

Histopathological Spectrum of Non-Neoplastic Lesions of SkinSaumya Pandey¹, Vatsala Kishore², Ajmal Singh Bhayal³¹Assistant Professor, Department of Pathology, Heritage institute of Medical Sciences, NH -2 bypass, Varanasi, UP, India²Associate Professor, Department of Pathology, Heritage institute of Medical Sciences, NH -2 bypass, Varanasi, UP, India³Professor and Head of Department, Department of Pathology, Heritage institute of Medical Sciences, NH-2 bypass, Varanasi, UP, India

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Abstract:**Background:** Clinical presentation of Skin lesions is highly variable and common disorders worldwide. Histopathology is definitive and essential for correct diagnosis and proper management.**Aims and Objectives:** To study histopathologic spectrum of non-neoplastic skin lesions and to determine age and sex distribution pattern of these lesions.**Material and Methods:** 109 skin biopsies received in the histopathology section of the Department of Pathology of a tertiary care hospital in Northern India were studied over a period of 2 years. 5 micron thick sections were done and routine staining with haematoxylin and eosin was done in all the cases. Special stain was applied as and when required. All data was recorded carefully and represented in the form of tables/ charts.**Results:** A total of 109 skin lesions were analysed, of which 27.5% were detected in age-group 21-30 years and male to female ratio was 1.18:1. Clinically, hyperpigmented patches/plaques were most frequently encountered. Hansen's disease was most common histopathologic diagnosis (30.27%) with borderline tuberculoid leprosy being the most common subtype among 39.39% cases. Cysts and vasculitis were the least common lesions with 1.83% cases in each.**Conclusions:** Punch biopsy is a very simple outpatient procedure and very useful for diagnosis of skin lesions. Leprosy is still the most common skin disease for which biopsies are done followed by Vesiculobullous lesions and psoriasis.**Keywords:** Histopathology, Hansen's disease, Patch, Psoriasis, Skin biopsy.

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Introduction

Skin is the largest organ in the body and covers the body's external surface. The skin's structure is made up of an intricate network which serves as body's initial barrier against pathogens, UV light, and chemicals and mechanical injury. It is made up of three layers, the epidermis, dermis, and the subcutis, all three of which vary significantly in their anatomy and function. [1]

Skin lesions can be infectious or non-infectious. Non-infectious lesions cover a wide spectrum of pathological conditions clinical manifestations of which range from macules, papules, nodules, hyperpigmentation, hypopigmentation, vesicles, and ulcers. [2]

Although these clinical manifestations are common to many diseases, the histopathology is highly specific and sensitive for many lesions and remains the gold standard for many dermatological

diagnoses. [3] Therefore, cases with similar clinical features must be confirmed by histopathological examination because treatment and prognosis tend to be disease specific. [4] Skin biopsy is an essential diagnostic technique in the management of patients with skin diseases. [5] The biopsy technique is simple, quick, and done as an outpatient procedure with little inconvenience to the patient. Ideally normal skin should also be included in the biopsy sample wherever possible, for comparative evaluation. [4] Non-neoplastic or inflammatory skin diseases encompass a wide array of pathologic process ranging from autoimmune to infectious to disease of unknown etiology [3]. In the present study the histopathological spectrum of non-neoplastic skin biopsies received in Department of Pathology of a tertiary care hospital in Northern India were studied over a period of 2 years.

Aims & Objectives

1. To document and analyse the age and sex-wise distribution of various non-neoplastic lesions of skin punch biopsies in our tertiary care hospital.
2. To correlate clinical findings with the Histomorphology of the skin biopsy submitted.

Materials and Methods

The retrospective study included 109 skin biopsies of diagnosed cases of non-neoplastic lesions of skin received over a period of 24 months in the histopathology section of the Department of Pathology of a tertiary care hospital in Northern India. 5-micron thick sections were done and routine staining with haematoxylin and eosin was done in all the cases. Special stain was applied as and when required. All data was recorded carefully and tabulated in the form of tables/ charts.

Inclusion Criteria: All skin biopsies received in histopathology section were included in the study.

Exclusion Criteria: Normal skin biopsies and neoplastic skin lesions were excluded from this study.

Results

The present study consists of 109 cases of non-neoplastic skin lesions. Majority of cases were in the age group of 21 to 30 years (27.5%) followed by 31 to 40 years (22.9%) and then 11 to 20 years (17.4%) and least being more than 70 years (0.9%) (Table 1).

Males were more commonly affected (54%) compared to females (46%) with a male to female ratio of 1.18:1. Hansen's disease (30.2%) was the commonest lesion, followed by psoriasis (22%) (Table 2).

On Subtyping of Hansen's disease borderline tuberculoid leprosy was found to be 39.4 % and constituted the most common type.

Most of the Hansen's disease cases were diagnosed in 21 to 30 years of age group followed by age group 31-40 years which highlights the importance of skin biopsy in young adults with a suspicion for leprosy.

Table 1: Age- and sex-wise distribution of non-neoplastic skin lesions

Age groups(yr)	Males	Females	No of Case	Percentage (%)
0-10	03	02	05	4.5
11-20	10	09	19	17.4
21-30	16	14	30	27.5
31-40	12	13	25	22.9
41-50	08	05	13	11.9
51-60	07	06	13	11.9
61-70	02	01	03	2.75
71-80	01	00	01	0.9
Total	59	50	109	100

Table 2: Distribution of various non-neoplastic skin lesions according to histopathological diagnosis

Type of skin disorder	Number of cases	Percentage
Inflammatory		
Psoriasis	24	22.01
Nonspecific dermatitis	15	13.76
Lichen planus	09	8.25
Pityriasis rosea	03	2.75
Lichen sclerosus	02	1.83
Lichen simplex chronicus	05	4.58
Hansen Disease		
Borderline tuberculosis	13	11.90
Indeterminate	02	1.83
Borderline Lepromatous	09	8.25
ENL	07	6.42
Lepromatous leprosy	02	1.83
Cysts		
Sebaceous	01	0.9
Fibroepithelial Polyp	01	0.9
Vesibullous		
Pemphigus	05	4.6
Darriers	05	4.6

Collagen		
Morphea	03	2.75
Vasculitis		
Porphyria	02	1.33
Nonspecific vasculitis	02	1.33

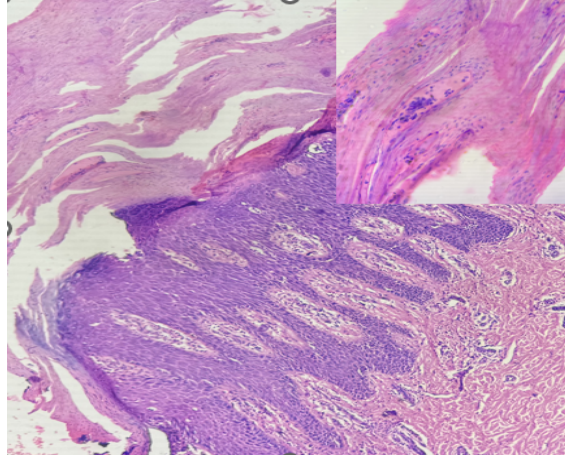


Figure 1: H&E 40x Psoriasis showing uniformly elongated rete ridges, hyperkeratosis, parakeratosis, perivascular lymphocytic infiltrate. Inset (400x) Intracorneal neutrophils

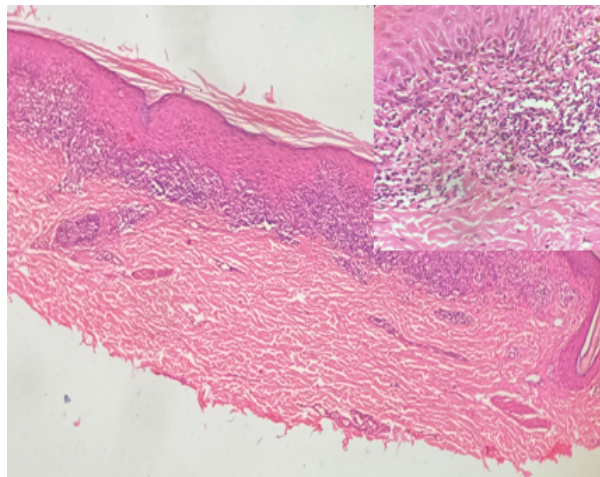


Figure 2: H&E 40x Lichen Planus, dense band of lymphomononuclear infiltrate at dermo epidermal junction. Inset 400x pigment incontinence.

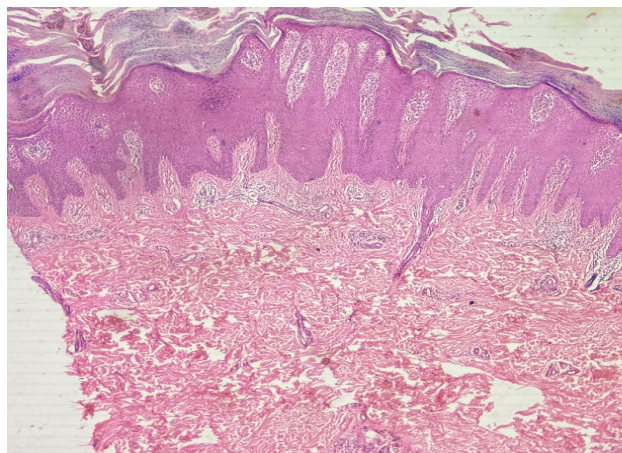


Figure 3: H&E 40x Lichen simplex Chronicus Hyperkeratosis, parakeratosis, marked acanthosis. Dermis shows vertically oriented, thickened collagen bundles & mild chronic inflammation.

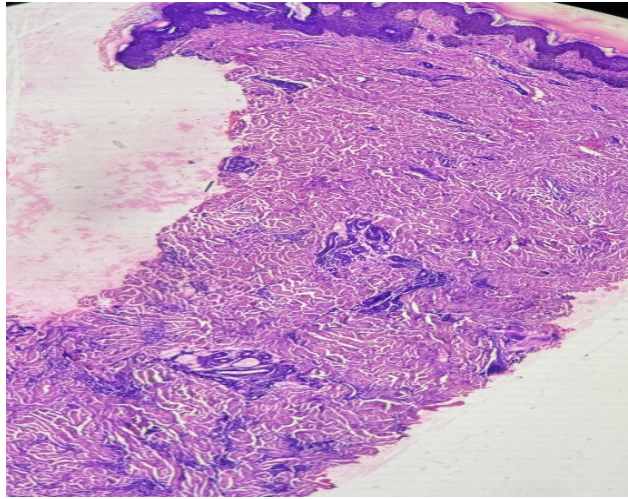


Figure 4: H&E 40x Borderline Leprosy showing atrophic epidermis, pandermal chronic infiltrates around neurovascular bundles.

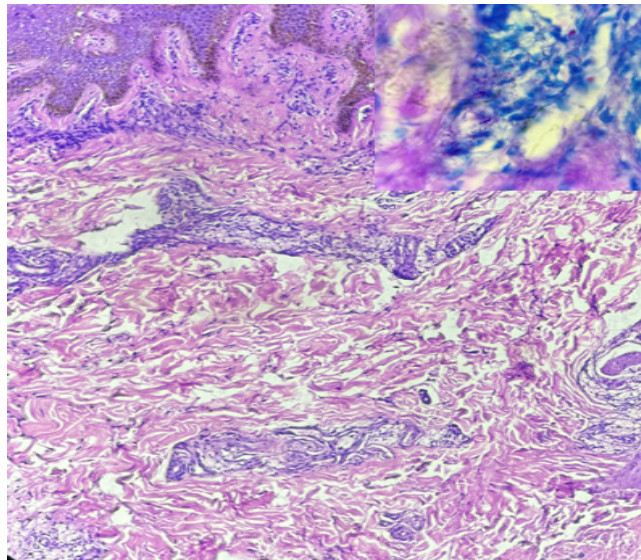


Figure 5: H&E 400x Lepromatous leprosy aggregates of foamy macrophages around neurovascular bundle with paucity of adnexal structures. Inset (1000x) Fite stain shows fragmented bacilli.

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 histologic patterns. Therefore, to obtain the precise diagnosis of a skin biopsy, it should be accompanied by all relevant clinical details [3]. Diagnosis of much inflammatory skin disease requires correlation with the clinical features.

Hence an accurate clinical differential diagnosis or impression, in addition to age, sex and site of biopsy aids in the final interpretation. In the present study classification of various non-neoplastic skin lesions and correlation with clinicopathologic parameters was undertaken. A total of 109 cases of non-neoplastic lesions of skin over a period of 24 months were analysed. A total number of 112 cases were analysed by Singh et al in their study, [6] 80 patients were studied by R. Reddy et al. [7] In the

study by Veldhurthy et al [8] a total number of 97 cases were studied and in a study by Mehar et al [9] total number of 112 cases were analysed. In the present study it was found that 54 % were males and 46 % females, the finding of the present study of male predominance in non-neoplastic skin disease is comparable with other studies. In a study done by Singh et al 54.5% were males [6] and 45.5% were females, study by Veldhurthy et al concluded that there was a male predominance with male: female ratio of 3:2[8], study by Mehar et al 56% were male and 44% cases were female. [9] In this study 27.5% of the cases were in the age group of 21-30 years, which is comparable with the study conducted by Veldhurthy et al. [8] Psoriasis (Fig1) constituted the maximum number of cases(22.01%) in the inflammatory category followed by nonspecific dermatitis (13.76%), lichen planus (8.25%)(Fig 2&3). Hansen's disease was the commonest histopathological diagnosis reported in

the present study (30.27%). In present study borderline tuberculoid leprosy was the commonest subtype of Hansen's disease followed by borderline lepromatous leprosy, (Fig 4) constituted 39.4% and 27.3% respectively of the total cases of Hansen's disease (Table 2).

In the study conducted by Veldhurthy et al [8] indeterminate, tuberculoid and lepromatous type were found to be in equal number constituting more than 65% of total cases of Hansen's disease. In our study Hansen's disease (Fig 5) was more common in male as compare to females which shows correlation with the study done by Mehar et al, [9] Moorthy et al. [10]

Conclusion

Majority of lesions were found in younger individuals, with slight male preponderance. Hansen's disease was the most diagnosed entity. This shows the importance of skin biopsy in young adults with a suspicion for leprosy.

Histopathologic examination of skin biopsies remains gold standard in the diagnosis of non-neoplastic skin lesions owing to their varied clinical presentations and histomorphology. This signifies the role of histopathology in management and prognosis of skin lesion. Non-neoplastic or inflammatory skin diseases encompass a wide array of pathologic process.

A stepwise systematic approach, correlation of patient clinical information with various histopathological reaction helps in arriving at an accurate diagnosis and proper management.

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