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Histopathological Spectrum of Pigmented Skin Lesions in a Tertiary Care Centre of Nepal

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ABSTRACT

Introduction

Pigmented skin lesions are defined as altered pigmentation of the skin as well as mucous membrane which can present as flat or raised growth and can be blue, brown, black or grey in color. The main aim of the study was to see the histopathological spectrum of pigmented skin disease and compare the clinical and histopathological diagnoses.

Methods

It is observational cross-sectional study conducted in the Department of Pathology of Gandaki Medical College and Teaching hospital from January 2022 to December 2022 and 80 cases were included.

Results

Age of the patient ranged from seven to 89 years and mean ± SD was 49.55 ± 21.73 years. There were 34 (42.6%) males and 46 (57.4%) females with a female: male ratio 1.3:1. The most common site of distribution of pigmented lesions of the skin were face in 44(55%) followed by trunk in 15(18.7%), extremities in 13(16.2%), scalp in 7(8.8%) and genitalia in 1 (1.3%). Histopathological study revealed the most common lesion as melanocytic nevi 14(17%) followed by basal cell carcinoma 11(13.8%), seborrheic keratosis 6(7.6%), Keratoacanthoma 5(6.3%), verrucous epidermal nevus 4(5%) and others cases in few numbers. Clinicopathological agreement was seen in 44 (55%).

Conclusions

Melanocytic nevi were the most common among the pigmented skin lesion. Other causes of pigmented lesions were due to keratinocytic, vascular and reactive changes. Malignant tumors can sometimes mimic benign lesions. Therefore, histopathological examination remains the gold standard in diagnosing these conditions and provide proper guidance for further management of patients.

Keywords: basal cell carcinoma; melanocytic nevus; melanoma; pigmented skin lesions.

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INTRODUCTION

Skin is the outermost protective covering of the body and its color is highly variable due to several regulating genes.[1] Disorder of pigmentation are due to abnormal migration of melanocytes from neural crest to the skin at the time of embryogenesis, impairment of melanosome transfer to keratinocytes and alteration of melanin synthesis.[2] Pigmented skin lesions which can be blue, brown or grey in color are due to the melanocytic proliferations and are composed of melanocytes, nevus cells or melanoma cells which may be localized in the epidermis or dermis.[3] A variety of nonmelanocytic lesions also present with pigmentation, which make clinical diagnosis difficult as they can mimic melanocytic lesions including melanoma. Such mimickers include seborrhoeic keratosis, basal cell carcinoma, actinic keratosis and dermatofibrosarcoma protuberans.[4] So, the purpose of this study is to find out the histopathological spectrum of pigmented skin lesions and its correlation with the clinical diagnosis which helps in the proper managements of the patients.

METHODS

This hospital-based cross sectional descriptive study spanning over a period of one year, from January 2022 to December 2022, was carried out at the Department of Pathology of Gandaki Medical College. A total of 80 patients of all age-groups having pigmented skin lesions clinically and/or confirmed by histopathology were included in the study. Pigmented skin lesions were analyzed considering the histologic type, anatomic location, tumor type, along with age and sex. Unsatisfactory biopsies, in cases where definite histopathological diagnosis could not be given, post chemotherapy and radiotherapy cutaneous lesions were excluded from the study. For histopathological examination, Hematoxylin and Eosin stain formalin fixed paraffin embedded tissue sections were examined. All the cases slides were evaluated by consultant pathologist. Ethical clearance was obtained from Institutional Review Committee, Gandaki Medical College (Ref no: 235/078/079). The collected data was entered in Microsoft Office Excel 2016 software. Data analysis was done by using SPSS (Statistical Package for Social Sciences) 17.0 version.

RESULTS

A total of 80 cases of histologically diagnosed pigmented skin lesion were reviewed during the study period. The age of the patient ranged from 07 to 89 years and mean ± SD was 49.55±21.73 years. There were 34 (42.6%) males and 46 (57.4%) females with a female: male ratio 1.3:1. A maximum number of cases attending hospital with skin lesion were seen in the age group 61-80 years (35%) followed by 41-60 years (21%) (Table 1).

Table 1. Age and Sex distribution of the participants. (n=80)

Age	Male n (%)	Female n (%)
0-20	4(5.0)	5(6.2)
21-40	7(8.8)	12(15.0)
41-60	8(10.0)	13(16.2)
61-80	15 (18.8)	13(16.2)
>80	0	3(3.8)

The most common site of distribution of pigmented lesions of the skin were face in 44(55%) followed by trunk in 15(18.7%), extremities in 13(16.2%), scalp in 7(8.8%) and genitalia in 1 (1.3%) (Table2).

Table 2. Site of the pigmented lesion. (n=80)

Sites	Frequency (%)
Extremities	13(16.2)
Face	44(55)
Trunk	15(18.7)
Scalp	7(8.8)
Genitalia	1(1.3)

In this study the most common clinical diagnosis was basal cell carcinoma in 21(26.3%) followed by melanocytic nevi in 12(15%), Seborrheic keratosis in 8(10%) and lichen planus pigmentosus 5(6.2%) and keratoacanthoma in

5(6.2%) cases. Squamous cell carcinoma was also the clinical diagnosis in the 4(5%) cases.

Table 3. Clinical diagnosis. (n=80)	
Diagnosis	**Frequency (%)**
Basal cell Carcinoma	21(26.3)
Nevus	12(15)
Seborrheic keratosis	8(10)
Lichen Planus Pigmentosus (LPP)	5(6.2)
Keratoacanthoma	5(6.2)
Ashy Dermatosis	4(5)
Squamous Cell Carcinoma	4(5)
Nevus Lipomatous Superficialis	3(3.7)
Actinic Chelitis	2(2.5)
Melanoma	2(2.5)
Pyogenic Granuloma	2(2.5)
Others*	11(15)

*angiokeratoma (1), Bowenoid papulosis (1), Cutaneous horn (1), folliculoma (1), freckles (1), lentigomaligna (1), morphea (1), Papilloma (1), prurigo nodularis (1), sebaceous cyst (1), spiradenoma (1)

However, the present study showed a different histopathological finding in comparison to clinical diagnosis. Histopathological study revealed Melanocytic nevi in 14(17%) cases, Basal cell carcinoma 11(13.8%) cases followed by seborrheic keratosis 6(7.6%) cases, Keratoacanthoma 5(6.3%) cases, verrucous epidermal nevus 4(5%) cases and others cases in few numbers. Among all the skin biopsies received 19 (23%) cases were malignant comprising of Basal cell carcinoma 11(13.8%), Keratoacanthoma 5(6.3%), squamous cell carcinoma 2(2.5%) and verrucous carcinoma 1(1.3%).

DISCUSSION

Pigmented lesions of the skin are one of the most frequent reasons behind dermatological consultation as they are of cosmetic as well as diagnostic concern.[1,5] In this present study the age of the patient visiting hospital with pigmented skin lesions ranged from 7 to 89 years and mean ±SD was 49.55±21.73 which

Table 4. Histopathological diagnosis of pigmented skin lesion. (n=80)	
Histopathological diagnosis	**Frequency (%)**
Melanocytic Lesion	14 (17.5%)
Nevi	14 (17%)
Keratinocytic lesion	41 (51.25%)
Basal cell carcinoma (BCC)	11(13.8%)
Seborrheic keratosis	6(7.6%)
Keratoacanthoma	5(6.3%)
Verrucous epidermal nevus	4(5.0)
Nevus lipomatous superficialis	3(3.8%)
Cutaneous horn	3(3.8%)
Pseudoepitheliomatous hyperplasia	2 (2.5%)
Squamous cell carcinoma (SCC)	2 (2.5%)
Verruca Vulgaris	2 (2.5%)
Verrucous Carcinoma	1(1.3%)
Freckles	1(1.3%)
Condyloma acuminatum	1(1.3%)
Others	25 (31.25%)
Ashy dermatosis	9 (11.3%)
Pyogenic granuloma	3(3.8%)
Lichen Planus Pigmentosus (LPP)	3(3.8%)
Hemangioma	1(1.3%)
Morphea	1(1.3%)
Chondroid Syringoma	1(1.3%)
Sebaceous trichofolliculoma	1(1.3%)
Eccrine poroma	1(1.3%)
Trichoepithelioma	1(1.3%)
Eccrine spiradenoma	1(1.3%)
Angiokeratoma	1(1.3%)
Actinic Chelitis	1(1.3%)
Folliculitis	1(1.3%)

was similar to findings of Laisharam et al. and Goyal et al.[6,3] There was increased presentation of pigmented skin lesion in female 46(57.4%) as compared to male 34(42.6%) with F:M ratio 1.3:1 which is similar to the study done by Bohra I et al.[7] Abhishek Singh et al.[8] Suvernakar et al.[4] Laishram R et al.[6] and Leung K et al.[9] However, in other studies done by Goyal et al.[3] male and female were roughly equal. The reason behind increased incidence in female can be attributed to the behaviour difference between male and female patient in seeking medical help. Face

was the most common site of skin lesion in our studies which is similar to the study done by Laishram et al.[6] and Bohra et al.[7] However, in the study done by Goyal et al.[3] extremities were the most common site followed by face. The reason behind the difference in the site of occurrence in our study and Goyal et al.[3] maybe the landscape as we did the study in the valley and hilly area and the other study was conducted in the plain land. Present study showed melanocytic nevi as the most common histopathological diagnosis accounting 14 cases (17.5%). Similarly in other studies by Laishram et al.[6] Dowerah et al.[10] and Goyal et al.[3] nevi were common but with relatively higher 74.4% ,60% and 25.6% respectively. In a study performed by Bohra et al.[7], it was concluded that predilection of nevi was highest on the face which is similar to this study. Melanocytic nevi are benign neoplastic proliferation of melanocytes which can be of junctional, compound and intradermal type.[11] In the present study among the melanocytic pigmented lesions, we noted maximum number of intradermal naevi followed by compound nevi and junctional melanocytic nevus that was similar to study by Prasad et al.[12], and Shoko et al.[11], and Singh et al.[8] In present study, basal cell carcinoma (BCC) contributed most common malignancy which comprises 11(13.8%) cases which is concordant to the study done by Adhikari et al.[13] and with other studies from Asia and from Caucasian populations.[14] All the lesions were confined to head and neck region which is similar to others study. BCC is most frequent form of skin cancer primarily occurring in the sun exposed area due to UV light as these ray act by inducing DNA mutations, leading to the tumor formation.[8]BCC was seen in the age group between 6th-9th decade of life with female predominance which is similar to the study done by Abhishek Singh et al.[8]In study done by Leishram et al.[6] Prasad et al.[12] and Parvathi et al.[15] BCC was the most common tumor. In the present study, seborrheic keratosis was seen in 6(7.6%) cases while it comprised 6% and 13% cases respectively in studies done by Laishram et al.[6] and Dowerah et al.[10] Lichenoid tissue reactions including Ashy dermatosis (AD), lichen planus pigmentosus (LPP) and lichen simplex chronicus comprised 12(15%) cases. Interface dermatitis in these conditions often result in loss of melanin from basal cells which are ingested by melanophages and result in pigmentary lesions.[16] Ashy dermatosis (AD) and lichen planus pigmentosus (LPP) are both macular pigmentation of uncertain aetiology, predominantly found in patients with skin phototypes III-IV.[17] Study done by Kumara singhe et al. has concluded that AD and LPP do have distinct clinical presentations but share similar features on histopathology, mainly interface dermatitis and pigmentary incontinence.[18] In the present study, although there were two clinically suspected case of malignant melanoma it histologically turned out as Eccrine poroma and Nevi.Vascular lesions can also present as pigmented lesions. Present study showed three (3.8%) cases of pyogenic granuloma and one case each of angiokeratoma and hemangioma. Angiokeratoma and hemangioma were also described by Bohra et al.[7] in their study. Clinicopathological agreement was observed in 44 (55%) cases in present study. In studies done by Dowerah et al.[10] and Mruthyunjayappa et al.[1] clinicopathological agreement could be seen in 44% and 95% cases respectively. Integrated approach of pathologist and the clinician can, not only help in the diagnosis but also can influence patient management too.[19]

CONCLUSIONS

Pigmented lesions of the skin are one of the most frequent reasons behind dermatological consultation which can be of melanocytic, keratinocytic, vascular and reactive origin. Although melanocytic nevi were the most common pigmented lesions, small minority can be malignant and can mimic like benign tumors. Hence, histopathological examination remains the gold standard in diagnosing these conditions and guiding ap-

propriate management of the patient. It differentiates melanocytic from nonmelanocytic tumors and also helps in the subtyping and grading of tumors.

Limitations

This is a hospital-based study. So, the results may not reflect upon entire population. Number of malignant cases was few. Larger sample size may give better results.

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