

Patterns of dermoscopy in common pigmented skin lesions

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Abstract

Objective To describe predominant dermoscopic patterns in common pigmented skin lesions in skin of colour.

Methods It was an observational study carried out at department of dermatology unit-II, Mayo Hospital Lahore. A total of 44 patients (12 males, 32 females) with common pigmented skin lesions were enrolled and interviewed. Their clinical pictures were taken with iPhone 6 & clinical differentials or diagnosis was formulated by three examiners via mutual agreement. Dermoscopic pictures were taken at the same time with Firefly DE350® using both optical and digital magnification. Predominant patterns were described keeping in mind the internationally accepted terminology and criteria.

Results Common pigmented skin lesions included seborrheic keratosis (SK), solar lentigo, freckles, blue nevi, melanocytic nevi, dysplastic nevi etc. Melanocytic nevi had pigmented network, aggregated or peripheral globules and various types of pigment. Predominant pattern of SKs was milia like cysts and comedo like openings, lentigo had light brown pseudo network with well-defined border, common nevi had comma shaped vessels with brownish pigmentation, however, dermal nevi exhibited structure of less blue in colour.

Conclusion Dermoscopy is a valuable tool in differentiating common pigmented skin lesions and the patterns are similar to the white race with certain subtle differences.

Key words

Dermoscopy, pigmented lesions.

Introduction

Dermoscopy is a latest, noninvasive and very useful method to evaluate different skin lesions in detail regarding their colour, patterns and vascularity in general and the malignant potential in particular. It allows visualization of epidermis, dermoepidermal junction (DEJ) and the superficial dermis. Their dermoscopic patterns correlate specifically with the histological features. The use of this technique

provides a valuable aid in diagnosing pigmented skin lesions.

While examining the pigmented skin lesions with dermoscope, we are actually interested in the degree of colour distribution in the lesion, level of pigmented location in various layers of skin, specific patterns of pigment and if they are regular or irregular. Starting from the top, epidermis appears white but if it is thickened then grayish brown or yellow. Melanin and its precise location determine the final colour e.g. it appears black in upper epidermis, light to dark brown at DEJ, slate blue in upper dermis and steel blue in deep dermis. Other shades are due to a blend with red and white which represent

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vasculature and fibrotic or regressive patterns, respectively.¹

The pigment network may be regular or irregular or it may be pseudonetwork. It may show radial streaming and pseudopods or pigmented globules. These are amongst the specific guide criteria for diagnosis of pigmented skin lesions while pigmented dots, blue-white veil, blue grey areas, steel blue areas, depigmentation, negative pigment network, milia like cysts, comedo like openings, red black lagoons and maple leaf like pigmentation constitute the non-specific guide criteria.¹

There are various pigmented skin lesions that warrant specific diagnosis because of the risk of malignant or premalignant lesions. These include common melanocytic nevi or moles, seborrheic keratosis, lentigines, pigmented actinic keratosis, pigmented BCC, dermatofibroma etc.

The first step in dermoscopic evaluation of any lesion is to differentiate melanocytic from non-melanocytic lesion. Second step is to differentiate various melanocytic lesions in three classes; nevus, suspected premalignant lesions and malignant lesions. Various algorithms are in practice for the second step. These include ABCD rule of dermoscopy, Menzies method, seven-point checklist, CASH algorithm, pattern analysis and chaos and clues method. In case of nevus only reassurance is required and the lesion is monitored while in case of suspected lesions biopsy is planned and malignant lesions are definitely biopsied and managed accordingly.²

Common melanocytic lesions include lentigines, seborrheic keratosis, solar lentigo, freckles, blue nevi, melanocytic nevi, dysplastic nevi, pigmented squamous cell carcinoma, pigmented basal carcinoma etc.

Some of them can confidently be diagnosed with naked eye but adding dermoscopic view to the diagnostic armamentarium definitely improves upon it and a qualified dermatologist should be aware of the specific terminology and various algorithms used.

Dermoscopy is being widely practiced in many institutions and has become a part of dermatology curriculum round the world but in this part of world, it is relatively new and the idea behind this study was to start dermoscopic practices and get well versed with the normal patterns seen in common dermatological disorders which is how we can discriminate suspicious looking or malignant lesions later. It definitely saves undue burden of histology specimens and secondly in-time diagnosis may prevent malignant lesions from spreading.

Methods

A total of 44 patients with common pigmented skin lesions coming to dermatology department mayo hospital Lahore were enrolled in the study. The study was carried out from 1st July 2017 to 30th November 2017. There were 12 males and 32 females. The lesions were diagnosed as per routine and diagnosis was written on predesigned proforma. Each patient was examined by three qualified examiners and the consensus diagnosis was considered final. Their demographic data like age, gender, education level, occupation, sun exposure etc. were recorded and specific clinical data pertaining to the lesion were also noted. Questioning was done regarding any symptomatology or any particular thing patients noted. The clinical pictures were taken with iPhone 6. Their dermoscopic pictures were taken with dermoscope Fireflypro DE350. Optical and digital both magnifications were employed and pictures were paired with their respective clinical pictures.

Each dermoscopic picture was then seen by the same three examiners and using standard terminology salient features of every dermoscopic picture were noted by mutual consensus.

Results

Table 1 demonstrates the frequency of common skin lesions studied. However, single lesion frequency of reactive perforating collagenosis (RPC), blue nevus, atrophic skin lesions, café-au-lait macules, melasma, macular amyloidosis, pigmented verruca vulgaris, lentigo maligna melanoma, dermatofibroma and pigmented basal cell carcinoma (BCC) was also seen, not mentioned in table.

The commonest skin lesion studied was common melanocytic nevus. They were of intradermal Miescher type dome-shaped nodular lesions with smooth surface and occasional terminal hair coming out of its follicles (**Figure 1**). On dermoscopy they revealed a brownish structureless background pigmentation with superimposed dark brown clods and globules. (**Figure 2**). Other types of melanocytic nevi showed regular pigment network with few structureless areas.

A total of six cases of lichen planus (LP) were seen. They belonged to simple papular LP, follicular LP, and LP pigmentosus. **Figure 3** and **4** describe clinical and dermoscopic features in follicular LP. There was violaceous blue pigment network with perifollicular accentuation and dispersed grey white globules at the periphery. Papular lesions of traditional lichen planus showed violaceous blue amorphous pigmentation with peripheral comma and dot like vessels and dispersed grey white areas.

We studied five dysplastic nevi in our study. Two of them were associated with either

Table 1 Frequency of pigmented skin lesions studied (n=44).

Diagnosis	N (%)
Common melanocytic nevi	10 (22.7)
Lichen planus	6 (13.6)
Dysplastic nevus	5 (11.4)
Seborrheic keratosis	4 (9.1)
Freckles	3 (6.8)
Solar lentigo	2 (4.5)
Dysplastic actinic keratosis	2 (4.5)
Lentiginos	2 (4.5)
Miscellaneous (one case each)	10 (23)
Reactive perforating collagenosis, blue nevus, atrophic skin, calf au lait macule, melasma, macular amyloidosis, pigmented verruca vulgaris, lentigo maligna, dermatofibroma, pigmented basal cell carcinoma	

concurrent or past history of malignancy and three had no previous history. Clinically dysplastic nevi had variegation in colour and history of changes in size and/or symptoms. On dermoscopy, there was either patchy or diffuse hyperpigmentation or diffuse structureless areas with peripheral globular pattern. Scattered grey areas were also visible. Some dysplastic nevi exhibited additional vascular components, as well.

Seborrheic keratosis is a very common condition found in middle aged people mostly on exposed areas. Eruption of numerous seborrheic keratosis may be a predictor of malignancy however the malignant potential of individual lesions is unremarkable. The characteristic dermoscopic features seen in our study cases were fingerprint like projections, diffuse yellow background pigmentation and comedo like openings.

Freckles or ephelides usually show uniform brown pigmentation with moth eaten edges. Lentigo simplex showed uniform dark pigment network throughout the lesion with follicular opening like structures. Solar lentigo showed well-demarcated uniform pigmentation or



Figure 1 Common melanocytic nevus. Pink to dark brown dome shaped lesion side of cheek.



Figure 2 Brownish structureless background pigmentation with dark brown clods and globules, black arrowhead



Figure 3 Follicular, violaceous papules of follicular lichen planus.

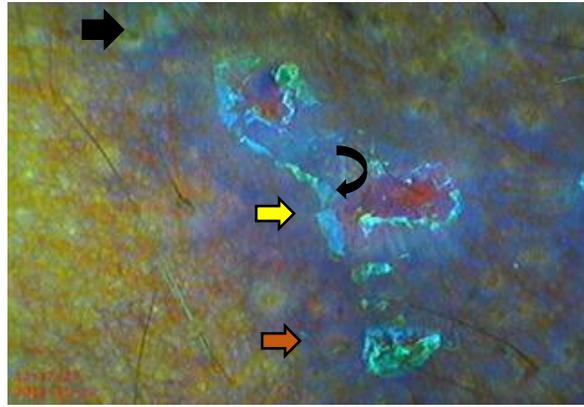


Figure 4 Follicular lichen planus show pearly white and violaceous rounded structures corresponding with Wickham striae (WS), black arrowhead; blue amorphous pigmentation, yellow arrowhead and peripheral reticular network, orange arrowhead. The circular whitish superficial structures correspond with the keratin of epidermal scaling in follicular lesions, curved arrow.



Figure 5 Papular lichen planus with characteristic features



Figure 6 Papular LP with characteristic features of white pearly structures consistent with Wickham striae in an arborizing manner like the fern-leaf, yellow arrowheads; erythematous dots and globules consistent with vessels in the center and periphery of the lesion, black circles.



Figure 7 Dysplastic nevus at margins of ulcerated basal cell carcinoma confirmed on histopathology.

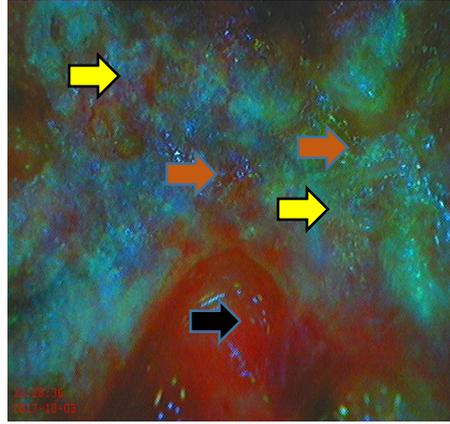


Figure 8 Dysplastic nevus at margins of ulcerated BCC, black arrow, with dermoscopic picture. (Confirmed on histopathology). Dermoscopic picture shows two prominent patterns (grey-white homogenous areas, yellow arrows, with interspersed atypical pigment network, orange arrows) and atypical vascular structures with ulcerated area at the bottom of slide, black arrow.



Figure 9 Seborrheic keratosis on back of hand



Figure 10 Early Seborrheic keratosis on back of hand with characteristic dermoscopic features of finger print like projections against diffuse yellow background pigmentation.

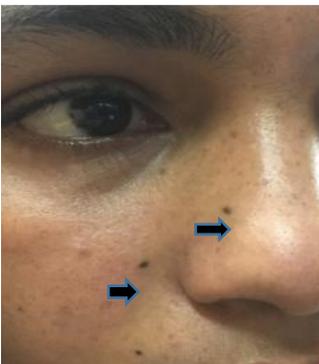


Figure 11 Freckles, face

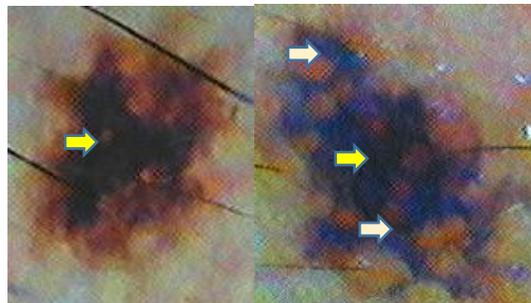


Figure 12 a, b Freckles/ ephelides showed uniform pigmentation with pigmented network and pseudo network, yellow arrow and vesicular depigmented areas, white arrows, corresponding to sebaceous glands on face. Note the characteristic moth-eaten edges at the periphery.



Figure 13 Well-circumscribed pigmented patch

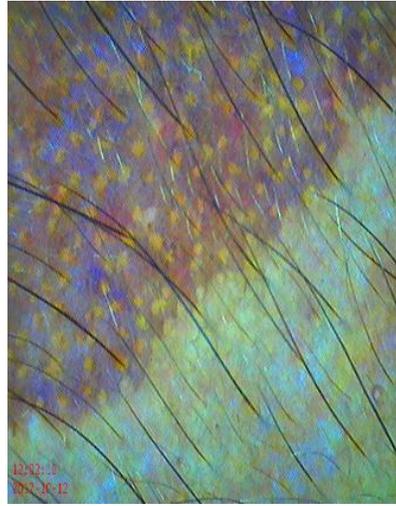


Figure 14. Dermoscopic features of well-demarcated pigment network of dark brown colour and multiple openings corresponding to sebaceous gland orifices.

pseudonetwork and vesicular depigmented areas corresponding to sebaceous glands on face **Figure 11** and **12**).

Discussion

Dermoscopy is being widely practiced world over. Most of work is done in Caucasian patients and very little is known about patterns of dermoscopy in skin of colour. The dark skin is less prone to skin cancers but as a matter of fact the diagnosis is even delayed and results in poor prognosis. It has proved useful for the examination of various pigmented and non-pigmented lesions in dark races. De Giorgi *et al.*³ have demonstrated that same dermoscopic criteria developed and used by white races could be applied for the analysis of skin lesions in dark skins with high rate of reproducibility.

Traditionally dermoscopy has been as a tool to differentiate benign from malignant lesions.⁴ But this is not all and its implications in differentiating various pigmented and non-pigmented benign lesions cannot be underestimated. Goncharova *et al.*⁵ studied four

histologically diagnosed common pigmented skin lesions which were challenging clinically and studied their dermoscopic images retrospectively. They included early seborrheic keratosis (SK), pigmented actinic keratosis (AK), lentigo maligna and solar lentigo. They derived an algorithm for diagnosis of common pigmented facial lesions.⁵

Interest in dermoscopy is increasing at all levels and various online learning plans are also offered by master trainers.

It is only by mastering the normal dermoscopic patterns that we can identify lesions at risk of getting malignant. So it should be encouraged at institutional level and routine dermoscopy should be performed as an outdoor procedure in suspicious pigmented and non-pigmented lesions.

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