

## HISTOPATHOLOGICAL STUDY OF BENIGN MELANOCYTIC NAEVI

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### ABSTRACT

**Objective:** To study the histological spectrum and types of benign melanocytic naevi and to observe unusual/atypical histological features in these lesions.

**Design:** An observational study with prospective data.

**Place and Duration of Study:** 1st June 1997 to 30th June 1998 at department of Pathology PNS Shifa, Karachi.

**Materials and Methods:** A total of 50 consecutive cases of melanocytic naevi were studied. Skin biopsies were taken by the Dermatologist from the patients with a primary clinical diagnosis of naevus/mole. Relevant data was recorded.

**Results:** Majority of cases 24(48%) were in the third decade with female preponderance (56%). Commonest site was the face (66%). Thirty percent cases showed lentiginous proliferation. Acanthosis was observed in 26% cases and effacement in 12%. Twelve percent cases showed mild patchy infiltration by the inflammatory cells. Foreign body reaction along with inflammation was seen in 8% cases. Nuclear pleomorphism with slight variation in size, shape and staining was observed in 8% of the lesions. No architectural disarray or other atypical histological features fulfilling the criteria of dysplastic naevus or malignancy were observed.

**Conclusion:** Face was the most common site and intradermal naevus was the commonest lesion. Few histological features like lentiginous proliferation, multinucleated naevus cells, foreign body reaction, fatty infiltration, linear fibrosis and acanthosis were observed. However no cytological features for dysplasia or malignancy were present.

**Keywords:** Benign melanocytic naevi, intradermal naevus, naevus cells, skin biopsy

### INTRODUCTION

Benign melanocytic naevi are extremely common and great majority are benign with little if any malignant potential [1]. Melanocytic naevi are important primarily because of their histogenic relation to cutaneous melanoma. Only small proportion progresses to melanoma [2]. A history of clinically premalignant lesion at the site of primary melanoma may be elicited in 18-85% of patients [3]. Therefore it is important to distinguish melanocytic hyperplasia that have an increased risk of developing melanoma

from the one which has little or no increased risk. A broad initial subdivision of melanocytic naevi can be made into those appearing after birth (acquired melanocytic naevi) and those present at birth (congenital melanocytic naevi) [4]. Acquired naevi are much more numerous and appear slowly during childhood and puberty so that in third decade, young adults have an average of 20-30 naevi [5]. The histological classification of melanocytic naevi as junctional, intradermal and compound has been emphasized primarily because of notion that melanoma develops predominantly in naevi that contain junctional features of naevus cells and that pure intradermal naevi are incapable of

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developing melanoma [6]. The purpose of this study was to see the histological spectrum and types of benign melanocytic naevi and to observe unusual/atypical histological features in these lesions.

## MATERIALS AND METHODS

This was a descriptive study conducted from 1<sup>st</sup> June 1997 to 30<sup>th</sup> June 1997 at the Department of Histopathology, PNS Shifa, Karachi, where specimens are received from civil as well as eight other military hospitals. A total of 50 consecutive cases of melanocytic naevi were studied. The skin biopsies were taken by the Dermatologist with the primary diagnosis of naevus/mole. The cases with primary diagnosis of malignancy as well as those reported as re-excisions were excluded from study. Relevant data recorded on the proforma include specimen/biopsy, accession number, name, age, sex, occupation, site, size, shape, surface, outline/border of the lesion, change in the size and color of the lesion (sudden or slow), color of the eyes and hair and any other associated skin disorder. Skin biopsies were received in 10% buffered formalin. Biopsies were processed for paraffin embedding in an automatic tissue processor, Sakura-Japan. After paraffin embedding blocks were made and serial sections of 3-5  $\mu$ m were cut and stained with Haematoxylin and Eosin stain. Slides were finally examined microscopically to look for the routine histopathological features. Additional histological features searched were; any architectural or cytological atypia.

## RESULTS

Fifty cases of acquired melanocytic naevi were studied, having age range from 10 to 60 years with mean age of 27 years. Out of these 24 (48%) were in the third decade (fig. 1) and 28 (56%) cases were females. Majority of the lesions 33 (66%) were removed from the face followed by neck and back, 6 cases each. Three cases were on the forearm and one each on chest and buttock. Study of the histological spectrum of the lesions revealed no junctional activity in 33 (66%) cases while the remaining

lesions showed both junctional and intradermal naevus cells. Thirty percent of the cases also showed increased number of melanocytes in the basal layer of the epidermis (lentiginous proliferation). Acanthosis (fig. 2) was observed in 26% cases while 12% cases showed epidermal effacement (table). Twelve percent cases showed mild patchy infiltration by the inflammatory cells. The inflammatory cells were found among the naevus cells in the upper dermis, in the periadnexal and perivascular areas. Inflammation along with foreign body reaction was seen in 8% cases. In 92% cases naevus cells were arranged both as nests and as single cells. Only nests of naevus cells were seen in 4% cases while in the remaining 4% naevus cells were disposed off as a sheet of single cells. Normal distribution and maturation pattern of naevus cells from epidermis to deeper dermis (Type A, B and C cells) were seen in 92% cases. The inverted type a naevus was seen in 4% cases while inverted type C naevus was noted in 2% cases. One case each of neurotized naevus (with only type C naevus cells in the dermis) and of a Blue naevus cells were also encountered. Linear fibrosis was seen in 2% cases. Eosinophilic fibrosis and lamellar fibroplasia were not found. Multinucleated cells were observed amidst the naevus cells in the dermis in 2% cases. In 8% cases nuclear pleomorphism (fig. 3) with slight variation in nuclear size, shape and staining was observed. No architectural disarray or other atypical histological features fulfilling the criteria for dysplastic naevus or malignancy were observed.

**Table: Various histological features in study cases (n=50).**

Histological Feature	No. of Patients	%age
Acanthosis	13	26
Effaced epidermis	6	12
Lentiginous proliferation	15	30
Inflammation	6	12
Nuclear pleomorphism	4	8
Foreign - body reaction	4	8
Fibrosis	1	2
Multinucleated cells	1	2

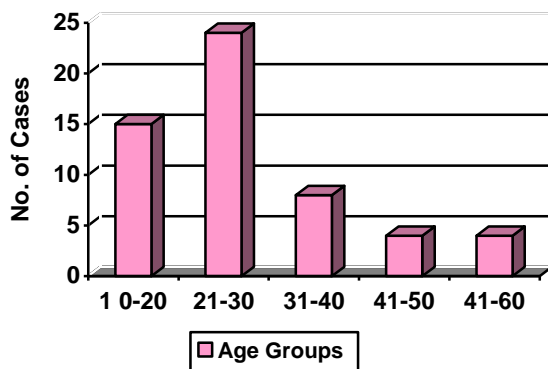


Fig. 1: Age distribution of the cases.

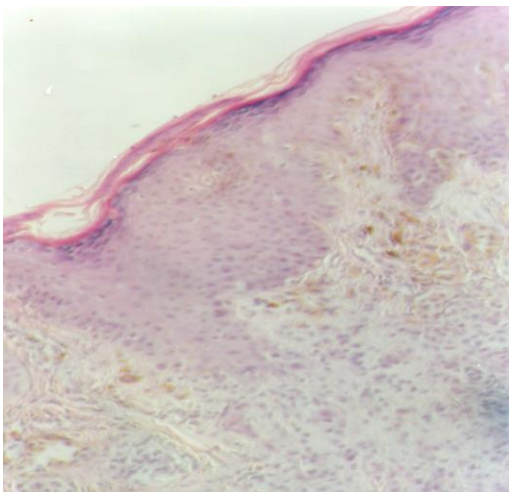


Fig. 2: Compound naevus showing hyperkeratosis, parakeratosis and acanthosis (H&E x 10).

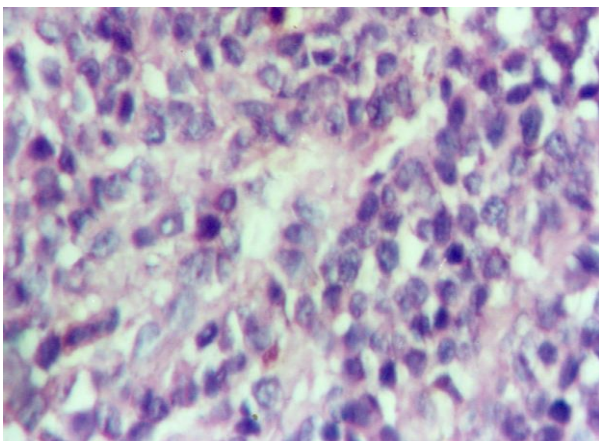


Fig. 3: Naevus cells showing mild nuclear pleomorphism (H&E x 40).

## DISCUSSION

Histological spectrum of benign acquired melanocytic naevi showed significant variation [7]. It was observed that there was higher frequency of acanthosis in the

epidermis (26%) overlying the dermal naevus. Fatty infiltration of the naevus involving both papillary and reticular dermis along with linear fibrosis of the dermis were also found in significant proportion (20% and 18% respectively). These findings are similar to previous studies [8,9]. No evidence of eosinophilic fibrosis or lamellar fibroplasia was found, although the numbers of cases infiltrated by the chronic inflammatory cells were similar to another study [10], but the numbers of cases showing foreign body reaction were more. As noted by Klein and Barr (1990) [11], mild atypia in the form of slight variation in nuclear size, shape and staining (hyperchromatic nuclei) was observed in 8% of the cases. Random atypia is not a definite criterion to satisfy and minor changes can be found by diligent search of otherwise basal naevi and lentiginos [12]. The arrangement, distribution and maturation pattern of the naevus cells reveals only a fraction of aberrant histology [13]. In present study also 8% cases showed aberrant arrangement. A single case of Blue naevus was found in a female patient with distinctive features of dendritic melanocytes, numerous melanophages, slight fibrosis and atypism. Variety of changes considered as involutinal, senescent or aging phenomena may be seen in a dermal naevus [14]. Similar changes, like neurotized naevus and focal areas of ossification were observed. No epidermal inclusion cysts were noted in these particular cases, thus differentiating them from foci of dystrophic calcification. Lentiginous proliferation seen in 30% of our cases, as observed earlier [15]. Just like another study by Cohen et al [8], Most of our cases showed increased pigmentation and presence of melanophages in the upper dermis, and none of them showed elongation of rete ridges. Another consistent histological feature noted in present study was the presence of multinucleated naevus cells, disposed of as nests and cords, some showing rosette-like nuclear arrangement and other showing central nuclei. These multinucleated cells are seen in well matured naevi and taken as

evidence of benignity and they differ significantly from the irregular and bizarrely-shaped giant cells seen in Spitz naevi and occasionally in malignant melanoma [16,17].

## CONCLUSION

Face was the most common site and intradermal naevus the commonest lesion. Few histological features were observed whose significance could not be established; which included lentiginous proliferation, multinucleated naevus cells, foreign body reaction, fatty infiltration, linear fibrosis and acanthosis. However no cytological feature for dysplasia or malignancy was observed.

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