Original Investigation
Orijinal Araştırma

DOI: 10.4274/turkderm.galenos.2024.67915
Turkderm-Turk Arch Dermatol Venereol 2024;58:54-65

Correlation of clinical, dermoscopic, and histopathological features of basal cell carcinoma

Bazal hücreli karsinomun klinik, dermoskopik ve histopatolojik özelliklerinin korelasyonu

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Abstract

Background and Design: The aim of this study is to enhance the diagnosis and treatment of basal cell carcinoma (BCC) by comparing clinical, dermoscopic, and pathological features.
Materials and Methods: This retrospective study included patients from the dermatology clinic between 2012 and 2015 with 111 BCC lesions.
Results: The average age for aggressive-type BCC patients was higher. Aggressive-type BCCs were more common on the face. Dermoscopic, gray-blue ovoid nests were more common on the trunk. Pigmented dots were less common on the face, while globules were more frequent on the scalp. Small erosions were more prevalent on the extremities, while shiny white-red structureless areas were more common on the trunk and extremities. Dot vessels were more prevalent on the scalp. Vascular features were more common on the face, whereas pigmented characteristics were less common. Other dermoscopic features were more common on the face and trunk. Arborizing vessels, ulcerations, white crystals, and hairpin vessels were more common in nodular lesions. Other dermoscopic features were more prevalent in nodular lesions. Mixed-type BCCs had more gray-blue ovoid nests and globules, while single-type BCCs had more small erosions. Vascular features were more common in mixed-type BCCs. Ulceration was more common in aggressive BCCs, while small erosions were more prevalent in non-aggressive BCCs. Histopathologically, pigmented BCCs were more common on the scalp and trunk than on the face. Superficial BCCs were more common in trunks and flat lesions. Adenoid BCC was more prevalent in nodular lesions. Scalp mixed-type BCCs were more common and aggressive. Mixed-type BCCs had a higher number of subtypes, including pigmented, infiltrative, adenoid, micronodular, and solid BCCs. Cystic degeneration was more common in mixed-type BCCs.
Conclusion: Clinical-pathological correlations and dermoscopic findings improve our understanding of BCC, aiding in accurate diagnosis and management.
Keywords: Basal cell carcinoma, dermoscopy, histopathology, skin cancer, non-melanoma

Öz

Amaç: Bu çalışmanın amacı, klinik, dermoskopik ve patolojik özellikleri karşılaştırarak bazal hücreli karsinomun (BCC) tanı ve tedavisini geliştirmektir.
Gereç ve Yöntem: Bu retrospektif çalışma, 2012 ve 2015 yılları arasında dermatoloji kliniğine başvuran ve 111 BCC lezyonuna sahip hastaları içermektedir.

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***This study was presented as a poster presentation at the "13th Congress of European Association of Dermato Oncology, 3-06 Mayıs 2017 ".**
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Cite this article as: Dizman D, Bıyık Özkaya D, Bahalı AG, Topukçu Dizman B, Yıldız P, Tosuner Z, Demirkesen C, Onsun N, Su Küçük Ö. Correlation of clinical, dermoscopic, and histopathological features of basal cell carcinoma. Turkderm-Turk Arch Dermatol Venereol. 2024;58:54-65

Bulgular: Agresif tip BCC hastalarının ortalama yaşı daha yüksekti. Agresif tip BCC'ler yüzde daha yaygındı. Dermoskopik olarak, gri-mavi oval yuvalar gövdede daha yaygındı. Pigmente noktalar yüzde daha az yaygındı, globüller ise saçlı deride daha sık görülüyordu. Küçük erozyonlar ekstremitelerde daha yaygındı ve parlak beyaz-kırmızı yapısız alanlar gövde ve ekstremitelerde daha yaygındı. Nokta damarlar saçlı deride daha sık görülüyordu. Vasküler özellikler yüzde daha yaygındı ve pigmente özellikler yüzde daha az yaygındı. Diğer dermoskopik özellikler yüzde ve gövdede daha yaygındı. Nodüler lezyonlarda, arborize damarlar, ülserasyon, beyaz kristaller ve saç tokası damarları daha yaygındı. Diğer dermoskopik özellikler nodüler lezyonlarda daha yaygındı. Mikst tip BCC'lerde gri-mavi oval yuvalar ve globüller daha yaygındı, tek tip BCC'lerde ise küçük erozyonlar daha sık görülüyordu. Vasküler özellikler mikst tip BCC'lerde daha yaygındı. Ülserasyon agresif BCC'lerde daha yaygındı, küçük erozyonlar ise non-agresif BCC'lerde daha yaygındı. Histopatolojik olarak, pigmente BCC'ler saçlı deri ve gövdede yüzde daha yaygındı. Süperfisiyel BCC, gövdede ve düz lezyonlarda daha yaygındı. Adenoid BCC nodüler lezyonlarda daha sık görülüyordu. Mikst tip BCC'ler saçlı deride daha yaygındı ve daha agresif olma olasılığı yüksekti. Mikst tip BCC'ler, pigmente, infiltratif, adenoid, mikronodüler ve solid BCC'ler dahil olmak üzere daha yüksek alt tip görülme sıklığına sahipti. Kistik dejenerasyon, mikst tip BCC'lerde daha yaygındı.
Sonuç: Klinik-patolojik korelasyonlar ve dermoskopik bulgular, BCC'nin anlaşılmasını geliştirerek doğru tanı ve yönetimi sağlar.
Anahtar Kelimeler: Bazal hücreli karsinom, dermoskopi, histopatoloji, deri kanseri, non-melanom

Introduction

Basal cell carcinoma (BCC) is the most common skin cancer. Both dermoscopy and histopathological evaluation are crucial for accurate diagnosis and treatment planning. This study aims to contribute to the diagnosis and treatment of BCC by comparing clinical, dermoscopic, and pathological features.

Materials and Methods

The approval of the Bezmialem University Clinical Research Ethics Committee was received (approval number: 4/5, date: 19.02.2014). This retrospective study included 104 patients with histopathological BCC and 111 BCC lesions who presented to the dermatology outpatient clinic between 2012 and 2015. Clinical and dermoscopic examinations were performed, and BCC subtyping was conducted histopathologically. A platform-based dermoscopic system (FotoFinder, Digital Dermoscopy; Foto Finder Systems GmbH, Bad Birnbach, 2007, Germany) was used. Clinical appearance of lesions of BCC was noted in basic dermatological descriptive morphological terms (macule, patch, papule, plaque, or nodule)[1]. Tumors' clinical images are classified as flat, elevated, or nodular[2]. The Fitzpatrick skin phototype classification was used to identify phototypes[1]. Histopathologically, BCC subtypes are classified as solid, infiltrative, micronodular, adenoid, cystic, pigmented, superficial, morpheaform, pinkus fibroepithelioma, infundibulocystic, morpheic, keratotic, basosquamous carcinoma (Ca), and metatypic[3]. Histopathological features detected in the biopsies were also recorded as ulceration and cystic degeneration. We also classified the BCCs into four groups: The aggressive type, which included infiltrative, morpheiform, basosquamous Ca, metatypic Ca, and micronodular; the non-aggressive type, comprising solid, superficial, adenoid, and pigmented growths; and the single histopathological type. On the skin, we saw blue-gray oval nests, areas that look like maple leaves, spoke wheel patterns, concentric structures, blue-gray globules, blue-gray dots, arborizing vessels, short fine telangiectasias (SFT), dotted vessels, comma vessels, hairpin vessels, shiny white-red structureless areas (WRSA), white areas, white globules, white line crystals, ulceration, and many small erosions and superficial scales[4-6]. We classified the following types of anatomic sites: Scalp, face, trunk, and limbs.

Statistical Analysis

We used means, standard deviations, and percentages for descriptive statistics. We determined the agreement of the findings using the kappa (κ)-coefficient of agreement. The sensitivity, specificity, positive and negative predictive values as diagnostic test measures, as well as overall accuracy rates, were considered. We used the Landis and Koch (1977) table to interpret the κ-coefficient of agreement.

We evaluated the relationships between aggressive/non-aggressive type, mix/non-mix type BCC, and other parameters using the Pearson's chi-square, Fisher-Freeman-Halton, or Fisher's exact test. We assessed the normal distribution of continuous variables using the Shapiro-Wilk test. To compare the means of two independent groups, we used the Mann-Whitney U test, and to compare the means of more than two independent groups, we used the Kruskal-Wallis test. We performed the statistical analyses using IBM SPSS 28. Statistical significance was set at $p<0.05$.

Results

Age and gender

Patients' ages ranged from 27 to 88 years, with a mean age of 65.73 years. The study included 104 patients [female (F): 54 (51%); male (M): 50 (48%)] with 111 BCC lesions [F: 57 (51.4%), M: 54 (48.6%)] (Table 1). Seven patients (M: 4, F: 3) had two BCC lesions each. Despite the lower average age of patients with BCC localized in the extremities compared to other localization groups, there was no significant difference in age localization (p=0.533). Although there was a slightly higher average age for nodular lesions among the palpability groups, there was no significant age difference. We found no significant gender difference among the palpability groups. We found no significant difference (p=0.086) between the average age of mixed BCCs (66.92) and solitary-type BCCs (63.65). We found that the average age of aggressive-type BCCs (67.70) significantly exceeded that of non-aggressive BCCs (62.7) (p=0.017).

Despite the higher proportion of males in mixed BCCs (53.5%) compared to non-mixed BCCs (60%), there was no significant gender difference between the two groups (p=0.171). Despite the higher percentage of females in non-aggressive BCCs, there was no significant gender difference (p=0.585).

Localizations of the lesions

Of the 111 lesions, 72% (n=81) were located on the face, 6% (n=7) on the scalp, 18% (n=20) on the trunk, and 3% (n=4) on the extremities (Table 2). When examining lesions on the face in more detail, the most common locations were as follows: Nose [32 (28.8%)]; forehead [26 (23%)]; temple [12 (10.8%)]. All four BCC lesions in the limbs were located in the lower extremity. Considering the age distribution of the locations, the average age of 80

BCCs on the face of the lesions was 66.3; the average age of 7 BCCs on the scalp was 66.5; the average age of 20 BCCs on the trunk was 64.7; and the average age of 4 BCCs on the extremities was 57.5.

While the proportion of females in BCCs was slightly higher in the facial area (F: 50%, M: 49%), there was a female predominance in the extremities (100%). There was a slight male predominance on the scalp (F: 42%, M: 57%), and trunk (F: 45%, M: 55%). The study found no significant difference between localization regions and gender (p=0.269), despite the higher number of female patients with BCC localized in the extremities and face.

When we separated the sites into three groups, head-neck, trunk, and extremities, we found that 88 of the 111 lesions (79%) were in the head-neck, with 44 (50%) in females and 44 (50%) in males; 20 lesions (18%) were in the trunk, with 9 (45%) in females and 11 (55%) in males; and 4 lesions were in the lower extremities, with all 4 (100%) in females (Table 2).

Lesions larger than 1 cm in diameter were found to be significantly higher on the trunk compared to the face, while lesions smaller than 1 cm were significantly higher on the face compared to the trunk (p=0.010).

In the facial localization, we found a significantly higher presence of aggressive-type BCCs compared to other localizations (p=0.024).

Clinical features

According to palpability, 16% (18) of the clinical features were flat, 66% (74) were elevated, and 17% (19) were nodular. The most common clinical morphological form was plaque [n=59 (53%)], followed by nodules [19 (17%)], papules [15 (13%)], macules [12 (10%)], and patches [6 (5%)]. Phototype 3 was the most common skin type (49%; n=54). There was equal representation of phototypes 2 and 4 (25% each; n=28) (Table 1).

Dermoscopic features

A dermoscope showed that SFT [78 (76%)] were the most common feature. These were followed by WRSA [62 (62%)], dotted vessels [58 (58%)], arborizing vessels [57 (57%)], blue-gray dots [49 (49%)], concentric structures [44 (39%)], blue-gray globules [44 (39%)], ulceration [44 (39%)], blue-gray oval nest [35 (31%)], hairpin vessels [29 (26%)], comma vessels [27 (24%)], white globules [26 (23%)], multiple small erosions [25 (22%)], white linear crystals [20 (18%)], maple leaf-like areas [13 (11%)], superficial scale [13 (11%)], and finally spoke wheel-like patterns [3 (2%)] (Figure 1-5).

Table 1. Demographic characteristics

Demographic characteristics
Age distribution
- Mean age: 65.73 years (±12.06)
- Range (27-88)
Gender distribution, (n=111)
- Male [54 (48.6%)]
- Female [57 (51.4%)]
Skin phototypes
- Phototype 2 [28 (25%)]
- Phototype 3 [n=54, (49%)]
- Phototype 4 [28, (25%)]
Diameter classification
- 0-0.5 cm: 36 cases (32.4%)
- 0.5-1 cm: 28 cases (25.2%)
- 1-2 cm: 41 cases (36.9%)
- >2 cm: 6 cases (5.4%)

Dermoscopic, we found significantly more gray-blue ovoid nests on the trunk (55%) compared to the face (23.8%) (p=0.018). The face had significantly fewer pigmented dots than other localizations (p=0.041). Pigmented globules were found to be significantly higher on the scalp compared to the face and extremities (p<0.001).

Multiple small erosions were found to be significantly higher on the extremities compared to the face and scalp (p=0.004). We found that the trunk and extremities had significantly more shiny WRSA than the scalp (p=0.007). The scalp had significantly more dot vessels than the face and extremities (p=0.003). The face exhibited significantly higher vascular dermoscopic features than the scalp (p=0.054). We found that the face had significantly fewer pigmented features than other localizations (p=0.030). Overall, we found significantly higher levels of other dermoscopic features, such as pigment and vascular features, on the face and trunk compared to the scalp (p=0.001).

Nodular lesions showed significantly higher arborizing vessels compared to elevated and flat lesions (p=0.010). Nodular lesions showed significantly higher ulceration compared to flat lesions (p=0.027). White crystals were found to be significantly higher in nodular lesions compared to elevated and flat lesions (p<0.001). We found significantly more hairpin vessels in nodular lesions compared to elevated and flat lesions (p=0.038). In addition to color and vascular features like erosion, ulceration, and white structures, we saw a lot more of these other skin features in nodular lesions compared to flat lesions (p=0.011) (Table 3).

We found a significant increase in gray-blue ovoid nests in mixed-type BCCs compared to single-type BCCs (p=0.001). Mixed-type BCCs exhibited significantly more globules than single-type BCCs (p=0.018). Multiple small erosions were found to be significantly higher in single-type BCCs compared to mixed-type BCCs (p=0.018). Mixed-type BCCs showed significantly higher vascular features (p=0.050) (Table 4). The dermoscopic results showed that aggressive-type BCCs had significantly more ulceration (55% vs. 15% for non-aggressive BCCs; p<0.001). We found that non-aggressive BCCs had significantly more multiple small erosions (86%) than aggressive BCCs (13%; p=0.005). There were a lot more pigmented and vascular dermoscopic findings (erosion, ulceration, and white structures) in aggressive types (92.5%) than in non-aggressive types (77.3%; p=0.021) (Table 5).

Histopathological features

Solid BCC [51 (45.9%)] was the most common histopathologic subtype. This was followed by infiltrative [30 (27%)], micronodular [29 (26%)], adenoid [29 (26%)], superficial [27 (24.3%)], morpheaform [14 (12.6%)], basosquamous [8 (7.2%)], and metatypic [7 (6.3%)] BCC.

Ulceration [30 (27%)], pigmentation [23 (20.7%)], and cystic degeneration [23 (20.7%)] were among the histopathological features detected in the biopsies (Table 6). Out of the 40 BCCs that only had one histopathological subtype, were solid [9 (22%)], superficial [7 (17%)], basosquamous [6 (15%)], infiltrative [5 (12%)], and morpheiform [4 (10%)], adenoid [4.10%)], micronodular [3 (7%)], pigmented [n=2 (5%)], and metatypic [n=1 (2%)]. While 40 (36%) of 111 lesions histopathologically contained a single

BCC subtype, 71 (63.9%) contained more than one histopathological BCC subtype (mixed type). Mixed-type BCC lesions had different types of cancerous cells: Solid [42 (59%)], micronodular [26 (36%)], infiltrative [25 (35%)], adenoid [25 (35%)], pigmented [21 (29%)], superficial [20 (28%)], and morpheiform [10 (14%)]. The most common combination was solid + adenoid [7 (9%)], followed by solid + infiltrative [5 (7%)], solid + micronodular and pigmented + superficial [4 (5%)], pigmented + superficial + solid [3 (4%)], infiltrative + morpheiform [3 (4%)], micronodular + adenoid [3 (4%)], and superficial + solid [3 (4%)] (Table 7).

While 67 (60.3%) of the BCC lesions had features of aggressive subtype BCC, 44 (39.6%) contained non-aggressive subtypes.

Nearly 53.5% of mixed-type BCCs were male, and 46.5% were female. Mixed-type BCC contained a histopathologically pigmented subtype (33%), which was significantly higher than non-mixed ones (2.5%) (p<0.001). Mixed-type BCC histopathology included the infiltrative subtype (36.6%), which was significantly higher than that of non-mixed subtypes (10%) (p=0.02). Mixed-type BCC histologically contained the micronodular subtype (33.8%), which was significantly

Table 2. Demographic, dermoscopic, and histopathological characteristics according to locations

		Head	Scalp	Trunk	Extremities	p
Age, (mean ± SD)		66.33±11,852	66.57±6,901	64.75±13,206	57.50±18,157	p=0.533
Gender, n (%)						
Female	57 (51.4%)	41$_a$ (51.2%)	3$_a$ (42.9%)	9$_a$ (45.0%)	4$_a$ (100.0%)	p=0.269
Male	54 (48.6%)	39$_a$ (48.8%)	4$_a$ (57.1%)	11$_a$ (55.0%)	0$_a$ (0.0%)	
Diameter						
>1 cm	47 (42%)	**27 (33.8%)^a**	3 (42.9%)^{a,b}	**14 (70%)^b**	3 (75%)^{a,b}	p=0.010
<1 cm	64 (57%)	**53 (66.3%)^a**	4 (57.1%)^{a,b}	**6 (30.0%)^b**	1 (25.0%)^{a,b}	
Dermoscopic features, n (%)						
Vascular features	100 (90.1%)	**73$_a$ (91.3%)**	**4$_b$ (57.1%)**	19$_{a,b}$ (95.0%)	4$_{a,b}$ (100.0%)	p=0.054
Arborizing vessels	57 (51.4%)	45$_a$ (56.3%)	2$_a$ (28.6%)	9$_a$ (45.0%)	1$_a$ (25.0%)	p=0.330
Short fine telangiectasia	78(70.9%)	57$_a$ (71.3%)	3$_a$ (42.9%)	15$_a$ (78.9%)	3$_a$ (75.0%)	p=0.350
Dot vessels	58 (52.3%)	**45$_a$ (56.3%)**	**0$_b$ (0%)**	9$_{a,b}$ (45.0%)	**4$_a$ (100.0%)**	**p=0.003**
Comma vessels	27 (24.3%)	23$_a$ (28.7%)	0$_a$ (0.0%)	3$_a$ (15.0%)	1$_a$ (25.0%)	p=0.268
Hairpin vessels	29 (26.1%)	22$_a$ (27.5%)	0$_a$ (0.0%)	5$_a$ (25.0%)	2$_a$ (50.0%)	p=0.280
Pigmented features	82 (73.9%)	**53$_a$ (66.3%)**	7$_a$ (100.0%)	18$_a$ (90.0%)	4$_a$ (100.0%)	**p=0.030**
Gray blue ovoid nests	35 (31.5%)	**19$_a$ (23.8%)**	4$_{a,b}$ (57.1%)	**11$_b$ (55.0%)**	1$_{a,b}$ (25.0%)	**p=0.018**
Maple leaf-like areas	13 (11.7%)	7$_a$ (8.8%)	3$_b$ (42.9%)	3$_{a,b}$ (15.0%)	0$_{a,b}$ (0.0%)	p=0.066
Spokewheel-like patterns	3 (2.7%)	2$_a$ (2.5%)	0$_a$ (0.0%)	1$_a$ (5.0%)	0$_a$ (0.0%)	p=0.630
Consantric structure	44 (39.6%)	28$_a$ (35.0%)	4$_a$ (57.1%)	11$_a$ (55.0%)	1$_a$ (25.0%)	p=0.248
Pigmented dot	49 (44.1%)	30$_a$ (37.5%)	4$_a$ (57.1%)	11$_a$ (55.0%)	4$_a$ (100.0%)	p=0.041
Globules	44 (39.6%)	**26$_a$ (32.5%)**	**7$_b$ (100.0%)**	11$_{a,b}$ (55.0%)	**0$_a$ (0.0%)**	**p<0.001**
Other features	96 (86.5%)	**71$_a$ (88.8%)**	**2$_b$ (28.6%)**	**19$_a$ (95.0%)**	4$_{a,b}$ (100.0%)	**p=0.001**
Ulceration	44 (39.6%)	32$_a$ (40.0%)	1$_a$ (14.3%)	10$_a$ (50.0%)	1$_a$ (25.0%)	p=0.422
Multiple small erosions	25 (22.5%)	**14$_a$ (17.5%)**	**1$_a$ (14.3%)**	6$_{a,b}$ (30.0%)	**4$_b$ (100.0%)**	**p=0.004**
WRSA	62 (55.9%)	42$_{a,b}$ (52.5%)	**1$_b$ (14.3%)**	**15$_a$ (75.0%)**	**4$_a$ (100.0%)**	**p=0.007**
White cristals	20 (18.0%)	16$_a$ (20.0%)	0$_a$ (0.0%)	3$_a$ (15.0%)	1$_a$ (25.0%)	p=0.575
Scales	13 (11.7%)	9$_a$ (11.3%)	0$_a$ (0.0%)	4$_a$ (20.0%)	0$_a$ (0.0%)	p=0.565
White globules	26 (23.4%)	19$_a$ (23.8%)	1$_a$ (14.3%)	6$_a$ (30.0%)	0$_a$ (0.0%)	p=0.693
Histopathologic						
Pigmented	23 (20.7%)	**9$_a$ (11.3%)**	**6$_b$ (85.7%)**	**8$_{b,c}$ (40.0%)**	**0$_{a,c}$ (0.0%)**	**p<0.001**
Superficial	27 (24.3%)	**11$_a$ (13.8%)**	**3$_{a,b}$ (42.9%)**	**11$_b$ (55.0%)**	**2$_{a,b}$ (50.0%)**	**p<0.001**
Adenoid	29 (26.1%)	22$_a$ (27.5%)	1$_a$ (14.3%)	5$_a$ (25.0%)	1$_a$ (25.0%)	p=0.969
Infiltrative	30 (27.0%)	26$_a$ (32.5%)	1$_a$ (14.3%)	3$_a$ (15.0%)	0$_a$ (0.0%)	p=0.266
Micronodular	29 (26.1%)	24$_a$ (30.0%)	0$_a$ (0.0%)	4$_a$ (20.0%)	1$_a$ (25.0%)	p=0.343
Morpheiform	14 (12.6%)	11$_a$ (13.8%)	2$_a$ (28.6%)	1$_a$ (5.0%)	0$_a$ (0.0%)	p=0.334
Solid	51 (45.9%)	33$_a$ (41.3%)	5$_a$ (71.4%)	12$_a$ (60.0%)	1$_a$ (25.0%)	p=0.186
Metatypic	7 (6.3%)	6$_a$ (7.5%)	0$_a$ (0.0%)	1$_a$ (5.0%)	0$_a$ (0.0%)	p=1.000
Basosquamous Ca	8 (7.2%)	7$_a$ (8.8%)	0$_a$ (0.0%)	1$_a$ (5.0%)	0$_a$ (0.0%)	p=1.000

SD: Standard deviation, WRSA: White-red structureless areas

higher than that of non-mixed BCC (12.5%) (p=0.01). Mixed-type BCC histopathologically contained the adenoid subtype (32.4%), which was significantly higher than that of non-mixed BCC (15%) (p=0.04). Mixed-type BCC histopathologically showed cystic degeneration (29.6%), which was significantly higher than that of non-mixed BCC (5%) (p=0.02) (Table 4).

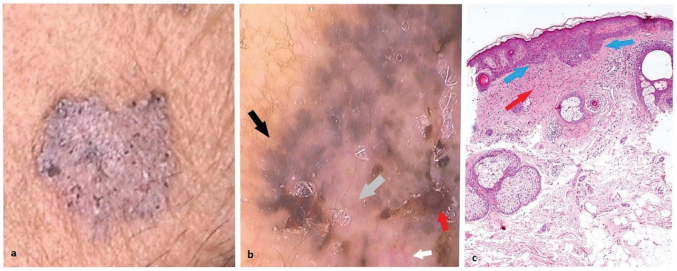

Figure 1. (a) Dark brown and pink colored pigmented patch with sharp, irregular border, **(b)** Maple tree leaf-like areas (black arrow), shiny white-red structure area (gray arrow), erosion (red arrow), short fine telengiectesia (white arrow) with dermoscopy were observed, **(c)** Superficial type BCC: Horizontally spreading atypical basaloid cells anastomosing at rete ridges (blue arrows), surrounding stroma is fibrotic (red arrow) (H&E, x40)
H&E: Hematoxylin and eosin, BCC: Basal cell carcinoma

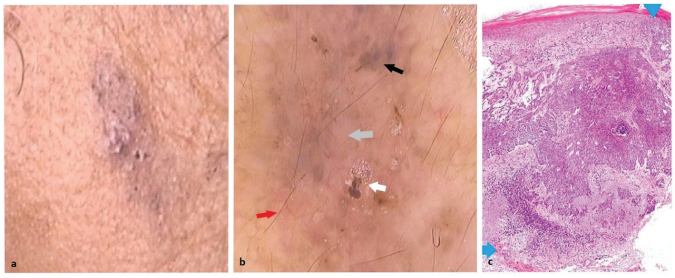

Figure 2. (a) Irregular pigmented patch, **(b)** Concentric structures (black arrow), shiny white-red structure area (gray arrow), short fine telengiectesia (red arrow), erosion (white arrow) with dermoscopy, **(c)** Infiltrative and metatypical type BCC: The tumor has a focal connection with the epidermis (triangle) extending throughout the muscular layer (arrow) with ill-defined borders. Some cells of the tumor have larger and paler cytoplasm (metatypical BCC) (H&E, x40)
H&E: Hematoxylin and eosin, BCC: Basal cell carcinoma

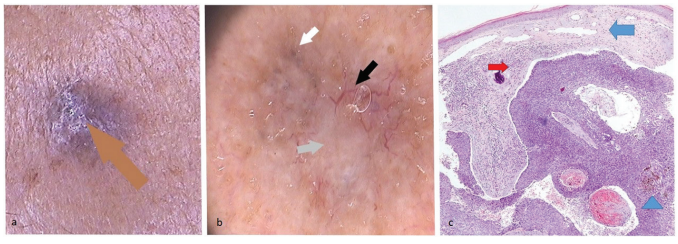

Figure 3. (a) Plaque lesion with violaceous color (brown arrow), **(b)** Arborizing vessels (black arrow), blue-gray globules (white arrow); shiny white-red structure area (gray arrow), **(c)** Solid and micronodular type BCC with cystic degeneration: Solid and cystic tumor has retraction artifact (red arrow) separating from papillary dermis with telangiectatic vessels (blue arrow). The tumor has pigmented areas secondary to the hemorrhage (triangle) (H&E, x40)
H&E: Hematoxylin and eosin, BCC: Basal cell carcinoma

Histopathologically, pigmented BCCs were found to be significantly higher on the scalp and trunk compared to the face, and significantly higher on the scalp compared to the extremities (p<0.001) (Table 2). Histopathologically, we found that superficial BCC was significantly higher in flat lesions compared to nodular lesions (p=0.015). Adenoid BCC was much more common in nodular lesions than in elevated and flat lesions (p<0.001) (Table 3). Mixed-type BCCs on the scalp were much more common than those found in the extremities (p=0.035). The likelihood of finding aggressive type BCCs in mixed type BCCs was also significantly higher (p=0.038). Histopathologically, mixed-type BCCs had a lot more of different subtypes than single-type BCCs. These subtypes included pigmented BCCs (p<0.001), infiltrative BCCs (p=0.002), adenoid BCCs (p=0.045), micronodular BCCs (p=0.014), and solid BCCs (p<0.001). Additionally, cystic degeneration was significantly more common in mixed-type BCCs compared to single-type BCCs (p=0.002) (Table 4).

Correlations and comparisons

Clinical and dermoscopic features

We looked at the κ-coefficient of agreement between clinical and dermoscopic features. Lesions with visible pigment had a small agreement with blue-gray oval nests in dermoscopy (κ=0.569), a moderate agreement with areas that looked like maple tree leaves in dermoscopy (κ=0.401), and a small agreement with globules in dermoscopy (κ=0.544). The most common dermoscopic features of the 88 lesions in the head-neck area were SFT (69%), arborizing vessels (54%), dotted vessels (51%), and WRSA (50%). The most common dermoscopic features of the trunk were WRSA (73%), SFT (73%), blue-gray globules (57%), blue-gray dots (52%), concentric structures (52%), and blue-gray oval nests (52%). The most common microscopic features of the four lesions in the limbs were erosions (100%), dotted vessels (100%), WRSA (100%), and SFT (75%). When looking at the agreement between clinical and pathological features, it was found that lesions with clinically plaque characteristics had a small amount of agreement with superficial type BCC (sBCC) (λ=0.458). Substantial agreement was observed between visible pigment presence and histologic pigmentation (κ=0.611).

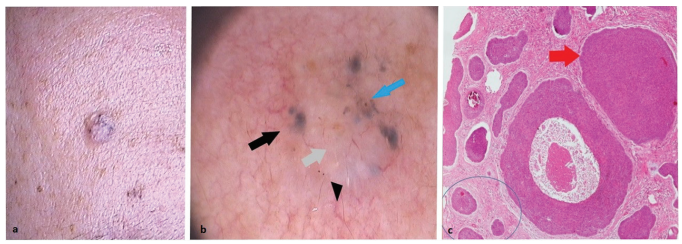

Figure 4. (a) Pink papular lesion with dark pigmented spots, **(b)** Blue-gray globules (black arrow) shiny white-red structure areas (gray arrow) blue-gray dots (blue arrow) white linear crystals (black arrowhead), **(c)** Solid and micronodular type BCC with cystic degeneration. The tumor exhibits both macro (represented by a red arrow) and micronodular (represented by an eclipse) areas, with the largest tumor nodule showing cystic degeneration (H&E, x40)
H&E: Hematoxylin and eosin, BCC: Basal cell carcinoma

Table 3. Demographic, dermoscopic, and histopathological characteristics according to palpability					
		Nodular, n (%) 21	**Elevated, n (%) 71**	**Flat, n (%) 19**	**p**
Age		67.19±11,936	66.13±12,420	62.68±10,878	p=0.392
Gender					
Female	57 (51.4%)	8_a (38.1%)	36_a (50.7%)	13_a (68.4%)	p=0.157
Male	54 (48.6%)	13_a (61.9%)	35_a (49.3%)	6_a (31.6%)	
Localisation					
Face	80 (72%)	17_a (21.3%)	50_a (62.5%)	13_a (16.3%)	p=0.249
Scalp	7 (6%)	0_a (0.0%)	4_a (57.1%)	3_a (42.9%)	
Trunk	5 (4%)	2_a (10.0%)	15_a (75.0%)	3_a (15.0%)	
Limbs	4 (3%)	2_a (50.0%)	2_a (50.0%)	0_a (0.0%)	
Dermoscopic features, n (%)					
Vascular features	100 (90.1%)	21_a (100.0%)	62_a (87.3%)	17_a (89.5%)	p=0.246
Arborizing	57 (51.4%)	**17_b (81.0%)**	**32_a (45.1%)**	**8_a (42.1%)**	**p=0.010**
Short fine telangiectasia	78 (70.9%)	14_a (66.7%)	49_a (69.0%)	15_a (83.3%)	p=0.437
Dot vessels	58 (52.3%)	13_a (61.9%)	38_a (53.5%)	7_a (36.8%)	p=0.267
Comma vessels	27 (24.3%)	7_a (33.3%)	17_a	3_a (15.8%)	p=0.431
Hairpin vessels	29 (26.1%)	**10_a (47.6%)**	**16_a (22.5%)**	**3_a (15.8%)**	**p=0.038**
Pigmented features	82 (73.9%)	16_a (76.2%)	53_a (74.6%)	13_a (68.4%)	p=0.830
Gray blue ovoid nests	35 (31.5%)	8_a (38.1%)	23_a (32.4%)	4_a (21.1%)	p=0.494
Maple leaf-like areas	13 (11.7%)	1_a (4.8%)	8_a (11.3%)	4_a (21.1%)	p=0.316
Spokewheel-like patterns	3 (2.7%)	0_a (0.0%)	3_a (4.2%)	0_a (0.0%)	p=1.000
Consantric structure	44 (39.6%)	9_a (42.9%)	26_a (36.6%)	9_a (47.4%)	p=0.658
Pigmented dot	49 (44.1%)	8_a (38.1%)	34_a (47.9%)	7_a (36.8%)	p=0.570
Globules	44 (39.6%)	7_a (33.3%)	32_a (45.1%)	5_a (26.3%)	p=0.268
Other features	96 (86.5%)	**21_b (100.0%)**	**$62_{a,b}$ (87.3%)**	**13_a (68.4%)**	**p=0.011**
Ulceration	44 (39.6%)	**12_b (57.1%)**	**$29_{a,b}$ (40.8%)**	**3_a (15.8%)**	**p=0.027**
Multiple small erosions	25 (22.5%)	4_a (19.0%)	18_a (25.4%)	3_a (15.8%)	p=0.717
WRSA	62 (55.9%)	13_a (61.9%)	39_a (54.9%)	10_a (52.6%)	p=0.812
White cristals	20 (18.0%)	**10_b (47.6%)**	**8_a (11.3%)**	**2_a (10.5%)**	**p<0.001**
Scales	13 (11.7%)	3_a (14.3%)	9_a (12.7%)	1_a (5.3%)	p=0.758
White globules	26 (23.4%)	8_a (38.1%)	15_a (21.1%)	3_a (15.8%)	p=0.193
Histopathology					
Pigmented	23 (20.7%)	2_a (9.5%)	16_a (22.5%)	5_a (26.3%)	p=0.344
Superficial	27 (24.3%)	**0_b (0.0%)**	**21_a (29.6%)**	**6_a (31.6%)**	**p=0.015**
Adenoid	29 (26.1%)	**13_b (61.9%)**	**15_a (21.1%)**	**1_a (5.3%)**	**p<0.001**
Infiltrative	30 (27.0%)	4_a (19.0%)	22_a (31.0%)	4_a (21.1%)	p=0.452
Micronodular	29 (26.1%)	7_a (33.3%)	18_a (25.4%)	4_a (21.1%)	p=0.657
Morpheiform	14 (12.6%)	2_a (9.5%)	8_a (11.3%)	4_a (21.1%)	p=0.459
Solid	51 (45.9%)	11_a (52.4%)	30_a (42.3%)	10_a (52.6%)	p=0.582

WRSA: White-red structureless areas

Dermoscopic and histopathological features

When pathologic and dermoscopic features were compared, the tissue's color matched some blue-gray oval nests seen under a microscope (κ=0.494), some areas that looked like maple tree leaves seen under a microscope (κ=0.477), and some globules seen under a microscope (κ=0.405). Additionally, there was moderate agreement between histologic ulceration and ulceration seen in dermoscopy (κ=0.363). When looking at the skin, more gray-blue ovoid nests were seen in mixed-type BCC (42.3%) than in non-mixed BCC (12.5%) (p=0.001). The dermoscopic presence of gray-blue globules in mixed-type BCC (47.9%) was significantly higher than that in non-mixed BCC (25%) (p=0.01). The rate of dermoscopic erosion in mixed-type BCC (15%) was significantly lower than that in non-mixed-type BCC (35%) (p=0.01). Dermoscopy revealed that arborizing vessels had a sensitivity of 56%, compared to real solid-type BCC, and a specificity of 53%. Blue-gray oval nests had a sensitivity of 78%, compared to pigmented BCC, and a specificity of 80%.

Table 4. Demographic, dermoscopic, and histopathological characteristics according to whether they are mixed or single type

		Mixed, n (%)	Non-mixed, n (%)	p
Age, (mean ± SD)		66.92±12,417	63.65 ±11,258	p=0.086
Gender, n (%)				
Female	57 (51.4%)	33_a (46.5%)	24_a (60.0%)	p=0.171
Male	54 (48.6%)	38_a (53.5%)	16_a (40.0%)	
Localisation, n (%)				
Face	80 (72%)	$48_{a,b}$ (60.0%)	$32_{a,b}$ (40.0%)	**p=0.035**
Scalp	7 (6%)	**7_b (100.0%)**	**0_b (0.0%)**	
Trunk	5 (4%)	$15_{a,b}$ (75.0%)	$5_{a,b}$ (25.0%)	
Limbs	4 (3%)	**1_a (25.0%)**	**3_a (75.0%)**	
Palpability, n (%)				
Nodular	21 (18%)	13_a (18.3%)	8_a (20.0%)	p=0.968
Elevated	71 (63%)	46_a (64.8%)	25_a (62.5%)	
Flat	19 (17%)	12_a (16.9%)	7_a (17.5%)	
Aggressive type	67 (60%)	**48_b (67.6%)**	**19_b (47.5%)**	**p=0.038**
Non-aggresive type	44 (39%)	**23_a (32.4%)**	**21_a (52.5%)**	
Dermoscopic features, n (%)				
Vascular features	100 (90.1%)	61_b (85.9%)	39_a (97.5%)	**p=0.050**
Arborizing vessels	57 (51.4%)	34_a (47.9%)	23_a (57.5%)	p=0.331
Short fine telangiectasia	78 (70.9%)	46_a (65.7%)	32_a (80.0%)	p=0.113
Dot vessels	58 (52.3%)	34_a (47.9%)	24_a (60.0%)	p=0.220
Comma vessels	27 (24.3%)	14_a (19.7%)	13_a (32.5%)	p=0.132
Hairpin vessels	29 (26.1%)	20_a (28.2%)	9_a (22.5%)	p=0.514
Pigmented features	82 (73.9%)	**54_a (76.1%)**	**28_a (70.0%)**	p=0.486
Gray blue ovoid nests	35 (31.5%)	**30_b (42.3%)**	**5_a (12.5%)**	**p=0.001**
Maple leaf-like areas	13 (11.7%)	11_a (15.5%)	2_a (5.0%)	p=0.099
Spokewheel-like patterns	3 (2.7%)	3_a (4.2%)	0_a (0.0%)	p=0.552
Consantric structure	44 (39.6%)	27_a (38.0%)	17_a (42.5%)	p=0.644
Pigmented dot	49 (44.1%)	32_a (45.1%)	17_a (42.5%)	p=0.793
Globules	44 (39.6%)	**34_b (47.9%)**	**10_a (25.0%)**	**p=0.018**
Other features	96 (86.5%)	60_a (84.5%)	36_a (90.0%)	p=0.416
Ulceration	44 (39.6%)	31_a (43.7%)	13_a (32.5%)	p=0.248
Multiple small erosions	25 (22.5%)	**11_b (15.5%)**	**14_a (35.0%)**	**p=0.018**
WRSA	62 (55.9%)	39_a (54.9%)	23_a (57.5%)	p=0.793
White cristals	20 (18.0%)	13_a (18.3%)	7_a (17.5%)	p=0.915
Scales	13 (11.7%)	10_a (14.1%)	3_a (7.5%)	p=0.300
White globules	26 (23.4%)	18_a (25.4%)	8_a (20.0%)	p=0.523
Histopathology				
Pigmented	23 (20.7%)	**22_b (31.0%)**	**1_a (2.5%)**	**p≤0.001**
Infiltrative	30 (27.0%)	**26_b (36.6%)**	**4_a (10.0%)**	**p=0.002**
Superficial	27 (24.3%)	20_a (28.2%)	7_a (17.5%)	p=0.208
Adenoid	29 (26.1%)	**23_b (32.4%)**	**6_a (15.0%)**	**p=0.045**
Micronodular	29 (26.1%)	**24_b (33.8%)**	**5_a (12.5%)**	**p=0.014**
Morpheiform	14 (12.6%)	10_a (14.1%)	4_a (10.0%)	p=0.534
Solid	51 (45.9%)	**42_b (59.2%)**	**9_a (22.5%)**	**p<0.001**
Cyctic degeneration	23 (20.7%)	**21_b (29.6%)**	**2_a (5.0%)**	**p=0.002**

SD: Standard deviation, WRSA: White-red structureless areas

Table 5. Demographic, dermoscopic, and histopathological characteristics according to whether they are aggressive type or not				
		Agressive, (n=67)	**Non-agressive, (n=44)**	**p**
Age, (mean ± SD)		**67.70±11,623**	**62.75±12,240**	**p=0.017**
Gender, n (%)				
Female	57 (51.4%)	33_a (49.3%)	24_a (54.5%)	p=0.585
Male	54 (48.6%)	34_a (50.7%)	20_a (45.5%)	
Localisation, n (%)				
Face	80 (72%)	55_a (68.8%)	25_a (31.3%)	**p=0.024**
Scalp	7 (6%)	3_a (42.9%)	4_a (57.1%)	
Trunk	5 (4%)	8_a (40.0%)	12_a (60.0%)	
Limbs	4 (3%)	1_a (25.0%)	3_a (75.0%)	
Palpability, n (%)				
Nodular	21 (18%)	12_a (17.9%)	9_a (20.5%)	p=0.658
Elevated	71 (63%)	45_a (67.2%)	26_a (59.1%)	
Flat	19 (17%)	10_a (14.9%)	9_a (20.5%)	
Dermoscopic features, n (%)				
Vascular features	100 (90.1%)	62_a (92.5%)	38_a (86.4%)	p=0.287
Arborizing vessels	57 (51.4%)	39_a (58.2%)	18_a (40.9%)	p=0.084
Short fine telangiectasia	78 (70.9%)	47_a (70.1%)	31_a (72.1%)	p=0.827
Dot vessels	58 (52.3%)	37_a (55.2%)	21_a (47.7%)	p=0.439
Comma vessels	27 (24.3%)	16_a (23.9%)	11_a (25.0%)	p=0.893
Hairpin vessels	29 (26.1%)	19_a (28.4%)	10_a (22.7%)	p=0.509
Pigmented features	82 (73.9%)	49_a (73.1%)	33_a (75.0%)	p=0.827
Gray blue ovoid nests	35 (31.5%)	20_a (29.9%)	15_a (34.1%)	p=0.638
Maple leaf-like areas	13 (11.7%)	5_a (7.5%)	8_a (18.2%)	p=0.086
Spokewheel-like patterns	3 (2.7%)	1_a (1.5%)	2_a (4.5%)	p=0.561
Consantric structure	44 (39.6%)	26_a (38.8%)	18_a (40.9%)	p=0.825
Pigmented dot	49 (44.1%)	25_a (37.3%)	24_a (54.5%)	p=0.074
Globules	44 (39.6%)	24_a (35.8%)	20_a (45.5%)	p=0.310
Other features	96 (86.5%)	**62_b (92.5%)**	**34_a (77.3%)**	**p=0.021**
Ulceration	44 (39.6%)	**37_b (55.2%)**	**7_a (15.9%)**	**p<0.001**
Multiple small erosions	25 (22.5%)	**9_b (13.4%)**	**16_a (36.4%)**	**p=0.005**
WRSA	62 (55.9%)	37_a (55.2%)	25_a (56.8%)	p=0.869
White cristals	20 (18.0%)	13_a (19.4%)	7_a (15.9%)	p=0.639
Scales	13 (11.7%)	8_a (11.9%)	5_a (11.4%)	p=0.926
White globules	26 (23.4%)	13_a (19.4%)	13_a (29.5%)	p=0.217
SD: Standard deviation				

Discussion

The mild female dominance observed in our study, along with the mean age of 65, aligns with the findings reported by Scrivener et al.[7,8]. One important finding was that there was a statistically significant link between the color of the tissue and features on the skin, like blue-gray oval nests, maple leaf-like areas, and globules. Similarly, dermoscopic and histological ulcerations showed compatibility. The thickness of the tumor determines dermoscopic features, but a clinical exam alone cannot reliably distinguish between the different types of BCC[8]. There was a statistical agreement between the lesions seen clinically as plaques and their histopathological type being sBCC. Suppa et al.[2] discovered a link between the ability to feel sBCCs and various features, such as arborizing telangiectasias, blue-white veil-like structures, white shiny lines and rainbow patterns, and localization on the face, all of which are typically associated with nodular BCCs. As the sBCCs become easier to feel, you're more likely to see features like dark spots, blue-gray ovoid nests, sores, different types of blood vessels, the tumor being on the scalp or neck, and male sex. On the other hand, the more the sBCC could be felt, the less likely it was that it belonged to a female, was on the trunk, and had SFT and small erosions[2]. Our findings aligned with those of Suppa et al.[2], yet we discovered a non-statistically significant correlation between higher palpability and a higher male rate. The study further indicated no significant differences in location and palpability, mixed histopathological combinations and palpability, or aggressiveness and palpability. Also, our research showed that a rise in palpability was linked to a rise in adenoid types in pathology

Table 6. Histopathological characteristics			
Histopathological subtypes distribution: [n=111, (%)]		**BCCs containing a single histopathological subtype (n=40)**	**BCCs containing mixed histopathological subtypes (n=71)**
Solid type	51 (45.9%)	9 (22%)	42 (59%)
Infiltrative type	30 (27%)	5 (12%)	26 (36%)
Micronodular type	29 (26.1%)	3 (7%)	24 (33%)
Adenoid type	29 (26.1%)	4 (10%)	23 (32%)
Superficial type	27 (24.3%)	7 (17%)	20 (28%)
Morpheaform type	14 (12.6%)	4 (10%)	10 (14%)
Basosquamous Ca type	8 (7.2%)	6 (15%)	3 (4%)
Metatypic type type BCC	7 (6.3%)	1 (2%)	6 (8%)
Histopathological features			
- Ulceration	30 (27%)	10 (25%)	20 (28%)
- Pigmentation	23 (20.7%)	1 (2.5%)	22 (30%)
- Cystic degeneration	23 (20.7%)	2 (5%)	21 (29%)
- Squamous differentiation in focal areas	10 (9%)	2 (5%)	8 (11%)

BCC: Basal cell carcinoma

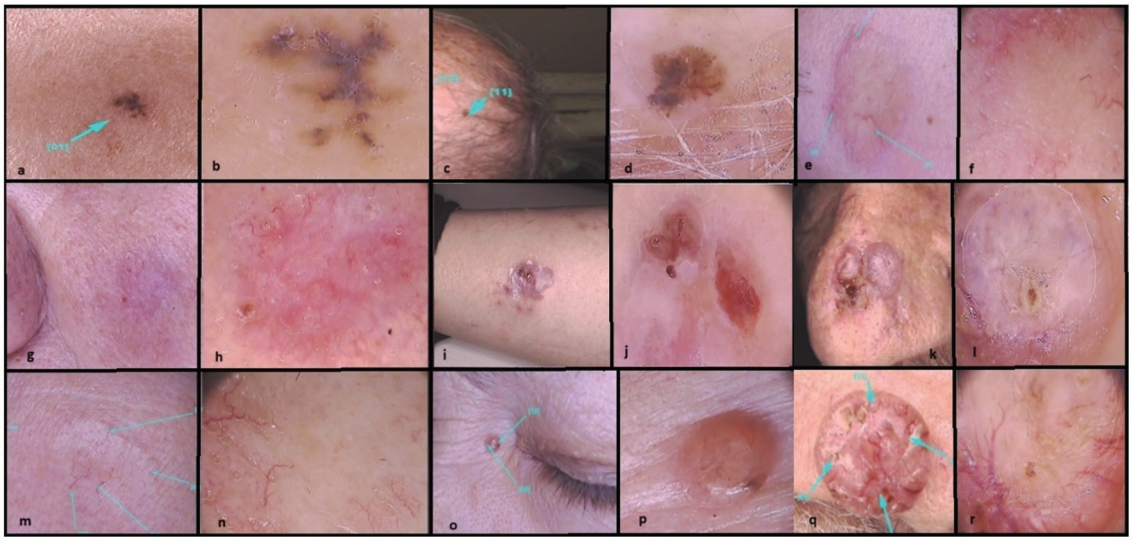

Figure 5. (a, b) A pigmented macular lesion smaller than 0.5 cm on the forehead, in which blue-gray nests, maple tree leaf-like areas, and pigmented dots are seen on dermoscopy (x20), and the pathology of the lesion is compatible with pigmented superficial BCC. **(c, d)** A pigmented macular lesion on the scalp, smaller than 0.5 cm, with dermoscopy showing arborized vessels, a blue-gray nest, a maple tree leaf-like area, and pigmented globules and dots. Its pathology is compatible with solid pigmented BCC. **(e, f)** Plaque lesion on the face with vessels of 1-2 cm in diameter and dermoscopy showing arborized vessels, SFT, WRSA, dot vessels, pathology compatible with infiltrative, morpheiform, adenoid BCC. **(g, h)** Lesion on the face with a diameter of 1 cm and dermoscopy showing arborized vessels, SFT, WRSA, dot-comma vessels, and white crystals. Its pathology is compatible with solid, micronodular BCC. **(i, j)** 2 cm-diameter ulcerated plaque on the leg; dermoscopy reveals multiple small erosions, WRSA, pigmented dots, dot vessels, pathology compatible with superficial micronodular BCC. **(k, l)** Ulcerated nodule on the face with a diameter of 1.5 cm; and dermoscopy shows arborized vessels, blue-gray nests-globules, SFT, punctate vessels, white crystals, and ulceration. Its pathology is compatible with adenoid BCC. **(m, n)** 1.5 cm diameter patch on the face and a lesion showing arborized vessels and WRSA on dermoscopy, pathology compatible with infiltrative BCC. **(o, p)** Papule smaller than 0.5 cm on the face and lesion with arborized vessels, pigmented globules, SFT, WRSA, white globules, white crystals on dermoscopy (x20), pathology compatible with micronodular BCC. **(q, r)** Nodule larger than 1 cm in the nose and arborized vessels, blue gray nests-globules-dots, SFT, dot-comma-hairpin vessels, multiple small erosions, white globule-crystal on dermoscopy, compatible with adenoid BCC with cystic degeneration in the pathology
WRSA: Shiny white-red structure areas, SFT: Short fine telangiectasias, BCC: Basal cell carcinoma

and a rise in arborizing vessels, hairpin vessels, ulceration, and white crystals in dermoscopy. On the other hand, superficial subtypes of pathology decreased. According to Suppa et al.[2] (Table 3), SFT, spoke-wheel areas, and small erosions were all linked to the location of the trunk, while arborizing telangiectasias were linked to the location of the face. In our study, we did not see a significant difference in SFT

Table 7. Subtype combinations of mixed type BCCs

Subtype contents in mixed type BCCs	Number (71)
Pigmented + superficial	4
Pigmented + superficial + solid	3
Pigmented + solid	2
Pigmented + micronodular	2
Infiltrative + solid	5
Infiltrative + micronodular + solid	2
Infiltrative + morpheiform	3
Infiltrative + metatypical	2
Infiltrative + basosquamous Ca	2
Micronodular + solid	4
Micronodular + adenoid	3
Micronodular + adenoid + solid	2
Superficial + micronodular	2
Superficial + micronodular + adenoid	2
Superficial + solid	3
Adenoid + solid	7
Pigmented + infiltative + morpheiform + solid	1
Pigmented + infiltative + micronodular	1
Pigmented + infiltative	1
Pigmented + superficial + micronodular + adenoid + solid	1
Pigmented + superficial + adenoid + solid	1
Pigmented + superficial + adenoid	1
Pigmented + micronodular + solid	1
Pigmented + micronodular + adenoid + solid	1
Pigmented + morpheiform + solid	1
Pigmented + adenoid + solid	1
Infiltrative + superficial + solid	1
Infiltative + morpheiform + solid	1
Infiltative + adenoid + solid	1
Infiltative + micronodular + metatypical	1
Infiltative + micronodular + adenoid	1
Infiltative + morpheiform + metatypical	1
Infiltative + morpheiform + adenoid	1
Infiltative + adenoid	1
Micronodular + solid + metatypical	1
Micronodular + morpheiform	1
Superfisyal + morpheiform + adenoid + solid	1
Adenoid + solid + metatypic	1

BCC: Basal cell carcinoma

or spoke-wheel areas when we compared location regions. However, we discovered that multiple small erosions were significantly higher in extreme locations. Despite the higher frequency of arborizing vessels in the facial region (56.3%), we found no significant difference. Our study looked at the skin and found that there were a lot more gray-blue ovoid nests on the trunk, a lot fewer pigmented dots on the face, a lot more pigmented globules on the scalp, a lot more small erosions on the limbs, and a lot more shiny WRSA on the trunk and limbs. We found significantly higher dot vessels on the scalp. We found that the face had significantly higher vascular dermoscopic features than the scalp (p=0.054). We found that the face had significantly fewer pigmented features than other localizations (p=0.030). Overall, we found that the face and trunk had significantly more other dermoscopic features than the scalp (p=0.001). Histopathologically, mixed BCCs were prevalent (63.9%) and displayed a range of combinations, with solid + adenoid, solid + infiltrative, and solid + micronodular being the most common. Dermoscopic examinations showed that mixed-type BCCs had significantly more gray-blue ovoid nests and globules than non-mixed BCCs. On the other hand, dermoscopic multiple small erosions were less common (Table 7). This was higher than the prevalence of mixed-type BCC reported by Ghanadan et al.[9] (32.4%) and Bartoš and Kullová[10] (35.1%), who found that mixed-type BCC tends to occur more frequently on the scalp than the face, but other BCC subtypes more often occur on the face than the scalp. Solid-infiltrative is the most frequently combined subtype in mixed-type BCC, according to Ghanadan et al.[9]. In the 35 mixed BCCs studied by Popadić and Brasanac[8], infiltrative-solid (34%), solid-superficial (31%), and solid-adenoid (17%) were the most common combinations. In Bartoš and Kullová's[10] study, the most frequent combinations were solid-infiltrative, superficial-solid, solid-trichoepithelial, and solid-micronodular subtypes. Ghanadan et al.[9] also reveal that most of the mixed-type BCCs have a larger diameter than other subtypes.

The presence of vascular structures was the most common dermoscopic characteristic among all types of BCC, which is consistent with other studies in the relevant literature.[11-15] In contrast, SFT (70.3%) were the most common vascular structures observed in the current study, followed by WRSA (55.9%) and dotted vessels (52.3%). Arborizing vessels (51.4%) were the fourth most common dermoscopic feature. Consistent with other studies, the solid BCC (45.9%) was the most prevalent histopathological subtype.[11-15] In the current study, the basosquamous type (62.5%) most frequently displayed WRSA. Akay and Erdem[11] most commonly described it in the adenoid type (75%) and Popadić[14] in the morpheaform BCC (100%), while Lallas et al.[12] (46%) and Emiroglu et al.[13] (45%) reported it in the sBCC. The present study observed WRSA in 59% of SBCCs. This study mostly saw blue-gray globules in pigmented (82% of the samples) and sBCCs (48% of the samples). This is similar to what Emiroglu et al.[13] and Akay and Erdem[11] found. However, Popadić[14] reported a more infiltrative type.

Solid BCC is most commonly associated with arborizing vessels, shiny white structures, and ulcerations. When pigmentation was present, the most common shape was a large blue-gray ovoid nest.[5] In this study, SFT (66%), WRSA (60%), and arborizing vessels (56%), were found in solid-type BCC. Vascular structures (89%) and ulceration (35%) were seen in the study by Akay and Erdem[11]; arborizing vessels (74%) and ulceration (53%) were found in the study by Lallas et al.[12]; and milky-red background (76%) was the most common in the study by Popadić[14], Gürsel Ürün et al.[16] showed mostly WRSA (85.4%), white structureless areas (75%), and arborizing vessels (70%) in solid BCC.

The majority of infiltrative BCC presented with arborizing vessels followed by ulceration and SFT. [5] In our study, histologically, in infiltrative BCC, ulceration (70%), SFT (66%), arborizing veins (56%), WRSA (56%) and dotted vessels (56%) were the most common. Vascular structures (93%) were the most common finding in a study by Akay

and Erdem[11], followed by ulcerations (60%). In the study by Lallas et al.[12], the most common features were arborizing vessels (59%) followed by ulceration (53%), SFT (25%), and blue-gray oval clusters (25%). A study by Camela et al.[6] discovered that infiltrative BCC is usually not colored and is identified by shiny white structures (48%), ulceration (52.9%), and vessels that grow in a tree-like pattern (67%). Gürsel Ürün et al.[16] preported WRSA (92%), white structureless areas (78%), and arborizing vessels (71% in infiltrative BCC).

This study found that sBCC had the highest prevalence (66.6%) of blue-gray dots, a feature also commonly observed in pigmented BCC (60%). This study most commonly showed blue-gray globules (82% in pigmented BCC), followed by blue-gray oval nests (78%). In our study, we observed SFT in 60% of the pigmented BCCs.

In sBCC, the most common dermoscopic structures were SFT, multiple small erosions, and WRSA. When pigmentation was present, it most commonly presented as multiple blue-gray dots and globules. Histologically, sBCC showed the most common presence of SFT (66%), blue-gray dots (66%), and WRSA (59% in this study). Akay and Erdem[11] observed vascular structures (50%), followed by maple tree leaf-like areas (20%) and spoke wheel-like areas (20%). Meanwhile, the study by Lallas et al.[12] showed the presence of SFT (51%), WRSA (46%), multiple small erosions (40%), and maple tree-like areas (37%). According to Camela et al.[6], 68% of people had arborizing telangiectasias, 63% had ulcers, and 47% had white porcelain areas. Gürsel Ürün et al.[16] found 100% of people with sBCC had WRSA and 70% had SFT.

In the study by Reiter et al.[5], morpheaform BCC exhibited structureless porcelain white areas, arborizing vessels, and ulceration. Histologically, SFT (11.78%) was the most common condition in morpheaform BCC in the cuIn addition, Akay and Erdem[11] found vascular structures (1,100%), Emiroglu et al.[13] found arborizing microvessels (6,28%), Lallas et al.[12] found ulceration (7,87.5%), and Popadić[14] found a milky red background (4, 100%). Popadić[14]. Camela et al.[6] reported the most frequent features were arborizing telangiectasias (68%), ulceration (63%), and white porcelain areas (47%).

In our study, micronodular BCC had a high rate of SFT (62%), followed by dotted vessels (62%), and then arborizing vessels (55%). In Akay and Erdem[11] study, the most common findings were vascular structures [1 (100%)], spoke wheel-like areas [1 (100%)], and ulceration [1 (100%)]. Lallas et al.[12] frequently observed arborizing vessels (52%), blue-gray globules (47%), ulceration (42%), and blue-gray oval clusters (31%). Camela et al.[6] found that there were mostly milky red areas with no structures (53%), arborizing vessels and SFT (53% and 50%, respectively), ulceration (46%), and blue structures (57%). Camela et al.[6] identified arborizing telangiectasias (77%), shiny white structures (66%), and ulceration (62%).

Based on the study by Akay and Erdem[11], it was found that in basosquamous type BCC, vascular structures [3, (100%)] and ulceration (100%) were more common than in other types (75%, 75%, and dotted vessels 75%). Gürsel Ürün et al.[16] observed 100% WRSA, 80% white structureless areas, and 80% keratin masses. On the other hand, superficial subtypes of pathology decreased.

Study Limitations

The limitations of the study include its retrospective design and the small sample size, particularly for all subtypes and localizations.

Conclusion

In our study, dermoscopic, gray-blue ovoid nests were significantly more common on the trunk, pigmented dots were less common on the face, and pigmented globules were more frequent on the scalp. Small erosions were more prevalent on the extremities; shiny WRSA were more common on the trunk and extremities; and dot vessels were more frequent on the scalp. Histopathologically, mixed BCCs were prevalent (63.9%) with common combinations like solid + adenoid, solid + infiltrative, and solid + micronodular. Dermoscopic observations showed that gray-blue ovoid nests and globules were more common in mixed-type BCCs, while small erosions were less prevalent. In conclusion, the clinical-pathological correlations and dermoscopic findings enhance our understanding of BCC, aiding in accurate diagnosis and management. Further research is needed.

Ethics

Ethics Committee Approval: The approval of the Bezmialem University Clinical Research Ethics Committee was received (approval number: 4/5, date: 19.02.2014).

Informed Consent: Retrospective study.

Authorship Contributions

Surgical and Medical Practices: D.D., D.B.Ö., A.G.B., B.T.D., P.Y., Z.T., C.D., N.O., Ö.S.K., Concept: D.D., D.B.Ö., A.G.B., B.T.D., P.Y., Z.T., C.D., N.O., Ö.S.K., Design: D.D., D.B.Ö., A.G.B., B.T.D., P.Y., Z.T., C.D., N.O., Ö.S.K., Data Collection or Processing: D.D., D.B.Ö., A.G.B., B.T.D., P.Y., Z.T., C.D., N.O., Ö.S.K., Analysis or Interpretation: D.D., D.B.Ö., A.G.B., B.T.D., P.Y., Z.T., C.D., N.O., Ö.S.K., Literature Search: D.D., D.B.Ö., A.G.B., B.T.D., P.Y., Z.T., C.D., N.O., Ö.S.K., Writing: D.D., D.B.Ö., A.G.B., B.T.D., P.Y., Z.T., C.D., N.O., Ö.S.K.

Conflict of Interest: The authors declared that they have no conflict of interest.

Financial Disclosure: The authors declared that this study received no financial support.

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