

**Clinicopathological Correlation of Interface Dermatitis in North India**Amarjeet Singh Verma<sup>1</sup>, Shailza<sup>2</sup>, Jyoti Singh Rajput<sup>3</sup><sup>1</sup>Associate Professor Department of Dermatology, Venereology & Leprosy, LLRM medical College, Meerut (UP)<sup>2</sup>Associate Professor Department of Pathology, NCR Institute of Medical Sciences UP<sup>3</sup>Associate Professor, Department of Pathology, NCR Institute of Medical Sciences UP

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Conflict of interest: Nil

**Abstract:**

**Introduction:** 'Interface dermatitis' term is used when at low power there is a Lichenoid tissue reaction seen showing band of dense inflammatory infiltrates obscuring the dermo-epidermal junction. The histopathological features of all the lesions of Interface dermatitis overlap each other showing very minute difference in each of the variants and the interpretation of these lesions require both histopathological and clinical correlation. The aim of the present study was - 1) To analyze the histo-morphological changes in various lesions of Lichenoid tissue reactions. 2) To correlate the clinical features with the histopathological diagnosis in all the cases suspected to have lichenoid tissue reaction and to analyze the age and sex distribution

**Material and Methods:** Present study was a retrospective evaluation of 50 cases diagnosed to have Lichenoid tissue reaction in the department of pathology of a tertiary care hospital for a period of 4 years, from January 2020 to December 2023. Patients diagnosed clinically as Lichenoid tissue reaction were included in this study. Biopsy was taken in the department of dermatology of the same hospital. All biopsies were fixed in formalin and then processed in histopathology section, stained with H&E stain and epidermal, dermal features noted.

**Result:** Out of total 50 cases, clinicopathological correlation revealed concordance in 39 cases (78%) and discordance was seen in 10 cases (20%). Female preponderance was observed with male to female ratio as 1:1.5. Maximum numbers of cases were between the age group of 21 years to 50 years of which most of the cases were diagnosed as Lichen planus.

**Conclusion:** Present study was done to understand the clinical and histopathological features of various lesions of Interface Dermatitis. As it is difficult to distinguish various lesions of Interface Dermatitis clinically, a detailed histopathological examination is needed for early diagnosis and appropriate, timely treatment.

**Keywords:** Lichen planus, Interface dermatitis, Histopathology.

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**Introduction**

Interface dermatitis is a broad term used for all the lesions having clinical features and histological features of epidermal basal cell damage and extensive mononuclear cell infiltration in the papillary dermis, all these lesions are also known as lichenoid dermatosis or "Lichenoid tissue reaction" (LTR). [1,2]

The histopathological features of all the lesions of Interface dermatitis overlap each other showing basal cell damage, acanthosis, hypergranulosis, hyperkeratosis, band like lymphocyte infiltration obscuring the dermo-epidermal junction with a very minute difference in each of the variants. [3] Treatment of Lichenoid tissue reaction are symptomatic, most of the patients show good response to corticosteroids. [4] Lichenoid lesions are shiny papules having flat top. The papules are of various size and usually seen in clusters which seem like lichen growing on a rock. [5] Diagnostic

accuracy of lichenoid reaction depends on both histopathological and clinical correlation.

Basal layer of epidermis is infiltrated by T lymphocytes that cause cytotoxic damage and apoptosis of keratinocytes. The damaged keratinocytes detach from their adjacent cells, nucleus undergoes degradation and lysis along with coagulation of the cytoplasmic protein. These apoptotic cells reach the papillary dermis and are known as Civatte bodies. [6]

**Aims and Objective**

1. To analyze the histomorphological changes in various lesions of Lichenoid tissue reactions. To correlate the clinical features with the histopathological diagnosis in all the cases suspected to have lichenoid tissue reaction and to analyze the age and sex distribution

**Inclusion Criteria**

- 1) Clinically suspected cases of Interface dermatitis.
- 2) Patients of all age group and both genders were included in this study.

**Exclusion Criteria**

- 1) Inadequate biopsy samples (biopsies showing only dermis or epidermis on histopathological examination)
- 2) Skin biopsies done for cases other than Interface dermatitis.

**Materials and Methods**

The present study is a retrospective evaluation of 50 cases diagnosed to have Lichenoid tissue reaction in the department of pathology of a tertiary care hospital for a period of 4 years, from January 2019 to December 2023. Patients diagnosed clinically as Lichenoid tissue reaction were included in this study. Biopsy was taken in the department of dermatology of the same hospital. All biopsies were fixed in formalin and then processed in histopathology section, stained with hematoxylin and eosin stain and various epidermal and dermal features were noted, analysed and reported.

Biopsies were evaluated for the presence or absence of the following epidermal and dermal features:

1. Hyperkeratosis - thickening of the stratum corneum.
2. Parakeratosis - presence of abrupt keratinization resulting in retained nuclei in the stratum corneum.
3. Acanthosis - thickening of epidermis and the rete ridges extending deeper into the dermis.
4. Atrophy - thinning of the epidermis.
5. Papillomatosis - outward growth of epidermis with elongation of dermal papillae.
6. Civatte bodies - eosinophilic, round bodies present near the basal epidermal layer and papillary dermis, they are appreciated well with PAS stain and are diastase resistant.
7. Spongiosis - intercellular edema between epithelial cells which appears as widened intercellular spaces and intercellular bridges in light microscopy.
8. Max-Joseph spaces - small areas of artifactual separation between the epidermis and dermis.
9. Wedge shaped hypergranulosis - increased thickness of stratum granulosum layer.
10. Follicular plugging - abnormal accumulation of keratin in response to inflammatory reaction.
11. Saw toothed rete ridge.

**Table 1: Total number of Cases**

Years 2019 –23	No of Cases diagnosed as LTR / Total number of Skin biopsies received	Frequency of Occurrence of interface dermatitis (%)
	<b>50/640</b>	7.81%
Total Males	17/50	34 %
Total Females	33/50	66 %
<b>Male: Female ratio</b>	<b>1:1.5</b>	

**Table 2: Clinicopathological Correlation**

	Number of cases	Percentage
Concordant	39	79 %
Discordant	10	10 %

**Result**

Our study was a retrospective evaluation of 50 cases, which were received in Histopathology section over a period of four years). Total numbers of skin biopsies received over a period of four years were 640, out of which cases of "Interface Dermatitis" were 50 (7.81 %). Out of total cases, clinicopathological correlation revealed concordance in 39 cases and discordance was seen in 10 cases. This was comparable to the study findings of Sehgal et.al [7] and Hedge et.al [2]. Of the total cases most common lesion found was Lichen planus and its variants forming 34 (68 %) cases. Lichen planus variants included pigmented, actinicus, follicular and hypertrophic variants. Next most common lesion was Lichen simplex chronicus

comprising of 7 cases (14 %), followed by Lichen planopilaris that included 5 cases (6 %).

In the present study maximum number of cases were between the age group of 21 years to 50 years of which most of the cases were diagnosed as Lichen planus, Lichen simplex chronic, Lichen planopilaris. 3 cases were above the age group of 50 years. Out of these maximum cases were comprised of Lichen planus.

The youngest case was a 11-month- old male child diagnosed to have Classical lichen planus and the oldest case was a 70- year male patient who had drug induced lichenoid reaction on his upper and lower limbs.

Spectrum of histopathological changes in epidermis and dermis were also studied in all 50 cases, epidermal changes included parakeratosis, hyperkeratosis, acanthosis, hypergranulosis, spongiosis, saw-toothed rete ridges, civatte bodies, liquefactive degeneration of basal layer, follicular plugging, atrophy and Max-Joseph spaces. Dermal changes included band like infiltration at dermo-epidermal junction comprising lymphocytes, plasma cells and eosinophils, melanin incontinence and amyloid.

### Discussion

Lichenoid tissue reaction (LTR) shows features of band like inflammatory infiltrates that obscure the dermo-epidermal junction, liquefactive degeneration of basal layer and necrotic keratinocytes. Lesions which show these lichenoid tissue reaction features along with some histological variation have resulted in formation of a term "Interface dermatitis" for these lesions

Most of the cases in our study were of age group 21-40 years, followed by 41-50 years. This was comparable with the study findings of Sehgal et al, which showed maximum cases in the age group of 11-40 years [8] and with study finding of Hedge et al which showed maximum cases in the age group of 21-60 years.

In the present study it was observed that maximum number of cases presented with papules and plaques along with pruritus. These findings were similar to study done by Hegde et al. [2] and Tickoo et al. [7]. Commonest site of involvement was lower extremities followed by upper extremities, this was in concordance with the study finding seen in Ireddy et al. [9] and Kachhawa et al. [10] On histopathological examination band-like infiltration

Present study showed melanin incontinence in 88 % cases, comparable to study done by Kumar et.al which showed melanin incontinence in 93.3% cases and Hegde VK et.al which showed melanin incontinence in 100%.

Interface dermatitis is usually having a favorable prognosis, but the quality of life may be impaired

because of the constant intense pruritus. The chances of relapse are only 20%, but the local form of interface dermatitis is generally seen to persist for a little longer duration. The duration of the disease is as follows: Generalized lichen planus > Cutaneous lichen planus > mucocutaneous lichen planus > mucous lichen planus > hypertrophic lichen planus > lichen planopilaris [14].

### Conclusion

Present study was done to interpret the clinical and histopathological features in patients diagnosed with

by mononuclear infiltrates is a characteristic feature of interface dermatitis; this infiltration is mostly by the T-lymphocytes that causes cytotoxic damage and apoptosis of the keratinocytes in the basal layer. The keratinocytes which have undergone apoptosis separate from its neighboring cells forming civatte bodies. Apoptosis results in degeneration and lysis of the nuclei forming a dyskeratotic cell seen in papillary dermis [11]. In our study civatte bodies were seen in 14 cases (28 %) comparable to Kumar et.al 21.1% (3) and Francis et.al 37% [15,16] respectively.

Studies have shown that lichen planus is an immunological disease which shows reaction to undetermined epidermal neoantigen and presents as delayed type 4 hypersensitivity reaction [10]. The presence of inflammatory infiltrates and liquefactive degeneration of keratinocytes at the basal layer explain the immune mediated attack [12]. Our study showed basal vacuolopathy and degeneration in 94 % cases.

Band like infiltration is characteristics feature of Interface dermatitis. In the present study it was observed that lymphocytic infiltration was seen in maximum cases which are comparable to the studies of Kumar et.al (93.3%) and Francis et.al (100%) respectively. Plasma cells were observed in 14 % and few cases showed eosinophils. There was one case of Lichen amyloidosis, which is the most common type of primary localized cutaneous amyloidosis. On histopathology amyloid deposits were seen as homogenous pink deposits in the dermal papilla. Salim et al. in their study on 30 cases of Lichenoid amyloidosis observed half of these patients usually present in winters and have a genetic predisposition, all the 30 cases showed apple green birefringence on Congo red staining.

various interface dermatitis lesions. It is difficult to distinguish the various lesions of interface dermatitis clinically hence a detailed histopathological examination is needed to arrive at an early diagnosis and further timely and appropriate treatment can be given accordingly.

There was a female preponderance observed with male to female ration as 1:1.5. The age group most commonly affected was 21-40 years, followed by 41-50 years. Clinicopathological concordance was observed in 78 % and discordance was observed in 20 %.

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