

Study of Histopathological Spectrum of Skin Lesions at a Tertiary Care Hospital

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Abstract:

Background: The skin, being the largest organ of the body, plays a critical role in protection, temperature regulation, and sensation. Accurate diagnosis of skin disorders is essential because many different skin conditions can present with similar clinical symptoms, such as redness, itching, or scaling. However, the underlying causes of these conditions may differ significantly, ranging from infections to autoimmune diseases or genetic disorders. Histopathological examination, an invaluable diagnostic tool in dermatology. This method is particularly important in distinguishing between conditions with overlapping clinical features, ensuring that patients receive the correct diagnosis and appropriate treatment

Materials and Methods: A hospital-based study was conducted in a tertiary-level hospital in Gujarat over a 12-month period. During this period, a total of 300 skin biopsy samples were received. For each patient, relevant medical history was obtained, including presenting symptoms, previous treatments, and any other pertinent clinical or laboratory investigations. This information helped to correlate clinical findings with histopathological results. All skin biopsies routinely processed and histopathological examination was done for each biopsy.

Results: Out of 300 biopsies, 60% were from male patients while it was 40% from female patients, with a male: female ratio of 1.5:1 showing male predominance. Most common histological spectrum was Dermatitis (28%), then lepromatous leprosy (58.8%) was most commonly reported among the leprosy (27.3%). Then pemphigus vulgaris (49%) was the most commonly encountered vesicobullous lesions (25.7).

Conclusion: In this study, a total of 300 skin biopsies were analyzed over a one-year period at the Department of Pathology at a tertiary healthcare center. The study observed that skin lesions were more prevalent in younger age groups, with 50% of cases occurring in individuals under 40 years old. The present study observed a preponderance of skin lesions in males, with 60% of cases being diagnosed in the male population.

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Introduction

The skin, the largest organ of the body, is composed of three primary layers: the epidermis, dermis, and hypodermis. Epidermis: The outermost layer, consisting of superficial lining epithelium, which serves as the first line of defence against environmental factors [1]. Dermis: Located beneath the epidermis, the dermis is made up of loose areolar tissue and contains vital structures such as blood vessels, sweat glands, sebaceous glands, and hair follicles.

Hypodermis: The deepest layer, primarily composed of adipose tissue, which provides insulation and energy storage. The skin performs several crucial functions, including protection from external pathogens, temperature regulation, and contributing to metabolic processes.[2] Among outpatients, those with skin ailments represent a significant portion of hospital cases. Skin diseases

can arise from various normal histological components of the skin and encompass a broad range of conditions. These include non-specific, non-infectious, and infectious diseases, as well as a variety of benign and malignant neoplastic (tumorous) lesions. Vesiculobullous skin lesions, characterized by blisters or vesicles, are a source of concern for patients, clinicians, and pathologists due to their impact on quality of life and the potential complexity of their management. [3]Among vesiculobullous disorders, pemphigus vulgaris is the most common, though it remains relatively rare.

This autoimmune disease leads to the formation of painful blisters on the skin and mucous membranes, making it the most frequently encountered condition within the pemphigus group of diseases. [4] Skin biopsy serves as a fundamental tool for

differentiating between dermatological disorders that may appear similar clinically. It provides crucial information to pathologists, enabling them to make definitive diagnoses, which in turn helps dermatologists manage patients more effectively. Often, clinical diagnosis alone is inconclusive, making histopathology an essential method for establishing an accurate diagnosis. [5]

This study was designed to assess the effectiveness of histopathology in diagnosing both non-neoplastic and neoplastic lesions of the skin. Additionally, the study aimed to correlate the clinical presentations with histopathological findings, enhancing the overall accuracy and precision in diagnosing various skin conditions.

Aims and Objectives

To confirm diagnosis and initiation of treatment. To study the histopathological spectrum of skin lesions at tertiary care hospital. To classify the most common disorders into their subtypes and thus assess the most common subtype prevalent in the surrounding community.

Materials and Methods

A hospital-based study was conducted at Swaminarayan Institute of Medical Sciences and Research, a tertiary-level hospital located in Kalol,

Ahmedabad. During period, the histopathology department received a total of 300 skin biopsy specimens. For each patient, relevant medical histories and additional investigations were collected to complement the histopathological examination.

The skin biopsy specimens were received in 10% formalin for preservation, along with essential clinical details provided through the histopathology requisition form. The samples were processed using an automated histokinette machine pass through the steps of dehydration, clearing and impregnation, embedding in paraffin wax, blocks prepared of tissue, and section cutting with microtome and tissue were taken on glass slide and stained with Hematoxyllin & Eosin stain.

Special stains like ziehl-neelsen (Z-N stain), Periodic acid schiff (PAS) and fite-farraco stain also used whenever required. [6,7]

Results

Out of the 300 biopsies analyzed, 60% were from male patients and 40% from female patients, resulting in a male-to-female ratio of 1.5:1, indicating a male predominance.

The age of the patients ranged from 8 to 76 years, with a mean age of 38 years (Table 1).

Table 1: Age and sex distribution of skin lesions

Age group (years)	No. of cases (Male)	No. of cases (Female)	Total	Percentage (%)
0-20	25	12	37	12.3
21-40	67	50	117	39
41-60	58	48	106	35.3
>60	30	10	40	13.3
Total	180(60%)	120(40%)	300	100

Histopathological findings of the study were: Non-neoplastic lesions: 98.4%, Neoplastic lesions: 1.6% Microscopic examination was performed to arrive at definitive diagnoses. The most common histological findings included: Dermatitis: 33.3% of cases, Lepromatous leprosy: 20% of leprosy cases (26.6% of total), Pemphigus vulgaris: 49% of vesicobullous lesions (25.7% of total) (Table 2 and 3).

Table 2: Spectrum of various skin lesions

Skin diseases	No. of cases	Percentage
Dermatitis	100	33.3
Leprosy	80	26.6
Vesicobullous lesions	62	20.6
Lupus lesions	14	4.6
Lichen planus	20	6.6
Neoplastic lesion	04	1.3
Indeterminate	20	6.6
Total	300	100

Table 3: Spectrum of vesico-bullous lesions

Skin diseases	No. of cases	Percentage
Pemphigus vulgaris	47	49
Pemphigus foliaceus	24	25
Darier's disease	2	2
Hailey- Hailey Disease	3	3.1
Erythema multiforme	12	12.5
Malaria	08	8.4
Total	96	100

Site Distribution found during the study were that non-neoplastic lesions most commonly located on the upper

extremity, followed by the back and lower extremities. Neoplastic lesions were most frequently involved at the head and neck, followed by the lower extremity and trunk. Among the neoplastic lesions, the most common diagnoses were: Squamous cell carcinoma: 41.7% Basal cell carcinoma 33.3% (Table 4).

Table 4: Spectrum of neoplastic disease

Disease	No. of cases	Percentage
Basal cell carcinoma	04	33.3
Squamous cell carcinoma	05	41.7
Nodular hidradenoma	03	25
Total	12	100

Discussion

In this study, a total of 300 skin biopsies were analyzed at the department of Pathology at a tertiary healthcare center. It was observed that skin lesions were more frequently diagnosed in younger individuals, with 50% of cases occurring in patients under 40 years of age. There was also a noted male preponderance, with 60% of skin lesions diagnosed in males. These observation of the present study was similar to Graham JH. [8] The most commonly encountered skin conditions were inflammatory lesions, followed by leprosy, with lepromatous leprosy being the most prevalent form, accounting for 58.8% of all leprosy cases (27.3% of the total).[9,10] Among neoplastic diseases, squamous cell carcinoma (41.7%) was the most common, followed by basal cell carcinoma (33.3%).[11,12] In the group of vesicobullous disorders, pemphigus vulgaris was the most frequently diagnosed condition, representing 49% of cases.[13,14]

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