

## Original Research Article

# A clinico-pathological study of pigmented cutaneous lesions: a one-year prospective study in a tertiary care hospital

M. Parvathi<sup>1</sup>, Chowdari Balaji<sup>2</sup>, G. Divya Lekha<sup>2</sup>, S. Satish Kumar<sup>2</sup>, A. Bhagya Lakshmi<sup>2\*</sup>

<sup>1</sup>Department of Dermatology, <sup>2</sup>Department of Pathology, Andhra Medical College, Visakhapatnam, Andhra Pradesh, India

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### \*Correspondence:

Dr. A. Bhagya Lakshmi,

E-mail: [dr.a.bhagalaxmi@gmail.com](mailto:dr.a.bhagalaxmi@gmail.com)

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## ABSTRACT

**Background:** Pigmented lesions are group of lesions which have melanocytic proliferation with very common clinical presentation. Diagnosing these pigmented lesions and differentiating cutaneous melanocytic lesions from non-melanocytic lesions poses a great challenge for the pathologist.

**Methods:** A Prospective study was conducted for one year from June 2016 to June 2017 sent to the Department of Pathology, Andhra Medical College, Visakhapatnam, a tertiary care centre in southern India consisting of 44 pigmented lesions. Specimens were formalin fixed and the tissue was adequately processed for histopathological examination. The sections were stained routinely with hematoxylin and eosin stain and examined under light microscopy.

**Results:** Out of 44 cases, 24 cases were cutaneous melanocytic lesions which include benign naevi 22 (50%) and 2 (4.6%) malignant melanoma cases. The other 20 cases were cutaneous non melanocytic lesions which include 5 (11.4%) pigmented seborrheic keratosis, 6 (13.7%) pigmented basal cell carcinoma, 1 (2.3%) pigmented actinic keratosis and 8 (18%) cases of naevus sebaceous. Most common effected age group was <21 years (31.81%), male: female ratio is 1:2 and most common site involved was face 29 cases (65.9%). Most common pigmented lesions were benign melanocytic nevi 22 (50%) followed by naevus sebaceous 8 (18%) cases. 32 (72.71%) cases were consistent with both clinico-histopathological correlation.

**Conclusions:** Benign melanocytic nevi are most common lesions obtained, seborrheic keratosis and pigmented basal cell carcinoma were most common mimickers of melanocytic lesions, hence a careful histopathological diagnosis is important.

**Keywords:** Benign melanocytic, Cutaneous melanocytic, Pigmented lesion

## INTRODUCTION

A pigmented lesion is defined as a flat or raised growth which is brown, blue, gray or black in color and depends on factors like age, sex, genetics and environment.<sup>1</sup> Majority of these lesions are benign and are called as nevi, while minority of them have malignant transformation which is referred as melanoma.<sup>1</sup> A diagnostic challenge to the pathologist is in

differentiating melanocytic lesions from their mimicker's non melanocytic lesions. A careful histopathological evaluation helps in making the correct diagnosis of these lesions. Nevi lesions are important clinically as they might be melanoma or its precursors apart from cosmetic issues.

A variety of nonmelanocytic lesions have pigmented variants, which defy clinical recognition and can mimic

melanocytic lesions.<sup>2</sup> Cutaneous non melanocytic lesions include pigmented seborrheic keratosis, pigmented basal cell carcinoma (PBCC), pigmented actinic keratosis, NAEVUS sebaceous and rarely lesions like follicular cyst.<sup>3</sup> One must be aware that few congenital pigmented lesions reduce in size as the age increases, and all pigmented lesions should not be considered as malignant lesions.<sup>4</sup> The study was undertaken to know the distribution of these pigmented lesions with reference to age, sex, site, histopathological diagnosis with clinicopathological correlation.

**METHODS**

The present study is a prospective study done for one year in Department of Pathology, Andhra Medical College, Visakhapatnam from June 2016 to June 2017. A total of 44 cases were included in this study. Punch biopsy of 0.4mm was done for smaller lesions while, larger lesions were excised. All the biopsies and resected specimens received in our department were properly

labelled, numbered and immediately fixed in 10% formalin for 24 hours. Multiple sections were studied after staining with Haematoxylin and Eosin and were evaluated accordingly.

The clinical information and the relevant investigations of the patients during this period were obtained from the histopathological requisition forms, clinical case sheets and other medical records. Inflammatory lesions, cutaneous infections and other neoplastic conditions were excluded from the study. A detailed microscopic examination of the stained slides was carried out and the lesions were given a histopathological diagnosis.

**RESULTS**

In the present study, out of 44 cases obtained 13 (29.5%) cases were males, 31 cases (70.5%) were females, with male: female ratio of 1:2 (Table 1, 2). Most common involved site was face 29 (65.9%) cases followed scalp 9 (20.5%) (Table 3).

**Table 1: Distribution of pigmented melanocytic and non melanocytic lesions.**

Lesions	No of cases (n=44) (%)	
Melanocytic lesions	Benign melanocytic NAEVI	22 (50)
	Malignant melanoma	2 (4.6)
Non melanocytic lesions	Nevus sebaceous	8 (18)
	Pigmented seborrheic keratosis	5 (11.4)
	Pigmented bcc	6 (13.7)
	Pigmented actinic keratosis	1 (2.3)
Total	44 (100)	

**Table 2: Showing distribution of lesions among males (n=13) and females (n=31).**

Lesions	Males (%)	Females (%)
Melanocytic lesions	Benign melanocytic NAEVI	5 (38.5)
	Malignant melanoma	0 (0)
Non melanocytic lesions	Nevus sebaceous	3 (9.7)
	Pigmented seborrheic keratosis	2 (6.5)
	Pigmented bcc	6 (19.4)
	Pigmented actinic keratosis	1 (3.2)
Total	13 (29.5)	31 (70.5)

Among the various lesions on face, benign melanocytic nevi 18 (81.8%) (figure 1,2), was more common followed by pigmented basal cell carcinoma 5 (83.3%) (Figure 3,4).

The age group involved in the study was 9-80 years, with most common effected age group was <21years-14 cases (31.81%). Among this age group<21 years the most common lesion was nevus sebaceous 6 (75%) followed by benign nevi 4 cases (18.2%) (Table 4). Benign melanocytic nevi (50%) was the most common among both sexes. Of the 22 benign nevi, 17 cases (77.3%) were

intradermal nevus, compound nevi were 2 (9.1%), and junctional nevi were 3 (13.6%) cases. Malignant melanoma consisted of only 2 cases (4.6%) (Figure 5,6,7) and both were observed on extremities in females. Among the nonmelanocytic lesions 20 cases, nevus sebaceous consists of 8 (18%) (Figure 8, 9), pigmented seborrheic keratosis 5 (11.4%) (Figure 10, 11), pigmented BCC 6 (13.7%) and pigmented actinic keratosis 1 (2.2%). Out of 44 cases, 32 (72.71%) cases were consistent with both clinical and histopathological diagnosis, while 12 (27.31%) cases were inconsistent (Table 5). Among the clinical cases that were discordant with histopathological

diagnosis 12 (27.31%), 3 (60%) out of 5 cases of seborrheic keratosis were inconsistent, 3 (60%) out of 6 PBCC were inconsistent, 1 (100%) pigmented actinic

keratosis and 5 (22.7%) of 22 benign melanocytic nevi showed discordance.

**Table 3: Distribution of melanocytic lesions on various sites: (n=44).**

Site	Benign melanocytic NAEVI (n=22)	Malignant melanoma (n=2)	Nevus sebaceous (n=8)	Pigmented Seborrheic keratosis (n=5)	Pigmented bcc (n=6)	Pigmented actinic keratosis (n=1)	Total
Face	Total face 18(81.8%)	-	2 (25%)	3 (60%)	5 (83.3%)	1 (100%)	29 (65.9%)
	Eyelids (6)	-	-	-	(2)	-	
	Nose (5)	-	-	-	-	-	
	Ear (0)	-	-	-	(1)	-	
	Other areas of face (7)	-	-	-	(2)	(3)	(1)
Scalp	1 (4.5%)	-	6 (75%)	1 (20%)	1 (16.7%)	-	9 (20.5%)
Trunk	-	-	-	1 (20%)	-	-	1 (2.2%)
Extremities	3 (6.8%)	2 (100%)	-	-	-	-	5 (11.4%)

**Table 4: Distribution of pigmented lesions among different age groups.**

Age (yrs.)	Benign melanocytic NAEVI (n=22) (%)	Malignant melanoma (n=2) (%)	Nevus sebaceous (n=8) (%)	Pigmented seborrheic keratosis (n=5) (%)	Pigmented bcc (n=6) (%)	Pigmented actinic keratosis (n=1) (%)	Total (n=44) (%)
< 21	4 (18.2)	1 (50)	6 (75)	1 (20)	2 (33.3)	-	14 (31.81)
21-30	3 (13.7)	-	1 (12.5)	-	-	-	4 (9.09)
31-40	9 (40.9)	-	-	1 (20)	1 (16.7)	-	11 (25)
41-50	5 (22.7)	-	1 (12.5)	-	1 (16.7)	-	7 (15.9)
51-60	1 (4.5)	1 (50)	-	2 (40)	2 (33.3)	1(100)	7 (15.9)
61-70	-	-	-	-	-	-	-
> 70	-	-	-	1 (20)	-	-	1 (2.3)

**Table 5: Clinical and histopathological correlation of pigmented skin lesions.**

Lesions	No of cases	Histopathological diagnosis	
		Consistent with clinical diagnosis	Inconsistent with clinical diagnosis
Melanocytic lesion	Benign melanocytic NAEVI	17 (77.3%)	5 (22.7%) Papilloma (5)
	Malignant melanoma	2 (100%)	-
	Nevus sebaceous	8 (100%)	-
Non melanocytic lesion	Pigmented seborrheic keratosis	2 (40%)	3 (60%), PBCC (1), Nevus (1), Nevus sebaceous (1)
	Pigmented bcc	3 (50%)	3 (50%) Nevus (3)
	Pigmented actinic keratosis	1	1 (100%) Nevus (1)
Total	44	32 (72.7%)	12 (27.3%)

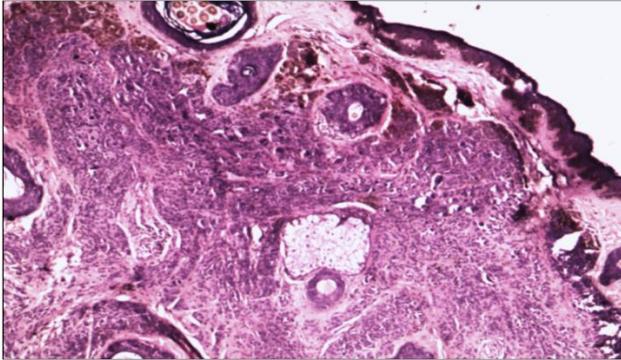
**DISCUSSION**

In our study, a total number of 44 pigmented cutaneous lesions were evaluated which included cutaneous melanocytic lesions 24 (54.5%), and cutaneous non melanocytic lesions 20 (45.5%) (Table 1). In clinical practice, few non melanocytic lesions mimic the melanocytic lesions; hence punch biopsy of these lesions

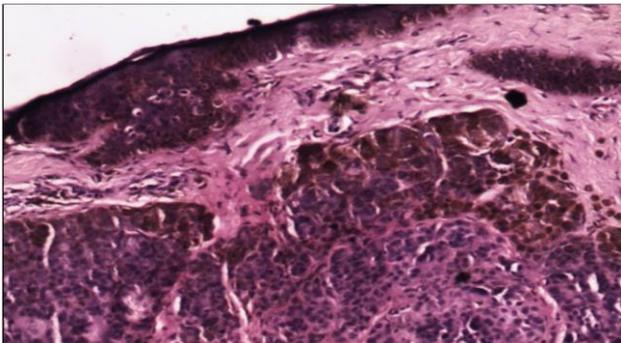
with histopathological correlation is important to know the correct diagnosis. In a study conducted by Crasta et al 30% of the clinically diagnosed melanoma cases, none of them turned out to be melanoma in histopathology evaluation.<sup>2</sup>

In our study most commonly involved were females with male: female ratio is 1:2, most commonly involved age

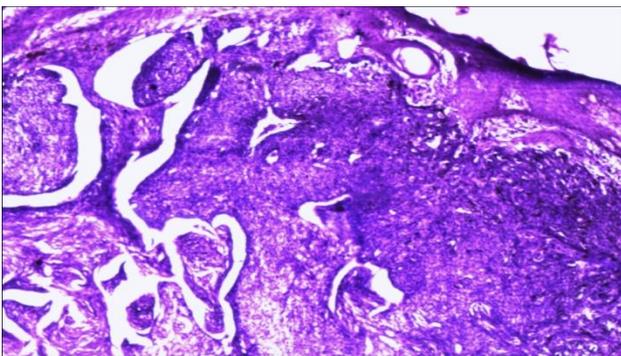
group is <50 years (Table 2, 4), the findings were similar to Mackie R et al, Rajesh et al and dissimilar with Youl PH et al.<sup>1,5,6</sup> The most common lesion was benign melanocytic nevi 22 (50%), followed by nevus sebaceous 8 (18%).



**Figure 1: Photomicrograph of intradermal nevus showing upper dermis containing nests and cords of nevus cells often around pilosebaceous units, with variable pigmentation (H and E; 40x).**



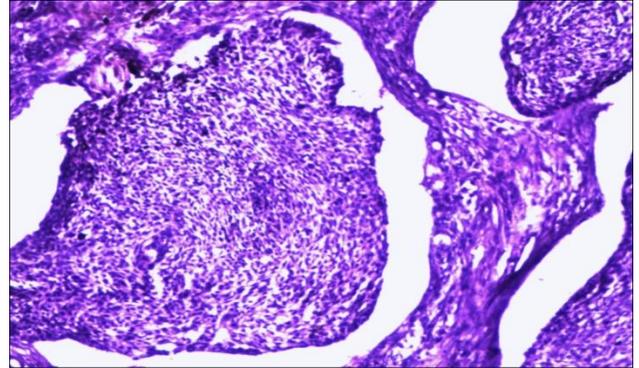
**Figure 2: Photomicrograph of intradermal nevus showing nests of nevus cells with pigmentation in upper dermis. no junctional activity. (H and E; 400X).**



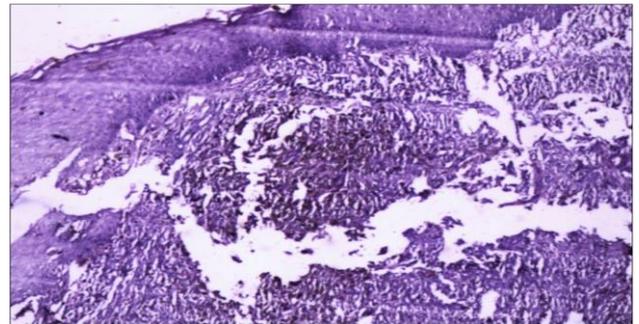
**Figure 3: Photomicrograph of pigmented basal cell carcinoma showing nests of basaloid cells with peripheral palisading. (H and E; 40X).**

In the present study, among females the most common lesion was benign melanocytic nevi 17 (54.8%) which was similar to observations of Schafer et al.<sup>7</sup> Nevi are benign melanocytic tumours that have cosmetic

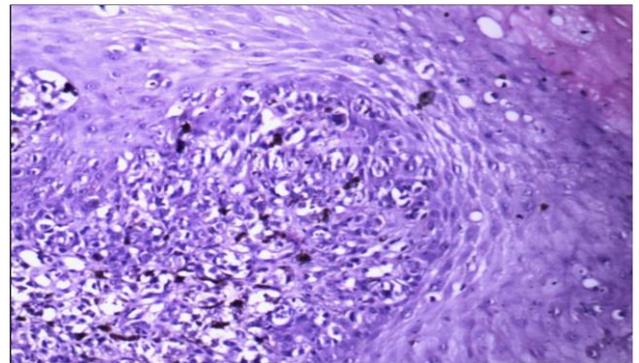
significance and may act as stimulants or precursors to melanoma.<sup>8</sup> In male's nevus sebaceous was most common lesion 5 (38.5%) which was similar to Rubegni et al, Rajesh et al.<sup>1,9</sup> Majority of these lesions were situated on the face 29 (65.9%) and were similar to Rajesh et al.<sup>1</sup>



**Figure 4: Photomicrograph of pigmented basal cell carcinoma. (H and E; 400X).**



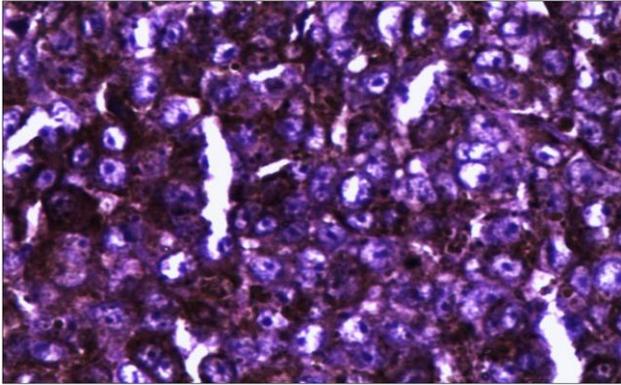
**Figure 5: Photomicrograph of malignant melanoma showing dermal involvement of atypical melanocytes with cytologic atypia and no maturation (H and E; 40X).**



**Figure 6: Photomicrograph of malignant melanoma, tumour showing junctional activity. (H and E; 100X).**

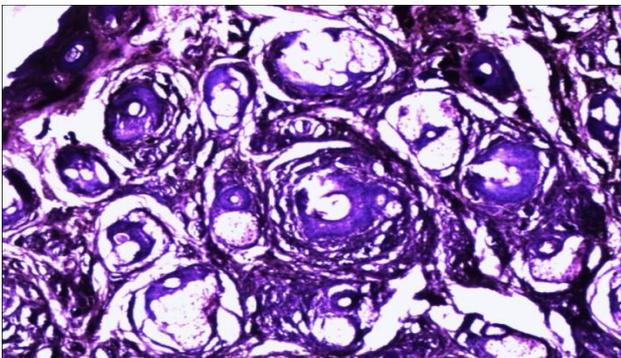
In present study, it was observed that malignant melanoma was seen in 2 cases and both were females, which was comparable to other studies.<sup>1,10</sup> but dissimilar to the observations of KORA survey.<sup>7</sup> This might be due to the less number of cases in our study. Malignant

melanoma is an aggressive tumour, its incidence in India is uncommon when compared to the West.<sup>11</sup>



**Figure 7: Photomicrograph of malignant melanoma showing pleomorphic tumour cells with abundant granular cytoplasm, prominent large nucleoli. (H and E; 400X).**

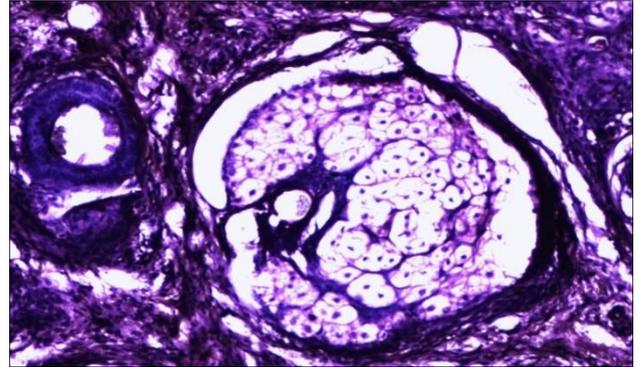
A study conducted by WHO reported that the incidence of malignant melanoma is raising rapidly when compared to other cancers.<sup>12</sup> Both the cases of melanoma were observed on face which substantiates the fact that melanoma occurs mostly on sun exposed parts of the body. A study from Japan however showed melanoma in their region was mostly observed on soles of lower limbs.<sup>13</sup> The highest peak of incidence is seen during fifth to sixth decade as observed in this case series also (Table 4).<sup>14,15</sup>



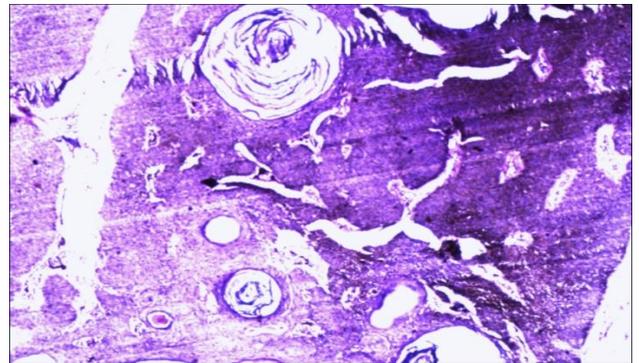
**Figure 8: Photomicrograph of nevus sebaceous showing acanthosis, defective hair follicles and large sebaceous glands (H and E; 40X).**

Out of 20 non melanocytic lesions, the most common lesion was nevus sebaceous 8 (18%) followed by PBCC 6 (13.7%). These lesions are more commonly diagnosed clinically as melanoma. Naevus sebaceous usually appears congenitally or at adolescence where they show rapid growth. The most common site of incidence was scalp similar to our observations.<sup>16</sup> In our study, majority 6 cases (75%) belonged to <20 years age group and all these 6 lesions occurred on scalp 6 (75%) (Table 3). Naevus sebaceous is important clinically as it may lead to

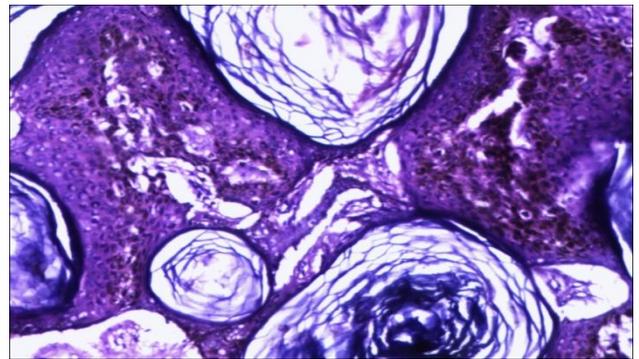
cosmetic deformity, alopecia or malignant transformation.<sup>17</sup>



**Figure 9: Photomicrograph of nevus sebaceous showing large sebaceous glands (H and E; 400X).**



**Figure 10: Photomicrograph of pigmented seborrheic keratosis showing horn cysts. (H and E; 40X).**



**Figure 11: Photomicrograph of pigmented seborrheic keratosis showing horn cysts. (H and E; 100X).**

In the present study of 44 pigmented lesions, 32 (72.7%) showed clinico-pathological correlation and 12 (27.3%) were inconsistent (Table 5). 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.<sup>18</sup> In our study of 22 benign melanocytic nevi, 17 (77.3%) showed clinical correlation and 5 (22.7%) were inconsistent as they were diagnosed histopathologically as papilloma. Out of 5 cases

of Pigmented seborrheic keratosis, 3 (60%) were not consistent as they were clinically diagnosed as PBCC, nevus and nevus sebaceous. Pigmented seborrheic keratosis, may present clinically as a brownish black lesion occurring on sun exposed parts so they mimic a melanocytic lesion.<sup>19</sup> In our study, out of 6 cases of PBCC, 3 cases were clinically diagnosed as naevus. 1 case of pigmented actinic keratosis which was diagnosed on histology was also clinically diagnosed as nevus.

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 Crasta et al, who in their study also observed that the above two lesions were the common mimickers.<sup>2</sup> The limitation of the study was the small size of the sample taken into the study and not all pigmented lesions presented to the outpatient department are sampled. Only those with concern for the dermatologist with suspicion of diagnosis were biopsied, therefore not a representative of all pigmented lesions.

## CONCLUSION

Pigmented cutaneous lesions consist of melanocytic and non melanocytic lesions. Most common presented pigmented lesion is benign melanocytic nevi and most common non melanocytic lesions are nevus sebaceous. Both melanocytic and non melanocytic lesion showed inclination towards females. The most common mimickers of melanocytic lesion are pigmented basal cell carcinoma and pigmented seborrheic keratosis hence careful pathological evaluation is a must.

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