

# Histopathological analysis of skin biopsies in a tertiary care setting

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**Abstract** *Objective* To determine the spectrum and frequency of skin diseases on the basis of histopathology.

*Methods* 152 skin biopsy specimens were received during a period of one year. They were processed routinely and findings recorded. Relevant demographic data as well as clinical findings were also noted. After diagnosis, the cases were divided into seven groups, viz, eczema-dermatitis, papulosquamous disorders, infectious disorders, blistering disorders, neoplastic lesions, degenerative diseases and miscellaneous lesions. Results were analyzed using percentage frequencies, Fischer's exact test and student's t test as appropriate.

*Results* The age range of patients was 5-81 years with mean being  $37.59 \pm 17$  years. Majority of biopsies were from male patients (55.3%). Papulosquamous disorders were the most common group with a frequency of 46.7%. Second most frequent skin disease groups were eczema - dermatitis and blistering disorders, each accounting for 12.5 % of all biopsies. Neoplastic lesions constituted 10.5% of the lesions, with benign and malignant lesions presenting at the average ages of 47 and 43 years respectively.

*Conclusion* The average age at presentation was close to that reported by other researchers from this region. The greater number of male patients is at variance from most other reported studies. The difference was statistically highly significant ( $p=0.0031$ ). The frequency of different diagnostic groups was unique in some respects and conformed to other studies in others. The most striking was the statistically significant difference in age of presentation of patients with malignant neoplasms. This highlights the need to raise awareness in public about the possible precautionary measures that need to be taken, in this region with high levels of exposure to sunlight.

**Key words**

Skin biopsy, papulosquamous disorders, eczema-dermatitis, blistering disorders, neoplastic lesions.

## Introduction

Skin diseases affect people of all ages from the neonate to the elderly. They are troublesome in many ways and can have a profound effect on both the individual and the community. They can cause significant morbidity due to disfigurement, disability, intractable itch and rarely even death.<sup>1</sup> The pattern and distribution

of skin diseases differ from one country to another and in various regions within the same country. Burden of skin diseases in a community is often underestimated.<sup>2</sup> It is reported that in developing countries, skin ailments have prevalence ranging from 20-50%.<sup>3</sup> Skin diseases are some of the most common problems with which patients present in primary health care settings.<sup>3,4</sup> Hence it is important for each country to know the spectrum of skin diseases prevalent in its population. This is further supported by the fact that a large proportion of these diseases are preventable.<sup>5,6</sup> This study aimed to determine the

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spectrum and frequency of skin diseases presenting to a tertiary care hospital in Lahore, Pakistan. Knowledge of the pattern of skin diseases is thought to be important for caregivers, teachers and administrators to identify their priorities.

## **Methods**

Study was conducted at the Department of Pathology, Allama Iqbal Medical College, Lahore, from 1st January to 31<sup>st</sup> December 2016. Skin biopsies from newly presenting dermatology patients, as well as, those from relapsing cases were included. Patients of either gender and any age were included. Patients with history of burns or trauma, as well as, those with acute febrile rashes were excluded. Patients with history of chemotherapy or radiotherapy were also excluded. Similarly, poorly fixed or autolyzed specimens were not included. Relevant demographic and clinical data were recorded.

152 cases which fulfilled the described criteria were received in the specified period. They were processed routinely and stained with hematoxylin and eosin. Additional stains like Ziehl-Neelsen and periodic acid-Schiff (PAS) were applied where appropriate.

Based on histopathological diagnosis biopsies were divided into seven groups, viz, eczema-dermatitis, papulosquamous disorders, infectious disorders, blistering disorders, neoplastic lesions, degenerative diseases and miscellaneous lesions. Eczema-dermatitis group included eczema, prurigo nodularis and atopic dermatitis. Disorders like lupus erythematosus, lichen planus, psoriasis and pityriasis lichenoides chronica were lumped together as papulosquamous disorders. Infectious skin diseases included tuberculosis, fungal infections, leishmaniasis, verruca plana and verruca

vulgaris. Category of blistering diseases included pemphigus vulgaris, pemphigus foliaceus, bullous pemphigoid and erythema multiforme. Neoplastic diseases encountered were squamous cell carcinoma, basal cell carcinoma, seborrheic keratosis and intradermal nevus. Degenerative skin diseases included morphea and lichen sclerosus. Other less common diseases like Langerhan cell histiocytosis, keloid, vasculitis, and lymphedema were put in the miscellaneous group. Results were tabulated and analyzed using percentage frequencies, Fischer's exact test and student's t test as appropriate.

## **Results**

There was a wide age distribution among the patients, i.e., 5-81 years, with the most frequent age group being from 25-50 years (**Table 1**). The mean age of the patients was  $37.59 \pm 17.5$  years. About 55.3 % of skin biopsies were from male patients while 44.7 % were from female patients. **Table 2** represents the frequencies of various disease groups. The most common skin disorder group was papulosquamous with a frequency of 46.7%. Within this group lupus erythematosus was most frequent and accounted for 10.1% of total cases. Second most frequent skin disease groups were eczema-dermatitis and blistering disorders, each accounting for 12.5 % of all biopsies. Neoplastic lesions constituted 10.5% of the lesions. Average age for development of benign neoplastic lesions was 47 years while that for malignant lesions was 43 years.

**Table 3** compares the frequency of different types of lesions according to sex of the patients. All groups showed more or less similar incidence in males and females.

**Table 1** Age and gender distribution of patients (n=152).

|             | N (%)     |
|-------------|-----------|
| Age (years) |           |
| < 25        | 50 (32.9) |
| 25-50       | 69 (45.4) |
| > 50        | 33 (21.7) |
| Sex         |           |
| Male        | 84 (55.3) |
| Female      | 68 (44.7) |

**Table 2** Frequency of different pathological groups (n=152).

| Types of lesions         | N (%)     |
|--------------------------|-----------|
| Papulosquamous disorders | 71 (46.7) |
| Eczema-dermatitis        | 19 (12.5) |
| Blistering disorders     | 19 (12.5) |
| Neoplastic lesions       | 16 (10.5) |
| Degenerative diseases    | 9 (5.9)   |
| Infectious disorders     | 6 (3.9)   |
| Miscellaneous lesions    | 12 (7.9)  |

**Table 4** Frequency of different categories of skin diseases according to the gender of patient (n=152).

| Types of lesions         | Males     | Females   |
|--------------------------|-----------|-----------|
|                          | N (%)     | N (%)     |
| Papulosquamous disorders | 37 (44.0) | 34 (50.0) |
| Eczema-dermatitis        | 12 (14.3) | 7 (10.3)  |
| Blistering disorders     | 12 (14.3) | 7(10.3)   |
| Neoplastic lesions       | 8 (9.5)   | 8 (11.8)  |
| Degenerative disease     | 4 (4.8)   | 5 (7.4)   |
| Infectious disorders     | 5 (6.0%)  | 1 (1.5%)  |
| Miscellaneous lesions    | 6 (7.1%)  | 6 (8.8%)  |

## Discussion

Complaints pertaining to skin may have their roots in diseases primary to skin itself, as well as, being dermatological manifestations of systemic disease.<sup>7</sup> Such manifestations of systemic disease are wide and varied, specific, as well as, nonspecific. Hence interpretation of skin biopsies is a challenge to the most experienced pathologists and probably no other area of histopathological diagnosis is more dependent on adequate input from clinical colleagues.<sup>8</sup>

In our study, the biopsies were submitted from patients with a wide age range, i.e., 5-81 years.

The mean age of patients was 37.59±17.5 years (**Table 1**) which is close what is reported in other studies from this region.<sup>9</sup> Male patients outnumbered females which contrasts with other studies.<sup>9-11</sup> The difference was highly significant (p=0.0031). This could be explained by the unfortunate tendency to neglect the ailments of female members of the family in our chauvinistic society.

Papulosquamous disorders formed the most common group (**Table 2**). This corresponds to the findings of other studies.<sup>10,12</sup> Papulosquamous disorders are a wide group of skin diseases and are said to be the commonest to confront and confound the histopathologist. The next common groups were eczema-dermatitis group and blistering disorders. These occurred with an equal frequency in our study. This contrasts with some other studies in the region which reported a higher incidence of infectious diseases.<sup>4,10,13</sup> This could be explained by the increasing tendency of our astute clinical colleagues to treat infectious diseases on clinical grounds without resorting to a skin biopsy.

Neoplastic lesions were the next most frequent group. This is not surprising considering the role of sunlight in development of these lesions.<sup>14</sup> The patients presenting to our hospital come from an area with a high level of exposure to sunlight.<sup>15</sup> Another alarming fact was the young age at which our patients developed these lesions. The average age of development of benign lesions was 47 years while that for malignant lesions was 43 years. This is much lower than that reported from other areas.<sup>10</sup> The difference was statistically significant (p=0.0304). Our public needs to be made aware of the need for sunscreens and other protective measures during exposure to excessive sunlight.

The major limitation was small size of study and lack of advanced modalities of diagnosis like

immunohistochemistry and immuno-fluorescence.

### Conclusion

The spectrum of diseases corresponds to that previously described. An earlier age of development of malignant skin tumors in our population noted in this study, calls for public education regarding appropriate preventive measures.

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