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*Original Research Article*

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## Histomorphological Study of Skin Lesions in Punch Biopsy Specimens with Special References to Neoplastic Lesions

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### Abstract

**Introduction:** Dermatological lesions are common in all nations but the incidence and spectrum varies from place to place. They can be broadly categorised into non-neoplastic lesions and neoplastic lesions. Clinically they usually presents with overlapping features like hyperpigmentation, hypopigmentation, macules, papules, nodules or either patch. Skin biopsy is the most common ancillary technique used for confirmation of the clinical diagnosis. The present study was conducted to describe the histopathological spectrum of lesions in skin biopsies.

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**Materials and methods:** This is a 2 years retrospective study conducted in department of Pathology, BLDEU's (deemed to be university) Shri B M Patil Medical College Hospital and Research Centre, Vijayapura, Karnataka and includes 258 cases. All the skin biopsies received were reviewed from archives of the department and examined under light microscopy.

**Results:** Among 258 cases, 120 cases were males and 138 cases were females with male:female ratio being 0.8:1. Further these lesions were classified into non-neoplastic and neoplastic lesions. Of the 258 cases, 235 cases were non-neoplastic lesions and 23 cases of neoplastic origin. Among the non-neoplastic lesions infectious dermatoses (41.28%) formed the predominant part with leprosy (91 cases) constituting 38.7%. This was followed by inflammatory (40%), vesiculobullous (11.06%), granulomatous (2.12%), lesions of melanocytes (3.82%) and miscellaneous lesions (1.70%). Out of 23 neoplastic lesions, benign were 15 and malignant were 8 cases.

**Conclusion:** Dermatological lesions are the cutaneous manifestations of exposure to both intrinsic and extrinsic environmental agents. Various lesions have been reported ranging from non-specific inflammatory dermatoses to infective dermatoses and neoplastic lesions.

**Keywords:** Skin Lesions; Non-Neoplastic Lesions; Infectious Dermatoses; Neoplastic Lesions.

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### Introduction

Dermatological lesions are common in all nations but the incidence and the spectrum varies from

place to place. The reported incidences are usually more common in developing countries posing a major public health problem. They can range from

simple lesions like acne to much more fatal lesions like toxic epidermal necrolysis, pemphigus and malignant melanoma. India being tropical country reports many skin lesions. Majority of them are diagnosed on the basis of clinical presentation [1,2]. However, some requires additional investigations and further evaluation [3].

Skin lesions can be broadly categorised into non-neoplastic lesions and neoplastic lesions. Non-neoplastic lesions are much more common than neoplastic lesions. This non-neoplastic group further includes infectious dermatoses, inflammatory dermatoses, granulomatous lesions, vesiculobullous lesions, lesions of melanocytes [1,4]. Neoplastic lesions includes benign and malignant lesions. The latter includes skin adnexal tumours, keratinocytic, melanocytic, hematolymphoid and cutaneous soft tissue tumors [5].

Clinically these lesions usually presents with overlapping features like hyperpigmentation, hypopigmentation, macules, papules, nodules or either patch. But the histopathological features are quite variable and thus remains the mainstay for confirmation of the clinical diagnosis and to initiate appropriate management for any skin lesions [6,7].

Skin biopsy is the most common ancillary technique used in confirmation of the clinical diagnosis [7]. It is a simple, quick, convenient procedure leaving a small wound and yielding a full thickness sample of skin [3]. These skin biopsy can be either punch biopsy, shave biopsy, excision biopsy or incision biopsy [8].

Apart from skin biopsy, other techniques like potassium hydroxide preparation for evaluation of fungal infections, Tzanck smear and examination under woods lamp are used as a part of clinical evaluation. They also help in the cytological and histopathological correlation. Slit skin smears can be prepared in doubtful cases of leprosy. Other procedures like Fine needle aspiration cytology are routinely practised in cases suspicious of leprosy and malignant lesions [9].

The present study was conducted to describe the histopathological spectrum of lesions in skin biopsies and to emphasize on the neoplastic skin lesions.

## Materials and Methods

The present study is a retrospective study conducted for 2 years of duration from October 2015 to September 2017 in department of pathology,

BLDEU's (deemed to be university) Shri B M Patil Medical College Hospital and Research Centre, Vijayapura, Karnataka and includes 258 cases.

All the skin biopsies that showed definite pathology received in the histopathology section were included in the present study. The skin biopsies with non-specific pathology and inadequate biopsies were excluded from the study.

All the skin biopsies received in the histopathology section for the above mentioned period were reviewed from archives of the department. The clinical details and relevant data were recorded. Hematoxylin and eosin stained slides along with special stains were examined under light microscopy. Further they were classified into non-neoplastic and neoplastic lesions.

## Results

Out of 258 cases, 120 cases were males and 138 cases were females with male: female ratio being 0.8:1 (Table 1). Further these lesions were classified into non-neoplastic and neoplastic lesions. Further these lesions were classified into non-neoplastic and neoplastic lesions, 235 were non-neoplastic lesions and was categorised based on the etiological origin like those belonging to inflammatory dermatoses, Infectious dermatoses, vesiculobullous lesions, granulomatous lesions, lesions of melanocytes and miscellaneous lesions (Table 2).

**Table 1:** Age wise distribution of all cases included in the study

Age group (years)	Male (number)	Percentage (%)	Female (number)	Percentage (%)
0-20	18	15	25	18.1
21-40	50	41.7	47	34.1
41-60	48	40	61	44.2
>60	4	3.3	5	3.6
Total	120	100	138	100

**Table 2:** Classification of the various Non-neoplastic skin lesions based on the aetiology

Category	Number of cases	Percentage (%)
Inflammatory dermatoses	94	40
Infectious dermatoses	97	41.28
Vesiculo-bullous lesions	26	11.1
Granulomatous dermatoses	5	2.18
Lesions of melanocytic origin	9	3.82
Miscellaneous lesions	4	1.7
Total	235	100

Among the non-neoplastic lesions infectious dermatoses formed the predominant part with leprosy (91 cases, 38.7%) constituting the most common infectious dermatoses (Figure 1) followed by lupus vulgaris comprised of 4 cases (1.7%). The next most common subcategory under non-neoplastic lesions was inflammatory dermatoses comprised predominantly by cases of lichen planus (20 cases) (Figure 2). This was followed by vesiculobullous lesions which included 26 cases (11.06%), granulomatous lesions (Non-infectious origin) comprised of 5 cases (2.12%), lesions of melanocytes was comprised of 9 cases (3.82%)(Figure 3) and miscellaneous lesions were comprised of 4 cases (1.70%).

Neoplastic lesions included were 23 cases, and were further classified into benign and malignant (Table 3). Benign lesions were 15 cases and constituted the predominant part of the neoplastic lesions. Malignant lesions were 8 cases which constituted 5 cases of basal cell carcinoma, 2 cases of squamous cell carcinoma and one case of malignant melanoma.

**Discussion**

Histopathological spectrum of dermatological lesions are quite variable with minimal changes from patient to patient in clinical point of view. Thus

confirmation of the diagnosis becomes inevitable before the initiation of the treatment. Punch biopsy is the ancillary technique which helps in many circumstances [3,7]. The interpretation of skin biopsies requires adequate knowledge and high index of suspicion which helps in identification and integration of histomorphological features like pattern of inflammatory infiltrate and the tissue reaction pattern [8].

The present study includes 258 skin biopsies among which 120 cases were males and 138 were females. Among these cases, 120 cases were males and 138 cases were females. There was slight female preponderance in our study. Whereas, Singh S *et al.* [1] and Mathur *et al.* [8] studied 245 cases and 102 cases respectively and had male predominance in their study with male to female ratio of 1.55:1 and

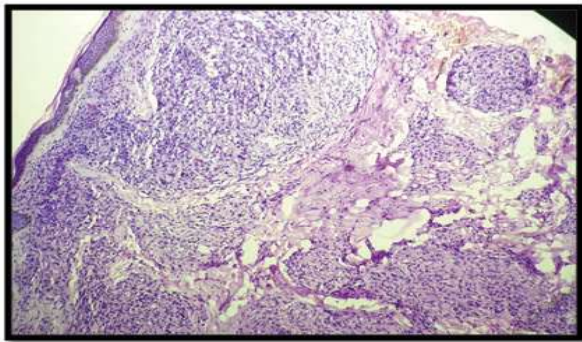


Fig. 1: Microphotograph of Histiod leprosy (H&E, 100X)

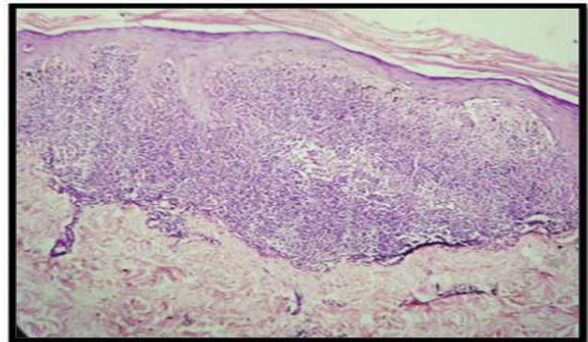


Fig. 2: Microphotograph of Lichen planus (H&E, 100X)

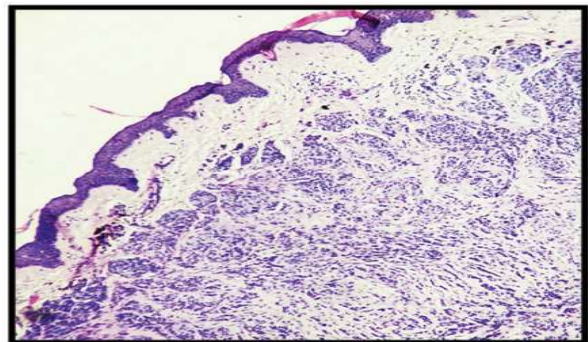


Fig. 3: Microphotograph of Intradermal nevus (H&E, 100X)

Table 3: Distribution of various neoplastic (benign and malignant) lesions

Various differentiation of lesions	Benign lesions		Malignant lesions		
	Number of cases	Percentage (%)	Type of lesion	Number of cases	Percentage (%)
Sebaceous differentiation	3	20	Basal cell carcinoma	5	62.5
Follicular differentiation	3	20	Squamous cell carcinoma	2	25
Apocrine/ eccrine differentiation	3	20	Malignant melanoma	1	12.5
Miscellaneous lesions	6	40	Miscellaneous lesions	0	0
Total	15	100	Total	8	100

1.6:1 respectively. The maximum number of cases were in age group of 21-40 among males and 41-60 years among females constituting 41.7% and 44.2% respectively.

Non-neoplastic lesions included in the present study were 235 cases, which were predominantly constituted by infectious dermatoses (41.28%) and inflammatory dermatoses (40%) which were in concordance with study done by Singh S *et al.* [1] and Goyal *Net al.* [2]. Among the infectious dermatoses, leprosy constituted majority of cases (91 cases, 38.72%) followed by lupus vulgaris (4 cases) and 2 cases of cutaneous tuberculosis. Goyal *et al.* [2] reported 53.6% of infectious dermatoses out of which leprosy constituted 75.7% of bacterial dermatoses. Similarly Mathur *et al.* [8] showed predominance of leprosy (75%) among the infectious dermatoses followed by cases of cutaneous tuberculosis and fungal and viral infection.

The next most common lesion was inflammatory dermatoses (94 cases, 40%) constituted predominantly by lichen planus (8.51%) followed by cases of psoriasis (3.4%) and dermatitis (3.4%) which were similar to study done by Mathur *et al* [8] and Singh S *et al.* [1].

The third most common dermatoses studied was vesiculo-bullous lesions (11.1%) among which 12 cases were pemphigus vulgaris and constituted the predominant part. This was followed by cases of bullous pemphigoid, pemphigus foliaceus, darrier disease and Hailey-Hailey disease.

Among the non-infectious granulomatous dermatoses studied, there were 2 cases of granuloma annulare and granulomatous cheilitis each and one case of kyrle disease. Out of 9 cases of melanocytic lesions, majority were intradermal nevus. There were one case each of melanocytic nevus and spitz nevus and epidermal nevus. The miscellaneous category includes 3 cases of atrophoderma and one case of lipoid proteinosis.

Among the neoplastic lesions, benign were more common than malignant lesions constituting upto 65.21% of the total neoplastic lesions. These benign lesions further included tumors with sebaceous differentiation (20%), tumors of apocrine/eccrine differentiation (20%) (Figure 4), follicular differentiation (20%) (Figure 5), and miscellaneous tumors (40%). These miscellaneous tumors included were 2 cases each of keloid (benign fibroblastic differentiation), Milia and Xanthoma. The malignant lesions studied were 5 cases of basal cell carcinoma (BCC) (Figure 6), 2 cases of

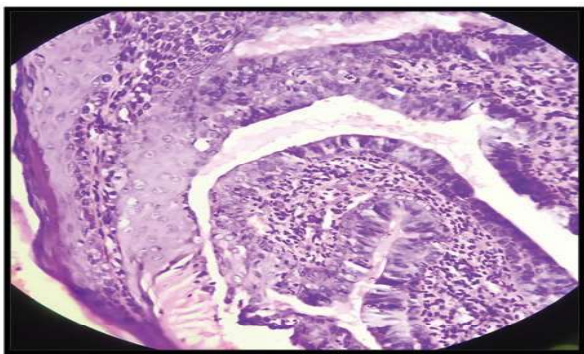


Fig. 4: Microphotograph of Syringocystadenoma papilliferum (H&E, 100X)

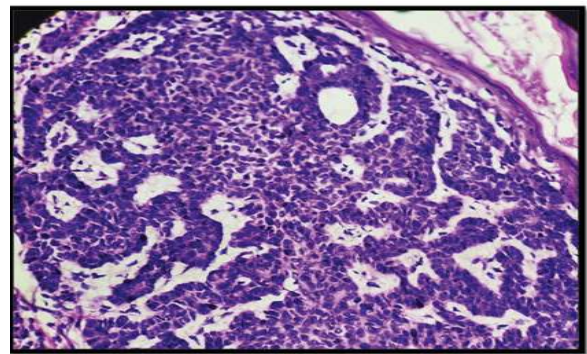


Fig. 6: Microphotograph of basal cell carcinoma (H&E, 100X)



Fig. 5: Microphotograph of Trichoepithelioma (H&E, 100X)

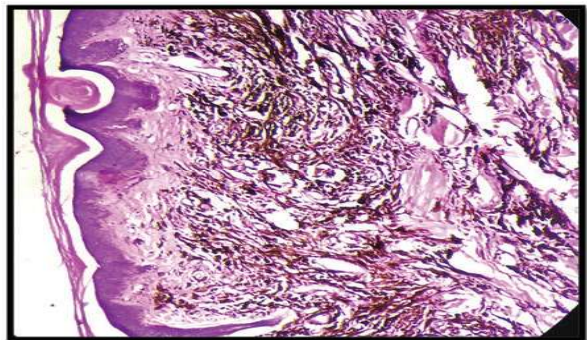


Fig. 7: Microphotograph of Malignant melanoma (H&E, 100X)

squamous cell carcinoma (SCC) and 1 case of malignant melanoma (Figure 7).

The WHO manual on classification of skin tumors states that keratinocytic tumors constitute upto 90% of all skin tumors with BCC cases upto 70% [10]. Similarly in our study we noted predominance of keratinocytic tumors constituting 87.5% of all malignant lesions out of which 62.5% of cases were of BCC. This was in concordance to study done by Singh S *et al.* [1] and Azad S *et al.* [5] who also demonstrated a predominance of keratinocytic tumors. Singh S *et al.* [1] and Azad S *et al.* [5] showed that SCC cases were more than BCC in their studies which was different from the present study. However, various studies done among Caucasians showed a clear cut increase of the BCC cases than SCC. This could be explained by exposure of the individuals to predisposing conditions like sunlight [5].

Malignant melanoma, a disease common to whites and people living at high altitudes is less frequently seen than BCC and SCC. Still, it is very aggressive and fatal due to its capacity for early hematogenous and lymphatic metastasis [5]. In the present study the malignant melanoma constituted 12.5% of cases, which was in concordance with study of Azad *et al.* [5]. Apart from these tumours, adnexal carcinomas, hematolymphoid tumors, sarcomas of cutaneous origin are also encountered which are very rare [5].

### Conclusion

Dermatological lesions are the cutaneous manifestations of exposure to both intrinsic and extrinsic environmental agents. Various lesions have been reported ranging from non-specific inflammatory dermatoses to infective dermatoses and neoplastic lesions. Neoplastic lesions varies from benign to malignant, wherein the incidence of these are poorly documented in the literature. Thus present study was undertaken to elaborate the histopathological spectrum of lesions in dermal punch biopsy specimens and to further emphasize on the neoplastic lesions.

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