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A CLINICO-PATHOLOGICAL STUDY OF PIGMENTED CUTANEOUS LESIONS

Pathology

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ABSTRACT

Introduction: Pigmented cutaneous lesions can be defined as altered pigmentation of the skin and mucous membranes that have a flat or raised growth, which is blue, brown, black, or grey in colour. The microscopic examination of skin tissue is probably the single most important diagnostic ancillary technique in the management of patients with skin disorders. The objectives of the present study were to know the distribution of these pigmented lesions with reference to age, gender and site of the lesions along with clinicopathological correlation.

Materials and Methods: The present study is a prospective study conducted in Department of Pathology at S.G.T medical college and university, Gurugram over a period of 1year from June 2019 to May 2020. A total of 24 cases of pigmented skin lesions were included in the study. Clinical history like age, duration of the lesion, site of the lesion, significant medical history were taken. Biopsies were sent for HPE. Histopathological findings were correlated with clinical features.

Results: Mean age at presentation was 23.67 years. The most frequent age group affected was 21-40 (13 cases – 54.16 %) and most of them were females with M: F Ratio of 1:2. Face was the most commonly affected site. On histopathological examination of cases, 6 were benign melanocytic lesions; 5 were classical Lichen planus; 4 cases of pigmented BCC; 3 cases of Seborrhic keratosis, 2 cases of DLE, 2 cases of pigment incontinence and 1 case of Prurigo nodularis. Malignant melanoma consisted of only 1 case. Out of 24 cases, 20 (83.3%) cases were consistent with both clinical and histopathological diagnosis, while 4 (16.6%) cases were inconsistent ($p<0.001$).

Conclusion: Although usually straightforward, the assessment of melanocytic lesions can occasionally be exceedingly difficult. Specific diagnosis of hyperpigmented lesions is based on possible histopathologic findings and interpretation in context of its clinical presentation. It is essential to distinguish lesions on microscopy, as they have got different treatment modalities and prognosis too differs.

KEYWORDS

Benign Melanocytic Nevi; Cutaneous Melanocytic; Histopathology; Melanoma; Pigmented Lesion.

Introduction

Pigmented cutaneous lesions can be defined as altered pigmentation of the skin that have a flat or raised growth, which is blue, brown, black, or grey in colour. It depends on many factors like age, sex, genetics, and environment. Most of them are benign and are called Nevus, while a majority of them have malignant transformation and are called as melanoma [1]. These lesions are a common component of the everyday workload for a surgical pathologist and diagnostic challenge for the pathologist is to differentiate melanocytic lesions from their mimicker's non melanocytic lesions. Pigmented lesions are important clinically as they might be melanoma or its precursors apart from cosmetic issues [2]. The microscopic examination of skin tissue is probably the single most important diagnostic ancillary technique in the management of patients with skin disorders. Hence, a careful histopathological interpretation by the pathologist is needed in the diagnosis and management of these lesions.

Cutaneous non melanocytic lesions include pigmented seborrheic keratosis, pigmented basal cell carcinoma (PBCC), pigmented actinic keratosis, Naevus sebaceous and rare lesions like follicular cyst [3]. The histology based treatment principles may be helpful for establishing a standardized treatment algorithm for hyperpigmented skin lesions [4]. Disorders of pigmentation can result from migration abnormalities of melanocytes from neural crest to the skin during embryogenesis, impairment of melanosome transfer to keratinocytes and alteration in melanin synthesis [5]. Hyperpigmentation is not just a cosmetic deformity causing psychological upset due to disfigurement, but can also reflect underlying organ dysfunction [6]. The present study was undertaken to know the distribution of these pigmented lesions with reference to age, gender and site of the lesions along with clinicopathological correlation.

Objectives of the study

1. To know the clinical and histopathological patterns of hyperpigmented lesions of skin.
2. To determine the age and sex distribution in various hyperpigmented skin diseases.

Materials and Methods

The present study is a prospective study conducted in Department of Pathology at S.G.T medical college and university, Gurugram over a period of 1year from June 2019 to May 2020. A total of 24 cases of pigmented skin lesions were included in the study. Materials for this study included patients who were clinically diagnosed with pigmented skin lesions in all age groups from the department of dermatology and surgery at our hospital. Clinical history like age, duration of the lesion, site of the lesion, significant medical history were taken and entered in the proforma. Punch biopsies and excision biopsies were sent to the pathology department for HPE. Biopsy specimens were fixed in 10% buffered formalin. Gross examination of the skin biopsy, with the three- dimensional size and shape of the skin biopsy, was assessed and noted. The entire skin biopsy was submitted for routine processing and embedded in paraffin wax. 3-5 mm thick paraffin sections of the skin biopsy were stained with H & E. A detailed microscopic examination of the stained slides was carried out and the lesions were given a histopathological diagnosis. Minimum criteria for the histopathological diagnosis of different entities were based on widely accepted standard criteria. Histopathological findings were correlated with clinical features.

Inclusion Criteria

Non-neoplastic and neoplastic pigmented skin lesions in various age groups that were received in the department of pathology were included in the study.

Exclusion Criteria

1. All hypopigmented cutaneous lesions and inadequate biopsies.
2. Vascular lesions, Inflammatory lesions, cutaneous infections, vitamin and mineral deficiencies.
3. Post chemotherapy, post-radiotherapy, and postinflammatory

pigmentation.

Results

A total of 24 cases of pigmented cutaneous lesions constituted the study group, during the period of 2019-2020, with the age of patients ranging from 09 to 92 years. Mean age at presentation was 23.67 years and median age of 34. The most frequent age group affected was 21-40 (13 cases – 54.16 %) and most of them were females (16 cases – 66.6%). M: F Ratio in our study was 1:2 (Table 1 and 2).

Table 1: Distribution of pigmented melanocytic and non melanocytic lesions in males and females.

Lesions		No. of cases (n=24) %	MALES	FEMALES
Melanocytic lesions	Benign melanocytic nevi	6 (25)	2 (25)	4 (25)
	Malignant melanoma	1 (4.16)	0 (0)	1 (6.25)
Non-melanocytic lesions	Lichen planus	5 (20.83)	2 (25)	3 (18.75)
	Pigmented basal cell carcinoma	4 (16.67)	1 (12.5)	3 (18.75)
	Seborrheic keratosis	3 (12.5)	0 (0)	3 (18.75)
	Discoid lupus erythematous	2 (8.34)	1 (12.5)	1 (6.25)
	Pigment incontinence	2 (8.34)	1 (12.5)	1 (6.25)
	Prurigo nodularis	1 (4.16)	1 (12.5)	0 (0)
Total		24 (100)	8 (33.3)	16 (66.6)

Table 2: Distribution of pigmented lesions among different age groups.

Age (Years)	Benign melanocytic nevi (n=6)	Malignant melanoma (n=1)	Lichen planus (n=5)	Pigmented basal cell carcinoma (n=4)	Seborrheic keratosis (n=3)	Discoid lupus erythematous (n=2)	Pigment incontinence (n=2)	Prurigo nodularis (n=1)	TOTAL (n=24)
0-20	01	0	0	0	0	0	0	0	01
21-40	03	01	2	2	2	1	1	1	13
41-60	01	0	1	1	1	1	1	0	06
61-80	01	0	1	1	0	0	0	0	03
81-100	0	0	1	0	0	0	0	0	01

Face was the most commonly affected site, 09 cases (37.5%) followed by extremities 6 cases (25%) (Table 3).

Table 3: Distribution of melanocytic lesions on various sites: (n=24).

SITE	Benign melanocytic nevi (n=6)	Malignant melanoma (n=1)	Lichen planus (n=5)	Pigmented basal cell carcinoma (n=4)	Seborrheic keratosis (n=3)	Discoid lupus erythematous (n=2)	Pigment incontinence (n=2)	Prurigo nodularis (n=1)	TOTAL (n=24)
FACE	04	01	01	02	-	-	-	01	09
SCALP	01	-	01	-	01	-	01	-	04
TRUNK	-	-	01	-	02	01	01	-	05
EXTREMITIES	01	-	02	02	-	01	-	-	06

Other sites included scalp and trunk. Among the various lesions on face, benign melanocytic nevi 4 cases (16.67%) (Figure 1A, 1B) was more common followed by pigmented basal cell carcinoma 2 cases (8.34%) (Figure 1C).

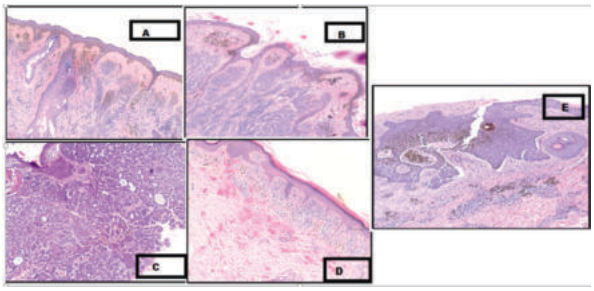

Figure 1 A: Intradermal Nevus, B: Compound Nevus, C: Pigmented Basal cell carcinoma, D: Lichen Planus, E: Seborrhic Keratosis

On histopathological examination of 24 cases, 6 were benign melanocytic lesions; 5 were classical Lichen planus (Figure 1 D); 4 cases of pigmented BCC; 3 cases of Seborrhic keratosis (Figure 1 E), 2 cases of DLE, 2 cases of pigment incontinence and 1 case of Prurigo nodularis as shown in Table 1.

Malignant melanoma consisted of only 1 case. Out of 24 cases, 20 (83.3%) cases were consistent with both clinical and histopathological diagnosis, while 4 (16.6%) cases were inconsistent (Table 4).

Table 4: Clinical and histopathological correlation of pigmented skin lesions.

	Consistent with clinical diagnosis	Inconsistent with clinical diagnosis
Benign melanocytic naevi	6 (100%)	0
Malignant melanoma	1 (100%)	0
Lichen planus	5 (100%)	0
Pigmented basal cell carcinoma	3 (75%)	1 (25%)
Seborrheic keratosis	2 (66.6%)	1 (33.3%)
Discoid lupus erythematous	2 (100%)	0
Pigment incontinence	0	2 (100%)
Prurigo nodularis	1 (100%)	0
Total	20 (83.3%)	4 (16.6%) P value=0.014

The cases which were discordant with clinical diagnosis, were 1 (50%) out of 2 cases of Sebborrheic keratosis and 1 (33.3%) of PBCC and 2 (100%) of Pigment incontinence. ($p<0.014$).

Discussion

In a diagnostic evaluation of pigmented cutaneous lesions, characterization of morphology, pattern, extent, and distribution of the lesion are needed to make an accurate clinical diagnosis and to confirm the diagnosis, a skin biopsy is required. This study was based on a comprehensive histopathological analysis of a convenience sample composed of 24 pigmented cutaneous lesions, which included 7 cutaneous melanocytic lesions (29.16%), and 17 cutaneous non melanocytic lesions (70.84%). In clinical practice, few non melanocytic lesions mimic the melanocytic lesions; hence punch biopsy with histopathological correlation is important to know the correct diagnosis. In a study conducted by Crasta et al 30% of the clinically diagnosed melanoma cases, none of them turned out to be melanoma in histopathology evaluation [2].

In our study females were more commonly involved with male: female ratio of 1:2 and most commonly involved age group was 21-40 years. The findings were similar to Mackie R et al, Rajesh et al and dissimilar with Youl PH et al [1, 7, 8]. The most common lesion was benign melanocytic nevi 6 (25%), followed by lichen planus 5 (20.83%). In the present study, among females the most common lesion was benign melanocytic nevi 4 (25%) which was similar to observations of Schafer et al [9]. Nevi are benign melanocytic tumours that have cosmetic significance and may act as stimulant or precursor to melanoma [10]. In males; nevi and lichen planus each were most common lesion; 2 cases each (25%) which was similar to Rubegni et al, Rajesh et al [1, 11]. Majority of these lesions were situated on the face 9 (37.5%) and were similar to study by Rajesh et al [1].

It was observed that malignant melanoma was seen in 1 case and in

female, which was comparable to other studies but dissimilar to the observations of KORA survey [9]. This might be due to the less number of cases in our study. Malignant melanoma is an aggressive tumour, its incidence in India is uncommon when compared to the West [12]. A study conducted by WHO reported that the incidence of malignant melanoma is rising rapidly when compared to other cancers [13]. In our study, melanoma was observed on face which substantiates the fact that melanoma occurs mostly on sun exposed parts of the body. A study from Japan however showed melanoma in their region was mostly observed on soles of lower limbs [14]. The highest peak of incidence is seen during fifth to sixth decade [15].

In our study, out of 24 pigmented lesions, 20 (83.3%) showed clinino-pathological correlation and 4 (16.6%) were inconsistent. This highlights the importance of histopathology in arriving at a conclusive diagnosis. These observations were similar to that of Suvernakar et al where in their study 84% showed positive correlation and 16% were negative correlation with the diagnosis [16]. In our study of 6 benign melanocytic neavi, 100 % showed clinical correlation. Pigmented seborrheic keratosis, may present clinically as a brownish black lesion occurring on sun exposed parts so they mimic a melanocytic lesion [17]. Among the clinical cases that were discordant with histopathological diagnosis 1 (50%) out of 2 cases of seborrheic keratosis were inconsistent, 1 (33.3%) out of 3 PBCC were inconsistent and 2 (100%) pigment incontinence showed discordance, which was significant (p value < 0.014). This discordance emphasises the importance of histopathology for complete diagnosis. In our study, we found that seborrheic keratosis and PBCC were most common non melanocytic lesions mimicking melanocytic lesions. These observations were similar to those in study by Crasta et al, in which the above two lesions were the common mimickers [2].

The limitation of the study was the small size of the sample taken into the study and not all pigmented lesions presented to the out-patient department are sampled. Only those with concern for the dermatologist with suspicion of diagnosis were biopsied, therefore not a representative of all pigmented lesions. Therefore, diagnosis of these is based on clinicopathological correlation. It is essential to distinguish lesions on microscopy, as they have got different treatment modalities and prognosis too differs [18].

Conclusion

To conclude, Pigmented cutaneous lesions consist of melanocytic and non melanocytic lesions. Most common presented pigmented lesion was benign melanocytic nevi and most common non melanocytic lesions was Lichen planus. The most common mimickers of melanocytic lesion are pigmented basal cell carcinoma and pigmented seborrheic keratosis hence careful pathological evaluation is a must. It is important to distinguish between epidermal and dermal hyperpigmented lesions; because epidermal pigmentation responds better to treatment than dermal pigmentation which is resistant to treatment. The differential diagnosis can be narrowed down by focusing on the key histopathological features of various lesions. Although usually straightforward, the assessment of melanocytic lesions can occasionally be exceedingly difficult. Specific diagnosis of hyperpigmented lesions is based on possible histopathologic findings and interpretation in context of its clinical presentation.

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