Clinicodemographic and Dermoscopic Features of Basal Cell Carcinoma among Filipino Patients Seen in a Tertiary Care Clinic

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ABSTRACT

Background. Dermoscopy enhances detection of basal cell carcinoma (BCC), especially for the pigmented subtype common among Asians. However, there is limited data on dermoscopic features of BCC in Filipinos.

Objectives. The objective of this study is to describe the clinicopathologic profile and dermoscopic features of BCC in Filipinos seen in a tertiary care clinic.

Methods. A cross-sectional study was conducted in the Philippines from November 2019 to December 2021 in a tertiary care clinic. Fifty-three (53) lesions suspicious for BCC were analyzed using dermoscopy prior to histologic confirmation. Fifty (50) biopsy-proven BCC lesions were included in the analysis.

Results. Lesions were more commonly seen in females (72.50%), and located on the head and neck (88%). The most common histopathologic subtype was nodular (74%). The most common dermoscopic features were large blue-gray ovoid nests (86%) and ulcerations (70%).

Conclusion. The most common BCC type among the study participants was nodular, with large blue-gray ovoid nests and ulceration seen on dermoscopy.

Keywords: basal cell carcinoma, pigmented lesions, dermoscopy, non-melanoma skin cancer

INTRODUCTION

Though skin cancers are often of a lower incidence in darker-skinned populations, they usually present atypically or at more advanced stages compared to Caucasians, tending a worse prognosis.[1,2] Basal cell carcinoma (BCC) is a non-melanocytic skin cancer known for its locally destructive potential[3], with ultraviolet (UV) radiation being a well-known risk factor for this disease[4,5]. BCC is the most common cancer worldwide[6], as well as in different populations like Caucasians, Hispanics, Chinese, and Japanese[7]. The incidence of BCC in different Asian populations varies greatly and ranges from 5.8 to 29.7 per 100,000 population.[1] From 2011 to 2021, the Philippine Dermatological Society (PDS) patient registry documented 2,102 distinct cases of confirmed BCC in the Philippines.[8] However, this number likely underestimates total cases in the Philippines as only those seen in PDS-affiliated residency training institutions were included; furthermore, the coronavirus disease 2019 (COVID-19) pandemic heralded logistical constraints in face-to-face consultation, causing a decline in patient census. Moreover,

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there is no national skin cancer registry that consolidates data from different subspecialties in the Philippines. Basal cell carcinoma has six general subtypes based on histology[6], with the nodular subtype being most common in Asians[2]. Additionally, more than 50% of lesions were found to be clinically pigmented in Asian populations, while characteristic gross features of telangiectasias and pearly rolled borders were more difficult to distinguish on darker skin types.[1]

Dermoscopy, also known as epiluminescence microscopy or skin surface microscopy, is a non-invasive method used for the diagnosis of both pigmented and non-pigmented lesions.[9] Dermoscopic criteria that aid in the clinical diagnosis of BCC exist[10,11], and are continually evolving. Some of the key structures observed in BCC lesions are: arborizing vessels, blue-gray ovoid nests, multiple blue-gray globules, maple leaf-like areas, spoke-wheel areas, and ulceration.[10-12] These dermoscopic features are dependent on many factors such as: histological subtype, race[10], Fitzpatrick skin phototype, and age[13]. In 2014, Lallas et al. studied more than 313 basal cell carcinoma lesions and the findings in this study provided valuable insights and information on the current criteria used to increase the accuracy of dermoscopy in diagnosing BCC; however, their study population was composed of Caucasians and Southern Europeans, with notably lighter skin types.[11] Knowing race and Fitzpatrick skin phototype are factors that may influence these dermoscopic features; a local study would be beneficial in elucidating the features more prevalent in BCC lesions in Filipino skin. Failure to recognize such features in pigmented skin may lead to delays in diagnosis, and consequently, worse morbidity and mortality. This study also provides an update on the clinicopathologic information about BCC in Filipino patients. The findings in this study seek to contribute to the current knowledge on dermatologic practice involving the clinical and dermoscopic manifestations of BCC in the Filipino population.

OBJECTIVES

The general objective of this study is to describe the clinicopathologic profile and dermoscopic features of BCC among Filipino patients seen in a tertiary care hospital. Specific objectives include determining the mean age, gender distribution, frequency of family history of BCC, common locations of lesions, and common dermoscopic features of BCC among patients seen at the facility.

METHODS

This is a cross-sectional study done in a tertiary care clinic in the Philippines, completed from November 2019 to December 2021. The study used a convenience sampling method. Patients with a clinical diagnosis of basal cell carcinoma were biopsied but only adult Filipino patients with a histopathologic diagnosis of basal cell carcinoma were included in the analysis of data for the study. Fifty-three lesions from 43 patients with clinically suspicious BCC were initially recruited. Informed consent was obtained from all patients prior to enrollment in the study. Afterwards, each patient was assigned a unique identification number. The following information was collected from each patient: age, sex (male or female), location of tumor (head and neck, upper extremities, lower extremities, trunk), family history (up to second degree) of BCC (present or absent). Gross clinical photography for each BCC lesion was done by the principal investigator and co-investigators using a smartphone (Samsung S20+) with a dermoscopy adaptor. Dermoscopic features under both polarized and non-polarized light were evaluated by the investigators together with a trained dermoscopist. Ultrasound gel was used as an immersion fluid for examining the lesions using the Dermlite DL4 dermatoscope. The lesions were assessed based on the presence or absence of the following features: ulceration, multiple blue-gray globules, maple leaf-like areas, large blue-gray ovoid nests, spoke-wheel areas and arborizing telangiectasia. A sample from each lesion was taken for biopsy and the particular subtype identified by a trained dermatopathologist who was blinded from the dermoscopic evaluation. Following histologic confirmation, a total of 50 BCC lesions from 40 patients were included in the final evaluation, while three were excluded following a lack of consent to join the study. All categorical variables were summarized in terms of frequencies and percentages.

RESULTS AND DISCUSSION

From March 2020 onwards, a significant drop was seen in the tertiary clinic's total patient census due to constraints imposed by the COVID-19 pandemic, including a decline from the average 70-80 patients/year diagnosed with BCC in the institution.

During the study period, a total of 50 lesions from 40 patients were included in the study. These patients had an age range of 35-97 years old, and a mean of 66 years old. This is consistent with currently available data showing increased incidence of BCC in the older populations.[14-17] This may be explained by the decreased immunosurveillance of malignant cells seen in the elderly population, as well as higher cumulative doses of UV radiation.

In our study, more female patients were seen compared to males (29 females, 11 male). Literature shows conflicting findings on sex distribution. Some studies show similar trends, suggesting female patients tend to have better health-seeking behavior, hence show earlier concern for suspicious and cosmetically disfiguring lesions.[3] However, other studies found an increased incidence in males[18], postulating increased risk for BCC due to inherent occupational exposure.

In this study, the head and neck area [44/50, 88% (Figures 1-6)] was the most common location for BCC. There were three lesions located on the trunk (6%) (Figure 7), three lesions located on the upper extremities (6%) (Figure 8), and

none were located on the lower extremities. This distribution is in congruence with several other studies.[3,15,17,19] The greater number of lesions seen in the head and neck area may be due to increased unprotected UV exposure of the head and neck compared to other body parts such as the upper extremities, trunk, and lower extremities.

None of the participants have reported any family history of basal cell carcinoma. It is possible that this is due to the lack of knowledge of the participants of the health problems of their relatives, and not just the absence of BCC among their family members. Other possible reasons include inability to identify features of malignant skin lesions and scarcity of resources to consult a medical practitioner. It may also be that they truly have no other family members with skin cancers and that the development of the lesion may be attributed to the amount of UV exposure, inadequate photoprotection, exposure to ionizing radiation, or a combination of these factors.[6]

Investigators noted that all 50 lesions were pigmented, clinically and histologically. The most common histopathologic subtype in this study was the nodular type (37/50, 74%) (Figures 1-3, 7). Other histopathologic subtypes

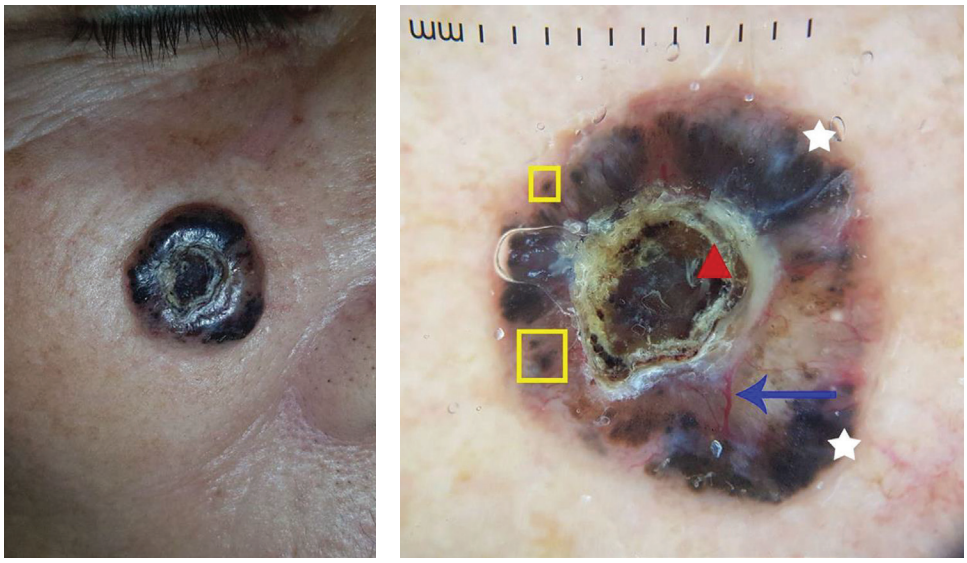

Figure 1. Nodular BCC on the head and neck (right cheek).

Red triangle = ulceration; white stars = ovoid nest; blue arrow = arborizing telangiectasia; yellow boxes = multiple blue-gray globules

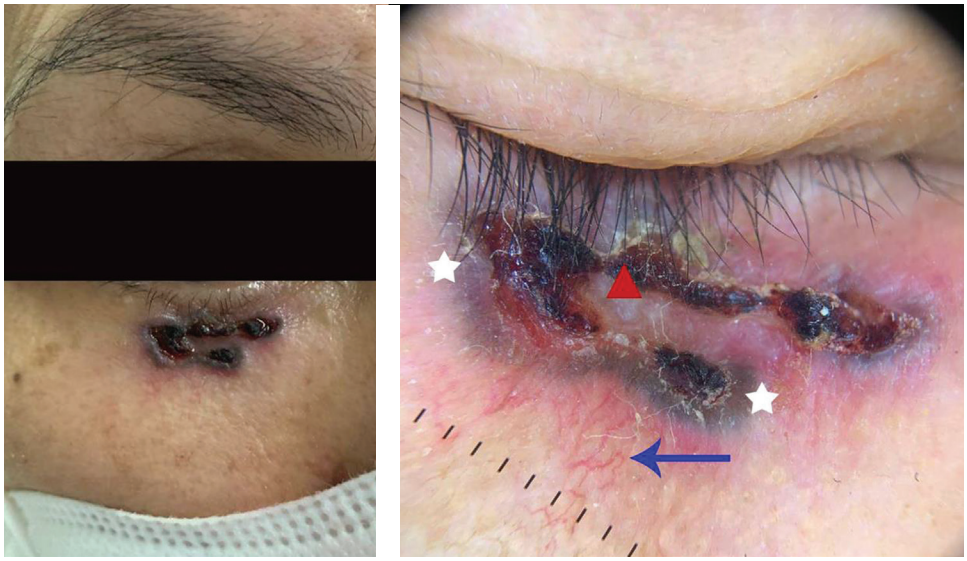

Figure 2. Nodular BCC on the head and neck (right lower eyelid).

Red triangle = ulceration; white stars = ovoid nest; blue arrow = arborizing telangiectasia

included were micronodular (10/50, 20%) (Figures 4-6), superficial (1/50, 2%) (Figure 8), infiltrative (1/50, 2%), and basosquamous (1/50, 2%) (Table 1).

Forty-three (86%) of the 50 lesions were found to have large blue-gray ovoid nests (Figures 1, 2, 4), and was found to be the most common dermoscopic feature noted in this study. Other features seen in more than half of the lesions examined were ulceration (35/50, 70%) (Figures 1, 2, 5, 6) and arborizing telangiectasia (26/50, 52%) (Figures 1-6). Other features noted were multiple blue-gray globules (21/50, 42%) (Figures 1, 3, 5, 6), spoke-wheel areas (8/50, 16%) (Figures 7, 8) and maple leaf-like areas (4/50, 8%) (Figures 7, 8).

The proportion of Filipino BCC lesions with ulceration (70%) as well as large blue-gray ovoid nests (86%) were higher in comparison to the data found in the study of Lallas et al.[11] (42% and 35%, respectively). These two dermoscopic features are commonly seen in nodular BCCs, and this difference may be attributed to the higher number of nodular BCCs (74%) included in this study compared to that of Lallas[11] (49.2%). In terms of distribution, majority (89%) of nodular BCC lesions were taken from the head and neck area. This is consistent with the findings in a study on Caucasian patients wherein nodular BCC occurred mainly on the head and neck area of patients.[11]

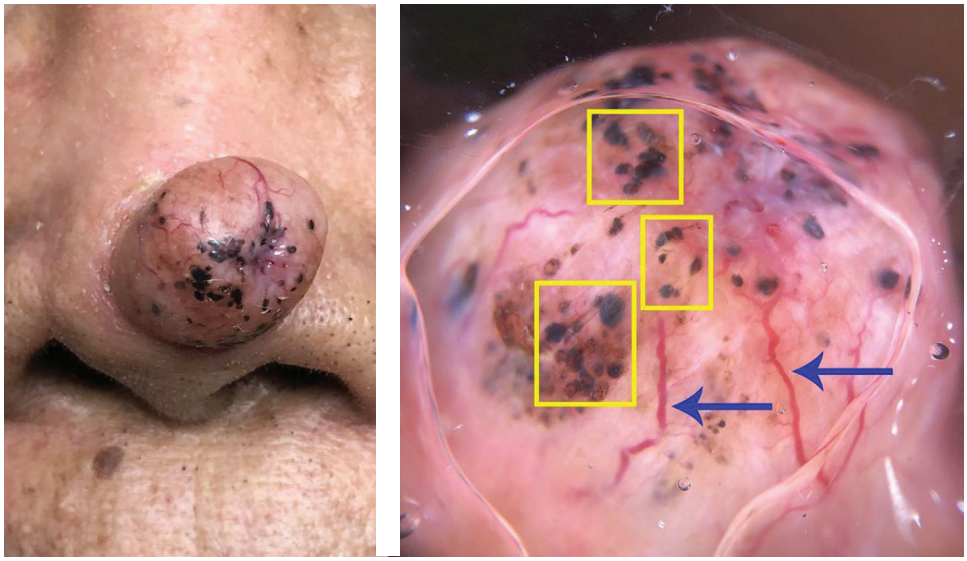

Figure 3. Nodular BCC on the head and neck (nose).

Yellow boxes = multiple blue-gray globules; blue arrows = arborizing telangiectasia

Figure 4. Micronodular BCC on the head and neck (left nasolabial fold).

Blue arrows = arborizing telangiectasia; white star = ovoid nest

Table 1. Dermoscopic Features of BCC in Filipinos

Dermoscopic features	Nodular n=37	Micronodular n=10	Superficial n=1	Infiltrative n=1	Basosquamous n=1	Total n=50
Large blue-gray ovoid nests	33	8	0	1	1	43 (86%)
Ulceration	27	5	1	1	1	35 (70%)
Arborizing telangiectasia	18	6	0	1	1	26 (52%)
Multiple blue-gray globules	13	7	0	0	1	21 (42%)
Spoke-wheel areas	7	0	1	0	0	8 (16%)
Maple leaf-like areas	3	0	1	0	0	4 (8%)

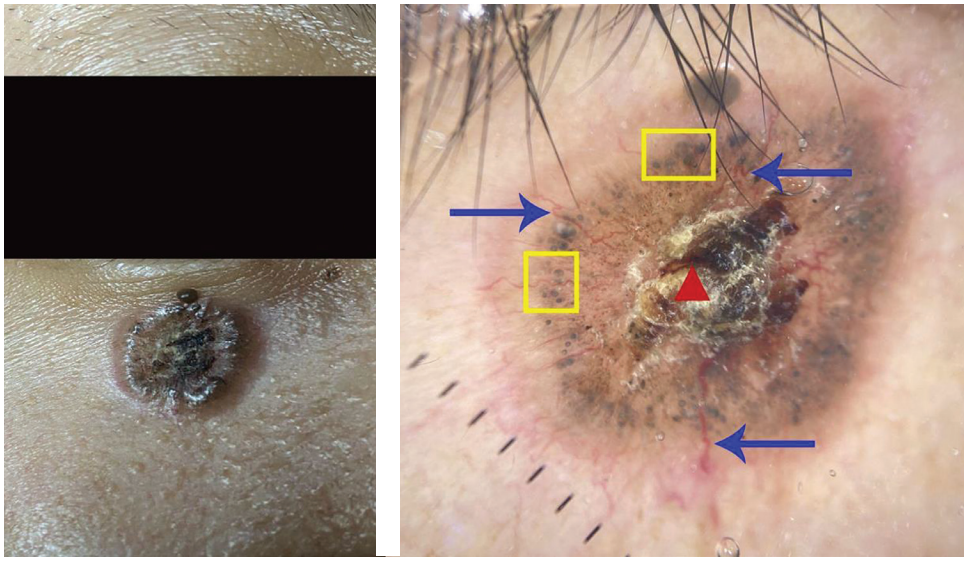

Figure 5. Micronodular BCC on the head and neck (right lower eyelid).

Red triangle = ulceration; blue arrows = arborizing telangiectasia; yellow boxes = multiple blue-gray globules

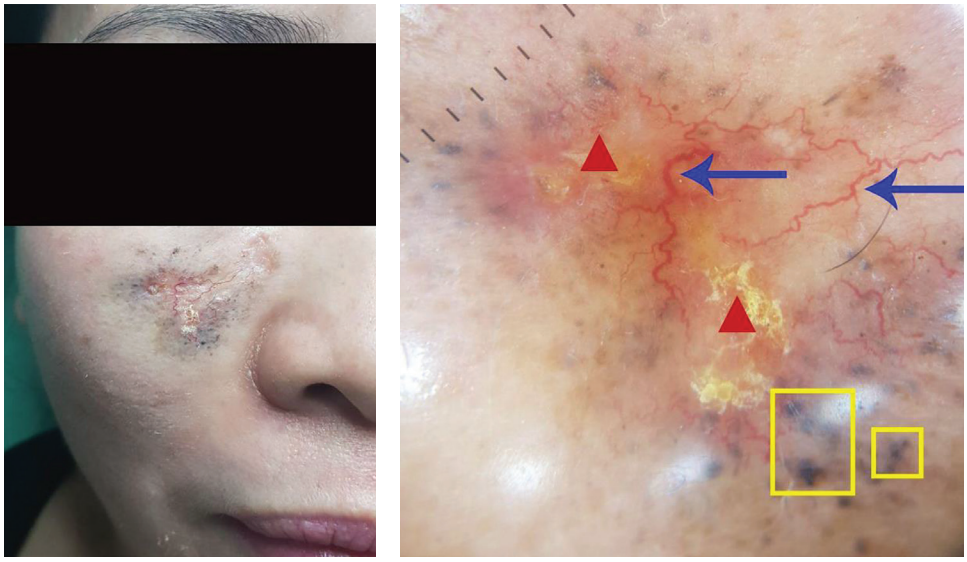

Figure 6. Micronodular BCC on the head and neck (right cheek).

Red triangles = ulceration; blue arrows = arborizing telangiectasia; yellow boxes = multiple blue-gray globules

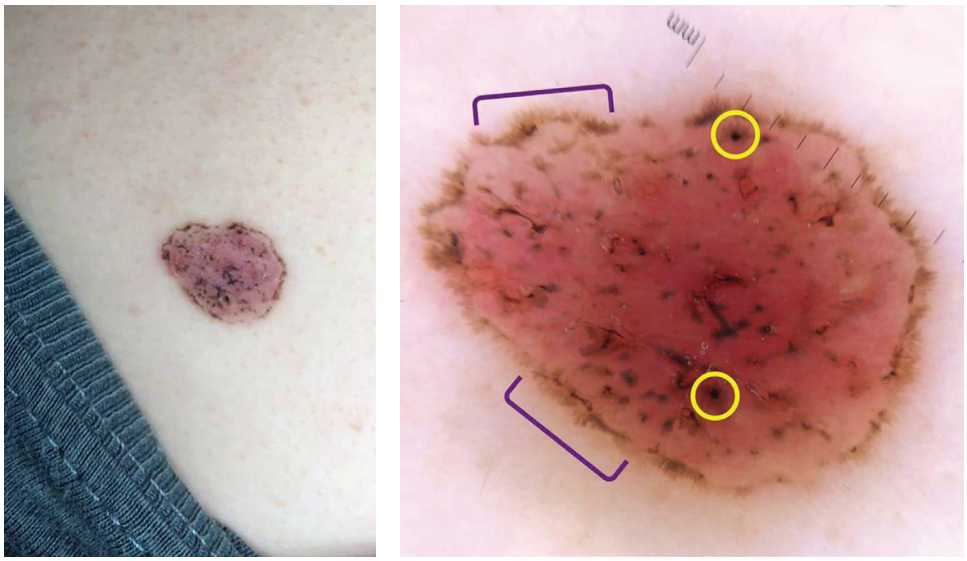

Figure 7. Nodular BCC on the trunk (chest).
Purple brackets = maple leaf-like area; yellow circles = spoke-wheel area

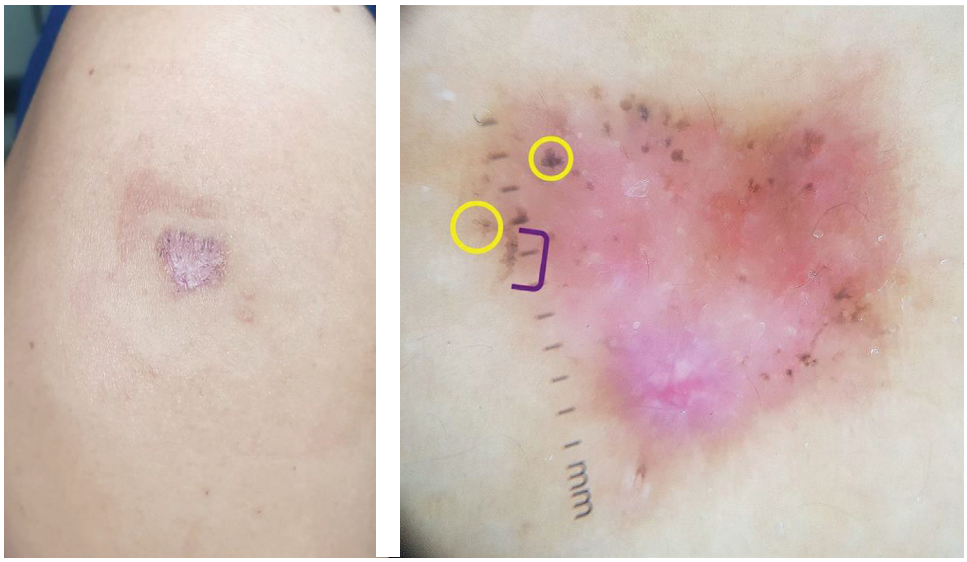

Figure 8. Superficial BCC on the upper extremity (right shoulder).
Yellow circles = spoke-wheel area; purple bracket = maple leaf-like area

Comparing our findings with the study of Chan and Ho[20] among Hong Kong Chinese patients diagnosed to have BCC, the proportion of BCC lesions with multiple blue-gray globules (42%) is lower compared to Hong Kong Chinese BCC lesions (67%) while large blue-gray ovoid nests are higher in Filipino BCC lesions (86.00%) compared to Hong Kong Chinese BCC lesions (58%). Even though there are differing proportions for the dermoscopic features of multiple blue-gray globules and large blue-gray ovoid nests, both features correspond to the nodular basal cell carcinoma which is also the prevalent subtype of BCC seen in their study (21 out of 33 lesions, 63.64%).

The proportion of BCC lesions with large blue-gray ovoid nests (86%) in this study is higher compared to the proportion of Indian patients with the same features (58%) according to the study of Pattanaik et al.[9] In contrast to this, a lower proportion of spoke-wheel areas in Filipino BCC lesions (16.0%) was seen compared to that in Pattanaik et al.'s study[9] (63%). These differences in proportions may be attributed to the differing prevalent histologic subtype of BCC lesions in our studies. Ulceration, a common finding which may be suggestive of nodular, sclerodermiform, or infiltrative tumors when large[11], are more common in Filipinos (70%), Hong Kong Chinese (76%), and Indian

Table 2. Comparison of Dermoscopic Features of BCC in Filipinos Compared to other Ethnicities (Caucasians, Hong Kong Chinese, Indian)

Dermoscopic Features n = frequency (percentage)	Villena et al. (2022) n=50	Lallas et al. (2014)[11] n=313	Chan et al. (2008)[20] n=33	Pattanaik et al. (2017)[9] n=19
Population	Filipino	Caucasians	Hong Kong Chinese	Indian
Large blue-gray ovoid nests	43 (86%)	110 (35%)	19 (58%)	11 (58%)
Ulceration	35 (70%)	148 (42%)	25 (76%)	15 (79%)
Arborizing telangiectasia	26 (52%)	171 (54%)	16 (48%)	6 (31%)
Multiple blue-gray globules	21 (42%)	100 (32%)	22 (67%)	13 (68%)
Spoke-wheel areas	8 (16%)	32 (10%)	2 (6%)	12 (63%)
Maple leaf-like areas	4 (8%)	50 (16%)	2 (6%)	5 (26%)

(79%) patients than Caucasians (42%). Possible reasons for this discrepancy include the differences in the sizes of the lesion, the proportion of the histologic subtypes in the sample, and the later presentation at the time of evaluation. Arborizing telangiectasias, the hallmark dermoscopic finding of nodular BCC[11], is found in at least or almost half of Filipinos (52%), Caucasians (54%), and Hong Kong Chinese (48%) and at a lesser frequency in Indians (31%).

In the more aggressive subtypes - micronodular, infiltrative, basosquamous (Table 2) - of note is the relative paucity of spoke-wheel areas and maple leaf-like areas which correspond to pigment containing tumor nests connected to or localized in the epidermis.[11] In Lallas' criteria[11], similar observations are made; infiltrative and basosquamous carcinoma may present with arborizing vessels, ulceration, blue-gray ovoid nests, multiple blue-gray dots, and white structureless areas but maple leaf-like and spoke-wheel areas are not included in the criteria for these subtypes.

CONCLUSION AND RECOMMENDATIONS

Dermoscopy now plays a supportive role in clinical examination and enhanced detection of basal cell carcinoma. Among Filipinos, these lesions are often deeply pigmented and of the nodular subtype. Key dermoscopic features are ulceration and large blue-gray ovoid nest. Familiarization with these features maximizes the likelihood of early detection and prompt management among dark-skinned populations.

Further studies are needed to determine the correlation of histologic subtypes and dermoscopic findings. In future studies, it is recommended to correlate the dermoscopic findings with the final histopathologic diagnosis after surgical removal of the entire lesion to account for the presence of mixed or multiple histologic subtypes. Furthermore, the analysis of the relationship between dermoscopic features and skin phototype may also aid in making a diagnosis of BCC across different skin phototypes. Inclusion of data such as occupation, estimated hours of daily UV exposure, and history of ionizing radiation in the clinicodemographic profile may also give a better insight as to the risk factors that are commonly present, thereby improving the clinical diagnosis of BCC in Filipino patients.

Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

All authors declared no conflicts of interest.

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