE, Christophers E, Barker JN, et al. A classification of psoriasis vulgaris according to phenotype. Br J Dermatol 2007;156(2):258-262.

[12] Bell LM, Sedlack R, Beard CM, et al. Incidence of psoriasis in Rochester, Minn, 1980-1983. Arch Dermatol 1991;127(8):1184-1187.

[13] Chuh AA, Lee A, Zawar V. Pityriasis rosea-an update. IJDVL 2005;71(5):311-315.

[14] Sharma L, Srivastava K. Clinicoepidemiological study of pityriasis rosea. Ind J Dermatol Venereol Leprol 2008;74(6):647-649.

[15] Prasad D, Mittal RR, Walia R, et al. Pityriasis rosea: a histopathologic study. Ind J Dermatol Venerol Leprol 2000;66(5):244-246.

[16] Dayrit JF, Boer-Auer A, Broyer J. Pityriasis rosea: critical reassessment of histopathological and immunohistological feautures. Dermatopathology Practical and Conceptual 2010:16(1).
[17] Gerharz DB, Ruzicka T. Pityraisis rubra pilaris. In: Wolff K, Goldsmith LA, Katz SI, et al. eds. Fitzpatrick's dermatology in general medicine. 7th edn. New York: McGraw-Hill 2008: p. 232-235.
[18] Fung YP. Pityriasis rubra pilaris: an update review. Hong Kong Dermatology Venereology Bulletin 2001;9(1):10-16.
[19] Chaudhary RG, Chauhan AP, Makwana AR, et al. Study of clinico-histopathological correlation of papulosquamous disorders at tertiary care hospital. Sch J App Med Sci 2015;3(3B):1154-1158.