



THE HISTOPATHOLOGICAL SPECTRUM OF SKIN LESIONS: A CASE SERIES AT A TERTIARY CARE HOSPITAL

Pathology

Dr. Ramya	Post Graduate, Department of Pathology, Sri Siddhartha Medical College, Tumkur, Karnataka.
Dr. G K Parvathidevi	Professor and PG coordinator, Department of Pathology, Sri Siddhartha Medical College, Tumkur, Karnataka.
Dr. Neivizonuo Rio	Post Graduate, Department of Pathology, Sri Siddhartha Medical College, Tumkur, Karnataka.

KEYWORDS

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INTRODUCTION:

The biggest organ in the human body, the skin is essential for immunological, sensory, and thermoregulation processes as well as for providing a key barrier against external aggressors. Even though the skin is resilient, it can develop a wide range of diseases that show up as different types of lesions, each with its own distinct clinical and histological features. These lesions can affect a patient's quality of life and provide serious diagnostic issues. They can range from benign disorders like nevi to malignant neoplasms like melanoma. The variety of skin lesions emphasizes the intricacy of dermatological disorders and the need for accurate diagnostic instruments to direct successful treatment plans.^{1,2,3}

Skin conditions impact millions of people of all ages worldwide, accounting for a significant amount of the illness burden. Dermatological disorders rank among the most common reasons for medical consultations worldwide, according to recent surveys.⁴ The impact is especially noticeable in India because of the country's varied climate, socioeconomic variables, and rural areas' restricted access to healthcare. Cultural customs, environmental exposures, and genetic predispositions all have an impact on the occurrence of skin conditions in India.^{5,3} India faces particular difficulties, such as a high prevalence of infectious skin problems that are made worse by the country's tropical environment and crowded living arrangements.⁵ The most reliable method for identifying and categorizing skin lesions is still histopathological analysis. Using this technique, biopsy samples are examined under a microscope to find particular cellular patterns and structures that define various dermatological disorders. In addition to helping to validate clinical diagnoses, histopathology offers vital details on the type of lesion, which are crucial for establishing prognosis and directing treatment choices.^{5,6} Since it affects treatment decisions ranging from topical medicines to surgical interventions, the precision of histopathological diagnosis is critical to the proper management of skin diseases.⁷

When it comes to handling complicated dermatological problems that need for specific knowledge and resources, tertiary care facilities are essential. A wider range of skin lesions are encountered at these centres since they frequently receive referrals from basic and secondary healthcare facilities. Comprehensive investigations on the histological spectrum of skin diseases are made possible by the concentration of varied cases in tertiary centers.^{4,7} Tertiary care hospitals in India are essential for meeting the unmet needs in dermatology, particularly in areas where access to specialized care is restricted.^{1,6}

AIMS AND OBJECTIVES:

To study the histopathological spectrum of skin lesions at tertiary care hospital.

MATERIALS AND METHODS:

Study Design

A retrospective study was conducted in the histopathology section of the Department of Pathology at Sri Siddhartha Medical College, Tumkur, Karnataka for a period of 9 months from January 2024 to September 2024.

Sample Size

A total of 101 skin biopsy samples collected from the Dermatology

Department and sent to the Department of Pathology for diagnosis were included in the study.

Inclusion And Exclusion Criteria

- The study included all the skin biopsies that arrived throughout the study period.
- Skin biopsies that were insufficient or autolyzed were excluded from the study.

Procedure

The biopsy samples from skin lesions that had been clinically diagnosed were sent to the histopathology laboratory in 10% formalin. The sample was fixed in 10% neutral buffer formalin over a period of 12 to 24 hours. All biopsy tissue samples underwent a gross examination, and all measurements were taken. After 3 to 4 mm thick sections were cut, they were stained with hematoxylin and eosin stain. A microscopic examination was performed and histomorphological features were noted. When necessary, special stains such as Fite-Faraco, Ziehl-Neelsen were done.

RESULTS:

Out of 101 biopsies, 67 cases were non-neoplastic ,21 cases were neoplastic ,6 cases were inconclusive and 7 cases were chronic non-specific dermatitis.

In our study, most common age group involved having skin lesions is 1-20 years and male preponderance was noted in our study with males accounting for 53 cases and females accounting for 48 cases.

Table 1: Type Of Skin Lesions According To Histopathology

Type of skin lesion	No. of cases (%)
Non-neoplastic	67
Neoplastic	21
Inconclusive	6
Chronic Non-Specific Dermatitis	7

Table 2: Age Distribution:

Age group	Number of cases
1-20	23
21-30	17
31-40	15
41-50	15
51-60	14
61-70	7
71-80	7
81-90	2
91-95	1

Table 3: Non-infectious Vesicobullous And Vesicopustular Diseases

Disease	Number of cases
Eczema	03
Pemphigus	01
Bullous Impetigo	01
Bullous Pemphigoid	02
Total	07

The most common vesicobullous and vesicopustular disease was eczema.

Table 4: Non-infectious Erythematous Papular And Squamous Diseases

Disease	Number of cases
Pityriasis Lichenoid Chronicus	03
Psoriasis	04
Pityriasis rosea	02
Lichen planus	03
Pityriasis rubra pilaris	01
Erythema dyschromicum perstans	01
Lichen planus pigmentosus	04
Prurigo simplex	03
Lichenoid Simplex Chronicus	01
Pustular psoriasis	01
Seborrhheic psoriasis	01
Guttate psoriasis	01
Palmoplantar psoriasis	01
Hypertrophic lichen planus	03
Total	29

Table 5: Types Of Neoplastic Lesion

Skin lesion	Number of cases
Benign and premalignant	13
SCC	02
BCC	04
Melanoma	01
NHL	01
Total	21

In neoplastic lesions, most common lesion was basal cell carcinoma.

Table 6: Other Non Neoplastic Skin Diseases:

Skin disease	Number of cases
Verruca vulgaris	03
Dermatofibroma	01
Granuloma annulare	01
Leprosy	03
Drug induced vasculitis	01
Dermatomyositis	01
Lichenoid drug eruption	01
Photodermatitis	03
Granulomatous	01
Subungual abscess	01
Villous hair cyst	01
Alopecia areata	04
Erythema nodosum	01
Discoid lupus erythematosus	01
Cutaneous horn	01
Photoallergic reaction	01
Jesnner's lymphocytic infiltrate	02
Chronic Non-specific dermatitis	07
Inconclusive	06
Morphea	02
Verrucous plantaris	01
Lymphatic malformation	01
Total	44

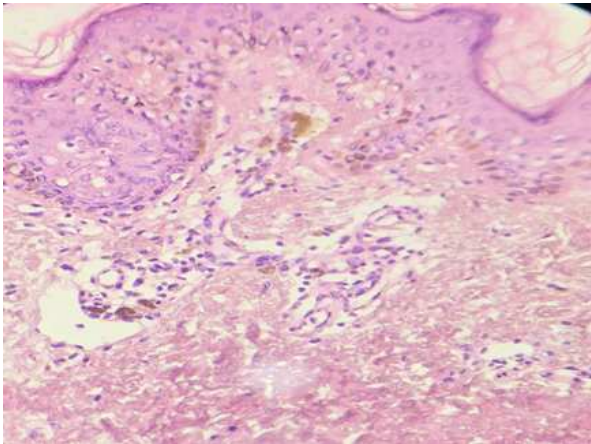


Figure 1:Lichen planus pigmentosus ,H&E,400X

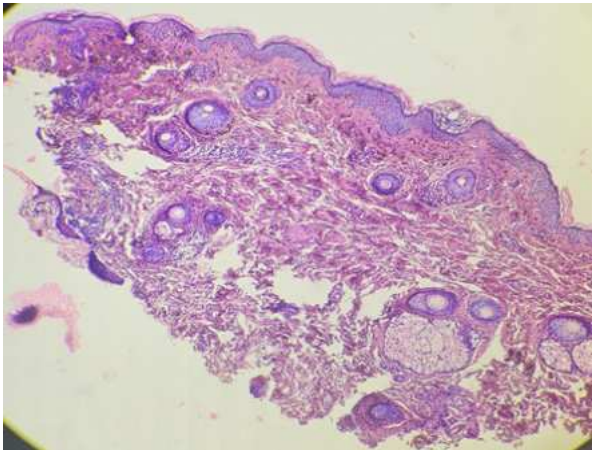


Figure 2: Ashy's dermatitis.H&E,100X

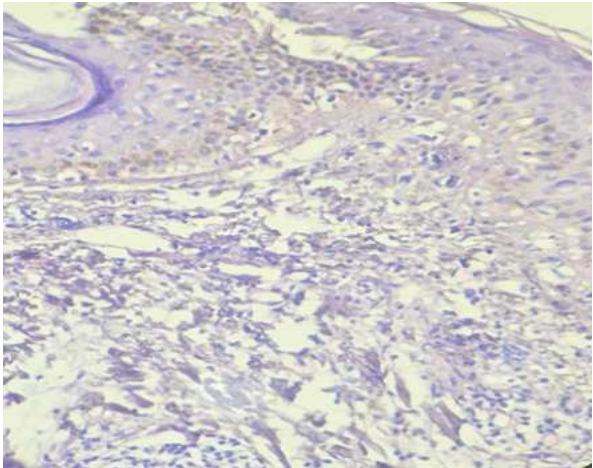


Figure 3: Jessners lymphocytic infiltrate, H&E,400X

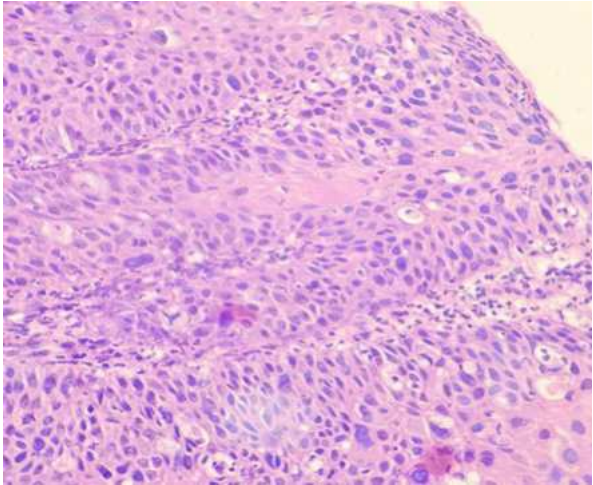


Figure 3: Squamous cell carcinoma.H&E,400X

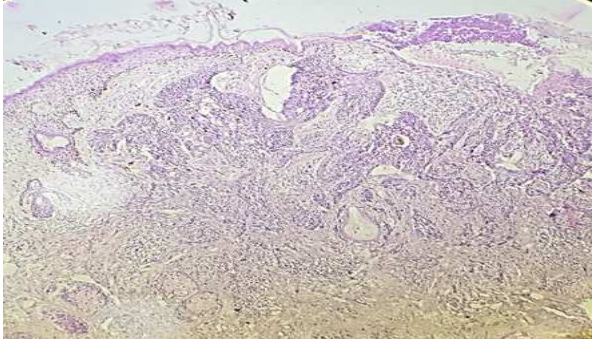


Figure 4: Basal Cell Carcinoma, H&E,100X

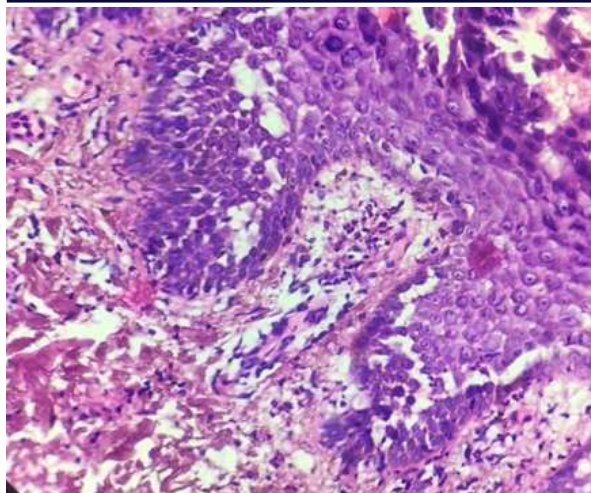


Figure 5: Pemphigus vulgaris, H&E, 400X

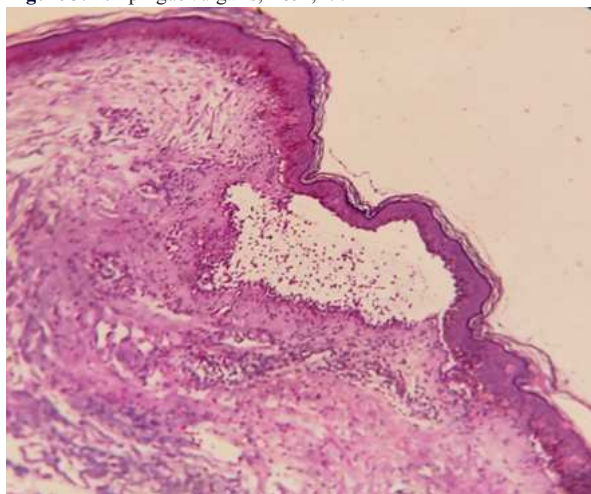


Figure 6: Bullous pemphigoid, H&E, 400X

DISCUSSION:

The histopathological spectrum of skin lesions is critical for understanding disease prevalence and demographics, particularly in a tertiary care setting. In our study, the predominant age group affected by skin lesions was 1-20 years, which aligns with findings from several recent studies.

Bezbaruah et al. (2020)⁸ reported that the most affected age group was 10-20 years, highlighting a similar trend in their cohort of 200 patients at a tertiary care hospital in Assam, India. This suggests that younger populations are particularly susceptible to various dermatological conditions, potentially due to environmental and lifestyle factors. Dayal et al. (2021)⁹ conducted a study involving 150 patients and found a significant prevalence of skin lesions in the same age bracket, reinforcing the notion that adolescents are at higher risk for dermatological issues. Adhikari et al. (2023)¹⁰ reported similar findings in their retrospective analysis of skin lesions, where the 10-20 age group represented a significant proportion of the cases analyzed, emphasizing the need for targeted preventive measures in this demographic.

Reddy et al. (2024)¹¹ also confirmed that adolescents were frequently diagnosed with various skin conditions, particularly infectious and inflammatory lesions, suggesting that this age group is particularly vulnerable to such disorders.

These studies collectively illustrate a concerning trend of increased dermatological issues among younger populations in India. The consistency across these findings underscores the importance of early diagnosis and intervention strategies tailored to this vulnerable age group, as well as further research into the environmental and genetic factors contributing to this phenomenon.

The histopathological analysis of skin lesions reveals significant

insights into demographic patterns, particularly concerning gender distribution. In our study, males constituted the majority of cases, a finding that resonates with several recent studies conducted in India.

Mamatha et al. (2020)¹² reported a male predominance in their study of 286 skin biopsies, where males accounted for approximately 60% of the cases. This aligns with our findings and suggests a consistent trend across various demographics.

Chandrakanta et al. (2022)⁶ also found that males were more frequently affected by skin lesions, with a male-to-female ratio of 1.5:1 in their cohort of 105 patients. This further supports the notion that males are at higher risk for dermatological conditions.

Bezbaruah et al. (2021)¹³ observed a similar trend, noting that out of 200 patients, 68% were male. Their findings highlighted the prevalence of infectious skin diseases among males, which could account for this gender disparity.

Kumar et al. (2024)¹⁴ reported that males comprised approximately 70% of the cases in their study on skin lesions, reinforcing the idea that gender predisposition plays a crucial role in dermatological health.

The consistent male predominance observed across these studies may be attributed to various factors including occupational exposures, lifestyle choices, and biological differences that predispose males to certain skin conditions more than females. This trend underscores the importance of gender-specific approaches in dermatological research and healthcare interventions tailored to address the unique needs of male patients with skin lesions.

The histopathological evaluation of skin lesions in our study revealed a significant predominance of non-neoplastic lesions, which accounted for approximately 66% of the cases. This finding is consistent with several recent studies that have similarly highlighted the prevalence of non-neoplastic skin conditions in various populations.

Chandrakanta et al. (2022)⁶ found that non-infectious skin lesions comprised 66.67% of their cohort, with papulosquamous diseases being the most common subtype. This aligns closely with our results, suggesting a widespread occurrence of non-neoplastic conditions in similar demographic settings.

Adhikari et al. (2021)¹⁵ observed that non-neoplastic lesions were predominant in their study as well, with a significant number attributed to infectious and inflammatory conditions. They noted that leprosy was a common infectious skin condition, which is consistent with our findings regarding the prevalence of microbial diseases.

Achalkar et al. (2024)¹⁶ also documented a high prevalence of non-neoplastic lesions, reporting them in 54% of their cases, reinforcing the notion that these conditions are more common than neoplasms in many clinical settings.

Bansal et al. (2020)¹⁷ found that non-neoplastic lesions accounted for majority of cases in their study.

The predominance of non-neoplastic lesions in these studies suggests a critical area for public health education and clinical focus, particularly regarding the management and prevention of common dermatological conditions such as psoriasis and leprosy. This trend emphasizes the necessity for healthcare systems to prioritize resources and interventions aimed at addressing these prevalent skin disorders effectively.

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