

## Clinico-Pathological Spectrum of Skin Diseases in a Tertiary Care Hospital in the North- Western Region of Rajasthan

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Received: 04-01-2023 / Revised: 30-01-2023 / Accepted: 15-02-2023

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Conflict of interest: Nil

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### Abstract

**Introduction:** Skin lesions are a major contributor to health problems in various countries but most are not regarded significant because of the assumption that they are not life-threatening. Their incidence also varies with geographical locations, environmental factors, genetic factors, hygiene, etc.

**Materials and Methods:** The current study was conducted on 100 cases of skin lesions that were received in the Department of Pathology of a tertiary health care center. The tissues were received in 10% neutral buffered formalin and stained with Hematoxylin and Eosin stain to diagnose various skin lesions.

**Results:** The age of the patients varied between 1 years to 83 years while the maximum cases (22%) were in 51 – 60 years age group. The male to female ratio was 0.92:1 while the ratio of neoplastic to non-neoplastic lesions was 2.22:1. Maximum cases presented with nodules (27%) as the main complaint. Amongst the lesions, maximum cases (23%) were of Appendageal tumors followed by 22% cases of Epidermal tumors. Maximum cases among non-neoplastic lesions were of different types of Leprosy (22.58%) followed by Psoriasis (12.90%). Out of 69 neoplastic lesions, maximum cases were of Basal Cell Carcinoma (13.04%) followed by Squamous Cell Carcinoma (10.14%).

**Conclusion:** Sometimes skin tumors and non-neoplastic lesions may present with a minute lesions such as a macule or papule which may be ignored for long by the patient. Therefore, biopsy confirmation of every lesion alongwith clinical correlation is important.

**Keywords:** Histopathological Correlation, Skin Lesions, Epidermal Tumors.

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### Introduction

Dermatological lesions encompass a wide spectrum in all countries, [1] influenced by sex, age and associated systemic disorders, literacy, economy, racial and social customs

[2]. Skin problems are most commonly encountered among the health problems in India [1]. But most of them are not being regarded as significant problem, because of the

presumption that many are benign and not life threatening [3] However, some of them requires major medical attention and pose great psychological impact on the quality of life [4] Skin biopsy followed by histopathological study is needed for accurate diagnosis, identifying etiological agent with special stains wherever feasible to help clinical team decide the appropriate management [1,5].

The incidence of skin disease is influenced by many factors such as geographical location, environment, racial and genetic factors, nutrition and hygiene etc [6].

Histopathology plays an important role in diagnosis of skin lesions. Various methods like cytology, immunohistochemistry, direct and indirect immunofluorescence and molecular techniques are present but are of constricted use due to limited availability of resources.

Various methods are used for taking the tissues including punch biopsy, shave biopsy, deep incisional biopsy, complete excision and curettage.

### Materials and Methods

The study was carried out in the Department of Pathology, Sardar Patel Medical College and Associated Group of Hospitals, Bikaner. It included the skin biopsies which were received with relevant clinical history and submitted for histopathological examination. These were processed routinely and examined under microscope. Inclusion criteria: All the adequate skin biopsies received at Pathology department, Sardar Patel Medical College. All the samples with relevant and adequate patient data available. Oral mucosa lesions and cystic lesions were excluded.

The tissue was processed by means of paraffin wax processing which consists of the following steps:

- 1. Fixation and grossing:** The specimens were fixed in 10% formalin for 4-24 hours. Then gross features were examined and representative sections were taken.
- 2. Tissue processing:** Sections were subsequently processed in autotechnicon machine.
- 3. Blockmaking:** The paraffin embedded tissues were blocked in paraffin with the help of moulds.
- 4. Section cutting and slide making:** 2- 4-micron thick sections were cut on rotary microtome and floated onto the slides already coated with albumin.
- 5. Staining:** Hematoxylin and eosin staining was done. Special stains (PAS, ZN, Carbol Fuschin) were used wherever required.

### Results

Maximum cases of skin lesions were found in age group of 51-60 years (22 cases, 22%) followed by age group of 61-70 years (19 cases, 19%) whereas minimum cases were found in the age group of >80 years (1 case, 01%) and  $\leq 20$  years (8 cases, 08%). 52% cases were females whereas 48% cases were males. In our study, 31% cases were present in head and neck region whereas 69.0% cases were found elsewhere in the body. Out of the 100 cases, 69 cases were diagnosed as neoplastic and 31 cases were non-neoplastic lesions of skin constituting 69% and 31% respectively. The ratio of neoplastic to non-neoplastic lesions was 2.22:1.

**Table 1: Distribution of cases according to category of lesion**

Category	No.	%
Acantholytic reaction patterns	1	1.0
Appendageal tumors	23	23.0
Collagen and elastic tissue alterations	3	3.0
Dermal deposits	1	1.0
Epidermal tumors	22	22.0

Infectious dermatoses	17	17.0
Inflammatory dermatoses	9	9.0
Melanocytic tumors	7	7.0
Metastatic tumors	2	2.0
Neural tumors	7	7.0
Soft tissue tumors	4	4.0
Tumors of hematopoietic and lymphoid origin	1	1.0
Vascular tumors	3	3.0
Total	100	100.0

Maximum cases were in Appendageal tumors category (24 cases, 24%) followed by Epidermal tumors category (22 cases, 22%). Minimum cases were 1 cases each in acantholytic reaction pattern, dermal deposits and in tumors of hematopoietic and lymphoid origin category.

**Table 2: Category of non-neoplastic lesions**

Non-neoplastic lesions	No.	%
leprosy	7	22.58
Calcinosis cutis	1	3.23
Crusted scabies	1	3.23
Discoid lupus erythematosus	1	3.23
Fungal granuloma	1	3.23
Hailey hailey disease	1	3.23
Hidradenitis	1	3.23
Histoplasmosis	2	6.45
Lichen planus pigmentosus	1	3.23
Lichen sclerosus	1	3.23
Lichenoid contact dermatitis	1	3.23
Lupus vulgaris	1	3.23
Molluscum contagiosum	1	3.23
Morphea	2	6.45
Mucormycosis	1	3.23
Mycetoma	1	3.23
Phytophotodermatitis	1	3.23
Psoriasis	4	12.90
Spongiotic dermatitis	1	3.23
Tuberculosis verrucosa cutis	1	3.23
Total	31	100.00

Out of 31 non-neoplastic lesions, maximum 7 cases (22.58%) were of different types of leprosy followed by 4 cases (12.90%) of psoriasis and 2 cases (6.45%) of each morphea and histoplasmosis.

**Table 3: Category of neoplastic lesions**

Neoplastic lesions	No.	%
Angiolymphoid hyperplasia with eosinophilia	1	1.45
Apocrine hidrocystoma	3	4.35
Basal cell carcinoma	9	13.04
Chondroid syringoma	1	1.45
Nevus	6	8.70
Dermatofibrosarcoma protuberans	2	2.90
Eccrine acrospiroma	2	2.90
Eccrine poroma	5	7.25
Eccrine spiradenoma	1	1.45
Fibroma	1	1.45
Fibrous histiocytoma	1	1.45
Hemangioendothelioma	1	1.45
Hidradenoma	2	2.90
Infantile digital fibroma	1	1.45
Keratoacanthoma	2	2.90
Lobular hemangioma	1	1.45
Malignant melanoma	2	2.90
Metastatic tumors	2	2.90
Microcystic adnexal carcinoma	1	1.45
Neurofibroma	4	5.80
Pilomatrixoma	2	2.90
Pseudolymphoma	1	1.45
Schwannoma	2	2.90
Sebaceous cell carcinoma	1	1.45
Sebaceous hyperplasia	2	2.90
Sebcoma	1	1.45
Seborrheic keratosis	1	1.45
Squamous cell carcinoma	7	10.14
Syringocystadenoma papilliferum	1	1.45
Trichoepithelioma/trichoblastoma	1	1.45
Verrucae vulgaris	2	2.90
Total	69	100.00

In males, maximum cases (60.00%) were of infectious dermatoses followed by 33.33% cases of inflammatory dermatoses whereas minimum cases (6.67%) had collagen and elastic tissue alteration. In females, maximum cases (50.00%) were infectious dermatoses followed by 25.00% cases of inflammatory dermatoses whereas minimum 6.25% cases each had acantholytic lesions and dermal deposits.

There was statistically insignificant correlation between gender and non-neoplastic lesions ( $p=0.649$ ). There was female predominance in non-neoplastic lesions with the male to female ratio of 0.93:1. In males, maximum cases (43.24%) were of Epidermal tumors followed by 27.03% cases of Appendageal tumors whereas minimum 2.70% cases had each soft tissue tumor, metastatic tumor and tumors of hematopoietic and lymphoid origin. In females, maximum cases (40.63%) were of

Appendageal tumors followed by 18.75% cases of epidermal tumors.

Minimum cases (3.13%) each had vascular and metastatic tumor. There was statistically insignificant correlation between gender and neoplastic lesions ( $p=0.649$ ).

In Neoplastic lesions there was male predominance with male to female ratio of 1.15:1.

### Discussion

The current study was conducted on 100 cases fulfilling inclusion criteria, attending OPD or admitted in the hospital with any skin lesion and whose specimens were sent to department of Pathology, S.P. Medical College, Bikaner.

#### Age incidence

In our study, maximum cases of skin lesions were found in age group of 51-60 years (22 cases, 22%) followed by age group of 61-70 years (19 cases, 19%) whereas minimum cases were found in the age group of >80 years (1 case, 01%) and  $\leq 20$  years (8 cases, 08%) with age range of 1 yr to 83 yr. Whereas D'Costa *et al* (2010) [7] found maximum cases was in the 30-40 year age group (28.6%). Also Veldhurthy *et al* (2015) [8] found maximum cases in age group of 21-30 years constituted 31.5% of the total cases. Albasri AM *et al* (2018) [9], found maximum case in 60-69 years (29.5%), followed by the age groups of 80-89 years (24.8%) and 70-79 years (19.8%). The difference may be due to different socio-demographic areas.

#### Sex incidence

In our study, maximum 52% cases were females whereas 48% were males. D'Costa *et al* (2010) [7], Veldhurthy *et al* (2015) [8] and Albasri AM *et al* (2018) [9] showed male preponderance.

A study by Pawale J *et al* [10-16] showed male to female ratio 1.18:1.

#### Site & presentation of lesions

In our study, 31.0% cases lesions in head and neck region whereas 69.0% cases had lesions elsewhere in the body which was concordant with D'Costa *et al* (2010) [7] who found that the most frequently involved sites were the extremities (67.79%).

In our study, out of the 100 cases, 69 cases were diagnosed as neoplastic and 31 cases were non-neoplastic lesions of skin constituting 69% and 31% respectively. The ratio of neoplastic to non-neoplastic lesions was 2.22:1. Whereas Gireesh V Achalkar *et al* (2019) [10] found 24% neoplastic lesions with 1:4 ratio. Also the study by Neetu Goyal *et al* [11] showed ratio of 1.94:1.

Maximum cases were in Appendageal tumors category (24 cases, 24%). Our study was inconsistent with the study of Pappala P *et al* (2019) [12] who found the highest incidence of Keratinocytic tumours 28 cases (60.86%), followed by 11 cases (23.91%) of Melanocytic tumors and 7 cases (15.21%) of Adnexal tumors. Also Chalise *et al* (2020) [13] found the commonest tumor was intradermal nevus seen in 6 (16.3%) cases.

In our study, out of 31 non-neoplastic lesions, maximum 7 (22.58%) cases were of different types of Leprosy followed by 4 (12.90%) cases of Psoriasis and 2 (6.45%) cases of each Morphea and Histoplasmosis. Our study was in not consistent with the study of Sherpa P *et al* (2020) [15] as they found prevalence wise, Lichen Planus was the highest followed by Leprosy and Spongiotic dermatitis. Also Veldhurthy *et al* (2015) [8] found Lichenoid lesions (26%) as most common lesions, followed by leprosy (23.9%). D'Costa *et al* (2010) [7] also found that Lichenoid lesions were the maximum (46.57%) with lichen planus (26.7%) and psoriasis vulgaris (19.88%) being the most frequent lesions. In our study, out of 69 neoplastic lesions, maximum cases were of Basal Cell Carcinoma (9 cases, 13.04%) followed by squamous cell carcinoma (7 cases, 10.14%) and 6 (8.7%) cases of nevus. Similarly, Albasri AM *et al*

(2018) [9] found 124 (61.4%) cases of BCC, 33 (16.3%) cases of SCC. Whereas Gireesh V

Achalkar *et al* (2019) [10] found SCC was the most common malignant tumor (52.8%)

**Table 4: Comparative incidence of different malignant tumors of skin**

No.	Name of tumor	Deo SV <i>et al</i> [17]	Bari V <i>et al</i> [18]	Chakravarthy RC <i>et al</i> [19]	Bhudraja SN <i>et al</i> [20]	Present study
1	SCC	55.8%	45.9%	64.3%	49.02%	10.14%
2	BCC	18.1%	34.4%	16.5%	17.65%	13.04%

In our study, amongst the epidermal tumors, maximum cases were of Basal cell carcinoma (9 cases, 13.04%) followed by Squamous cell carcinoma (7 cases, 10.14%). It was concordant with Albasri AM *et al* (2018)<sup>9</sup> who also found maximum cases of basal cell carcinoma (61.4%) followed by squamous cell carcinoma (16.3%).

In  $\leq 30$  yr age group maximum 33.33% cases were of Appendageal tumors followed by Melanocytic tumors whereas minimum 8.33% cases were of Neural, Vascular and Epidermal tumors. In middle age group (31-60 years) appendageal and epidermal tumors were maximum (32.5%) whereas minimum cases (2.5%) were of soft tissue tumors. In the extreme age group ( $>60$  years) maximum cases were of epidermal tumors (47.06%) and minimum 1 case each of soft tissue tumors, tumors of hematopoietic and lymphoid origin and melanocytic tumors. There was statistically insignificant correlation between age and neoplastic lesions ( $p=0.200$ )

The maximum number of tumors was found in 3<sup>rd</sup> to 6<sup>th</sup> decade which was similar to study by Bari V *et al* [18].

In our study, epidermal tumors were maximum in males (43.24%) whereas Appendageal tumors were maximum in females (40.63%). There was statistically insignificant correlation between gender and neoplastic lesions ( $p=0.649$ ). In Neoplastic lesions there was male predominance with male to female ratio of 1.15:1. Similarly Katalinic A *et al* [21] found a male to female ratio of 1.31:1. In contrast to study by Reddy KM *et al* [22] showed male to female ratio 2:1 for appendageal tumor.

In our study malignant melanoma was seen in 2 cases (2.9%) both above 50 years of age.

Variation in our study with other studies may be attributed to varied lifestyle of people pertaining to different geographical conditions, educational status and socioeconomic status.

### Summary & Conclusion

In the present study we concluded that neoplastic lesions were more common than non-neoplastic lesions. Among neoplastic lesions, the Appendageal tumors were seen in maximum number of cases while in non-neoplastic lesions, maximum cases were of Infectious dermatoses.

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