

Original Research Article

Histopathological study of skin lesions in tertiary care hospital

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ABSTRACT

Background: Skin disorders represent a significant health challenge, with varied clinical presentations and potential impacts on patient quality of life. This study aims to investigate the distribution and prevalence of skin lesions through histopathological examination in a tertiary care hospital setting.

Methods: A retrospective study was conducted from June 2021 to June 2023 in the Department of Pathology at Bhaskar Medical College, Hyderabad. All skin biopsy samples received during this period were processed using standard Hematoxylin and Eosin staining techniques. Data analysis was performed using MedCalc Version 10.0 for Windows. Sequential sampling was employed, analyzing all available samples during the study period.

Results: A total of 80 cases were examined, with 42 females (54%) and 38 males (46%). The 16-30 age group represented the majority (35%). Non-neoplastic lesions predominated (96.2%), with lichen planus being the most common diagnosis (18.7%), followed by intradermal nevus (8.7%). Neoplastic lesions accounted for 3.8%, with basal cell carcinoma (2.5%) being the most frequent.

Conclusions: Histopathological examination proves crucial in accurately diagnosing skin lesions, highlighting the importance of clinicopathological correlation for effective patient management.

Keywords: Dermatological diagnosis, Histopathology, Lichen planus, Skin disorders, Skin lesions, Skin biopsy

INTRODUCTION

The integumentary system serves as the body's primary protective barrier, defending against environmental challenges and external stimuli.

This complex organ is uniquely vulnerable to a diverse range of pathological conditions, encompassing inflammatory processes, infectious diseases and neoplastic transformations. Skin biopsy emerges as a critical diagnostic tool, enabling precise identification and characterization of various dermatological conditions.

In the Indian healthcare context, dermatological disorders present significant clinical challenges. Epidemiological data suggests a prevalence ranging between 6.3% and 11.6% of the population experiencing skin-related health

issues.¹⁻⁸ Clinical manifestations vary widely, including macules, papules, nodules and pigmentary alterations, necessitating comprehensive diagnostic approaches.

The diagnostic landscape of skin disorders relies heavily on meticulous clinicopathological correlation. Histopathological examination provides invaluable insights, bridging the gap between clinical observations and definitive diagnosis, thereby guiding targeted therapeutic interventions.

Aim and objective

To comprehensively analyze the distribution and prevalence of skin lesions through detailed histopathological examination in a tertiary care hospital setting.

METHODS

Study design

A retrospective study conducted in the Department of Pathology at Bhaskar Medical College, Hyderabad.

Study duration

The study duration was from June 2021-June 2023.

Specimen collection

All samples were received in 10% formalin, processed using standard histological techniques and stained with Hematoxylin and Eosin. Final diagnoses were correlated with clinical presentations.

Sampling technique

Sequential sampling was employed, analyzing all skin biopsy samples received during the specified period.

Inclusion criteria

All skin biopsy samples received during the study period. Samples from all age groups and both sexes.

Exclusion criteria

Autolyzed samples. Inadequate tissue specimens. Ethical consideration retrospective data analysis with institutional approval.

Statistical analysis

Data was analyzed using MedCalc Version 10.0 for Windows.

RESULTS

Total of 80 cases were received at our department out of which we found 42 females (54%) and 38 males (46%) M:F ratio. Most of the cases were in 16-30 age group (35%) followed by 31-45 age group (28.7%). Lichen planus (18.7%) was the commonest case reported followed by intradermal nevus (8.7%) followed by borderline lepromatous leprosy and psoriasis (7.5% each). Non neoplastic lesions were about 77 cases (96.2%) and neoplastic lesions were 3 cases (3.8%). Commonest neoplastic diagnosis was basal cell carcinoma (2.5%) followed by squamous cell carcinoma (1.2%). Figure 1 (A and B) describes 10X and 40X magnifications of a case of acanthosis and mild hyperkeratosis of epidermis dilated lymphatic channels containing eosinophilic proteinaceous material in the papillary dermis (H and E). Further Figure 2 (A and B) describes 10X and 40X magnification of proliferation of epidermis and diffuse

tuberculous granuloma, with histiocytes and giant cells, in the dermis (H and E).

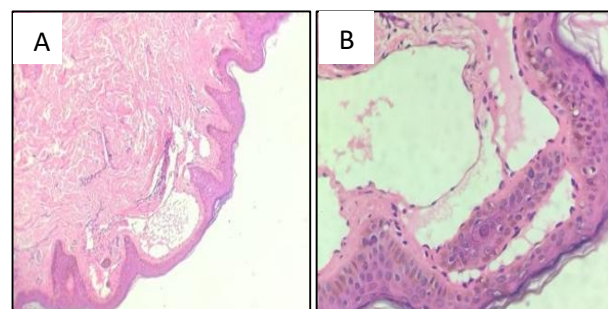


Figure 1 (A and B): (10X and 40X) acanthosis and mild hyperkeratosis of epidermis dilated lymphatic channels containing eosinophilic proteinaceous material in the papillary dermis (H and E).

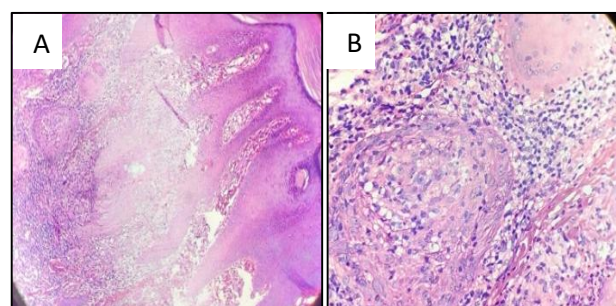


Figure 2 (A and B): (10X and 40X) proliferation of epidermis and diffuse tuberculous granuloma, with histiocytes and giant cells, in the dermis (H and E).

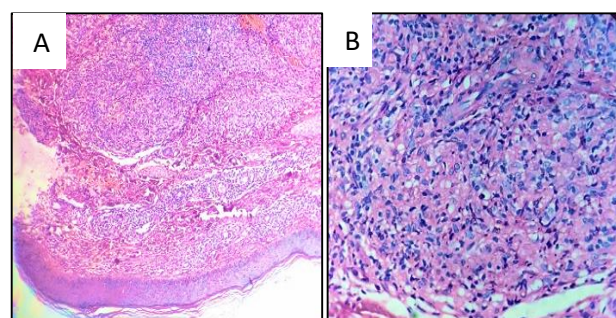


Figure 3 (A and B): (10X and 40X) Lepromatous leprosy. Sections show normal epidermis and grenz zone, there are sheets or clusters of macrophages, sparse lymphocytic infiltrate.

In a similar way we described the Figure 3 (A and B) (10X and 40X) which belongs to a patient with Lepromatous leprosy. Sections show normal epidermis and grenz zone, there are sheets or clusters of macrophages, sparse lymphocytic infiltrate. The demographics were described in Tables 1 and 2 (gender and age distribution) and the clinical diagnosis with pathological confirmation was described in Table.

Table 1: Gender distribution.

Sex	Cases	%
Male	38	46
Female	42	54

Table 2: Age distribution of skin lesions.

Age (in years)	Cases	%
0-15	8	10
16-30	28	35
31-45	23	28.7
46-60	13	16.3
61-75	8	10

Table 3: The detailed skin lesions.

Diagnosis	Cases	%
Basal cell carcinoma	2	2.5
Behcets syndrome	1	1.25
Benign adnexal tumor-trichoepithelioma	1	1.25
Borderline lepromatous leprosy	6	7.5
Lepromatous leprosy	4	5
Tb leprosy	1	1.25
Leukocytoclastic vasculitis	1	1.25
Lichen planus	15	18.75
Chronic actinic dermatitis	1	1.25
Eczema	3	3.75
Fibrous plaque of tuberous sclerosis	1	1.25
Inderminate leprosy	2	2.5
Infected eczema	1	1.25
Intradermal nevus	7	8.75
Lichen simplex chronicus	2	2.5
Lichenoid polymorphous light eruption	2	2.5
Lupus vulgaris	1	1.25
Lymphangioma circumscripctum	1	1.25
Molluscum contagiosum	1	1.25
Mycosis fungoides	1	1.25
Neurofibroma	1	1.25
Non-specific dermatitis	1	1.25
Pityriasis rosea	1	1.25
Prurigo nodularis	2	2.5
Prurigo simplex	1	1.25
Psoriasis	6	7.5
Squamous cell carcinoma	1	1.25
Tuberculosis veruccosa cutis	1	1.25

DISCUSSION

Our comprehensive prospective analysis of 80 skin lesion cases offers significant insights into the histopathological

patterns encountered in our institution and allows for valuable comparison with prior literature.

In our study, a female preponderance of 54% was observed. This contrasts with findings by Yalla et al and Mittal et al, both of whom reported male predominance in their cohorts.^{1,3} Conversely, our findings align with Adhikari et al, who also documented a slight female preponderance in their tertiary care setting.⁶ These variations may reflect regional and sociocultural influences affecting healthcare-seeking behavior and disease reporting patterns. The age distribution showed a majority of cases (35%) in the 16–30 years age group, closely followed by the 31–45 years group (28.7%). Similar age predilection was documented by Gorva et al and Adhikari et al, both of whom noted higher incidence of skin lesions in the second and third decades of life.^{2,6} Factors such as increased sun exposure, hormonal changes and cosmetic concerns during this period might account for this trend. Concerning the spectrum of lesions, non-neoplastic lesions constituted 96.2% of cases in our series, consistent with previous reports by Parekh et al and Mittal et al, who noted non-neoplastic lesions ranging between 90–98% in their studies.^{3,4} This reaffirms that non-neoplastic dermatoses constitute a significant proportion of histopathology submissions, warranting thorough evaluation.

Within the non-neoplastic category, lichen planus emerged as the most frequent diagnosis (18.75%), similar to findings reported by Reddy et al and Adhikari et al, where lichen planus was among the commonest histologically diagnosed conditions.^{6,10} The preference for upper and lower extremities seen in our study was also observed by Yalla et al and Singh et al.^{1,9} Other prevalent conditions included intradermal nevus (8.75%), borderline lepromatous leprosy (7.5%) and psoriasis (7.5%). The notable frequency of Hansen's disease in our cohort, particularly borderline and lepromatous types, underscores its ongoing public health importance in certain endemic regions of India, as similarly reported by Gorva et al and Reddy et al.^{2,10}

Neoplastic lesions were seen in 3.8% of cases, with basal cell carcinoma (2.5%) being the most common, followed by squamous cell carcinoma (1.25%). This aligns with the pattern documented by Kumar et al and Sharma et al, where basal cell carcinoma predominated among cutaneous malignancies.^{8,11} These findings emphasize the need for heightened awareness regarding early detection and prevention strategies, especially in populations with significant sun exposure.

Our histopathological illustrations further confirm classical findings in lichen planus, lepromatous leprosy and cutaneous tuberculosis, highlighting the indispensable role of histopathology in dermatological diagnosis, as emphasized in recent multi-center evaluations by Sharma et al and Patel et al.^{11,12}

This study, while informative, carries certain limitations. The sample size was modest (80 cases), potentially limiting the statistical power and generalizability of the findings. Additionally, it was conducted in a single-center, hospital-based setting and may not fully represent the community prevalence of dermatological conditions. Furthermore, the study did not incorporate clinical follow-up and treatment outcomes, which would have provided a more comprehensive understanding of disease progression and therapeutic response. Future multicentric studies with larger, demographically diverse cohorts and longitudinal follow-up are recommended to build upon these observations

CONCLUSION

Histopathological examination remains an indispensable diagnostic modality in dermatology. This study underscores the importance of comprehensive clinicopathological correlation in managing complex skin disorders, offering insights that can guide targeted therapeutic strategies.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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