



## Dermoscopic Features of Pigmented Bowen Disease: A Multicenter Study on Behalf of the Ibero-Latin American College of Dermatology (CILAD)

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**ABSTRACT** **Introduction:** Studies focused on dermoscopic aspects of pigmented Bowen disease (pBD) in Latin American population are scarce and limited to only case reports or small series.

**Objectives:** To report dermoscopic findings in a large series of 147 pBD diagnosed in Ibero-Latin American population.

**Methods:** We conducted a multicentric, retrospective study on 147 histologically proven pBD under the auspices of the Dermoscopy Chapter of the Ibero-Latin American College of Dermatology.

**Results:** The study population consisted of 77 females (52%) and 70 males (48%) with a mean age of 68.6 years. 70.1% of patients had skin phototype 3, 15.6% to skin phototype 2, and 14.3% to skin phototype 4. On clinical examination, near 60% of pBD were flat, 70% presented with scales, and 90% were asymmetric. Under dermoscopy, structureless hypopigmented areas, dots brown and pink color were the most frequently observed. Regarding specific dermoscopic clues to pBD, the most prevalent were structureless hypopigmented areas, vessels arranged in linear fashion at the periphery, and pigmented lines or pigmented dots distributed in a linear fashion. Clustered, coiled, and dotted vessels were observed in 55.8%, 45.6%, and 45.6% of the cases, respectively.

**Conclusions:** We report a large series of cases of pBD in Latin American patients, with most patients being skin phototype 3 and 4. Distinctively in our study, the pigmented structures and the clues derived from the presence of melanin were much more frequent than in previous reports in fair skin.

## Introduction

Bowen disease (BD) is a form of squamous cell carcinoma in situ that shows full-thickness involvement of the epidermis, and the pilosebaceous units. In the case of pigmented Bowen disease (pBD), the distinguishing feature is the presence of pigmentation or dark coloration within the lesion [1].

Clinically, pBD appears as a well-defined, dark brown or black patch on the skin, often resembling melanoma or other pigmented skin lesions. It typically occurs on sun-exposed areas of the body, such as the face, scalp, neck, and hands, although it can appear elsewhere as well. The lesion may be flat or slightly raised, and it can be associated with symptoms like itching or tenderness [1].

Dermoscopy has shown to be a valuable tool in the diagnosis of skin cancer, by providing enhanced visualization, improving diagnostic accuracy, and enabling early detection of both melanoma and non-melanoma skin cancer [2-6]. The dermoscopic features of pBD have been already described in Caucasian European population [7]; however, studies focused on Latin American population are scarce and limited to case reports or small series.

Herein, we report dermoscopic findings in a large series of pBD in Latin American population with mostly skin phototype 3 and 4. To the best of our knowledge this is the first study focused on this specific population.

## Objectives

To report dermoscopic findings in a large series of 147 pBD diagnosed in Ibero-Latin American population.

## Methods

We conducted a retrospective analysis of clinical and dermoscopic characteristics of 147 histologically proven pBD retrieved from the database of 22 institutions (private and academic centers), planned as a project of the Dermoscopy Chapter of Ibero-Latin American College of Dermatology (CILAD). All active CILAD members were invited to participate in the study, the call was made through periodic mails/reminders through the CILAD mailing list for a period of 3 months. We included cases of biopsy-proven pBD with clinical and dermoscopic pictures. We excluded patients where either clinical or dermoscopic photos were missing or if the images were of poor quality.

Clinical data such as age, gender, previous history of skin cancer and skin phototype of the patients and the evolution, localization and diameter of the lesions were recorded. The clinical and dermoscopic images were included into a PowerPoint presentation (Microsoft Corp) and images were evaluated by 2 experts dermoscopists (G.S. and H.C.) who performed both clinical and dermoscopic evaluation. Dermoscopic images were assessed for the presence or absence of criteria for pBD as previously described [7-10]. If the two observers did not agree on any point of the clinical and dermoscopic evaluation, a consensus ruling was applied to reach agreement.

## Statistical Analysis

The data was analyzed with the SPSS 22 program. The distribution of the qualitative data is presented by means of absolute and relative frequencies and the distribution of the

quantitative data by mean and standard deviation or median and interquartile range, depending on the distribution of the data. The estimates of the dermoscopic findings are presented, accompanied by the corresponding 95% confidence intervals calculated by the exact method.

## Results

### Population

A total of 147 pBD analyzed. The study population consisted of 77 females (52%) and 70 males (48%) with mean age of 68.6 (range 40-94) years. Regarding skin phototype, 103 (70.1%) corresponded to skin phototype 3, 23 (15.6%) phototype 2, and 21 (14.3%) phototype 4. A total of 40 patients had previous history of basal cell carcinoma (27.2%), 26 of squamous cell carcinoma (17.7%), and 9 (6.1%) of melanoma.

### Clinical Evaluation

Median size of the lesions was 13 mm (interquartile range [IQR] 10-19). Fifty lesions (34%) were located on lower extremities, 28 (19%) in upper extremities, 23 (15.6%) on head and neck, 22 (15%) on anterior trunk, 14 (9.5%) on posterior trunk, and 10 (6.8%) on other localizations.

The median time to diagnosis was 18 months (IQR 12-24) and it was unknown in 34 cases (23.1%).

On clinical examination, near 60% of pBD were flat (N = 87), 70% (N = 104) presented with scales, and 90% (N = 133) were asymmetric.

### Dermoscopic Evaluation

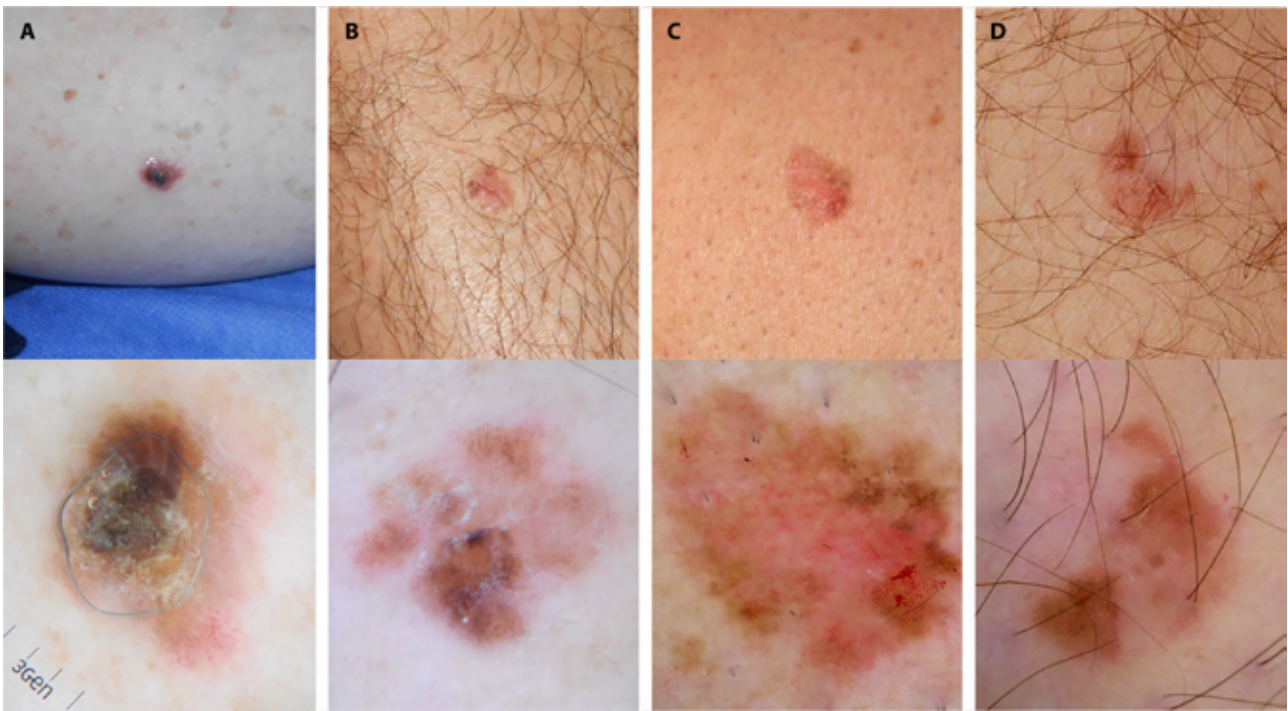
Dermoscopy evaluation is shown in Table 1. Regarding dermoscopic features, structureless areas were observed in most cases (92.5%, N = 136), followed by dots in more than 70% of cases (N = 105); circles were observed only in 8.2% of the cases (N = 12). Brown and pink colors were the most frequent, observed in 98 and 94.6% respectively; white color was observed in 52.7% and gray color in 36.7%. Blue and black colors were observed both in only 3.4% of cases.

The most prevalent dermoscopic clues to pBD observed were: structureless hypopigmented areas in 91.8% (N = 135), vessels arranged in linear fashion at the periphery in 62.6% (N = 92), and pigmented lines or pigmented dots in linear arrangement in 59.2% (N = 87). Clustered, coiled, and dotted vessels were observed in 55.8% (N = 83), 45.6% (N = 77), and 45.6% (N = 67), respectively. Only 9.5% (N = 14) displayed no specific dermoscopic clues upon examination (Figure 1).

**Table 1. Dermoscopic characteristics**

		Total N = 147			
Features		N	Percentage	CI95%	
Features	Structureless	136	92.5%	87%	96%
	Dots	105	71.4%	63%	79%
	Circles	12	8.2%	4%	14%
Color	Brown	144	98.0%	94%	100%
	Pink	139	94.6%	90%	98%
	White	77	52.4%	44%	61%
	Gray	54	36.7%	29%	45%
	Black	5	3.4%	1%	8%
	Blue	5	3.4%	1%	8%
Dermoscopic clues	Hypopigmented structureless areas (white, pink, or skin colored)	135	91.8%	86%	96%
	Vessels distributed in a linear fashion	92	62.6%	54%	70%
	Vessels distributed in a linear fashion at the periphery	90	61.2%	53%	69%
	Pigmented lines or dots distributed in a linear fashion	87	59.2%	51%	67%
	Clustered vessels	82	55.8%	47%	64%
	Coiled vessels	77	52.4%	44%	61%
	Dotted vessels	67	45.6%	37%	54%

CI = confidence interval.



**Figure 1.** Examples of pBD, clinic (top row) and dermoscopic images (bottom row). Dermoscopic clues observed are as follows: (A) Dotted vessels arranged in a linear fashion at the periphery, (B) Clustered glomerular vessels, (C) Hypopigmented structureless areas and dotted vessels, and (D) Hypopigmented structureless areas, glomerular and dotted vessels.

## Conclusions

It has been almost 30 years since the first descriptions of the dermoscopic features of pBD, evidence suggest that dermoscopy has been shown to be useful in improving its diagnostic accuracy. Early in 2004, Zalaudek et al reported the presence of glomerular vessels in combination with a scaly surface as the most frequent criteria in both pigmented and non-pigmented BD; the authors additionally reported the presence of small brown globules and/or homogeneous pigmentation in the pigmented variety [7].

Also in 2004, Bugatti et al reported that pigmented structures could be detected by dermoscopy in many cases of their series including 14 cases, such as the presence of pseudo-network, irregular diffuse pigmentation, and irregular dots / globules [8]. Shortly after, Stante et al reported a lesion of pBD clinically mimicking a superficial spreading melanoma; they describe a reticular, heterogenous arrangement of the melanin pigment, which might resemble therefore remnants of atypical pigment network, and irregular, brown globular structures at the periphery and wide regression-like areas [9].

In 2010, Cameron et al. described the dermoscopic patterns of pBD in a series of 52 cases. They characterized two archetypical dermoscopic patterns of pBD, namely a structureless brown pattern and a combination of dots and structureless pattern. They also identified a linear arrangement of brown and/or gray dots and/or coiled vessels that have not

been described previously in other lesions and represented a specific clue to pBD [10].

Few data exist about the characteristics of the population corresponding to the first cases describing dermoscopic findings in pBD. In 2009, Mun et al described the dermoscopic features of 26 BD in Asians, of which 10 were pigmented, they reported the presence of small brown globules, small black globules, and structureless (homogenous) pigmentation as the most frequent findings [11]. In 2010, Gutierrez-Mendoza et al reported two cases of pBD in skin phototypes 3 and 4. Both cases displayed irregular dotted vessels and pigment remnants upon dermoscopy [12].

Our study provides novel and useful information on the dermoscopic characteristics of pBD in a specific population. Since it is a study on behalf of CILAD, it is the first study that includes mostly Latin American patients: 142 out of 147 corresponded to patients from Argentina, Brazil, Chile, Colombia, and Mexico. The remaining 5 cases corresponded to patients from Spain. In line with this, we found 70% of patients with skin phototype 3 and almost 15% with skin phototype 4.

Similar to the findings from Cameron et al [10], the most frequently observed feature in our study were structureless areas in more than 90% of the cases and dots in 70%. Regarding color, brown and pink were the most frequent observed in more than 90% of the cases.

Regarding dermoscopic features, hypopigmented (pink, skin colored, or white) structureless areas were the most

frequent structure followed by vascular structures and pigmented lines or dots arranged in linear fashion. In our series, dermoscopic clues concerning melanin structures were more frequent than in the series from Cameron et al [10]. Although the latter study did not describe skin types, as this was a study from Australia and Austria, it could be assumed that the majority were patients with fair skin phototypes, and this could explain the lesser frequency of pigmented structures.

Our study does not lack of limitations since it was a retrospective study and evaluators were not blinded to the diagnoses.

We report a large series of cases of pBD in Latin American patients, with most patients having skin phototype 3 and 4. In this population, the pigmented structures and the clues derived from the presence of melanin are much more frequent than in previous reports in fair skin patients.

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