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Interface Dermatitis with Clinicopathological Correlation

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ABSTRACT

Introduction: *The term "Interface dermatitis" refers to the findings in skin biopsy of inflammatory infiltrate that obscures the dermo-epidermal junction. This study was carried out to correlate interface dermatitis clinicopathologically.* ***Methods:*** *Skin biopsies were taken from clinically diagnosed cases of lichenoid skin lesions and sent for histopathological examination. Then correlation was done with clinical diagnosis.* ***Results:*** *Out of 90 cases, almost all were of Lichen planus with its variants (40, 44.4%), Lichen simplex chronicus (42, 46.6%) and Lichen planus-like keratosis (5, 5.5%). Other cases included 1 from each of Inflammatory linear verrucous epidermal nevus (ILVEN), Pityriasis lichenoides et varioliformisacuta (PLEVA), and Prurigo simplex (PS). Clinico-pathological correlation was present in 44.4 % of cases of interface dermatitis.* ***Conclusion:*** *In our study, most consistent findings in histology were basement membrane degenerations like lymphocytic infiltrates along dermoepidermal junction. Other findings such as hypergranulosis and civatte bodies were not observed frequently. Interface dermatitis includes diverse entitieswhich have overlapping features at the clinical and histopathological level. Hence, adetailed histopathological studies are needed to diagnose specific features of different types of interface dermatitis.*

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INTRODUCTION

The term interface dermatitis (ID) refers to the findings in a skin biopsy of an inflammatory infiltrate that obscures the dermoepidermal junction (DEJ).[1,5,8] The salient histological findings include basal cell vacuolization, civatte bodies (apoptotic keratinocytes) and inflammatory infiltrates obscuring the DEJ. Secondary changes of the epidermis and papillary

dermis along with type, distribution and density of inflammatory cells are used for the differential diagnosis of the various diseases that exhibit interface changes. Lupus erythematosus, dermatomyositis, lichen planus (LP), graft versus host disease, erythema multiforme, fixed drug eruptions, lichen striatus (LS) and ptyriasis lichenoides are considered major interface diseases.[2]

Interface reactions are so named because they are cell-mediated immunologic reactions where the basal keratinocytes that reside above the DEJ sare the target. Interface reactions are also known as lichenoid tissue reaction (LTR).[4] Cytotoxic T-lymphocytes represent the final effector cell type for the epidermal basal cell layer injury pattern that is common in ID disorders.[8] An autoimmune attack by T-cell upon the epidermis represents the primary pathologic event in the LTR.[9] The term "lichenoid" refers to papular lesions of certain skin disorders of which lichen planus is the prototype.[3,6,7]

ID can also be classified by the intensity of the interface inflammation as cell-poor ID and cell-rich ID. The infiltrate in lesions of cell-rich lymphocytic ID typically occurs as a heavy band-like inflammatory infiltrate that obscure the basal layers of the epidermis; this is often termed as lichenoid interface dermatitis.[1] Interface dermatitis encompasses multiple clinical entities with diverse histological features. Histological study is valuable in diagnosing different dermatological disorders. A correlation of the interface changes with the clinical diagnosis often helps in arriving at a definitive diagnosis of the various lichenoid interface dermatitis.[3] The aim of this study was to correlate clinical diagnosis with histologic features to have a definitive diagnosis.

METHODS

This cross-sectional descriptive type of study was carried out in the Department of pathology, Rajshahi Medical College. The material for the present study consisted of skin biopsy samples collected from the patients attending the out-patient Department of Dermatology and Venereology, Rajshahi Medical College Hospital. The study was conducted for a period of 2 years from July, 2005 to June, 2007. A total of 90 patients of both sexes, aged between 5-75 years, were included in this study. Biopsies of skin lesions were taken from the lichenoid skin lesions and submitted to the Department of Pathology for histopathological examination. The specimens were fixed in 10% formalin for 24 hours and then processed by routine paraffin section technique and stained with hematoxylin and eosin. All the slides were examined under the light microscopy for epidermal and dermal changes. All the histopathological features were correlated with the clinical diagnosis.

RESULTS

In the present study, a total of 90 cases of Interface dermatitis (ID) were studied, which was presented clinically as papulo squamous skin lesions (lichenoid skin lesion). Out of 90 cases studied, the most common type of ID was Lichen simplex chronicus (42, 46.6%), the second common being Lichen planus (LP) and its variants (40, 44.4%). The least common cases were LP-like keratosis (5, 5.5%), Inflammatory verrucous epidermal nevus (ILVEN) 1 case, Pityriasis lichenoides et varioliformisacuta (PLE-VA) 1 case and Prurigosimplex (PS) 1 case (Table I).

Table I: Histopathological diagnosis of 90 cases of Lichenoid skin lesion

Histopathological diagnosis	Number of patients (n- 90)	(%)
Lichen simplex chronicus	42	46.6
Lichen planus (LP)	40	44.4
LP-like keratosis	05	5.5
Inflammatory linear verrucous epidermal nevus	01	1.1
Pityriasis lichenoides et varioliformisacuta	01	1.1
Prurigo simplex	01	1.1
Total	**90**	**100**

Majority (28.8%) of the cases in the present study were in the age range of 21-30 years. Majority of the cases of ID were seen in males (61, 67.7%), with M:F of 2.1:1. Male predominance was seen among the cases of ID (Table II).

Table II: Age and sex distribution of 90 cases of Interface dermatitis

Age groups (years)	Male (n-61) (%)	Female (n-29)(%)	Total = (n- 90)(%)
0-10	05 (71.4)	02 (28.5)	07 (7.7)
11-20	16 (72.7)	06 (27.2)	22 (24.4)
21-30	17 (65.3)	09 (34.6)	26 (28.8)
31-40	08 (66.6)	04 (33.3)	12 (13.3)
41-50	11 (68.7)	05 (31.2)	16 (17.7)
51-60	03 (60.0)	02 (40.0)	05 (5.5)
61- above	01 (50.0)	01 (50.0)	02 (2.2)
Total	**61 (67.7)**	**29 (33.2)**	**90 (100)**

Clinicopathological concordance was seen in 40 (44.4%) cases with lichen planus and discordance in 50 (55.5%) cases. Among the several variants of lichen planus (LP) cases (n=40), classical, oral, hypertrophic and atrophic types were observed in this study (Table III). Maximum number of cases was classical variant of LP. Papules and plaques with scales were mainly confined to the extremities and trunk.

Table III: Variants of lichen planus

Variants of lichen planus	Number of cases (n = 40)	(%)
Classical	36	90.0
Oral	02	5.0
Hypertrophic	01	2.5
Atrophic	01	2.5
Total	**40**	**100**

Histologically, mild degree of hyperkeratosis was observed in 7 (17.5%), moderate degree in 32(80.0%) and marked degree in 1 (2.5%) cases. Similarly, mild degree of hypergranulosis was observed in 5 (12.5%) and marked degree in 35 (87.5%) cases. Acanthosis of the epidermis in mild degree was observed in 5 (12.5%), moderate degree in 34 (85.0%) and marked degree in 1 (2.5%). Focal degeneration of basal layer was observed in 16 (40.0%) cases and band like infiltration of chronic inflammatory cells along the dermoepidermal junction were observed in 24 (60.0%) cases and civette bodies in 16 (40.0%) cases.

Table IV : Important histological features of lichen planus

Histological features	Mild	Moderate	Marked	Total
Hyperkeratosis	7 (17.5 %)	32 (80.0 %)	1 (2.5 %)	40 (100%)
Hypergranulosis	5 (12.5%)	_	35 (87.5 %)	40 (100%)
Acanthosis	1 (2.5 %)	37 (97.8%)	1 (2.5 %)	40 (100%)
Focal degeneration of basal layer	16 (40.0%)	_	_	16 (100%)
Band-like infiltrate along dermoepidermal junction	24 (60.0%)	_	_	24 (100%)

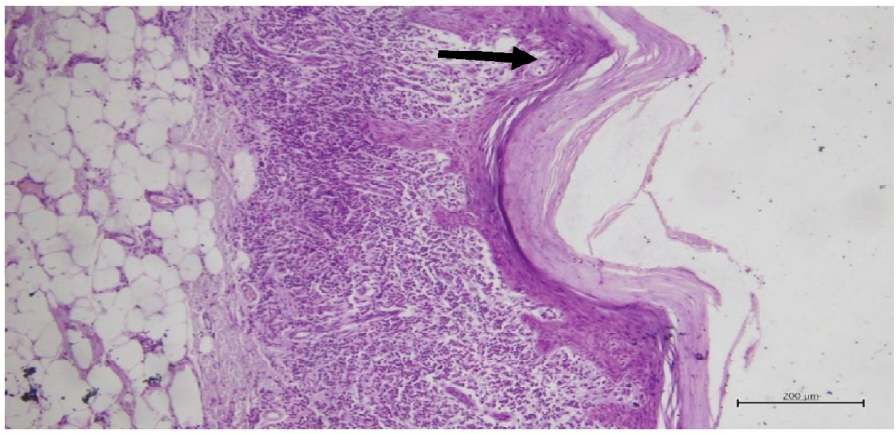

Figure - 2 : Photomicrograph of classical lichen planus showing features of interface dermatitis along the dermoepidermal junction. (H&E stain, X 100).

DISCUSSION

Lichenoid interface dermatoses include a closed group of disorders with bandlike infiltration of lymphocytes obscuring the dermoepidermal junction, vacuolar degeneration of basal layer and civette bodies. All lichenoid dermatoses are interface dermatoses but all interface dermatoses are not lichenoid dermatoses as interface dermatoses can also be vacuolar in nature. Diagnosis of the various types and subtypes are also important because of the different clinical course, management and prognosis of the disease.[7]

Lichen planus is a prototype of lichenoid interface dermatoses. The most common dermatoses observed in our study were lichen planus, presented with papulosquamous lesions. Sex distribution of male and female was 2.1: 1. More

common affected age group was 21-30 years and most of the patients were in third decade. Pruritus was moderate to severe. The cutaneous lesions of LP tend to involve the flexural surface, the arms and legs were the most common sites, although trunk may be involved. This study correlates well with the study of Boyd and Neldner.[7] This study also correlates with the study of Anber, 2003 among the Egyptian people.[10] Papulosquamous lesions were found in majority of the cases in our study, which is similar to the observation of Gargiet al.[7] Localized lesions on extremities were more common than generalized lesions.

Among the morphologic variants of LP, classic type, hypertrophic type, oral LP and atrophic LP were found in this study. The histologic features consists of hyperkeratosis, hypergranulosis, irregular acanthosis, basal layer degeneration and band like infiltrates along the dermoepidermal junction. Mild degree of hyperkeratosis is seen in atrophic and oral LP cases.

The second most common entity in this study is Lichen simplex chronicus, which is a prototype of chronic non-specific dermatitis.[11] Clinically, lesions were papuloplaque type with scales on surface and pruritic. These make it difficult to differentiate from the lesions of LP. Histopathologically diagnosed other cases of lichenoid skin lesions in this study are BLK, ILVEN, PLEVA, PS. Most of these are termed as lichnoid interface dermatitis.[1,4,6,8,12]

The present study showed 40 (44.4%) concordance and 50 (55.5%) discordance between the clinical and histopathological diagnosis among the 90 cases of lichenoid skin lesion. So, clinical evaluation alone is not sufficient for the diagnosis of lichenoid interface dermatitis, rather a subsequent histopathological examination would enable us to reach a correct diagnosis and proper management of the patients.

CONCLUSION

This study has shown that interface dermatitis occurs in a wide variety of clinicopathologic settings. All clinically diagnosed lichenoid skin lesions were not lichen planus, a few of them were different types of chronic dermatitis. Clinical evaluation alone is not sufficient for the diagnosis. So, all lichenoid skin lesions require biopsy and histopathological examination to evaluate subtle microscopic changes, which will help in arriving at a specific diagnosis. A better understanding of the different conditions with shared pathogenesis will help in better patient care.

Conflict of interest: Nothing.

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