www.jmscr.igmpublication.org
Impact Factor (SJIF): 6.379
Index Copernicus Value: 71.58
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v6i2.201

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Original Article

A Histopathological Study of Biopsy Samples of Interface Dermatitis Obtained from Patients Attending Dermatology Department

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Abstract
Objective: *To determine the histomorphological changes associated with various types ofinterface dermatitis (ID) and to correlate the clinical features with the histological diagnosis.*
Methods: *This was a observational study. A total of 100 patients were included in the study. Nail clippings for fungal culture, skin biopsy for histopathology, pus for culture and sensitivity were also recorded as and when required. A dermatologist examined all of the patients for examination of the skin, hair, nail, and mucosal tissues. Culture and biopsy of the lesions were done if needed. Pathologic examinations were done on specimens with hematoxylin-eosin staining.*
Results: *Most of the patients were in the age band of 21-30 (39%). More than half of patients were females (67%). Epidermis hyperkeratosis was most common (76%). Lichen planuspilaris was diagnosed in 18.0% patients. Oral Lichen planus was diagnosed in 6% patients.*
Conclusion: *It is concluded that histopathology is a dependable tool for identifying the underlying cause in lichenoid eruptions, for an early diagnosis and the appropriate treatment.*
Keywords: *Interface dermatitis, Dermatology, Histomorphological,*

Introduction

Dermatologic diseases characterized by pathology at the dermo-epidermal junction (DEJ) are etiologically diverse and controversial group occurring in a somewhat nebulous anatomical location. LTR (Lichenoid tissue reaction) or IFD (Interface dermatitis) is one of the common clinical and histological presentation in Dermatology and Pathology. IFD refers to the finding of an inflammatory infiltrate that abuts or obscures the dermo-epidermal junction in a skin biopsy (Crowson et al, 2008).

Interface reactions are so named because they are cell mediated immunologic reactions where the basal keratinocytes that reside above the dermo-epidermal junction are the target (Le, 1993). One of the challenging aspects of being a dermatopathologists is to try to make specific diagnosis of inflammatory skin diseases. Now the microscopic findings of many inflammatory skin

diseases and the most expert dermatopathologists are able to handle discrepancies between clinical and histopathological findings. This has changed the negative feelings of clinical dermatologists regarding the utility of biopsy in diagnosis of inflammatory conditions (Virendra et al, 2011).

Lichen Planus is the prototype of the term "Lichenoid' which refers to popular lesion of certain skin disorders (Tilly et al, 2004). This type of reaction can also be seen in skin disorders associated with systemic illness like LE and skin changes of potentially fatal disorders such as Graft versus host disease, S-J syndrome and toxic epidermal necrolysis (Rajiv, 2013).

Although histological study is valuable in diagnosing dermatological disorders, often no definitive diagnosis can be made. A correlation of the interface changes with the clinical diagnosis often helps in arriving at a definitive diagnosis of the various lichenoid disorders. With this background in mind, the present study was planned to determine the histomorphological changes associated with various types of ID and to correlate the clinical features with the histological diagnosis.

Material and Methods

This observational study was carried out in the Department of dermatology at Hind Institute of Medical Sciences (HIMS), Safedabad, Barabanki. Patients of all age group who were presented in the OPD for skin biopsy to the hospital was studied during the study period from July 2016 to June 2017 were taken for this study. A total of 100 patients were included in the study.

The sample size was estimated on the basis of a single proportion design. The target population from which we randomly selected our sample was considered 20,000. We assumed that the confidence interval of 9.8% and confidence level of 95%. The sample size actually obtained for this study was 100 patients.

Adult aged patients, both sexes, cutaneous and mucosal lesions patients were included in the study. Patients with who had chronic illness and lupus erythematosus (LE) were excluded from the study.

Methods

A written consent was taken from all potentially eligible subjects and excluded from the study if they were not matched with inclusion criteria of the study. Detailed history and physical examination was performed and recorded on predesigned proformafrom each patient. Nail clippings for fungal culture, skin biopsy for histopathology, pus for culture and sensitivity were also recorded as and when required.

A dermatologist examined all of the patients for examination of the skin, hair, nail, and mucosal tissues. Culture and biopsy of the lesions were done if needed. Pathologic examinations were done on specimens with hematoxylin-eosin staining. Proforma was prepared in English and local language was used during interview to make it convenient for the population.

The skin biopsy samples were submitted to the Department of Pathology. The biopsy specimens were fixed in formalin for 24 h and then processed by routine paraffin-section technique and stained with hematoxylin and eosin. Special stains were done wherever required. All the slides were examined under the light microscopy for epidermal and dermal changes. We have the followed histological classification by Le Boit based on epidermal changes (Rajiv, 2013).

Clinical lesions produced by Interface Dermatitis may be flat or raised, smooth or scaly depending upon the epidermal reaction (Le , 2013).

Statistical analysis

Data sets were stored in Microsoft Excel and analyzed through Statistical Package for Social Sciences, version 23 (SPSS Inc., Chicago, IL). Results for continuous variables are presented as mean ± standard deviation, whereas results for categorical variables are presented as number (percentage). The possible association was found out using chi square test. (Fisher's exact test).The level $P < 0.05$ was considered as the cutoff value or significance.

Results

7 (7.0%) patients were in the age group of ≤20 years, 39 (39.0%) were in the age band of 21-30 years, 18 (18.0%)were in the age group of 31-40 years, 23 (23.0%)were in the age group of 41-50 years and remaining 13 (13.0%) patients were ≥51 years of age. Total number of patient enrolled for study was 100 only. While the number of male patients was only 33(33.0%), the number of female patients was 67 (67.0%) (Table-1).

Epidermis like Hyperkeratosis 76 (76.0%), Hypergranulosis 48 (48.0%), Parakeratosis 26 (26.0%), Acanthosis 21 (21.0%), Saw toothed rate ridges 36 (36.0%) and Basal deg 54 (54.0%) were observed. Mainly Lymphocytes 77 (77.0%), Plasma Cells 48 (48.0%), Melanin incontinence 74 (74.0%) and Amyloid deposits 2 (2.0%) dermis were observed (Table-2).

Lichen planuspilaris diagnosed to 18 (18.0%) patient , Lichen planushypertrophicus diagnosed to 17 (17.0%) patient, Lichen simplex chronicus diagnosed to 11 (11.0%) patient, Lichen planus diagnosed to 31 (31.0%) patient, Oral Lichen planus diagnosed to 6 (6.0%) patient ,Erythema multiforme diagnosed to 10 (10.0%) patient, LSA& Lichen amyloidosis diagnosed to 2 (2.0%) patient each and Lpactinus , Linear Lichen planus& Lichen Sclerosis diagnosed to 1 (1.0%) patient each (Table-3).

Table-1: Distribution of Patients according to age and gender

	Number of Patients (n=100)	Percentage
Age in years		
≤20	7	7.0
21-30	39	39.0
31-40	18	18.0
41-50	23	23.0
≥51	13	13.0
Gender		
Male	33	33.0
Female	67	67.0

Table-2: Distribution of patients as per different Epidermis and Dermis with interface dermatitis

	Number of Patients (n=100)	Percentage
Epidermis		
Hyperkeratosis	76	76.0
Hypergranulosis	48	48.0
Parakeratosis	26	26.0
Acanthosis	21	21.0
Saw toothed rate ridges	36	36.0
Basal degeneration	54	54.0
Dermis		
Mostly Lymphocytes	77	77.0
Plasma Cells	48	48.0
Melanin incontinence	74	74.0
Amyloid deposits	2	2.0

Table-3: Distribution of patients as per diagnosis with interface dermatitis

Diagnosis	Number of Patients (n=100)	Percentage
Lichen planuspilaris	18	18.0
Lichen planushypertrophicus	17	17.0
Lichen simplex chronicus	11	11.0
Lichen planus	31	31.0
Oral Lichen planus	6	6.0
Erythema multiforme	10	10.0
Lichen sclerosusatrophicus	2	2.0
Lpactinus	1	1.0
Linear Lichen planus	1	1.0
Lichen sclerosus	1	1.0
Lichen amyloidosis	2	2.0

Discussion

Dermatologic diseases characterized by pathology at the dermo-epidermal junction (DEJ) are etiologically diverse and controversial group occurring in a somewhat nebulous anatomical location. Interface Dermatitis (ID) refers to a pattern of skin reaction characterized by an inflammatory infiltrate that appears to obscure the DEJ when observed at low power examination and referred to as lichenoid tissue reaction (LTR). A wide range of inflammatory skin diseases exhibit interface change with considerable overlap of histological features. The term interface dermatitis‟ is not used uniformly or consistently.

Some apply it to most dermatoses with the LTR. Others use it for the subgroup in which the infiltrate truly obscures the interface (the junction of epidermis and dermis). The term "lichenoid" refers to the papular lesions of certain skin disorders of which Lichen Planus (LP) is the prototype. The papules are shiny, flat topped, polygonal, of different sizes, and occur in clusters creating a pattern that resembles lichen growing on a rock (Tilly et al, 2004). Although histological study is valuable in diagnosing dermatological disorders, often no definitive diagnosis can be made. A correlation of the interface changes with the clinical diagnosis often helps in arriving at a definitive diagnosis, of the various lichenoid disorders. Present study was aimed to determine the histopathological changes associated with various types of Interface dermatitis and to correlate the clinical features with the histological diagnosis.

In the present study, 100 cases of ID were analyzed along with the clinicopathologic correlation. LP and its clinical variants constituted the major (73%) portion of cases. This was followed by cases of LSC, DLE and LS. ID can affect any age group (Hegde and Khadilkar, 2014). In the present study, the age ranged from 10 to 60 years. Majority of cases were in age group of 21-30 years (39%). Most of the cases in our study were seen in the younger age group (11-40yrs) in the study done by Sehgal et al (1974).which was comparable with the our findings.

In the present study, female predominance was noted with 67% for cases of ID. Similar results were seen in the study done by Mahesh et al found female predominance and a male/female ratio was 0.73 (Mahesh et al, 2013).

In the present study, 100 cases of ID were analyzed in which vacuolar change/ degeneration of the basilar epidermis was the most consistent and uniform histologic finding, followed by variable inflammatory infiltrate and pigment incontinence in the dermis. Necrotic keratinocytes were inconsistently seen. Bereston studied two-hundred cases of lichenoid dermatitis among the South West Pacific War personnel (Bereston, 1946).

Lichen amyloidosis comprised the least common type of ID in the present study and compared well with regard to gender, incidence, site, and amyloid congophilia in the study of Salim et al. except that the lesions were predominantly papular and there was no co-existing disorder in any of the cases (Salim et al, 2005).

In our study of 100 skin biopsy of ID cases, the most uniform and consistent histolopathological changes were noted in the epidermis and was Hyperkeratosis, while in the dermis like a dense, band like lymphocytic infiltration (77%) and melanin incontinence (74%) were seen in most of the patients. Hypergranulosis and Basal deg were the next frequent change with acanthosis and Parakeratosis almost in equal number of cases. Most of the changes were comparable with changes observed in the study by Hegde and authors (Hegde and Khadilkar, 2014).

The classical histopathological features, together with the clinical information facilitated a better approach to the diagnosis of the various types of ID.

Conclusion

It is concluded that histopathology is a dependable tool for identifying the underlying cause in lichenoid eruptions, for an early diagnosis and the appropriate treatment.

References

1. Crowson AN, Magro CM, Mihm MC Jr. Interface Dermatitis. Arch Pathol Lab Med 2008 Apr; 132 (4) : 652-66.
2. Le Boit PE. Interface Dermatitis. How specific are its histopathologic features? Arch Dermatol 1993; 129:1324-28.
3. Virendra Sehgal, G Srivastava et al. Lichenoid tissue reaction/Interface dermatitis: Recognition, classification, etiology & clinicopathological overtones. Indian

Journal of Dermatology ,venerology and Leprology 2011; Vol 77: Issue 4:418-430.

4. Tilly JJ, Drolat BA, Esterley NB et al. Lichenoid eruptions in Children. J Am Acad Dermato;2004;51:606-24.
5. Rajiv Joshi. SYMPOSIUM DERMATOPATHOLOGY. Indian Journal of Dermatology, Venereology &Leprology 2013;79:3: 349-59.
6. Le Boit P E , Interface dermatitis: A method based on epidermal changes , university of California San Francisco , 2013
7. Tilly JJ, Drolat BA, Esterly NB. Lichenoid eruptions in children. J Am AcadDermatol 2004;51:606-24.
8. Hegde VK, Khadilkar UN. A clinicopathological study of interface dermatitis. IJPM. 2014 July;57(3):386-9.
9. Mahesh Kumar U, Balasaheb Ramling Yelikar, Arun C Inamadar, Swaroopa Umesh, Amrita Singhal, Anirudha V Kushtagi. J ClinDiagn Res. 2013 Feb;7(2):312-31.
10. Bereston ES, Lichenoid dermatitis-observation of two hundred cases from the dermatology section, medical branch, dewitt general hospital, auburn California, J of investigative dermatology 1946: 69-83.
11. Salim T, Shenoi SD, Balachandran C, Mehta VR. Lichen amyloidosus: A study of clinical, histopathologic and immunofluorescence findings in 30 cases. Indian J Dermatol Venereol Leprol 2005;71:166-9.
12. Sehgal VN, Rege V, Lichen planus: An appraisal of 147 cases Ind J Dermat 1974 40(3):104-07.