Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Dermatology

A Clinicopathological Study on Interface Dermatitis

Dr. Renu Gupta[1*], Dr. Md. Siddiqur Rahman[2], Dr. Sukanta Kumar Ghose[3], Dr. Shafwanur Rahman[4], Dr. Selina Sultana[1]

[1]Assistant Professor, Department of Dermatology and Venereology, TMSS Medical College, Bogura, Bangladesh
[2]Professor & Head, Department of Dermatology and Venereology, TMSS Medical College, Bogura, Bangladesh
[3]Registrar, Department of Dermatology and Venereology, TMSS Medical College, Bogura, Bangladesh
[4]Assistant Registrar, Department of Dermatology and Venereology, TMSS Medical College, Bogura, Bangladesh

DOI: 10.36347/sjams.2024.v12i02.014 | **Received:** 09.01.2024 | **Accepted:** 06.02.2024 | **Published:** 19.02.2024

***Corresponding author:** Dr. Renu Gupta
Assistant Professor, Department of Dermatology and Venereology, TMSS Medical College, Bogura, Bangladesh

Abstract **Original Research Article**

***Background*:** Interface dermatitis (ID), also known as lichenoid tissue reaction, is a form of skin reaction characterized by an inflammatory infiltration that appears to cover the dermo-epidermal junction under inexpensively analysis. A wide range of inflammatory skin disorders demonstrate interface alteration with significant overlap of histological characteristics. ***Aim of the Study*:** The purpose of this study was to link interface dermatitis clinicopathologically. ***Methods*:** This cross-sectional descriptive type of study was conducted in the department of dermatology and venereology, TMSS Medical College, Bogura, Bangladesh, from January 2021 to December 2022. The study included 200 patients aged 5 to 75. Skin biopsies were obtained from clinically confirmed cases of lichenoid skin lesions and sent for histological investigation. The correlation was then performed with clinical diagnosis. All acquired data was analysed using descriptive statistics in SPSS 11.5. ***Results*:** Out of 200 cases evaluated, the most common type of ID was Lichen simplex chronicus (95, 47.5%), with Lichen planus (LP) and its variants coming in second (84, 42%). LP-like keratosis (15, 7.5%), Inflammatory verrucous epidermal nevus (ILVEN) 2 cases, Pityriasis lichenoides et varioliformisacuta (PLE-VA) 2 cases, and Prurigosimplex (PS) 2 cases were the least prevalent. Clinicopathological concordance was seen in 84 (42%) of the lichen planus patients and discordance in 116 (58%) of the cases. ***Conclusion*:** In our investigation, the most consistent histological results were basement membrane degenerations such as lymphocytic infiltrates along the dermo-epidermal interface. Interface dermatitis refers to a group of conditions that share clinical and histological characteristics. As a result, comprehensive histological studies are required to identify distinct features of various kinds of interface dermatitis.

Keywords: Interface dermatitis (ID), Lichenoid tissue reaction (LTR), Dermo epidermal junction (DEJ), Lichen planus (LP).

INTRODUCTION

The term interface dermatitis (ID) refers to the presence of an inflammatory infiltration in a skin biopsy that obscures the dermoepidermal junction (DEJ) [1, 5, 8]. Histological findings that stand out include basal cell vacuolization, civatte bodies (apoptotic keratinocytes), and inflammatory infiltrates that obscure the DEJ. Secondary alterations in the epidermis and papillary dermis, as well as the type, distribution, and density of inflammatory cells, are utilised to differentiate between diseases that exhibit interface changes. Major dermatological conditions showing interface dermatitis include lupus erythematosus, dermatomyositis, lichen planus (LP), graft versus host disease, erythema multiforme, fixed drug eruptions, lichen striatus (LS), and pityriasis lichenoides [2]. Interface reactions are so named because they are cell-mediated immunologic reactions that target basal keratinocytes above the DEJ. Interface reactions are also known as lichenoid tissue reactions (LTR) [4]. Cytotoxic T-lymphocytes are the last effector cell type for the epidermal basal cell layer injury pattern seen in ID diseases [8]. The fundamental pathogenic event in the LTR is an autoimmune attack by T cells on the epidermis [9]. The term lichenoid refers to papular lesions of certain skin illnesses, of which lichen planus is the prototype [3, 6, 7]. ID can alternatively be characterised as cell-poor ID or cell-rich ID based on the degree of the interface inflammation. Infiltrates in cell-rich lymphocytic ID lesions generally appear as a heavy bandlike inflammatory infiltrate that obscures the basal layers of the epidermis; this is commonly referred to as lichenoid interface dermatitis [1]. Interface dermatitis is a clinical entity with a variety of histopathological characteristics. Histological examination is useful in the diagnosis of several dermatological conditions. A

correlation of interface changes with clinical diagnosis is frequently helpful in arriving at a definitive diagnosis of different lichenoid interface dermatitis [3]. The goal of this study was to link clinical diagnosis with histologic findings in order to arrive at a final diagnosis.

METHODOLOGY

This cross-sectional descriptive type of study was conducted in the department of dermatology and venereology, TMSS Medical College, Bogura, Bangladesh, from January 2021 to December 2022. The study included 200 patients aged 5 to 75. Biopsies of lichenoid skin lesions were obtained and sent to the department of pathology for histological investigation. The specimens were fixed in 10% formalin for 24 hours before being paraffin sectioned and stained with hematoxylin and eosin. Under light microscopy, all of the slides were inspected for epidermal and dermal alterations. The clinical diagnosis was associated with all histological characteristics. All acquired data was entered into a Microsoft Excel Work Sheet and analysed using descriptive statistics in SPSS 11.5.

RESULT

A total of 200 cases of Interface dermatitis (ID) were investigated in this study, which manifested clinically as papulo squamous skin lesions (lichenoid skin lesion). Out of 200 cases evaluated, the most common type of ID was Lichen simplex chronicus (95, 47.5%), with Lichen planus (LP) and its variants coming in second (84, 42%). LP-like keratosis (15, 7.5%), Inflammatory verrucous epidermal nevus (ILVEN) 2 cases, Pityriasis lichenoides et varioliformisacuta (PLE-VA) 2 cases, and Prurigosimplex (PS) 2 cases were the least prevalent (Table-1). The majority (19%) of the cases in this study were between the ages of 21 and 30. The majority of ID cases (134, 67%) were seen in males, with females (66, 33%). Male predominance was seen among ID cases (Table- 2). Clinicopathological concordance was seen in 84 (42%) of the lichen planus patients and discordance in 116 (58%) of the cases. In this investigation, classical, oral, hypertrophic, and atrophic kinds of lichen planus (LP) patients (N=84) were observed (Table- 3). The classical variety of LP had the most cases. The extremities and trunk were mostly covered in papules and plaques with scales. Histologically, mild hyperkeratosis was found in 16 (19.05%) cases, moderate hyperkeratosis in 65 (77.38%) cases, and marked hyperkeratosis in 3 (3.57%) instances. Similarly, 14 (16.67%) instances had mild hypergranulosis, while 70 (83.33%) had severe hypergranulosis. Acanthosis of the epidermis was found to be mild in 2 (2.38%), moderate in 80 (95.24%), and severe in 2 (2.38%). In 34 (40.48%) cases, there was focal basal layer degeneration, and 50 (59.52%) cases had band-like infiltration of chronic inflammatory cells along the dermoepidermal interface (Table- 4). Photomicrograph of classical lichen planus showing features of interface dermatitis along the dermoepidermal junction (H&E stain, X 100) in (Figure-1).

Table-1: Histopathological diagnosis of Lichenoid skin lesion (N=200)

Histopathological diagnosis	Frequency	Percent
Lichen simplex chronicus	95	47.5
Lichen planus (LP)	84	42
LP-like keratosis	15	7.5
Inflammatory linear verrucous epidermal nevus	02	1
Pityriasis lichenoides et varioliformisacuta	02	1
Prurigo simplex	02	1
Total	**200**	**100**

Table -2: Age and sex distribution of interface dermatitis (N=200)

Age in years	Male (N-134) (%)	Female (N-66) (%)	Total = (N- 200) (%)
0-10	10 (5)	05 (2.5)	15 (7.5)
11-20	36 (18)	15 (7.5)	51 (25.5)
21-30	38 (19)	18 (9)	56 (28)
31-40	18 (9)	10 (5)	28 (14)
41-50	24 (12)	12 (6)	36 (18)
51-60	06 (3)	04 (2)	10 (5)
61- above	02 (1)	02 (1)	04 (2)
Total	**134 (67)**	**66 (33)**	**200 (100)**

Table-3: Varieties of lichen planus

Variants of lichen planus	Frequency, N=84	Percent
Classical	76	90.48
Oral	04	4.76
Hypertrophic	02	2.38
Atrophic	02	2.38

Total	**84**	**100**

Table-4: Important histological characteristics of lichen planus

Histological characteristics	Mild	Moderate	Marked	Total
Hyperkeratosis	16 (19.05%)	65 (77.38%)	03 (3.57%)	84 (100%)
Hypergranulosis	14 (16.67%)	-	70 (83.33%)	84 (100%)
Acanthosis	02 (2.38%)	80 (95.24%)	02 (2.38%)	84 (100%)
Focal degeneration of basal layer	34 (40.48%)	-	-	34 (100%)
Band-like infiltrate along dermoepidermal junction	50 (59.52%)	-	-	50 (100%)

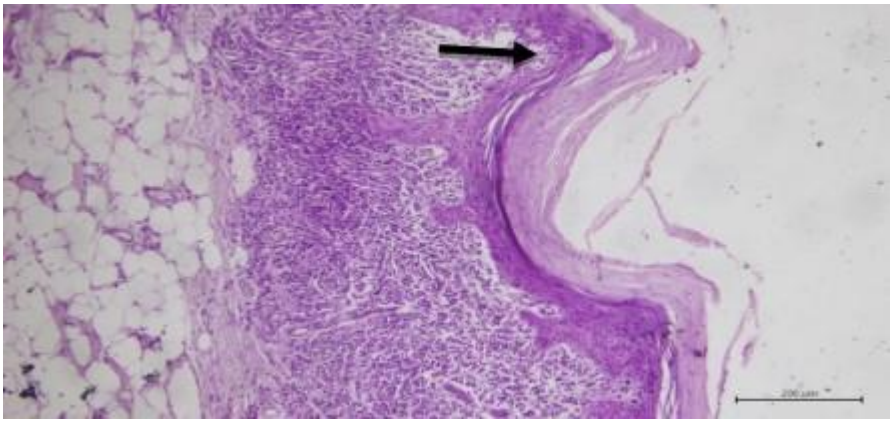

Figure-1: Photomicrograph of classical lichen planus showing features of interface dermatitis along the dermoepidermal junction (H&E stain, X 100)

DISCUSSION

Lichenoid interface dermatoses are a collection of illnesses characterised by bandlike infiltration of lymphocytes obscuring the dermoepidermal junction, basal layer vacuolar degeneration, and civette bodies. Although all interface dermatoses are lichenoid dermatoses, some interface dermatoses differ from lichenoid dermatoses in that they may also have a vacuolar nature. The diverse clinical courses, therapy, and prognosis of the disease necessitate accurate diagnosis of the many types and subtypes [7]. Lichen planus is a lichenoid interface dermatosis prototype. In our investigation, the most prevalent dermatoses were lichen planus and papulosquamous lesions. The bulk of our study's cases (19%) were between the ages of 21 and 30. Males were seen in the majority of ID instances (134, 67%), with females (66, 33%). The itchiness ranged from mild to severe. LP cutaneous lesions often involve the flexural surface, with the arms and legs being the most prevalent areas, while the trunk may be implicated. This study agrees with the findings of Boyd and Neldner [7]. This research is also consistent with Anber's 2003 study on Egyptians [10]. Papulosquamous lesions were observed in the majority of individuals in our investigation, which is consistent with Gargi *et al.,* [7]. Localised extremity lesions were more prevalent than generalised lesions. This study discovered classic type, hypertrophic type, oral LP, and atrophic LP among the morphologic variants of LP. Hyperkeratosis, hypergranulosis, irregular acanthosis, basal layer degeneration, and band-like infiltrates at the dermoepidermal junction are histologic characteristics. Atrophic and oral LP patients exhibit mild hyperkeratosis. Lichen simplex chronicus, a prototype of chronic non-specific dermatitis, was the second most prevalent entity in this investigation [11, 12]. Clinically, the lesions were papuloplaque in nature, with scales on the surface and were pruritic. These make it difficult to distinguish from LP lesions. Other histopathologically diagnosed lichenoid skin lesions in this investigation are BLK, ILVEN, PLEVA, and PS. The majority of these are classified as lichnoid interface dermatitis [13-17]. The current study found 84 (42%) concordance and 116 (58%) discordance between clinical and histological diagnosis in 200 cases of lichenoid skin disease. Thus, clinical evaluation alone is insufficient for the diagnosis of lichenoid interface dermatitis; rather, a following histological study would allow us to make an accurate diagnosis and properly manage the patients.

Limitation of the Study:

The study featured a single point of focus and minimal sample sizes. Therefore, it's possible that the study's findings don't accurately capture the overall situation.

CONCLUSION & RECOMMENDATION

This study discovered that interface dermatitis occurs in a variety of clinicopathologic diseases. All of the clinically identified lichenoid skin lesions were not lichen planus; instead, they were various kinds of persistent dermatitis. The clinical evaluation alone is

insufficient for diagnosis. As a result, all lichenoid skin lesions necessitate biopsy and histological testing to detect tiny microscopic changes that will aid in reaching a definite diagnosis. A better understanding of the various illnesses with common pathophysiology will aid in patient care.

REFERENCES

1. Crowson, N. A., Magro, C. M., & Mihm, M. C. (2008). Interface dermatitis. *Arch Patho Lab Med, 132*, 652-666.
2. Joshi, R. (2013). Interface dermatitis. *Indian J Dermatol Venereol Leprol, 79*, 349- 359.
3. Hedge, V. K., & Khadilkar, U. N. (2014). A clinicopathological study of interface dermatitis. *Indian J Pathol Microbiol., 57*, 386-389.
4. Pawar, V. R., Mane, V. P., & Ashtekar, R. S. (2017). Spectrum of Interface Dermatitis: An observational study. *Ann Apll Biosci, 4*(2), 105-110.
5. Kumar, S. A., & Nandakumar, G. (2015). A study of Interface Dermatitis with clinical correlation. *J Evol Med Dent Sci., 25*(4), 7343-7351.
6. Sehga, V. N., Srivastava, G., Sharma, S., Shruti Sehgal, S., & PrashantVerma, P. (2011). Lichenoid tissue reaction/interface dermatitis: Recogni-tion, Classification, Etiology and Clinicopathological overtones. *Indian J Dermatol Venereol Leprol, 77*(4), 418-429.
7. Maheshwari, G. R., Mehta, H. H., & Nikam, V. (2016). Clinicohistopathological correlation for diagnosis of lichenoid interface dermatoses. *J Dermatol Dermatol surg*, 20, 115-124.
8. Richard, D., & Sontheimer. (2009). Lichenoid Tissue Reaction/Interface Dermatitis: Clinical and Histological perspectives. *J Invest Dermatol, 129*, 1088-1099.
9. Boyed, A. S., & Neldner, K. H. (1991). Lichen planus. *J Am AcadDermatol, 25*, 593-619.
10. Anber, T., Barakat, M., & Ghannam, S. F. (2005). A clinical and epidemiological study of lichen planus among Egyptians of Al- Minya Province. *Dermatol online J, 11*(2), 4.
11. Hong, W. U., Heather, A., Brandling, B., & Harrist, T. J. (2009). Non-infectious vesiculobullous and vesiculopustular diseases. In: Lever's Histopathology of the skin, 10thed., Philadelphia: Lippincott-Raven Publishers. p. 242- 243.
12. Mobini, N., Toussaint, S., & Kamino, H. (2009). Noninfectious, erythematous, papular and squamous diseases, In: Lever's Histopathology of the skin, 10thed., Philadelphia: Lippincott- Raven Publishers. p. 173-196.
13. Tilly, J. J., Drolet, B. A., & Esterly, N. B. (2004). Lichenoid eruptions in children. *J Am Acad Dermatol, 51*, 606-24.
14. Patterson, J. W. (1991). The spectrum of lichenoid dermatitis. *J Cutan Pathol, 18*, 67-74.
15. Horn, T. D. (2002). Interface dermatitis. In: Raymond LB, Crowson AN, editors. Textbook of Dermatopathology. 2 nd ed., Ch. 3. New York: McGraw-Hill; p. 35-61.
16. Magro, C. M., & Crowson, A. N. (2000). Lichenoid and granulomatous dermatitis. *Int J Dermatol, 39*, 126-33.
17. Weedon, D. (1982). The lichenoid tissue reaction. *Int J Dermatol, 21*, 203-6.