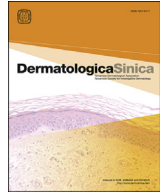


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ORIGINAL ARTICLE

Blue-white variant of pigmented basal cell carcinoma[☆]M. Turkmen^{a,*}, B. Gerceker Turk^b, I. Kilinc Karaarslan^b, B. Yaman^c, F. Ozdemir^b^a Izmir Bozyaka Training and Research Hospital, Department of Dermatology, Karabaglar, Izmir, Turkey^b Ege University Medical Faculty, Department of Dermatology, Izmir, Turkey^c Ege University Medical Faculty, Department of Pathology, Izmir, Turkey

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ABSTRACT

Background: Basal cell carcinoma (BCC) is the most frequent of all skin cancers in the white population. The typical dermoscopic features of pigmented BCCs have been well known. In the literature a new dermoscopic pattern of BCC has been reported as “blue-white variant”.

Objective: In this study, we aimed to evaluate the blue-white variant of BCC's seen in our cases at our Dermato-oncology Unit.

Methods: Patient files between the years 2003–2011 were searched for the cases with the histopathologic diagnosis of BCC. Among them, the cases that were compatible with the diagnosis of blue-white variant of BCC were determined. The morphological and clinical features of the lesions, dermoscopic images together with the histopathological slides were all evaluated.

Results: Among 350 histopathologically proven BCCs, 3.1% of them showed diffuse blue-white areas, namely “the blue-white variant”. On histopathological examination, typical aggregates of basaloid cells with nuclear atypia connected focally to the epidermis were observed. To our knowledge, this is the first research about the blue-white variant of pigmented BCC.

Conclusion: The blue-white variant of pigmented BCC seems to be the most challenging type of BCC in the diagnosis for the clinician.

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Introduction

Basal cell carcinoma (BCC) is the most frequent of all skin cancers in the white population predominantly affecting middle aged and fair-skinned individuals.^{1–3} Clinicopathologic subtypes of BCC are various and include nodular, superficial, infiltrative and pigmented variants.^{1,4} While the incidence changes with race, 5–7% of BCCs are pigmented.^{5,6}

Dermoscopy is a non-invasive technique that improves the accuracy of the clinical diagnosis of pigmented and non-pigmented skin lesions, allowing early diagnosis, especially of incipient lesions.^{3,5,7} The typical dermoscopic features of pigmented basal cell carcinomas have been well known as the lack of pigment network and the presence of at least one of the following criteria: maple-leaf

like structure, blue-ovoid nests, multiple blue-gray dots/globules, spoke-wheel areas, arborizing vessels, and ulceration.^{2,5–7} Besides them, some other dermoscopic features such as multiple brown to black dots and globules, blue/white veil-like structures, and large-diameter vessels have also been described.¹ Recently, Felder et al. reported a case with two nodular lesions diagnosed as pigmented BCC's in which they observed “diffuse blue-white areas” in both lesions and named this dermoscopic pattern as “blue-white variant”.⁸ Focal areas of ulceration accompanied those areas also. Histopathologically, Felder defined those lesions characterized as aggregates of basaloid cells with atypical nuclei, scant neoplasm, and peripheral palisading of cells and melanin.⁸

In this study, we aimed to evaluate the blue-white variant of BCC's seen in our cases at Dermato-oncology Unit of Ege University Medical Faculty, Dermatology Department.

Material and method

Patient files between the years 2003–2011 were searched for the cases with the histopathologic diagnosis of BCC. The clinical and dermoscopic images of the BCC's were reviewed. Among them, the

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[☆] This study is exempted from review.

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cases that were compatible with the diagnosis of blue-white variant of BCC were determined. The demographic data of these patients, the morphological and clinical features of the lesions, dermoscopic images (taken by a digital camera, Dermaphot, Heine Ltd, Herrshing, Germany) together with the histopathological slides were all evaluated.

Results

There were 350 histopathologically proven BCCs. Among them, we detected 16 lesions with “blue-white areas”. In 5 of them, these structures were observed only locally, together with the typical dermoscopic features of BCC, while 11 lesions (3.1%) showed diffuse blue-white areas, namely “the blue-white variant”. These 11 lesions were difficult to differentiate from melanoma. Three lesions were excluded because of the poor image quality; thus 8 lesions were included in the study. These lesions were observed in 8 different cases (6 males and 2 females, age range of 45–66 years).

Demographic data of the patients and morphologic and dermoscopic features of the lesions are shown in Tables 1 and 2. All the BCCs included in the study were nodular or nodular-ulcerative type histopathologically. Five of them were located on the head and neck region, while 3 were located on the back, arm and the dorsum of the hand, respectively. The diameter of the lesions ranged 0.4–2.4 cm.

On dermoscopy, “diffuse blue-white areas” seen in all the lesions were the common dermoscopic structure observed in each case. Focal areas of ulceration (6 lesions, 75%), arborizing vessels (4 lesions, 50%), large-diameter vessels (3 lesions, 37.5%), milia-like cysts (2 lesions, 25%), hairpin-like vessels (1 lesion, 12.5%), peripheral maple-leaf-like bulbous structures (1 lesion, 12.5%), multiple blue-gray dots/globules (2 lesions, 25%), crusts (2 lesions, 25%), and thin scales (4 lesions, 50%) were the features accompanying the diffuse blue-white areas (Figs. 1–8).

Melanoma was involved in the pre-operative differential diagnoses of all the lesions. On the other hand, BCC was considered in 5 of the cases (62.5%) (cases 1, 2, 5, 7 and 8). Irritated seborrheic keratosis (case 4), and malignant blue nevus (case 1) also took place in the differential diagnosis, each in one case.

Histopathologically, the lesions were compatible with nodular or nodulo-ulcerative type of pigmented BCC. On histopathological examination, typical aggregates of basaloid cells with nuclear atypia connected focally to the epidermis were observed. There were diffusely distributed, heavily pigmented melanophages and fibrosis in the stroma between the tumour nests (Fig. 9).

Discussion

“The blue-white variant” of BCC can be defined as a variant in which “the blue/white veil-like structures” are observed throughout the lesions on dermoscopy, in other words there is a diffuse blue-white color nearly in the whole lesion. The blue-white variant of

Table 2 Dermoscopic feature observed in the lesions.

Dermoscopic feature observed	Cases
Diffuse blue –white areas	1, 2,3,4,5,6,7,8
Ulceration	2,3,4,5,6,7
Thin scale	2,3,4,7
Arborizing vessels	2,6,7,8
Milia-like cysts	2,6
Large-diameter vessels	1,3,6
Hairpin vessels	4
Peripheral maple-leaf like bulbous structures	5
Multiple blue-gray dots/globules	6,8
Crust	1,6



Fig. 1 Case 1, clinical (a) and dermoscopic (b); crust.



Fig. 2 Case 2, clinical (a) and dermoscopic (b); thin scale.

pigmented BCC is extremely rare, as also seen in the present study with an incidence of 3.1%.

Although locally “blue/white veil-like structures” are one of the non-typical features of BCC and not frequently seen, their incidence

Table 1 Demographic data of the patients and morphologic features of the lesions.

Case	Age	Sex	Localization	Morphology of lesions	Histopathology
1	52	F	Scalp	1.5 × 1 cm, black nodule	Nodular
2	65	M	Back	2 × 1 cm, gray-black plaque	Nodular
3	66	M	Nasal	0.7 × 0.5 cm, gray-black plaque	Nodular Ulcerative
4	61	M	Arm	2.2 × 1.7 cm, blue-gray nodule	Nodular Ulcerative
5	52	M	Head, frontal	0.7 × 0.6 cm, brown-black papule	Nodular
6	46	M	Head, frontal	2.4 × 2.1 cm, gray-black nodule	Nodular Ulcerative
7	64	M	Hand	0.8 × 0.5 cm, gray plaque	Nodular Ulcerative
8	45	F	Nasal	0.5 × 0.4 cm, gray-black papule	Nodular Ulcerative

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