

# Irregularly Hyperpigmented Plaque on the Right Heel

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A 56-year-old woman presented with an asymptomatic plaque on the right heel that had grown steadily over the last year. Pigmented lesions were not appreciated on other sites, and lymph nodes were not enlarged. Her medical history was otherwise normal, except for bilateral hearing loss due to encephalitis at the age of 5 years. None of her family members had similar symptoms. Physical examination revealed a well-defined, irregularly hyperpigmented plaque on the right heel.

## WHAT'S THE DIAGNOSIS?

- a. malignant melanoma
- b. pigmented basal cell carcinoma
- c. pigmented Bowen disease
- d. pigmented extramammary Paget disease
- e. seborrheic keratosis

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The authors report no conflict of interest.

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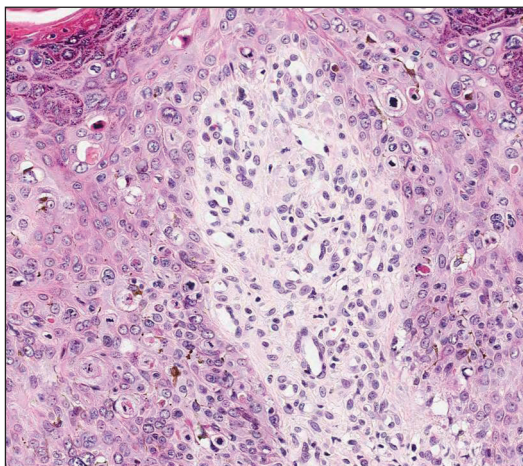
## THE DIAGNOSIS: Pigmented Bowen Disease

A biopsy of the lesion was performed for suspected acral malignant melanoma. Hematoxylin and eosin staining revealed acanthosis, elongation of rete ridges, and keratinocytes in complete disorder with atypical mitoses and pleomorphism affecting the full layer of the epidermis (Figure 1). The basement membrane was intact. Melanin pigmentation was increased in the lower epidermis and the upper dermis, and a lymphohistiocytic inflammatory infiltrate was present in the dermis. Staining for carcinoembryonic antigen (Figure 2) and melanoma antigen (Figure 3) recognized by T cells (melan-A) both revealed negative results. Histopathologic findings led to the diagnosis of pigmented Bowen disease (BD).

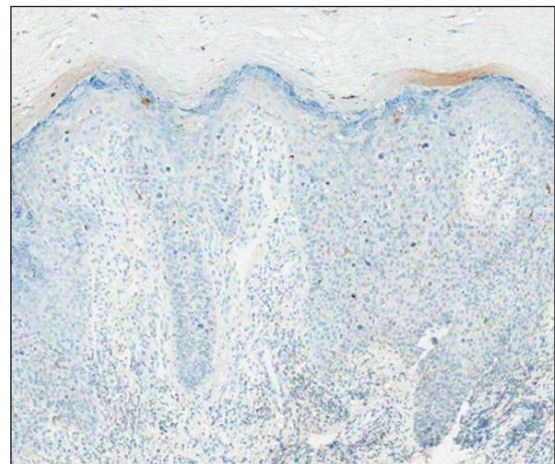
Pigmented BD is a rare variant that accounts for 1.7% (N=420) to 5.5% (N=951) of all cases of BD.<sup>1,2</sup> It is reported to affect men more than women and to be more prevalent in individuals with higher Fitzpatrick skin types.<sup>3</sup> Furthermore, exposure to UV radiation, chemicals (eg, arsenic), or human papillomavirus, as well as immunosuppression, are known to be related to pigmented BD.<sup>2,4</sup> Clinically, pigmented BD commonly involves nonexposed areas such as the anogenital area, trunk, and extremities, unlike typical BD that involves sun-exposed areas.<sup>5</sup> In addition, it most frequently presents as a well-delineated, irregularly pigmented, asymptomatic plaque and not as a scaly erythematous plaque. Therefore, the clinical diagnosis may be challenging. The differential diagnosis includes malignant melanoma, pigmented extramammary Paget disease, pigmented basal

cell carcinoma, seborrheic keratosis, pigmented actinic keratosis, solar lentigo, and melanocytic nevi.

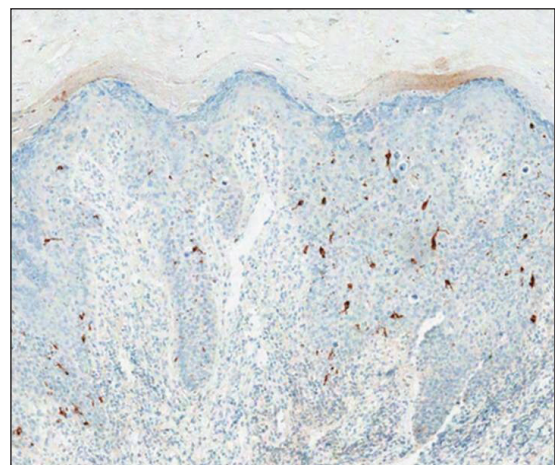
Histopathologically, a varying amount of melanin deposit is noted on hematoxylin and eosin staining, along with features of BD, including disarrayed atypical keratinocytes involving the full epidermis but not the basement membrane, with atypical individual cell keratinization.<sup>3,5,6</sup> Pigmented extramammary Paget disease can mimic pigmented BD clinically and pathologically, but Paget cells stain positive for anticytokeratin (CAM 5.2), carcinoembryonic antigen, and mucicarmine,



**FIGURE 1.** Keratinocytes in complete disorder with atypical mitoses and pleomorphism affecting the full layer of the epidermis, along with increased melanin pigmentation in the lower epidermis and the upper dermis (H&E, original magnification  $\times 400$ ).



**FIGURE 2.** Staining for carcinoembryonic antigen was negative (original magnification  $\times 200$ ).



**FIGURE 3.** Staining for melanoma antigen recognized by T cells was negative (original magnification  $\times 200$ ).

whereas cells in pigmented BD stain negative.<sup>7</sup> Moreover, negative staining for human melanoma black, melan-A, and S-100 helps differentiate malignant melanoma from pigmented BD.<sup>8</sup>

The prognosis of pigmented BD is similar to classic BD and is independent of the presence of melanin pigment.<sup>6</sup> Therefore, the treatment options do not differ from those for typical BD and include surgical excision, cryotherapy, laser ablation, topical imiquimod or 5-fluorouracil, curettage, electrocautery, and photodynamic therapy (PDT).

In our case, the patient and her family did not want surgical removal; therefore, 1 course of fractional laser-assisted PDT and 2 courses of ablative laser-assisted PDT were performed. Unfortunately, the lesion persisted, possibly because it was too large and pigmented. Two months later, ingenol mebutate gel 0.05% was applied (4 courses) after using an ablative laser over 3 consecutive days with a 1-month interval between courses. The lesion resolved without any adverse events.

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