

Evidence-Based Medicine: Dermoscopy as a Diagnostic Tool in Pigmented Bowen's Disease

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Brief History

- 75-year-old Taiwanese female
- 1-year history of an asymptomatic, slowly enlarging plaque
- Situated on the ventral and lateral aspect of the left index finger.
- Past history: denied any systemic illness
- Family history: unremarkable

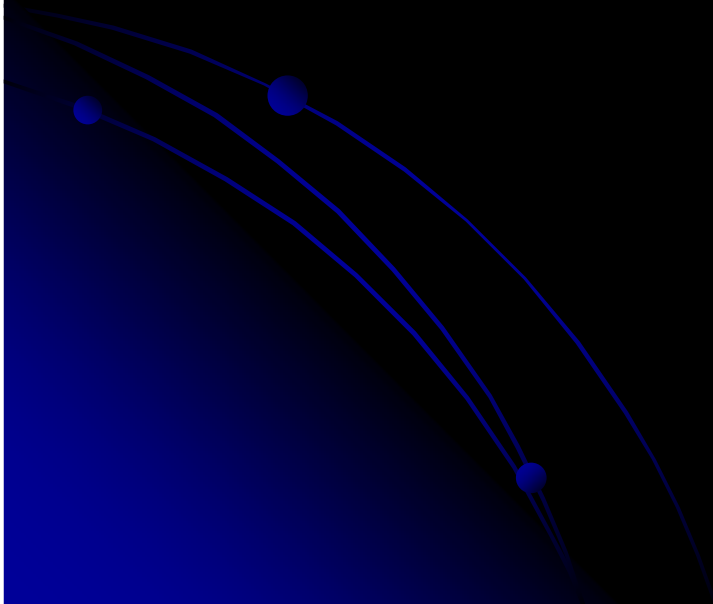
Physical Examination

- Naked-eye physical examination revealed a single 1.5 × 1.5cm, irregularly shaped, pigmented plaque with a scaly surface.
- Acral lentiginous melanoma (which is the most common form of melanoma in Asians) or superficial spreading melanoma could not be excluded on clinical examination alone.

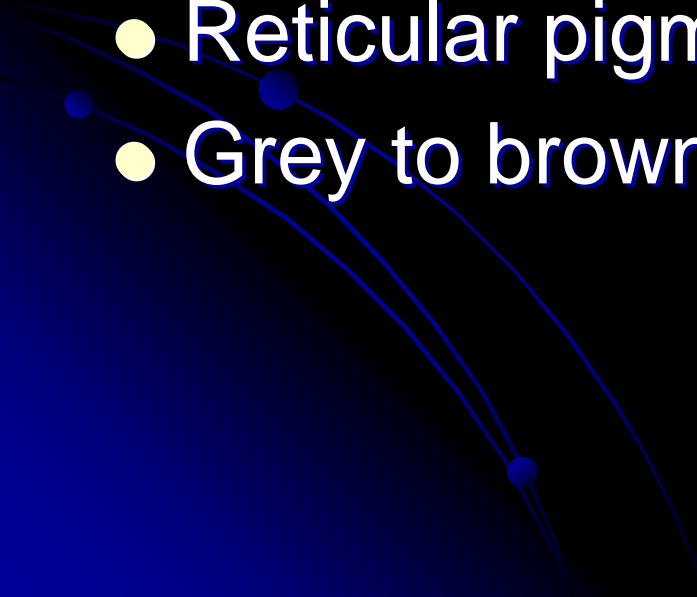
1.5 × 1.5cm, irregularly shaped,
pigmented plaque



Dermoscopy



Dermoscopic features

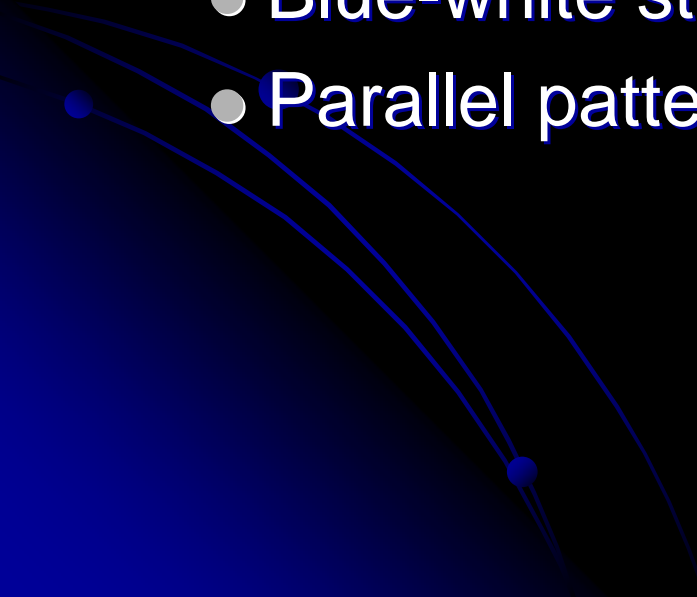
- Scaly surface
 - Glomerular vessels
 - Small brown globules regularly packed in a patchy distribution
 - Reticular pigmentation
 - Grey to brown homogeneous pigmentation
- 

Glomerular vessels



Small brown globules



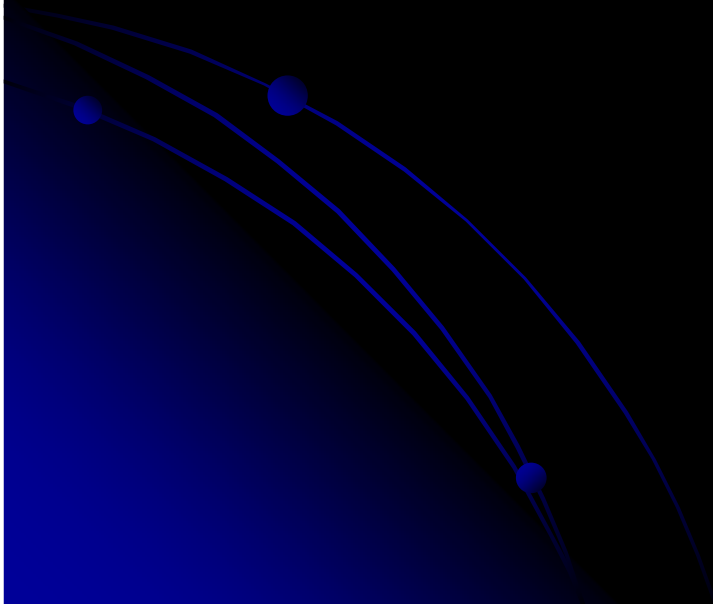
- Absence of dermoscopic features specific for melanocytic lesions, such as:
 - Pigment network
 - Irregular streaks
 - Blue-white structures
 - Parallel pattern
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Diagnosis

Suspect pigmented Bowen's
disease

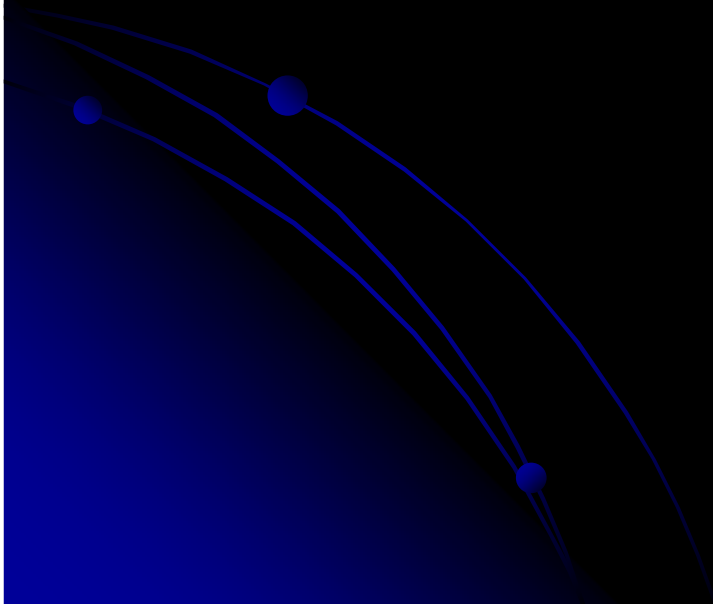


EBM



Clinical Problem

- Dermoscopy as a diagnostic tool in pigmented Bowen's disease?



PICO

- Population (patient/condition): Pigmented lesions of acral sites
- Intervention (drug/procedure/diagnostic test/exposure): Dermoscopy
- Comparison: Histopathology
- Outcome: Sensitivity and specificity

Literature search

Pubmed



Clinical and Laboratory Investigations

Dermoscopy of Bowen's disease

Background Dermoscopy improves the diagnostic accuracy in pigmented skin lesions, but it is also useful in the evaluation of nonpigmented skin tumours as it allows the recognition of vascular structures that are not visible to the naked eye. Bowen's disease (BD) or squamous cell carcinoma *in situ* is usually nonpigmented, but may also rarely be pigmented.

Objective To describe the dermoscopic features in a series of pigmented and nonpigmented BD.

Methods Dermoscopic images of 21 histopathologically proven BD were evaluated for the presence of various dermoscopic features. Each lesion was photographed using the Dermaphot (Heine Optotechnik, Herrsching, Germany), at 10-fold magnification, and the colour slides were scanned to digital format using a Kodak Photo CD system.

Results The majority of cases of BD revealed a peculiar dermoscopic pattern characterized by glomerular vessels (90%) and a scaly surface (90%). In addition, in pigmented BD small brown globules regularly packed in a patchy distribution (90%), and structureless grey to brown pigmentation (80%) were observed.

Conclusions Dermoscopy can be helpful for diagnosing BD because of the presence of repetitive morphological findings such as glomerular vessels and a scaly surface. In pigmented BD, small brown globules and/or homogeneous pigmentation can be seen as well.

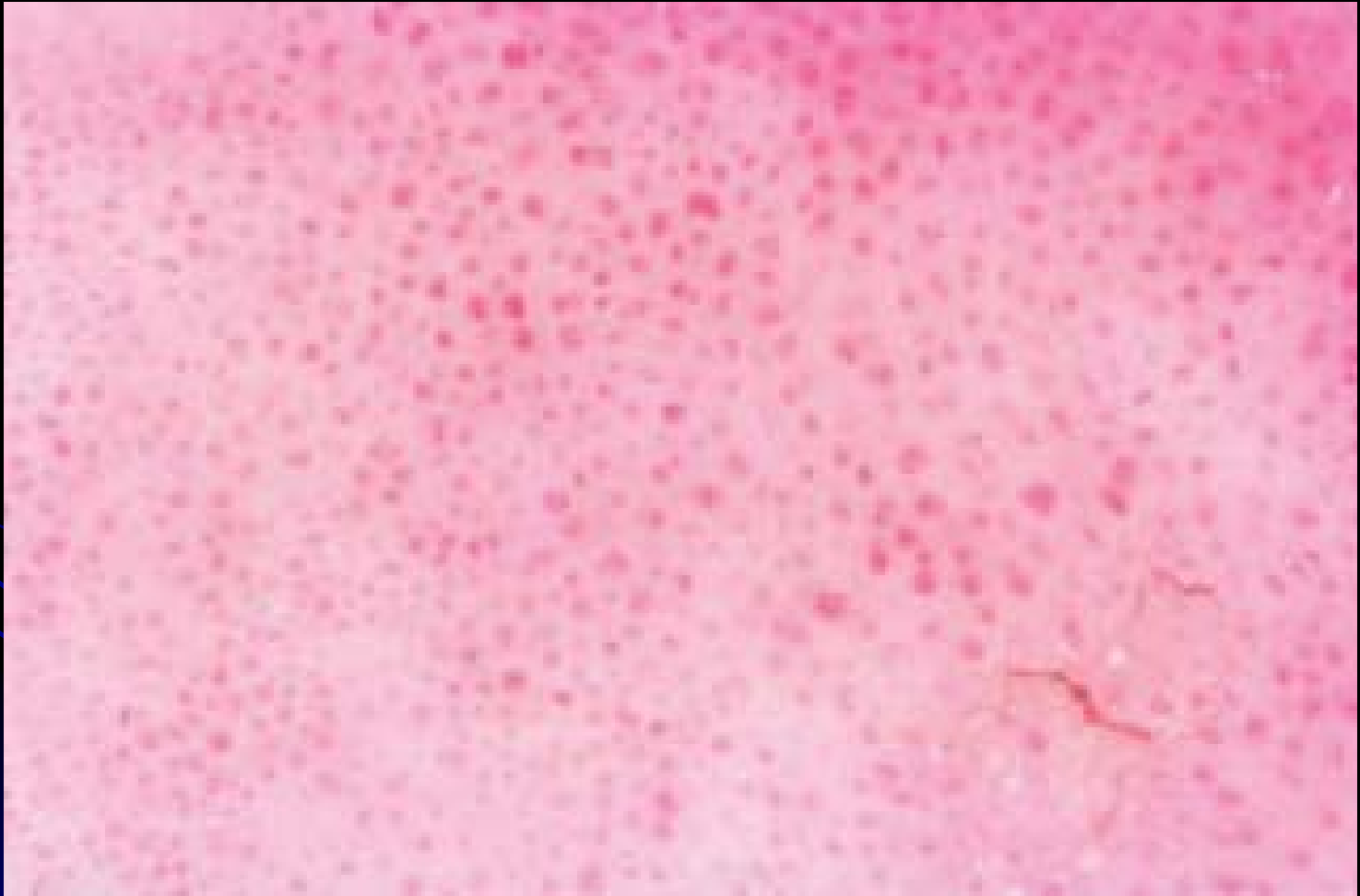
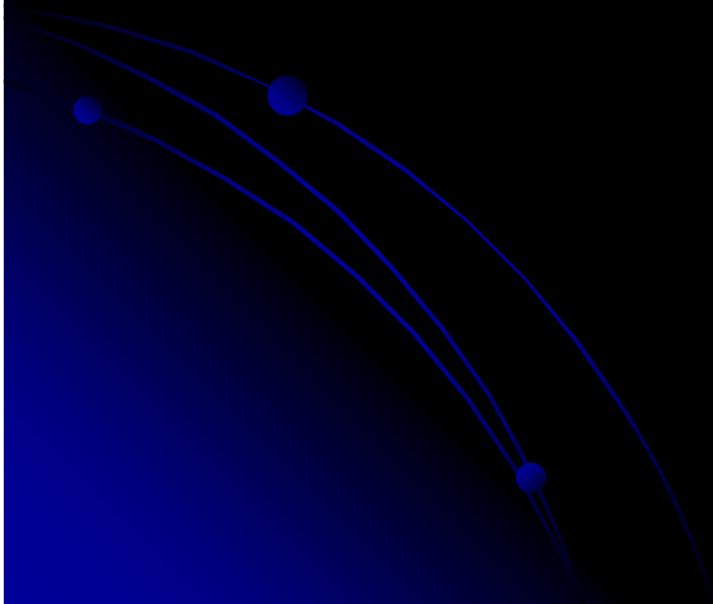


Table 1. Clinical and dermoscopic characteristics observed in pigmented and nonpigmented BD

Patient	Age (years)	Sex	Location	Clinical diagnosis	Glomerular vessels	Scale	Brown globules	Structureless (homogeneous) pigmentation	Pigmented streaks	Pigment network	Ulceration
1	79	F	Leg	AK, AMM, BD	+	+					+
2	74	M	Back	BCC, LAK	+	+					
3	85	F	Leg	AMM, SCC	+	+					
4	82	F	Leg	BCC, SCC, MM	+	+	+	+			+
5	64	M	Leg	SK	+	+	+	+			
6	72	F	Back	SK, AN		+		+			
7	75	M	Leg	SK	+		+		+		
8	55	M	Leg	SL, PAK, AN		+	+	+			
9	67	F	Leg	AMM	+	+	+	+			
10	75	F	Leg	BCC, SK	+	+	+	+		+	
11	65	F	Leg	BD, AMM, BCC	+	+					+
12 ^a	68	M	Leg	AMM, BCC, AK	+	+					
13	65	F	Leg	AN, MM, SK	+	+	+	+			
14	65	F	Hand	BD, BCC, AK	+	+					
15	62	F	Leg	BCC, AMM	+	+	+				
16	54	F	Leg	AK, SCC, BD, BCC	+	+					+
17	67	M	Leg	SK, LAK	+	+	+	+			
18	75	F	Leg	BCC, AK	+	+					
19	73	M	Back	BCC, AMM	+	+					+
20	81	F	Leg	BCC, AMM	+						+
21	81	F	Leg	BCC	+	+					
Total					19	19	9	8	1	1	6
					90%	90%	90% ^b	80% ^b	10% ^b	10% ^b	28.6%

AK, Actinic keratosis; AMM, amelanotic melanoma; AN, atypical naevus; BCC, basal cell carcinoma; BD, Bowen's disease; LAK, lichenoid actinic keratosis; MM, melanoma; PAK, pigmented actinic keratosis; SK, seborrhoeic keratosis; SL, solar lentigo; SCC, squamous cell carcinoma; F, female; M, male. ^aThis case showed also atypical vessels (linear irregular and dotted vessels). ^bPercentage related to the cases of pigmented BD (10 of 21).

- Glomerular vessels have high sensitivity for Bowen's disease



- Glomerular vessels have only been reported in severe venous stasis and BD (Zalaudek I, Argenziano G. Glomerular vessels in Bowen's disease. Br J Dermatol 2004;151:720)

- They may therefore represent a specific dermoscopic feature for BD.

- Comment in:
- J Eur Acad Dermatol Venereol. 2006 Mar;20(3):361-2.

Dermoscopic observation of Bowen's disease.

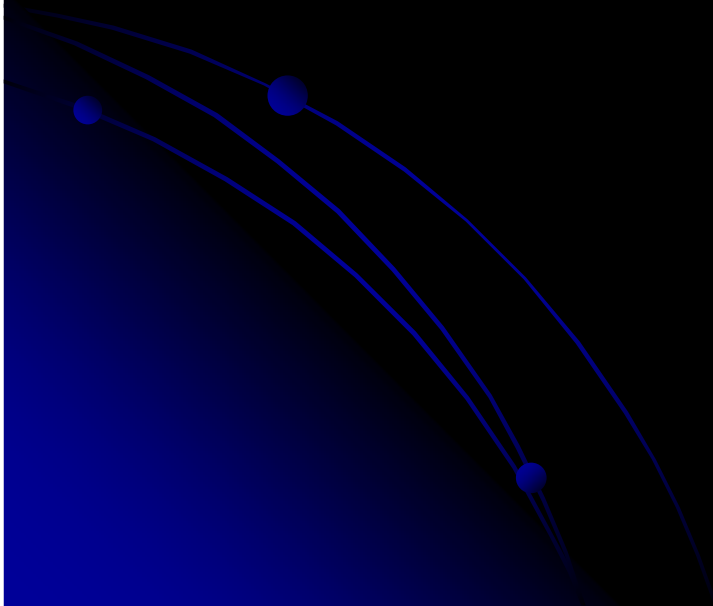
Bugatti L, Filosa G, De Angelis R.

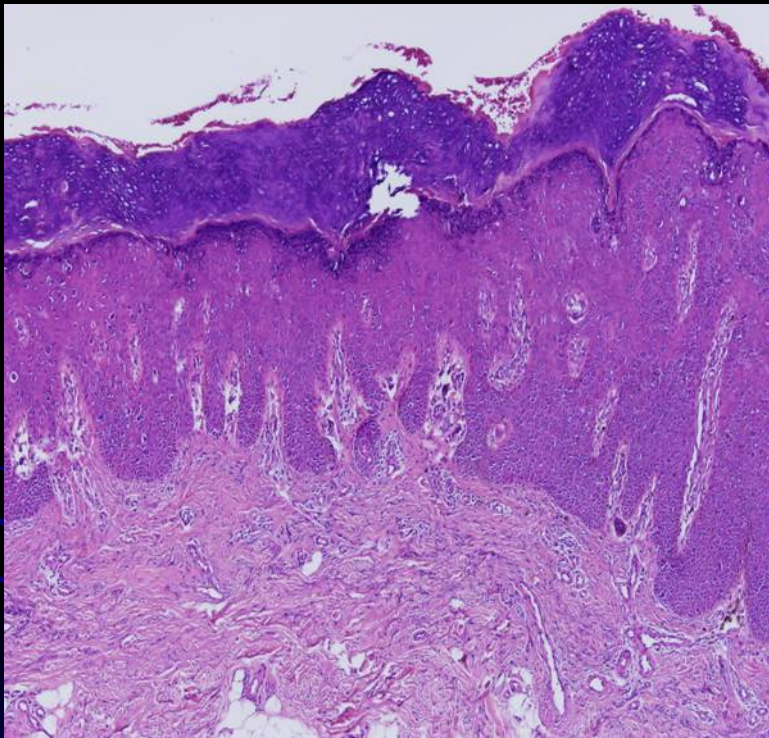
- **BACKGROUND:** In the literature no specific dermoscopic criteria have been described for the diagnosis of Bowen's disease (BD). **OBJECTIVE/AIM:** To assess the morphological findings of BD seen under dermoscopic observation.
- **METHODS:** Clinical and dermoscopic images of 14 patients affected by BD with various amount of pigmentation were obtained by means of Heine Dermaphot. Dermoscopic images were analysed by experienced observers applying the modified pattern analysis.
- **RESULTS:** The most frequently occurring dermoscopic features were found to be: multicomponent pattern (100%); atypical vascular structures (86.6%); absence of pigmented network (64.3%) or presence of pseudo-network (35.7%); irregular diffuse pigmentation or blotches of pigment (64.2%); irregularly distributed dots and globules (64.2%); focal/multifocal hypopigmentation (78.5%), scaly surface (64.2%) and haemorrhages (26.6%).
- **CONCLUSIONS:** Dermoscopically, BD is mainly characterized by a multicomponent global pattern associated with a prominent vascular pattern (mainly dotted vessels) and a scaly surface. Although no specific dermoscopic criteria can be given for BD, epiluminescence can be a valuable aid in the diagnosis of such a mimicker lesion.

Table 1. Definitions of the Different Morphologic Types of Vessels Seen by Dermoscopy

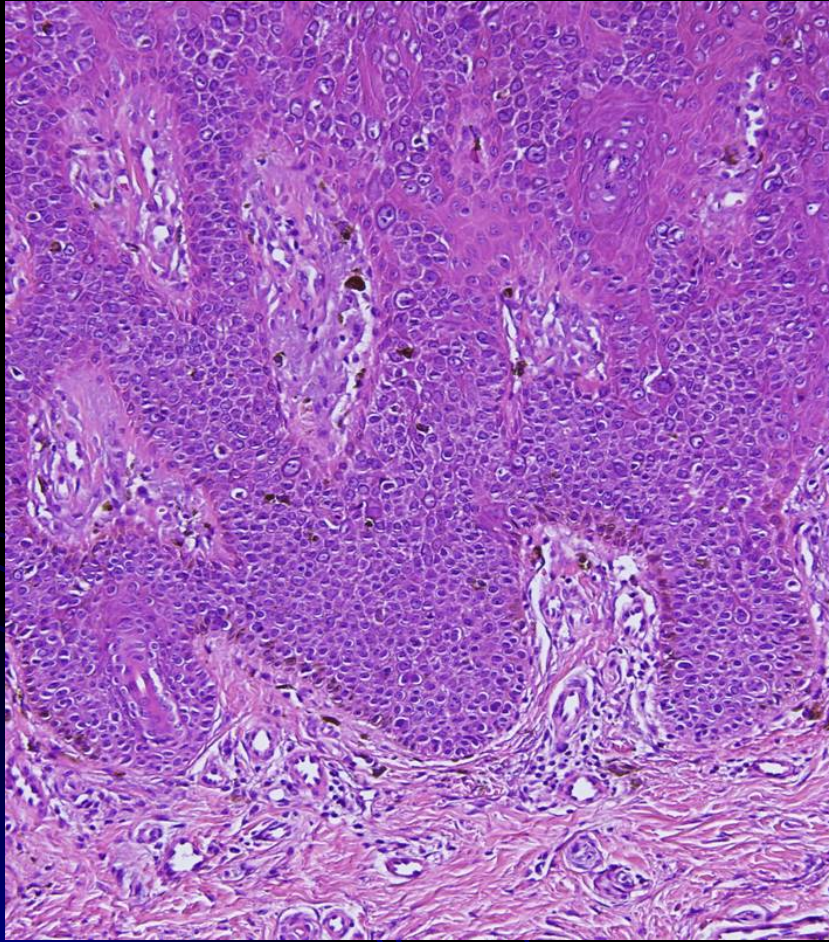
Vascular Structure	Definition
Arborizing vessels	Stem vessels with a large diameter, branching irregularly into the finest terminal capillaries. The vessel is bright red, which is perfectly in focus in the images because of their location on the surface of the tumor (just below the epidermis) (Figure 1A). ⁵
Dotted vessels	Tiny red dots densely aligned next to each other in a regular fashion (Figure 1B). ^{5,8}
Erythema	Pinkish color usually seen within areas of regression or at the border of the lesion (Figure 2A). ⁷
Linear-irregular vessels	Linear and irregularly shaped, sized, and distributed red structures (Figure 2B). ^{6,9}
Comma vessels	Coarse vessels that are slightly curved and barely branching (Figure 3A). ⁵
Polymorphous/atypical vessels	Any combination of 2 or more different types of vascular structures. The most frequent is the one occurring between linear-irregular and dotted vessels (Figure 3B). ⁸⁻¹¹
Hairpin vessels	Vascular loops sometimes twisted and bending, usually surrounded by a whitish halo when seen in keratinizing tumors (Figure 4A). ^{5,12}
Glomerular vessels	Variation on the theme of dotted vessels. They are tortuous capillaries often distributed in clusters, mimicking the glomerular apparatus of the kidney (Figure 4B). ¹³
Milky-red globules/areas	Globules and/or larger areas of fuzzy or unfocused milky-red color usually corresponding to an elevated part of the lesion (Figure 5A). ¹⁰
Crown vessels	Groups of orderly, bending, scarcely branching vessels located along the border of the lesion (Figure 5B). ⁵

Histopathology





- Acanthosis, hyperkeratosis, parakeratosis
- Full-thickness involvement of epidermis and adnexal epithelium by atypical keratinocytes



- Multinucleate cells, dyskeratotic cells, and mitoses.
- Melanin pigment in melanophages within the dermis
- Increased vascularity in the papillary dermis

Final diagnosis:

Pigmented Bowen's disease



Conclusions

- Dermoscopy, as an adjunct to clinical examination, may enhance accuracy in the preoperative diagnosis of pigmented BD
- The characteristic dermoscopic features include glomerular vessels, scaly surface, small brown globules, reticular pigmentation, and homogeneous pigmentation.
- There is no evidence of the parallel pigmentation pattern which is characteristic of acral melanocytic lesions.