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A Histopathologic Study of Papulosquamous Lesions of Skin

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Abstract

Papulosquamous group of skin lesions have certain common clinical presentations and lead to confusion in diagnosis. We undertook this study to analyze the histomorphological findings of various papulosquamous lesions of skin in detail, and to correlate the clinical findings with histomorphological features. Biopsy of clinically diagnosed/suspected cases of papulosquamous lesions were performed in the department of dermatology and sent to the department of pathology in 10% formalin. The specimen obtained were subjected for tissue processing after fixation. Tissue sections are prepared from paraffin block and stained with haematoxylin and eosin, followed by microscopic examination. A total of 50 cases were studied. Psoriasis was the commonest lesions (44%) followed by Lichen Planus (34%), Pityriasis Rosea (10%), Parapsoriasis (6%), Pityriasis Rubra Pilaris (4%) and Lichen Nitidus (2%). Lesions occurred in all age groups but were common in young and middle aged. Males were commonly affected. There is an overlap in morphology and distribution of these lesions leading to difficulty in diagnosis. Distinct histopathological features and clinical correlation gives a conclusive diagnosis. Specific histomorphological diagnosis is important to distinguish these lesions as the treatment and prognosis varies significantly.

Keywords: Papulosquamous; Histopathology.

Introduction

The spectrum of skin diseases, including rare genetic disorders, infectious diseases, neoplasms and a wide range of inflammatory disorders, is huge and although in many conditions the histological features are pathognomic of particular skin disorders, in others the changes may be characterstic but not specific of one disease. Only by close liaison between the discipline of clinical dermatology and histopathology, the limitations of skin biopsy examination can be appreciated [1].

The visibility of skin allows an instant diagnosis in some cases, using a variety of visual clues such as site distribution, colour, scaling and arrangement of lesions. Such apparently effortless pattern recognition is actually quite complex when the individual components are analyzed separately [1].

Histopatholgy is highly specific and sensitive for many lesions and it remains the gold standard for much dermatological diagnoses [2].

The Papulosquamous skin disorders are a heterogeneous group of disorders which comprise the largest group of diseases seen by dermatologist. This group of skin disorder includes relatively common conditions like Psoriasis (PSO) and Lichen Planus (LP) along with rare conditions like Pityriasis Rosea (PR), Parapsoriasis (PP), Pityriasis Rubra Pilaris (PRP), Lichen Nitidus (LN) and Lichen Stritus (LS). The nosology of these disorders is based on a descriptive morphology of clinical lesions characterized by scaly papules and plaques [3].

The papulosquamous disorders are complex to

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diagnose as they are difficult to identify and may resemble a similar disorder of the group. Hence these disorders are commonly misdiagnosed.[4]

Distinct histopathological features and clinical correlation gives a conclusive diagnosis. Specific histomorphological diagnosis is important to distinguish these lesions as the treatment and prognosis varies significantly.

Objectives

1. To study the histomorphological findings of various papulosquamous lesions of skin in detail.
2. To correlate the clinical findings with histomorphological features of papulosquamous lesions of skin.

Methodology

The study includes clinically diagnosed / suspected and untreated papulosquamous eruptions of skin of cases attending the Department of Dermatology, K.V.G Medical College and Hospital, Sullia, Karnataka during a period of 2 years.

The patients are selected randomly irrespective of age, sex and socioeconomic status. A brief history followed by clinical examination was carried out in the Department of Dermatology. Biopsy of clinically diagnosed/suspected cases of papulosquamous lesions were performed by the Dermatologist and sent to the department of pathology in 10% formalin. The specimen obtained were subjected for tissue processing after fixation. Tissue sections were prepared from paraffin block and stained with haematoxylin and eosin, followed by microscopic examination.

Results

The present study consists of 50 cases of clinically diagnosed/suspected and untreated cases of papulosquamous skin lesions attended the Department of Dermatology.

Majority of cases were in the age group of 21 to 30 years (32%) followed by 31 to 40 years (18%) and then 41 to 50 years (16%) and least being less than 10 years (2%) (Table 1).

Males were more commonly affected (70%) compared to females (30%) with a male to female ratio of 2.33:1.

Psoriasis (22cases) was the commonest papulosquamous lesion, followed by Lichen Planus (17 cases), Pityriasis Rosea (5cases), Parapsoriasis (3 cases), Pityriasis Rubra pilaris (2 cases) and Lichen Nitidus (1 case) (Table 2).

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

Table 1 : Age distribution in papulosquamous lesions

Age Group (Years)	Number	Percentage
≤10	1	2.0
11-20	4	8.0
21-30	16	32.0
31-40	9	18.0
41-50	8	16.0
51-60	6	12.0
>60	6	12.0
Total	50	100

Table 2: Incidence of types of skin lesions

Lesions	Number	Percentage
Psoriasis	22	44
Lichen planus	17	34
Pityriasis rosea	5	10
Parapsoriasis	3	6
Pityriasis rubra pilaris	2	4
Lichen nitidus	1	2
Lichen striatus	-	-
Total	50	100

Table 3: Histological changes observed in Psoriasis

Histological Changes	No. of cases	Percentage
Epidermal changes		
Hyperkeratosis	17	77.27
Parakeratosis	16	72.72
Acanthosis	19	86.36
Psoriasiform hyperplasia	16	72.72
Suprapapillary thinning	9	40.90
Spongiform pustule	1	4.54
Munro microabscesses	5	22.72
Hypogranulosis	5	22.72
Dermal changes		
Papillary edema	6	27.27
Vascular changes	19	86.36
Dermal inflammation	18	81.81

Table 4: Histopathological changes in Lichen Planus

Histopathological Changes	No. of cases	Percentage
Epidermal Changes		
Hyperkeratosis	17	100
Focal parakeratosis	2	11.76
Irregular acanthosis with saw toothed rete ridges	13	76.47
Hypergranulosis	13	76.47
Vacuolar degeneration of basal cells	17	100
Max Joseph Spaces	4	23.52
Civatte bodies	2	11.76
Dermal Changes		
Dermal infiltrate		
- Band like	13	76.47
- Spotty	3	17.64
Cell type of infiltrate		
- Mononuclear	17	100
- Epithelioid	-	-
Vascular changes	-	-

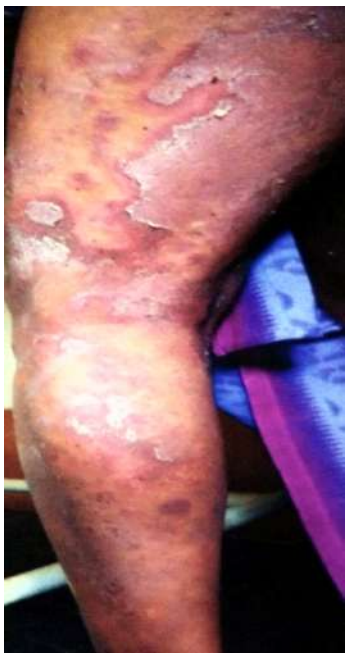

Fig. 1: Photograph showing sharply demarcated erythematous plaques covered with silvery white scales in Psoriasis

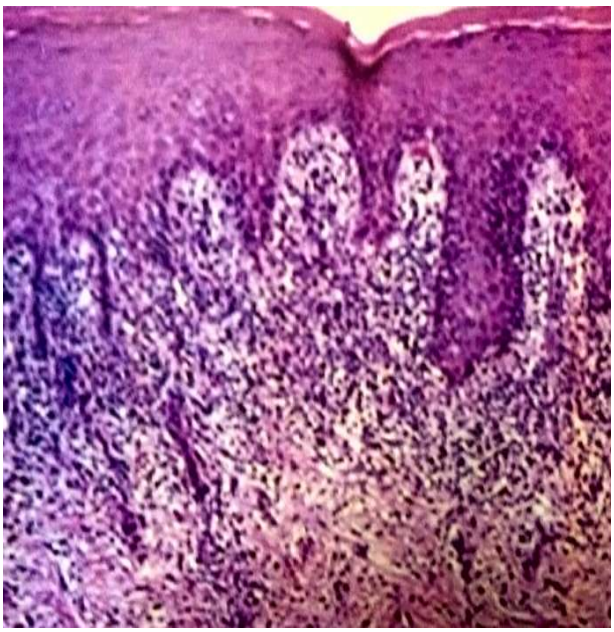

Fig. 2: Hypergranulosis, irregular acanthosis with saw toothed rete ridges and dermal band like infiltration in Lichen planus [Haematoxylin & Eosin, 10x]

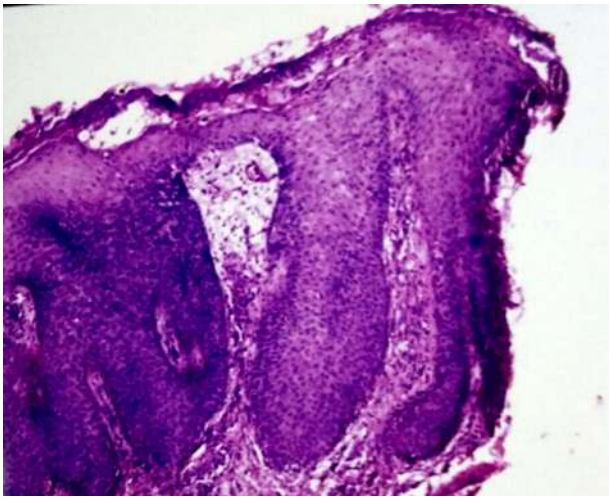

Fig. 3: Prominent spongiosis, extravasation of RBCs and perivascular lymphocytic infiltration in Pityriasis Rosea [Haematoxylin & Eosin, 10x]

histologic patterns. Therefore to obtain the precise diagnosis of a skin biopsy, it should be accompanied by all relevant clinical details [2]. As it is crucial to classify these lesions the present study was undertaken to study the histopathological features of papular and squamous lesions of the skin and to correlate with their clinical presentation.

Psoriasis is more common in males all over the world. Studies from different parts of the world including the present study shows a male preponderance.

Psoriasis is common in younger age groups. Most of the cases studied were between 20-40 years, third decade in particular. Dogra S and Yadav S [5], reported highest incidence of psoriasis in the age group of 20-39 years. D'Costa and Bharambe BM [6] reported maximum incidence in the age group of 30-40 years. Younas M and Haque A[7] reported the highest incidence in the age group of 21-30 years. In the present study, psoriasis was seen commonly in the 21-30 years age group.

Schon MP and Boehncke WH [8], have stated that patients with psoriasis typically have sharply demarcated chronic erythematous plaques covered by silvery white scales, which most commonly appear on the elbows, knees, scalp, umbilicus and lumbar area. In the present study most common sites of lesion were extremities followed by trunk and back (Figure 1).

Younas M and Haque A [7] in their study observed, hyperkeratosis, elongated rete ridges and acanthosis in 100 % cases, parakeratosis in 78.5% , micro munro abscesses in 71.4% and spongiform pustules in 42.8%. Attenuated or absent granular layer, suprapapillary thinning, exocytosis and telengiectatic vessels were observed in majority. The present study showed features comparable with the above study (Table 3). Often clinical manifestations are misleading in these conditions. While some cases are clinically suspicious others may present differently.

In the present study of 17 cases of lichen planus , 11 (64.70%) were males and 6 (35.29%) were females. Younas M and Haque A [7] in their analysis of 12 cases of lichen planus found 8(66.66%) to be males and 4(33.33%) females, similar to the present study. Lichen planus may affect all ages and incidence is equal in both sexes but distinctly rare in children.[7] It was more common in the age group between 31-40 years accounting for 41.17% of cases. The epidermal changes showed hyperkeratosis and vacuolar degeneration of basal cells in 100% cases. 76.47% cases showed irregular acanthosis with saw toothed ridges and hypergranulosis (Figure 2). Max Joseph spaces were found in 23.52% cases. 11.76% cases showed focal parakeratosis and civatte bodies. The dermal changes showed band like infiltrate in 76.47% cases and spotty infiltrate in 17.64% cases (Table 4). These findings are consistent with the classic description of LP given by Mobini et al (2005) [9].

Five cases of Pityriasis rosea were studied, which comprised of 3 (60%) males and 2(40%) females and a ratio of 1.5:1 which is concordant with the other studies. Egwin AS et al [10] , in their clinical study of 50 patients, reported 30(60%) were males and 20(40%) were females giving male: female ratio 1.5:1.Younas M and Haque A[7], in their study of 3 cases of PR noted 2(66.66%) males and 1(33.33%) female.

Relhan V et al [11], in their study revealed that all the cases showed, focal parakeratosis, prominent spongiosis, and perivascular lymphocytic infiltrate in the upper dermis. Extravasation of RBCs and exocytosis of lymphocytes into the epidermis was also seen. Similar changes were observed in all the cases in the present study (Figure 3).

In the present study, 3 cases of parapsoriasis were diagnosed of which 2 were in the 21-40 years age group and one was in the > 60 year age group. Lewin J and Latkowski JA [12], in their article have reported that small-plaque parapsoriasis is more common in middle-aged and elderly individuals, with a peak in the 40- to 50-year-old range.

A study [13], noted parakeratosis, acanthosis, dermal perivascular inflammation in majority of the cases of parapsoriasis and few cases showed hyperkeratosis, exocytosis of lymphocytosis and

spongiosis. Similar histologic findings were noticed in the present study.

Out of 3 cases diagnosed histopathologically as parapsoriasis, 1 case was diagnosed clinically, 2 cases had a differential diagnosis of PP along with PSO. LP, PSO and PR can be confused clinically for PP. A biopsy and critical analysis of clinical features are required to distinguish these disorders.

In the present study 2 cases of Pityriasis Rubra Pilaris were diagnosed and both were in the age group of 11-20 years. Sehgal et a[14], in their study stated that PRP is seen in adults as well as in children. A bimodal or trimodal age distribution has been recorded with peak incidence in the 1st, 2nd and 6th decade of life.

Shenefelt PD[15], concluded the characteristic features of PRP, as hyperkeratosis with alternating orthokeratosis and parakeratosis, follicular plugging with perifollicular parakeratosis and broad rete ridges. Presence of acantholysis, hypergranulosis, follicular plugging, absence of dilated capillaries and epidermal pustulation distinguishes PRP from psoriasis. Follicular plugging, perifollicular acanthosis, perifollicular inflammation and perivascular inflammation were seen in both the cases in present study.

Magro CM and Crawson AN [16], in their article state that Pityriasis rubra pilaris is an idiopathic erythematous scaling eruption which can be difficult to distinguish from psoriasis. Kurzydlo AM and Gillespie R [17], in their article have said that, Pityriasis rubra pilaris is an uncommon dermatosis occasionally reported in association with an underlying malignancy. A presentation of PRP, particularly if atypical, or in an older patient, should prompt consideration of an associated internal malignancy.

One case of lichen nitidus diagnosed in this study, showed elongated rete ridges, hyperkeratosis over the granuloma, epidermal flattening, basal layer disintegration. The dermis showed lymphocytes, plasma cells, histiocytes and perivascular lymphocytic infiltration. Glorioso et al [18], in their case report noticed orthokeratotic stratum corneum with focal parakeratosis. There was a ball-shaped lichenoid infiltrate of lymphocytes, histiocytes, plasma cells, and rare giant cells. The epidermis was thinned with downward extension of rete ridges at the lateral margins of the infiltrate.

LN clinically can be confused and co-exist with LP. Waisman M et al [19], in their study found although LP and LN can occur simultaneously, they are clinically and histologically distinct, and immunoflourescent findings do not substantiate a relationship between the two diseases.

Conclusion

There is an overlap of both clinical pattern and distribution of papulosquamous skin disorders, which often makes clinical diagnosis difficult. Recognition of these commonly encountered cutaneous problems depends upon the familiarity of clinical presentation and the diagnosis can be confirmed with histopathology. The pathologist's ability to render an accurate diagnosis depends on the available clinical information. Biopsy specimens of these lesions submitted for histopathology with clinical information & differential diagnosis and a clinico-pathological correlation is key to better patient care.

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