

## Study of Histopathological Spectrum of Non-Neoplastic Skin Lesions: A 2-Year Experience from a Tertiary Health Care Centre in Northern India

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### Abstract

**Background:** Skin lesions are commonly encountered worldwide, but they differ in their clinical presentation depending on demographic region. It is essential to diagnose them correctly as management differs for each. Thus, histopathology is required as a definitive diagnostic tool. **Aims and Objectives:** To study histopathologic spectrum of non-neoplastic skin lesions, to determine age and sex distribution and analyse the histopathologic subtypes of these lesions. **Material and methods:** 102 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. 5micron 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 102 skin lesions were analyzed, of which 47.1% were detected in age-group 21-40 years and 64.1% being males. Clinically, hyperpigmented patches/plaques were most frequently encountered. Psoriasis was most common histopathologic diagnosis (39%) followed by Hansen's disease (17%), with tuberculoid leprosy being the most common subtype. **Conclusions:** Histopathological examination of skin biopsy remains the gold standard technique for diagnosing a variety of skin lesions. In correlation with clinical history it aids in the accurate diagnosis of the majority of the skin lesions.

**Keywords:** Histopathology, Hansen's disease, Non-neoplastic lesions, Patch, Psoriasis, Skin biopsy.

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### INTRODUCTION

Skin is the largest organ of the body comprising 16% of total body weight. It forms a protective coat and has specific qualities adapted to its function [1]. It also plays a major role in maintaining homeostasis through its barrier function.

Skin lesions can be infectious or non-infectious. Non-infectious lesions cover a wide spectrum of pathological conditions, ranging from congenital dermatoses to bullous lesions and skin neoplasms [2]. Though the histopathological spectrum of skin lesions is varied, their clinical presentation is limited to some changes such as macules, papules, nodules, plaques etc. These clinical presentations are common to many diseases; therefore, histopathology is required as a definitive tool for proper diagnosis and treatment. Separation of these lesions on the basis of histopathology is also important because their treatment and prognosis is disease specific.

Skin biopsy is an essential diagnostic technique in the management of patients with skin diseases [3]. The biopsy technique is relatively simple, fast and done as an outdoor procedure with little inconvenience to the patient. Various skin biopsy techniques include Shave biopsy, Punch biopsy, and Incisional and Excisional biopsy [4]. Ideally normal skin should also be included in the biopsy sample wherever possible, for comparative evaluation. The aim of this study is to identify the histopathological spectrum of various skin lesions prevalent in the surrounding community.

### MATERIAL AND METHODS

This study was conducted on 102 biopsies of skin lesions received in the histopathology section of the Department of Pathology, over a period of 2 years from 2018-2020. Relevant clinical details were noted as required for diagnostic support. Punch/shave biopsies were performed under aseptic conditions as per the requirements of the case. Fresh biopsy tissue samples obtained were fixed in 10% formalin solution,

processed and embedded. 5 micron thick sections were done and routine staining with haematoxylin and eosin was done in all the cases.

In this study we propose to analyse the histopathological spectrum of non-neoplastic skin lesions, received in the Department of Pathology of a tertiary care centre in Northern India.

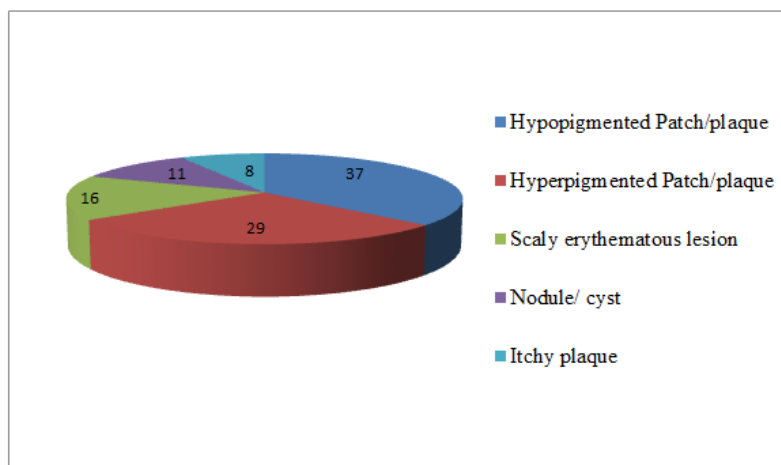
**RESULTS**

Total number of cases included in the present study were 102, of which 66 cases were males (64.7%) and 34 cases were females (35.3%), with a male: female ratio of 1.8:1 showing male predominance. The incidence of non-neoplastic skin lesions declined with age and majority were seen in 3<sup>rd</sup> to 4<sup>th</sup> decades of life,

comprising 48 cases (47.1%) [Table-I]. Most frequently encountered clinical findings in our study were hypopigmented patch /plaques amounting to 37 cases (36.3%) followed by hyperpigmented patch/plaques seen in 29 cases (28.4%).

**Table-I: Age distribution of non-neoplastic skin lesions**

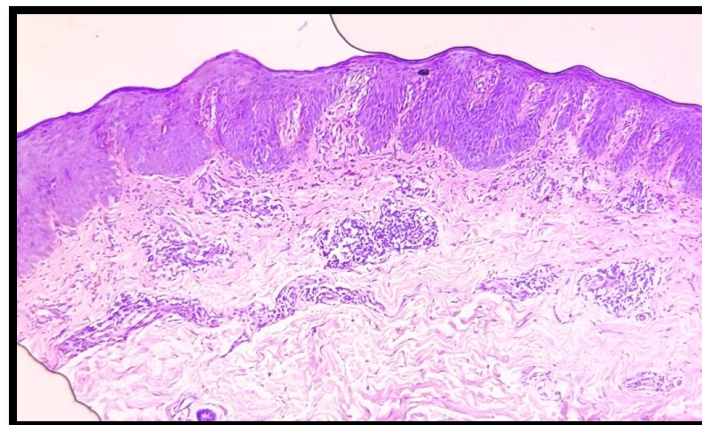
Age group (years)	No. of Cases	Percentage (%)
0-20	29	28.4
21-40	48	47.1
41-60	16	15.7
>60	9	8.8
<b>TOTAL</b>	<b>102</b>	<b>100</b>



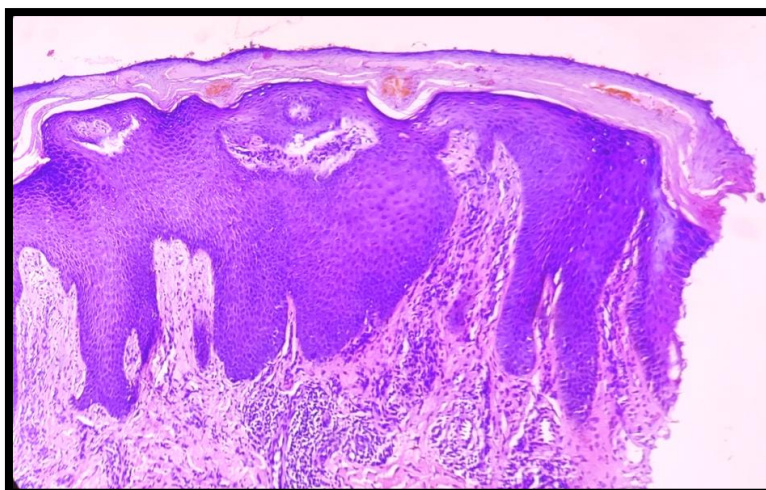
**Fig-1: Distribution of clinical findings (n=102)**

Inflammatory skin lesions were the most commonly diagnosed amongst the non-neoplastic conditions (102 cases, 35.4%). Psoriasis (40 cases, 39.2%) followed by Lichenoid lesions and Nonspecific dermatitis (24 cases each, 23.5%) were the most commonly diagnosed amongst the various inflammatory skin lesions. Dermatitis herpetiformis and Pemphigus were the most commonly encountered

vesico-bullous lesions. Among the collagen vascular disorders, scleroderma and morphea were frequently diagnosed. Scarring alopecia was another commonly encountered entity in the category of dermatoses [Table-II]. Among the subtypes of hansen’s disease, tuberculoid was most commonly diagnosed entity (28.6%) followed by indeterminate leprosy (22.4%) [Fig-5].



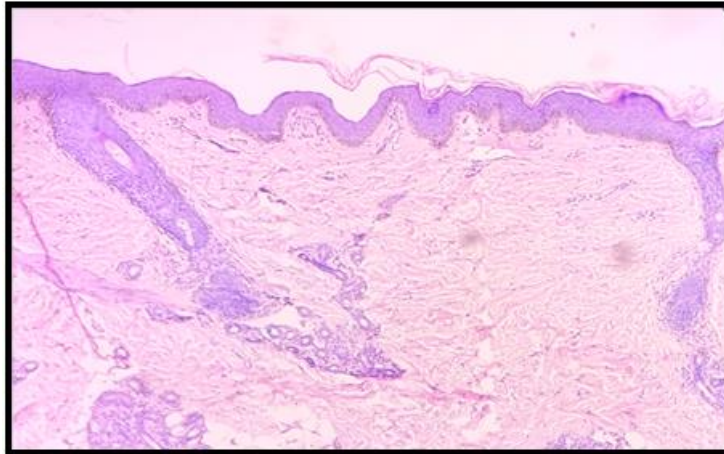
**Fig-2: Psoriasis showing acanthotic lining, elongated rete ridges and suprapapillary thinning.**



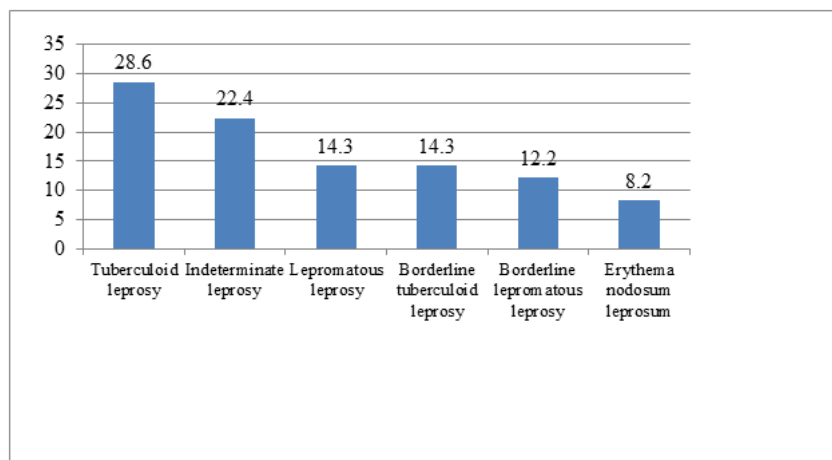
**Fig-3: Lichen planus showing hyperkeratosis, acanthosis, saw-toothing of rete ridges and interface dermatitis**

**Table-II: Distribution of non-neoplastic skin lesions according to the histopathological diagnosis.**

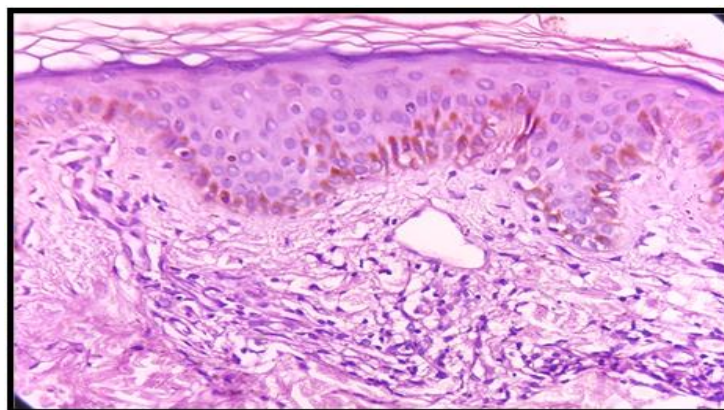
<b>Histopathological Diagnosis</b>	<b>No. of cases</b>	<b>Percentage (%)</b>
<b>INFLAMMATORY DISEASES</b>	<b>102</b>	<b>35.4</b>
Psoriasis	40	
Nonspecific Dermatitis	24	
Lichen planus	11	
Ptyriasisrosea	14	
Lichen nitidus	7	
Lichenoid dermatitis	6	
<b>Hansen's Disease</b>	<b>49</b>	<b>17</b>
Tuberculoid leprosy	14	
Indeterminate leprosy	11	
Lepromatous leprosy	7	
Borderline tuberculoid leprosy	7	
Borderline lepromatous leprosy	6	
Erythema nodosum leprosum	4	
<b>CYSTS</b>	<b>38</b>	<b>13.2</b>
Pilar cyst	18	
Sebaceous cyst	15	
Dermoid cyst	5	
<b>VESICO-BULLOUS LESIONS</b>	<b>32</b>	<b>11.1</b>
Dermatitis herpetiformis	16	
Pemphigus	9	
Darier's disease	7	
<b>COLLAGEN DISORDERS</b>	<b>32</b>	<b>11.1</b>
Morphea	18	
Scleroderma	11	
Atrophoderma of Pasini and Pierini	3	
<b>DERMATOSES</b>	<b>11</b>	<b>10.8</b>
Scarring Alopecia	3	
Pseudopelade of Brocq	2	
Granuloma Annulare	2	
Amyloidosis	2	
Gotttron's papule	1	
Ichthyosis	1	
<b>VASCULITIS</b>	<b>4</b>	<b>3.9</b>
Non-specific vasculitis	2	
Leukocytoclastic vasculitis	2	



**Fig-4: Scleroderma showing atrophic epidermis with dermal collagen bundles**



**Fig-5: Distribution of Hansen's disease (n=49)**



**Fig-6: Lepromatous leprosy showing Virchow cells clustered within the dermis.**

## DISCUSSION

In the present study 102 skin biopsies were analyzed over a period of 2 years wherein the histopathological spectrum of various non-neoplastic skin lesions received in the Department of Pathology of a tertiary health care centre was evaluated.

It was observed in the present study that the non-neoplastic skin lesions were more often seen in the younger age groups with 75.5% cases seen below 40

years age. Our observations are also similar to those of Mehar *et al.* who reported 11 to 30 years as the most common age group for non-neoplastic lesions, as 38.4% cases were diagnosed in this range [5]. Similarly, Reddy and Krishna observed that 27.3% of non-neoplastic lesions were seen between the age of 30 to 40 years [6].

In the present study, a male preponderance was noted in non-neoplastic skin lesions with 64.7%

lesions being diagnosed in males. A male predisposition for non-neoplastic lesions has been a consistent finding in various studies conducted in different parts of the country [7, 8].

Inflammatory lesions (42.2%) were most commonly encountered followed by Hansen's disease. Psoriasis (14 cases, 32.5%) was the most commonly diagnosed inflammatory skin disorder followed by lichenoid lesions (12 cases, 27.9%). Lichen planus accounted for the bulk of lichenoid lesions (7cases).

Lee and Lim, reported inflammatory skin lesions as the most commonly diagnosed non-neoplastic skin lesions in Asian populations [9]. In another study Mehar *et al.*, reported non-specific dermatitis to be the most frequently diagnosed non-neoplastic skin condition while in this study, non-specific dermatitis constituted the second largest category after psoriasis amongst the various inflammatory diseases [5]. In a study on 161 patients by D' Costa and Bharambhe, lichenoid lesions were commonest (46.57%) followed by psoriasis (19.88%) [10]. Amongst lichenoid lesions, lichen planus was the most frequently reported diagnosis, as also reported in this study. Our findings are in conformity with those of Reddy and Krishna, who reported psoriasis to be the most common histopathological diagnosis, followed by lichen planus [6]. Younas and Haque, also reported psoriasis as the most commonly diagnosed non-neoplastic skin lesion [11]. Amongst the vesico-bullous lesions, the most commonly diagnosed lesions were dermatitis herpetiformis (6 cases, 42.8%) and pemphigus (5 cases, 35.7%), whereas Kumar and Goswami, in their study reported pemphigus (15 cases, 51.7%) to be the most common vesico-bullous lesion [8]. Morphea (8 cases) and vasculitis (4 cases) constituted 7.8% and 3.9% of the total non-neoplastic lesions in the current study. However, Kumar and Goswami, reported 5 cases of morphea (2.2% of a total of 232 cases) [8] whereas Veldurthy *et al.*, in their study comprising 92 cases, reported 2.17% cases as morphea and 5.4% cases as vasculitis [12].

Among the subtypes of Hansen's disease, tuberculoid leprosy was most frequently diagnosed entity (28.6%) followed by indeterminate and lepromatous leprosy, all constituting around 65.3% of the total cases of Hansen's disease. This is in close proximity with the findings of Veldurthy *et al.* wherein cases of indeterminate, tuberculoid and lepromatous type were found to be in equal number constituting more than 65% of total cases of Hansen's disease [7]. In our study, males were more affected by Hansen's than females which is again in concordance with the observations made by Mehar *et al.* [5]

## CONCLUSIONS

Majority of lesions were found in younger individuals, with males being affected more commonly than females. Psoriasis followed by Hansen's disease was the most commonly diagnosed entities. Tuberculoid, indeterminate and lepromatous leprosy were the major subtypes of the Hansen's disease. Histopathologic examination of skin biopsies remain 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.

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