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Sclerodermiform basal cell carcinomas vs. other histotypes: analysis of specific demographic, clinical and dermatoscopic features

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Abstract

Background Among the various types of basal cell carcinoma, the sclerodermiform variant has a high risk of recurrence and local invasiveness. A systematic description of the dermatoscopic features associated with specific body localization is lacking.

Objectives To describe the clinical and dermoscopic features of sclerodermiform basal cell carcinoma (BCC) according to localization in the body confronting with superficial and nodular types.

Methods Clinical and dermoscopic images of sclerodermiform, nodular and superficial BCCs were retrospectively evaluated to study the location in the various body districts, maximum diameter, clinical appearance of the lesion, features of edges and presence or absence of specific dermatoscopic criteria of BCCs.

Results We examined 291 histopathologically proven BCCs showing that in nodular BCCs, classical arborizing vessels were more frequently found in the body macro-area (trunk and limbs; $n = 46$, 97.9%) than in the head/neck area ($n = 43$, 82.7%); within sclerodermiform BCCs, short arborizing vessels were found more frequently in the head/neck district ($n = 35$, 49.3%) than in the body ($n = 6$, 23.1%; P -value 0.02); within nodular BCCs, multiple blue-grey dots and globules were more frequently found on the trunk ($n = 23$, 48.9%) than in the head/neck district ($n = 12$, 23.1%; P -value 0.01). In sclerodermiform BCCs, ulceration was found more frequently in the head/neck district ($n = 38$, 53.5%) than in the body ($n = 4$, 15.4%; P -value > 0.01), and in superficial BCCs, ulceration was found more frequently in the head/neck district ($n = 5$, 38.5%) than in the body ($n = 8$, 9.8%; P -value 0.02).

Conclusion Our study shows that superficial BCC are found frequently in the head/neck district dermoscopically characterized by ulceration and arborizing vessels; nodular BCCs are more frequently found in the body than in the head/neck district, and the dermoscopic pattern is characterized by the combination of three features: (i) classical arborizing vessels, (ii) multiple blue-grey dots and (iii) globules. Instead, sclerodermiform BCC is preferentially located in areas at high-moderate risk of recurrence; if pink-white areas and/or fine arborizing vessels are seen, clinicians should consider this diagnosis. Furthermore, location-specific dermatoscopic criteria have been described.

Introduction

Basal cell carcinoma (BCC) is a slow-growing and mostly locally invasive tumour, and its incidence is increasing worldwide.¹ Among BCCs, different histotypes with aggressive growth patterns can be distinguished, of which sclerodermiform BCC (sdBCC) is one of the most important variant, presenting a higher risk of local invasiveness, perineural invasiveness and distant metastasis than subtypes with non-aggressive growth patterns, such as nodular (nBCC) and superficial BCC (sBCC), which show a significantly lower risk of such events. Dermatoscopy is a fundamental tool for the diagnosis and management of BCC; frequent criteria for the diagnosis are ulceration, arborizing vessels, ovoid nests and many others that help to differentiate a pigmented BCC (pBCC) from a non-pigmented BCC and, within non-pigmented BCC, can allow to distinguish between a nodular, superficial or morpheaform subtype²; to date, sdBCC remains a difficult lesion to diagnose, as it appears clinically as a slow-growing, skin-coloured plaque, which the patient interprets as something harmless; in addition, vascular dermatoscopic patterns typically develop in an advanced stage, which makes the early diagnosis of sdBCC complex. SdBCC is also a difficult lesion to treat because it is characterized by deep tissue destruction, subclinical extension, as well as high rates of local recurrence and poor prognosis if treatment is not started at an early stage. The aim of this study is to obtain a better characterization of sdBCC from a demographic, clinical and dermatoscopic point of view compared to non-aggressive histotypes. This knowledge will enable the clinicians to diagnose these lesions earlier, differentiate them from other clinical histological subtypes and skin neoplasms, and consequently choose targeted therapies, reducing the risk of recurrence and improve the patient's quality of life.

Material and methods

A retrospective observational analysis was conducted on three groups of patients, affected, respectively, by nodular, superficial or sclerodermiform BCC, for a total of 291 patients:

- 1 Ninety-seven patients who had suffered excision of sdBCC in 2016 at the Dermatological Clinic of Graz (Austria), Perth or Capalaba (Australia).
- 2 Ninety-nine patients who suffered excision of nBCC between January and March 2019 at the Dermatological Clinic of Trieste (Italy).
- 3 Ninety-five patients with sBCC, histologically confirmed by skin biopsy, who underwent MAL-PDT between March 2018 and March 2019 at the Dermatological Clinic of Trieste.

Patients from Trieste, Graz, Perth and Capalaba were identified through authorized records of the respective centres; the clinical and dermatoscopic image was then taken from an authorized image storage database. All dermatoscopic images were acquired with a polarized light dermatoscope, in non-contact

mode, associated with a camera. The following data were collected for each patient and then entered in an Excel table: sex and age of the patient, histotypes of BCC, location in the various body districts, maximum diameter expressed in mm, clinical appearance of the lesion, edges, presence/absence of dermatoscopic criteria of BCCs.

For the statistical analysis, descriptive statistics were used to compare histotypes according to demographic, clinical and dermatoscopic features. Chi-square test or Fisher's exact test or Kruskal–Wallis test were used, when appropriate, to assess the association between histotypes and clinical features. Unconditional logistic regression models were used to estimate odds ratio (OR) and their corresponding 95% confidence intervals (CIs) in order to explore the dermatoscopic features associated with histotypes. Variables that were statistically significant in the univariate analysis were included in the multivariate model. We performed a hierarchical cluster analysis based on dermatoscopic features/demographic, clinic and dermatoscopic features to generate three clusters; Ward's clustering method was used. Chi-square test was used to evaluate the association between histotypes and clusters. All tests are two-tailed and were considered statistically significant for *P*-values below 0.05.

Results

Within the study population, the M/F ratio was found to be 1.8 : 1 for nBCCs, 1.4 : 1 for sdBCC and 1.2 : 1 for sBCCs, showing a higher incidence in men than in women; however, no statistically significant correlation between sex and histotype was found (*P* = 0.37). Regarding the median age at diagnosis, a statistically significant difference was found between sBCC and sdBCC [67 (55–78) years vs 73 (60–79) years; *P* = 0.02] and between sBCC and nBCC [67 (55–78) years vs 76 (69–81) years; *P* < 0.01].

Clinical characteristics of collected BCC are summarized in Table 1. The macro-area of the head/neck district was more frequently involved in sdBCC than in nBCC and sBCC; the most frequently area affected by nBCCs was the periauricular region, followed by the nose, cheek and forehead. Instead, the trunk macro-area was more frequently affected by sBCC compared to nBCC and sdBCC while the limb macro-area was more frequently affected by sBCC compared to sdBCC and nBCC; the differences were statistically significant (*P* < 0.01; Table 1).

It is interesting to highlight that for sdBCC, the most frequently affected region was the nose followed mainly by the cheek and the periauricular zone; in sBCC, the most frequently area involved was the neck followed by the periauricular region and the cheek (Table 1).

The distribution of BCC by dermatoscopic characteristics and histotype is summarized in Table 2.

Within nBCCs, classical arborizing vessels were more frequently found in the body macro-area (trunk and limbs; *n* = 46,

Table 1 Distribution of clinical features based on histotype

Clinical features	Histotype			P-value‡
	Nodular (n = 99†) n (%)	Sclerodermiform (n = 97) n (%)	Superficial (n = 95) n (%)	
Location				<0.01†
Head/neck	52 (52.5)	71 (73.2)	13 (13.7)	
Scalp	1 (1.0)	4 (4.1)	0 (0.0)	
Forehead	8 (8.1)	9 (9.3)	0 (0.0)	
Periauricular	12 (12.1)	12 (12.4)	4 (4.2)	
Periorbicular	1 (1.0)	6 (6.2)	0 (0.0)	
Nose	11 (11.1)	16 (16.5)	0 (0.0)	
Cheek	10 (10.1)	15 (15.5)	3 (3.2)	
Perioral	5 (5.1)	6 (6.2)	0 (0.0)	
Neck	4 (4.0)	3 (3.1)	6 (6.3)	
Trunk	33 (33.3)	11 (11.3)	48 (50.5)	
Extremities	14 (14.1)	15 (15.5)	34 (35.8)	
Clinical aspect				
Macule	0 (0.0)	18 (18.6)	58 (61.1)	
Papule	48 (48.5)	10 (10.3)	0 (0.0)	
Plaque	17 (18.3)	39 (40.2)	30 (31.6)	
Nodule	32 (34.4)	0 (0.0)	0 (0.0)	
Ulceration	2 (2.1)	30 (30.9)	7 (7.4)	
Edges				<0.01
Well defined	77 (77.8)	17 (17.5)	66 (69.5)	
Poorly defined	22 (22.2)	80 (82.5)	29 (30.5)	
Median of maximum diameter in mm (IQR)	8 (6–11)	7 (6–9)	12 (9–14)	<0.01†

Regarding the maximum diameter, there is a statistically significant difference between superficial and sclerodermiform (*P*-value 0.02) and between superficial and nodular (*P*-value < 0.01).

IQR, interquartile range.

†The clinical aspects variable had 6 missing values in the group of nodular BCCs. ‡Pearson chi-squared test. §Test calculated on head/neck, trunk and limb macro-area frequencies by histotype. ¶Kruskal–Wallis test.

Table 2 Distribution of dermoscopic characteristics by site and histotype

Dermoscopic features	Histotypes								
	Nodular			Sclerodermiform			Superficial		
	Head/neck (n = 52) n (%)	Trunk (n = 47) n (%)	P-value†	Head/neck (n = 71) n (%)	Trunk (n = 26) n (%)	P-value†	Head/neck (n = 13) n (%)	Trunk (n = 82) n (%)	P-value†
Classical arborizing vessels									
Present	43 (82.7)	46 (97.9)	0.02†	0 (0.0)	1 (3.9)	0.27†	0 (0.0)	2 (2.4)	1.00†
Absent	9 (17.3)	1 (2.1)		71 (100.0)	25 (96.1)		13 (100.0)	80 (97.6)	
Short arborizing vessels									
Present	5 (9.6)	5 (10.6)	1.00†	35 (49.3)	6 (23.1)	0.02	10 (76.9)	63 (76.8)	1.00†
Absent	47 (90.4)	42 (89.4)		36 (50.7)	20 (76.9)		3 (23.1)	19 (23.2)	
Multiple blue-grey dots and globules									
Present	12 (23.1)	23 (48.9)	0.01	3 (4.2)	2 (7.7)	0.61†	0 (0.0)	0 (0.0)	–
Absent	40 (76.9)	24 (51.1)		68 (95.8)	24 (92.3)		13 (100.0)	82 (100.0)	
Ulceration									
Present	13 (25.0)	19 (40.4)	0.10	38 (53.5)	4 (15.4)	<0.01	5 (38.5)	8 (9.8)	0.02†
Absent	39 (75.0)	28 (59.6)		33 (46.5)	22 (84.6)		8 (61.5)	74 (90.2)	

†Pearson chi-squared test, unless otherwise specified. ‡Fisher's exact test

97.9%) than in the head/neck macro-area ($n = 43$, 82.7%); the difference was statistically significant ($P = 0.02$).

Within sdBCC, short arborizing vessels were found more frequently in the head/neck district ($n = 35$, 49.3%) than in the body ($n = 6$, 23.1%); the difference was statistically significant ($P = 0.02$).

Within nBCCs, multiple blue-grey dots and globules were more frequently found on the trunk ($n = 23$, 48.9%) than in the

head/neck district ($n = 12$, 23.1%); the difference was statistically significant ($P = 0.01$). As far as sclerodermiform and superficial BCCs are concerned, on the contrary, no statistically significant correlation between the dermatoscopic multiple blue-grey dots and globules and the localization in the different macro-areas was found.

In sdBCC, ulceration was found more frequently in the head/neck district ($n = 38$, 53.5%) than in the body ($n = 4$,

Table 3 Uni- and multivariate analyses of dermatoscopic features of sclerodermiform basal cell carcinoma vs. other histotypes

Dermoscopic features	Histotype		Univariate		Multivariate	
	sdBCC ($n = 97$) n (%)	nBCC + sBCC ($n = 194$) n (%)	OR (95% CI)	P-value	OR (95% CI)	P-value
Classical arborizing vessels						
Present	1 (1.0)	91 (46.9)	0.01 (0.00–0.09)	<0.01	0.01 (0.00–0.11)	<0.01
Absent	96 (99.0)	103 (53.1)				
Fine arborizing vessels						
Present	55 (56.7)	48 (24.7)	3.98 (2.37–6.68)	<0.01	5.17 (2.59–10.34)	<0.01
Absent	42 (43.3)	146 (75.3)				
Short arborizing vessels						
Present	41 (42.3)	83 (42.8)	0.98 (0.60–1.60)	0.93		
Absent	56 (57.7)	111 (57.2)				
Large blue-grey ovoid nests						
Present	0 (0.0)	20 (10.3)	–	–		
Absent	97 (100.0)	174 (89.7)				
Multiple blue-grey dots and globules						
Present	5 (5.2)	35 (18.0)	0.25 (0.09–0.65)	<0.01	1.93 (0.45–8.24)	0.37
Absent	92 (94.8)	159 (82.0)				
Focused dots						
Present	4 (4.1)	22 (11.3)	0.34 (0.11–1.01)	0.05		
Absent	93 (95.9)	172 (88.7)				
Concentric structures						
Present	0 (0.0)	11 (5.7)	–	–		
Absent	97 (100.0)	183 (94.3)				
Spoke-wheel areas						
Present	0 (0.0)	9 (4.6)	–	–		
Absent	97 (100.0)	185 (95.4)				
Leaf-like areas						
Present	1 (1.0)	9 (4.6)	0.21 (0.03–1.72)	0.15		
Absent	96 (99.0)	185 (95.4)				
Ulceration						
Present	42 (43.3)	45 (23.2)	2.53 (1.50–4.26)	<0.01	8.42 (3.63–19.55)	<0.01
Absent	55 (56.7)	149 (76.8)				
Small erosions						
Present	27 (27.8)	64 (33.0)	0.78 (0.46–1.34)	0.37		
Absent	70 (72.2)	130 (67.0)				
Pink-white areas						
Present	82 (84.5)	89 (45.9)	6.45 (3.47–11.97)	<0.01	4.26 (1.72–10.51)	<0.01
Absent	15 (15.5)	105 (54.1)				
Short white streaks						
Present	12 (12.4)	24 (12.4)	1.00 (0.48–2.10)	1.00		
Absent	85 (87.6)	170 (87.6)				

sBCC, superficial basal cell carcinoma; sdBCC sclerodermiform basal cell carcinoma; nBCC nodular basal cell carcinoma; OR, odds ratio; CI confidence interval

15.4%); the difference was statistically significant ($P < 0.01$). Similarly, in superficial BCCs, ulceration was found more frequently in the head/neck district ($n = 5$, 38.5%) than in the body ($n = 8$, 9.8%); the difference was statistically significant ($P = 0.02$).

The main dermoscopic features of sclerodermiform BCC are summarized in Table 3, where specific dermoscopic features were compared with those of sBCC and nBCC. The same was done for sBCC, comparing the characteristics with the other histotypes (Table 4; Fig. 1).

In multivariate analysis, performed when univariate analysis was significant, a statistically significant difference between sdBCC and nBCC + sBCC was demonstrated for the following criteria: classical arborizing vessels, fine arborizing vessels, ulceration and pink-white areas.

While comparing sBCC with nBCC + sdBCC, a statistically significant difference was demonstrated for the following criteria: classical arborizing vessels, fine arborizing vessels, short arborizing vessels, ulceration and a borderline value for spoke-wheel areas (0.06).

We performed also a hierarchical cluster analysis based on demographic, clinic and dermoscopic features to generate three clusters and to evaluate the association between histotypes and clusters. In Table 5, it can be noted that cluster #1 is mainly composed of nodulars BCC (75%), cluster #2 of morpheaform BCC (53.4%) and cluster #3 of superficial BCC (76%). A chi-square test has shown a statistically significant association between histotype and clusters.

Discussion

The aim of this study was to obtain a better characterization of sdBCC from a demographic, clinical and dermoscopic point of view compared to non-aggressive histotypes, to suggest clinicians the correct diagnostic–therapeutic procedure, with a decrease in the risk of recurrence and an improvement in the patient's quality of life.

In our study, the M/F ratio was found to be >1 for all three histotypes, showing a higher incidence in men than in women, according to what reported in literature. From the available data, BCCs in all their variants are more common in the 6th, 7th and 8th decade of life, with a higher incidence in men than in women ($M/F = 1.5\text{--}2 : 1$). Some studies, however, have shown a younger age of onset for superficial BCC and a relative increase in incidence in women compared to other histotypes.^{2,3}

In terms of BCC location, the head/neck district was more frequently involved in sclerodermiform BCCs and to a lesser extent in nodular BCCs, while trunk and limbs were more frequently involved in superficial BCCs as reported by other authors.^{3,4}

Within the head/neck district, the most affected areas in sdBCC were the nose, cheek and periauricular region; the periorbital region was significantly more frequently involved in sdBCC than in the other two histotypes. The nose, periauricular region and periorbital region belong to *H* area, which is considered an area at high risk of recurrence, while the cheek is part of *M* area, which is associated with moderate risk of recurrence.^{5,6}

Our data show that sdBCC, already considered at high risk of recurrence, is preferentially located in areas at high-moderate risk of recurrence, so only an early diagnosis and targeted therapy can reduce the high rates of local recurrence and improve the prognosis of patients.⁷

With regard to lesion edges, these appeared more frequently poorly defined in sclerodermiform BCCs and more frequently well defined in nodular and superficial BCCs. It should be noted that a BCC with poorly defined edges is considered at high risk of recurrence; therefore, the importance of early diagnosis and correct therapy to reduce the risk of local recurrence and distant metastasis in sdBCC is confirmed.

In this study, the median of the maximum lesion diameter was found to be greater in sBCC than in the other two histotypes; this can be explained by the fact that sBCC is preferentially located on the trunk and limbs, therefore in less visible areas, so it is often noticed later.

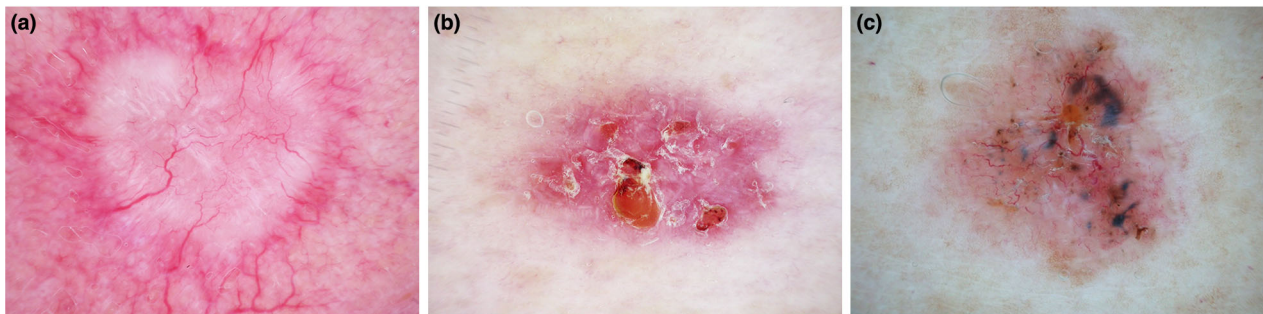


Figure 1 Dermoscopic features of (a) sclerodermiform BCC showing short arborizing vessels, ulceration and pinkwhite areas; (b) superficial BCC showing classical arborizing vessels and small erosions; (c) nodular BCC showing arborizing vessels and blue-gray ovoid nests.

Table 4 Uni- and multivariate analyses of dermoscopic features of superficial basal cell carcinoma vs. other histotypes

Dermoscopic features	Histotype		Univariate		Multivariate	
	sBCC	sdBCC + nBCC (n = 196)	OR (95% CI)	P-value	OR (95% CI)	P-value
	(n = 95) n (%)	n (%)				
Classical arborizing vessels						
Present	2 (2.1)	90 (45.9)	0.03 (0.01–0.11)	<0.01	0.02 (0.00–0.13)	<0.01
Absent	93 (97.9)	106 (54.1)				
Fine arborizing vessels						
Present	21 (22.1)	82 (41.8)	0.40 (0.23–0.69)	<0.01	0.20 (0.09–0.43)	<0.01
Absent	74 (77.9)	114 (58.2)				
Short arborizing vessels						
Present	73 (76.8)	51 (26.0)	9.43 (5.32–16.74)	<0.01	3.28 (1.56–6.88)	<0.01
Absent	22 (23.2)	145 (74.0)				
Large blue-grey ovoid nests						
Present	0 (0.0)	20 (10.2)	–	–		
Absent	95 (100.0)	176 (89.8)				
Multiple blue-grey dots and globules						
Present	0 (0.0)	40 (20.4)	–	–		
Absent	95 (100.0)	156 (79.6)				
Focused dots						
Present	6 (6.3)	20 (10.2)	0.59 (0.23–1.53)	0.28		
Absent	89 (93.7)	176 (89.8)				
Concentric structures						
Present	6 (6.3)	5 (2.6)	2.57 (0.77–8.66)	0.13		
Absent	89 (93.7)	191 (97.4)				
Spoke-wheel areas						
Present	8 (8.4)	1 (0.5)	17.93 (2.21–145.53)	<0.01	23.64 (0.86–653.37)	0.06
Absent	87 (91.6)	195 (99.5)				
Leaf-like areas						
Present	8 (8.4)	2 (1.0)	8.91 (1.86–42.84)	<0.01	12.76 (1.31–123.96)	0.03
Absent	87 (91.6)	194 (99.0)				
Ulceration						
Present	13 (13.7)	74 (37.8)	0.26 (0.14–0.50)	<0.01	0.15 (0.06–0.36)	<0.01
Absent	82 (86.3)	122 (62.2)				
Small erosions						
Present	41 (43.2)	50 (25.5)	2.22 (1.32–3.72)	<0.01	2.87 (1.34–6.12)	0.01
Absent	54 (56.8)	146 (74.5)				
Pink-white areas						
Present	74 (77.9)	97 (49.5)	3.60 (2.06–6.29)	<0.01	1.24 (0.48–3.19)	0.65
Absent	21 (22.1)	99 (50.5)				
Short white streaks						
Present	18 (19.0)	18 (9.2)	2.31 (1.14–4.68)	0.02		
Absent	77 (81.0)	178 (90.8)				

CI confidence interval; nBCC nodular basal cell carcinoma; OR, odds ratio; sBCC, superficial basal cell carcinoma; sdBCC sclerodermiform basal cell carcinoma.

Dermoscopy has shown to improve the diagnostic accuracy for basal cell carcinoma. Numerous dermoscopic criteria have been described in literature, including arborizing vessels, ulceration, blue-grey globules, maple leaf-like structure, blue-ovoid nests and spoke-wheel structures.^{8,9}

In our population, classical arborizing vessels were found more frequently in nBCCs, fine arborizing vessels were more

frequent sdBCC, while short arborizing vessels were found more frequently in sBCCs and our results are in accordance with literature data.¹⁰

In our study, large blue-grey ovoid nests, multiple blue-grey dots and globules and focused dots were found more frequently in nodular BCCs, while concentric structures, spoke-wheel areas and leaf-like areas were found more frequently in sBCCs. In

Table 5 Frequencies of demographic, clinical, dermoscopic features and histotypes in cluster analysis

	Clusters			P-value
	Cluster 1	Cluster 2	Cluster 3	
	(n = 116)	(n = 131)	(n = 38)	
	n (%)	n (%)	n (%)	
Histotype†				
nBCC	87 (75.0)	5 (3.8)	1 (2.6)	<0.01
sdBCC	19 (16.4)	70 (53.4)	8 (21.1)	
sBCC	10 (8.6)	56 (42.7)	29 (76.3)	
Demographic features				
Sex				
Male	74 (63.8)	71 (54.2)	22 (57.9)	
Female	42 (36.2)	60 (45.8)	16 (42.1)	
Median age	75	70	77	
Clinical features				
Location				
Head/neck	54 (46.6)	45 (34.4)	34 (89.5)	
Trunk	52 (44.8)	36 (27.5)	3 (7.9)	
Extremities	10 (8.6)	50 (38.2)	1 (2.6)	
Clinical aspect				
Macule	18 (15.5)	58 (44.3)	0 (0)	
Papule	49 (42.2)	3 (2.3)	0 (0)	
Plaque	16 (13.8)	70 (53.4)	0 (0)	
Nodule	32 (27.6)	0 (0)	0 (0)	
Ulceration	1 (0.9)	0 (0)	38 (100)	
Edges				
Well defined	92 (79.3)	61 (46.6)	6 (15.8)	
Poorly defined	24 (20.7)	70 (53.4)	32 (84.2)	
Median of maximum diameter in mm	9	9	7	
Dermoscopic features				
Classical arborizing vessels	81 (69.8)	7 (5.3)	1 (2.6)	
Fine arborizing vessels	33 (28.4)	53 (40.5)	13 (34.2)	
Short arborizing vessels	29 (25.0)	69 (52.7)	24 (63.2)	
Large blue-grey ovoid nests	20 (17.2)	0 (0)	0 (0)	
Multiple blue-grey dots and globules	37 (31.9)	3 (2.3)	0 (0)	
Focused dots	21 (18.1)	4 (3.1)	0 (0)	
Concentric structures	11 (9.5)	0 (0)	0 (0)	
Spoke-wheel areas	9 (7.8)	0 (0)	0 (0)	
Leaf-like areas	10 (8.6)	0 (0)	0 (0)	
Ulceration	29 (25.0)	18 (13.7)	38 (100)	
Small erosions	24 (20.7)	54 (41.2)	10 (26.3)	
Pink-white areas	24 (20.7)	116 (88.5)	29 (76.3)	
Short white streaks	7 (6.0)	25 (19.1)	4 (10.5)	

nBCC nodular basal cell carcinoma; sBCC, superficial basal cell carcinoma; sdBCC sclerodermiform basal cell carcinoma.

†Histotype was not included in Cluster Analysis.

2010, Zalaudek *et al.*¹¹ highlighted the presence of different pigmentation patterns between superficial and nodular BCCs: the criteria indicating the presence of melanin at the dermo-epidermal junction (leaf-like areas, spoke-wheel areas, concentric structures and focused dots) are brown and are characteristic of superficial BCCs, while those indicating the presence of melanin at the dermis level (large blue-grey ovoid nests and multiple

blue-grey dots and globules) are blue or grey and are characteristic of nodular BCCs.

Focused dots are more frequently present in superficial BCCs, but they can still be found in all subtypes, including nodular BCCs, as microscopically they correspond to the deposition of melanin along the dermo-epidermal junction and/or to the presence of melanophages in the papillary and reticular dermis.¹²

It is interesting to note that in our analysis large blue-grey ovoid nests are also absent in sdBCC as well as in sBCC. Ulceration was more frequently found in sdBCC and to a lesser extent in nBCCs; in contrast, small erosions were more frequently found in sBCCs. From literature data, ulceration typically characterizes nBCCs, while small erosions are associated with sBCCs.^{12,13} Our results confirm this evidence and show that ulceration can also be found with some frequency in sdBCC, especially when these are diagnosed at an advanced stage. Pink-white areas were more frequently found in sdBCC, less in sBCCs; short white streaks, which can only be seen with polarized light dermoscopy, were detected more frequently in sBCCs.

Pink-white areas and short white streaks indicate dermal fibrosis or fibrotic tumour stroma and have been described primarily in the context of superficial BCC.^{12,13}

Our work shows that pink-white areas can also be found with some frequency in sdBCC, as they microscopically correspond to dermal fibrosis, which histologically characterizes this histotype.^{10,11}

From our analysis, regarding the distribution of some dermoscopic characteristics in relation to the site and histotype, some practical interesting results emerge:

- 1 In nBCCs, classical arborizing vessels and multiple blue-grey dots and globules were more frequently found in the body than in the head/neck district.
- 2 Sclerodermiform BCCs present more frequently on the head/neck area; if pink-white areas or fine arborizing vessels are seen, clinicians should consider this diagnosis, especially in high-risk zones such as nose, cheek and periauricular zone.
- 3 In sdBCC and sBCCs, ulceration was found more frequently in the head/neck district than in the body.

Our study can be compared with an extensive monocentric study by Suppa *et al.*¹³ in which authors investigated the dermoscopic variability of BCCs in relation to clinical subtype and anatomical localization. They showed that facial BCCs were more frequently characterized by classical arborizing vessels and ulceration than BCCs located elsewhere in the body, while trunk BCCs were more frequently characterized by leaf-like areas, short arborizing vessels, small erosions, concentric structures and spoke-wheel areas than BCCs located elsewhere. The dermoscopic variability of BCC in relation to anatomical location is an area that has yet to be explored in dermoscopy. The anatomical differences of the skin in different areas of the body, as well as the different photodamage patterns in different body positions, could hypothetically explain this dermoscopic variability and could suggest new specific body site-specific treatments; based on our findings, we propose to treat with cryotherapy sBCC throughout the body while resorting to surgery for nBCC and sdBCC. In doubtful cases, during the clinical routine, it is useful to perform one or more punch biopsies

to define the extension of a sdBCC especially before a large excision on the face in which Mohs' surgery is also of considerable importance to limit local recurrences. When available, reflectance confocal microscopy (RCM) helps in the non-invasive differential diagnosis of the sdBCC allowing to easily observe some suggestive criteria of BCC such as keratinocyte atypia, epidermal streaming, ulceration and tumour island.¹⁴ Moreover, it has recently been demonstrated that optical coherence tomography is another method that can be used for the early diagnosis of BCC and its diagnostic performance did not depend on the lesion's anatomical location.^{15,16} In conclusion, our study, although there is a lack of follow-up patient data, which is the main limitation of the research, represents a starting point for future retrospective and prospective studies to investigate the clinical and dermoscopic variability of BCC presentation.

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