

# Pigmented Basal Cell Carcinoma Simulating Melanoma in a Burn Scar

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*Pigmented basal cell carcinoma (BCC) can masquerade as malignant melanoma, especially in dark-skinned patients. We present a rare case of pigmented BCC located in an old burn scar in a 74-year-old Hispanic woman, and we demonstrate the potential value of dermatoscopy as a diagnostic tool in cases of pigmented lesions. Although clinically simulating melanoma, findings from the dermatoscopic examination of the lesion revealed characteristics of pigmented BCC, which was confirmed by histologic analysis of the biopsy specimen.*

## Case Report

A 74-year-old Hispanic woman was referred for evaluation of a pigmented lesion on her left upper back, located in an extensive burn scar (Figure 1). The woman had detected the lesion when it began to itch 5 months prior to seeking treatment. A caregiver noticed that the lesion had developed a layer that would slough off when the patient showered, but this pattern of activity had ceased recently. Aloe vera was used briefly but was found to have no significant effect. The patient attempted no other treatment methods. The lesion did not appear to have grown much but did exhibit a greater degree of pigmentation.

The patient had no personal or family history of skin cancer and reported little sun exposure throughout her life. The burn scar in which the lesion was located was acquired in infancy at the age

of 5 months, when a family member applied “hot cream” to her back in an effort to restore normal breathing compromised by a lung infection. The scar was otherwise stable, with no ulceration, and had been so for many years. Results from the physical examination revealed an ill-defined pigmented lesion that was asymmetrical and measured greater than 6 mm. Pigmentation was primarily light brown, dark brown, black, and white. The clinical impression was to rule out malignant melanoma.

Microscopy of the skin surface revealed 3 primary characteristics: blue-gray ovoid nests, arborizing tree-like telangiectasias, and maple leaf-like structures (Figure 2). Because these are all indicators of pigmented basal cell carcinoma (BCC) and not melanoma, the diagnosis of pigmented BCC was made. The results of the biopsy revealed basaloid cells with atypical nuclei, scant cytoplasm, and peripheral palisading of cells and melanin (Figure 3), further providing conclusive evidence of this diagnosis.

## Comment

In recent years, the incidence of skin cancer has reached epidemic proportions, with melanoma increasing at a rate higher than that of any other cancer in the United States.<sup>1,2</sup> According to the Skin Cancer Foundation, 1 in 6 Americans now can expect to develop some form of skin cancer within their lifetime<sup>2,3</sup>; although nonmelanoma skin cancer comprises the majority of these cases, melanoma has the highest mortality rate, accounting for 75% of all skin cancer deaths.<sup>2</sup> Early detection and excision are the best form of management,<sup>2,4</sup> but recognition can be problematic because of the challenging differential diagnosis. As in this case, pigmented BCC may simulate melanoma,<sup>3,5,6</sup> and other lesions also may present similarly. These include seborrheic keratoses, lentigines, blue nevi, angiokeratomas, traumatic hematomas, venous lakes, hemangiomas, dermatofibromas, and pigmented actinic keratoses.<sup>1</sup>

Dermatoscopy, also known as *cutaneous surface microscopy*, *epiluminescence microscopy*, *dermoscopy*,

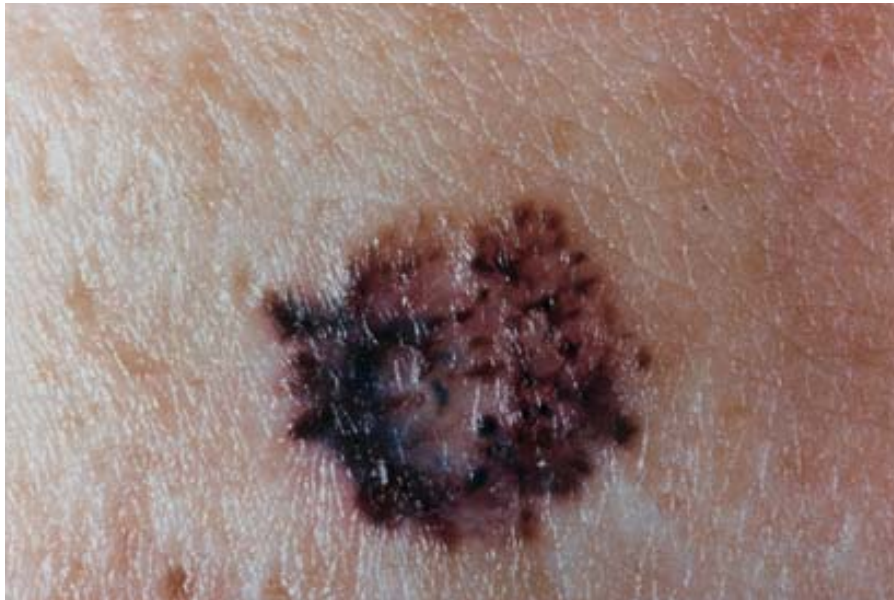
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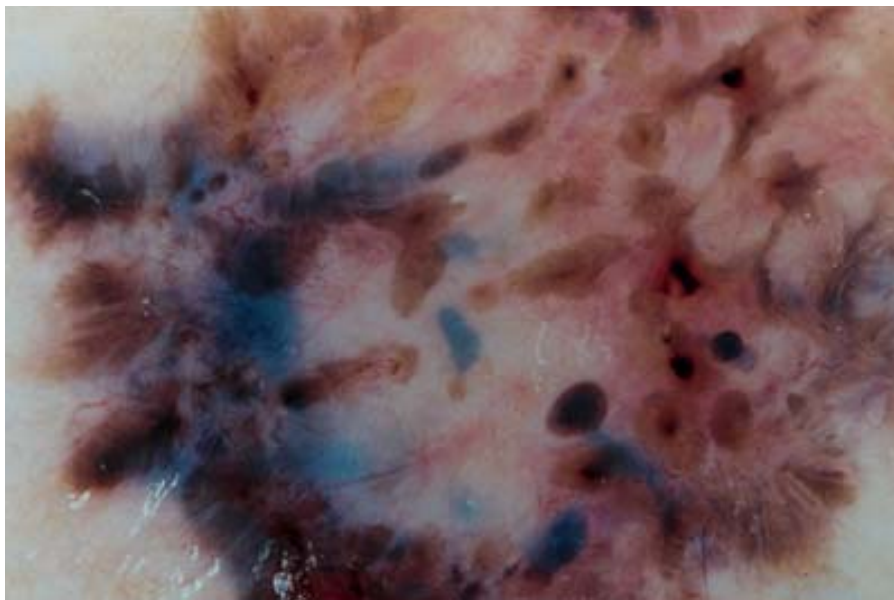
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**Figure 1.** An asymmetrical pigmented lesion, with irregular borders on the left upper back, located in an extensive burn scar. The lesion was primarily light brown, dark brown, black, and white.

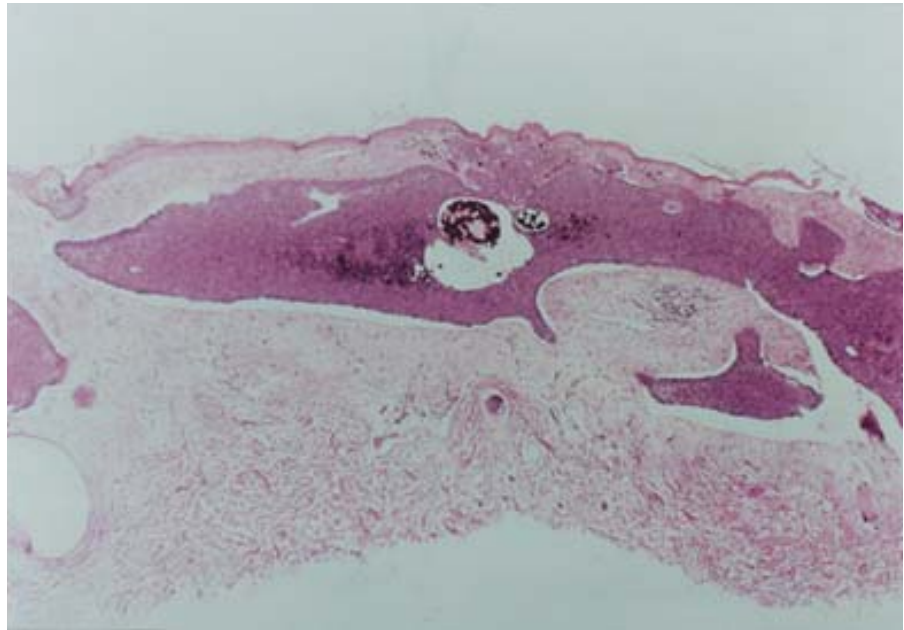


**Figure 2.** Dermatoscopically, there were blue-gray ovoid nests, arborizing tree-like telangiectasias, and maple leaf-like structures. Pigmented basal cell carcinoma was diagnosed.

or *magnified oil immersion diascopy*, is a noninvasive clinical technique that provides additional criteria for the diagnosis of pigmented skin lesions.<sup>2,4</sup> This is achieved by making use of the optical phenomenon of oil immersion that makes visible subsurface skin structures otherwise undetectable *in vivo*.<sup>2</sup> A simple surface microscopy method developed by Menzies et al,<sup>6</sup> and the one used in this case, was found to have a sensitivity of 97% for pigmented BCC, 93% for melanoma, and 92% for benign pigmented lesions. This model holds that for a pigmented BCC to be diagnosed, it must not have the negative feature of a pigment network and must have 1 or more of the

following 6 positive features: large blue-gray ovoid nests, multiple gray-blue globules, maple leaf-like areas, spoke-wheel areas, ulceration, and arborizing tree-like telangiectasia.<sup>6</sup> This provided a simple yet robust *in vivo* technique that immediately indicated the presence of pigmented BCC, given that the lesion lacked a pigment network. In addition, 3 of the possible positive features were present.

Particular ethnic populations are more prone to develop specific types of skin cancer. For darker skinned people, such as Hispanics and blacks, the incidence of malignant melanoma is much less than in whites,<sup>1</sup> but BCCs are more likely to be



**Figure 3.** Histologically, there were basaloid cells with atypical nuclei, scant cytoplasm, and peripheral palisading of cells and melanin, confirming the diagnosis of pigmented basal cell carcinoma (H&E, original magnification  $\times 40$ ).

pigmented, as seen in this case. These pigmented BCCs easily can lead to an erroneous diagnosis of melanoma.<sup>7,8</sup>

Skin cancer arising from a long-standing, previously stable burn scar is quite rare,<sup>9</sup> yet cases do exist in the literature of BCC, squamous cell carcinoma, and even malignant melanoma in a burn scar, though squamous cell carcinoma occurs most frequently in these sites.<sup>9-11</sup> This type of skin cancer typically occurs when the burn scar is very old.<sup>11</sup> Skin cancer development in each of the documented cases cited occurred when the scars were at least 50 years' old, with this case of 73 years the longest encountered, and each of these patients acquired the burn scar when they were 16 years or younger.<sup>9-11</sup>

Long-standing burn scars should be carefully monitored for signs of cancerous activity. If pigmented skin cancers are encountered here or elsewhere on a patient, the use of the Menzies dermatoscopy model supplementing the ABCD (asymmetry, border, color, and dimension) criteria offers a valuable tool in diagnosis and treatment.

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