Basal cell carcinoma masquerading as vitiligo in a young woman

Juliana Pineider, BS, Kimberly M. Ken, MD, Stephanie Savory, MD, and Rajiv I. Nijhawan, MD
Dallas, Texas

Key words: basal cell carcinoma; hypopigmented; Mohs micrographic surgery; skin cancer; vitiligo.

INTRODUCTION

Vitiligo is an autoimmune condition that presents with irregular patches of depigmentation commonly affecting individuals in their first few decades of life.[1] In contrast, basal cell carcinoma (BCC) typically presents as a pink, pearly papule with telangiectasias and rarely affects younger individuals.[2] This case emphasizes the importance of histologic evaluation in a patient with clinically diagnosed vitiligo refractory to treatment and raises suspicion when a patient with seemingly few risk factors for skin malignancy is evaluated.

CASE

A 24-year-old white woman was referred for a 13-year history of a slow-growing, asymptomatic, hypopigmented patch on the glabella. An outside dermatologist clinically diagnosed the lesion as vitiligo and prescribed various topical steroids for years without improvement; she denied undergoing light therapy or using topical immunomodulators. During the past 2 years, she noted a pink area forming within the hypopigmented patch. She denied pain, itching, or bleeding of the lesion. The patient also denied tanning bed use, excessive sun exposure, similar lesions elsewhere on her body, a family or personal history of skin cancer, and a family history of autoimmune disease. In settings of heat or stress, she reported the hypopigmented patch remained unchanged, whereas the surrounding skin turned pink. The patient denied current use of any oral or topical medications. Physical examination revealed a 1-cm pink, slightly scaly, indurated papule with telangiectasias centrally within a large, blanching, hypopigmented patch without notable induration or surface change (Fig 1, *A*). A punch biopsy of the papule was performed (Fig 1, *B*).

Abbreviation used:

BCC: basal cell carcinoma

There was no evidence of skeletal abnormalities, cystic jaw lesions, or palmar-plantar pits.

The biopsy was consistent with a diagnosis of morpheaform BCC. Mohs micrographic surgery was initiated just around the pink papule, but frozen-section analysis revealed that the entire hypopigmented patch was in fact morpheaform BCC (Fig 2, *A*) that extended into the muscularis. Fortunately, there was no evidence of perineural or bony invasion. Six stages of Mohs surgery were required to achieve clear margins (Fig 2, *B*).

DISCUSSION

BCC is the most common cancer worldwide, with the incidence increasing at an average rate of 4% to 8% annually, whereas the lifetime risk of BCC development in the United States is estimated to be greater than or equal to 20%.[2] Clinically, BCC classically presents as a pearly, pink papule, although the presentation can be variable. There are also several histologic subtypes: nodular, superficial, infiltrative, infundibulocystic, fibroepithelial, and morpheaform. Nodular BCC is the most prevalent subtype (50%-80%), with morpheaform BCC being less common (10%).[2]

BCC preferentially affects older populations, with the incidence doubling from aged 40 to 70 years.[2] A 27-year retrospective case review found that the incidence of nonmelanoma skin cancer is increasing in individuals younger than 40 years, and furthermore, a disproportionate increase in BCC was found in young women.[3] Hypothesized reasons include

From the Department of Dermatology, University of Texas Southwestern Medical Center, Dallas.

Funding sources: None.
Conflicts of interest: None disclosed.

Correspondence to: Rajiv I. Nijhawan, MD, 5939 Harry Hines Blvd, 4th Floor, Dallas, TX 75390-9191. E-mail: rajiv.nijhawan@utsw.edu.

JAAD Case Reports 2020;6:584-6.
2352-5126

https://doi.org/10.1016/j.jdcr.2020.05.006

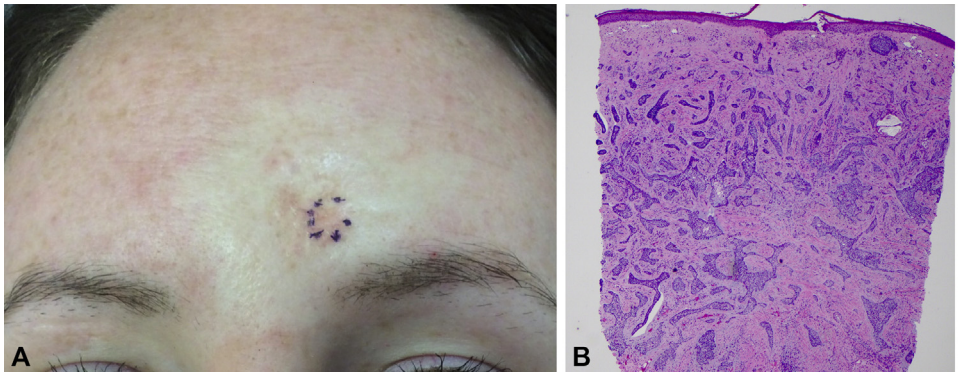

Fig 1. Morpheaform basal cell carcinoma clinical presentation and biopsy. **A**, Clinical image of the hypopigmented patch with the pink papule circled before infiltration of local anesthesia and punch biopsy. **B**, Punch biopsy specimen with irregular basophilic nodules and strands of basaloid pleomorphic, hyperchromatic neoplastic cells in the dermis with surrounding dense sclerotic stroma. (**B**, Hematoxylin-eosin stain; original magnification: ×5.)

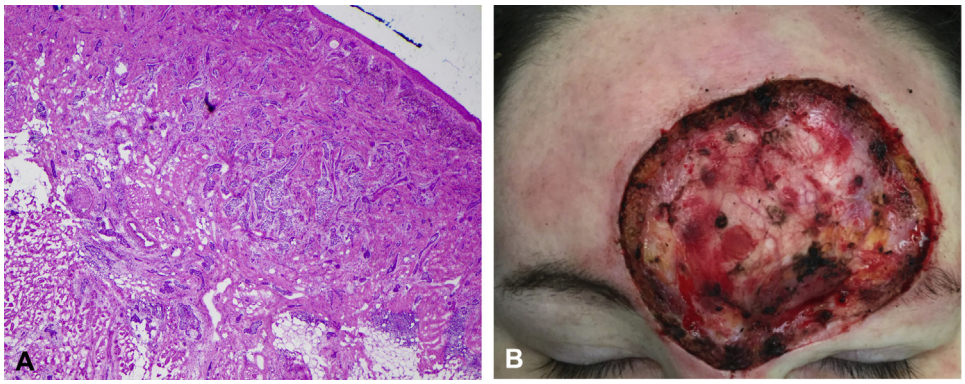

Fig 2. Morpheaform basal cell carcinoma surgical specimen and postsurgical image. **A**, Mohs micrographic surgery frozen section showing basaloid nodules and strands of basaloid, hyperchromatic neoplastic cells in the dermis, surrounded by dense sclerotic stroma. **B**, A 6.4 × 7-cm surgical defect after Mohs micrographic surgery. (**A**, Hematoxylin-eosin stain; original magnification: ×2.)

increased knowledge and detection, excessive sun exposure, and use of tanning beds in women versus their male counterparts.[3] Certain genetic syndromes such as nevoid BCC syndrome are characterized by BCCs at a young age, with lesions appearing in individuals as young as 3 years but more typically at a median age of 20 years.[4] However, the youngest patient ever reported to have BCC was a 27-month-old infant with no indication of nevoid BCC syndrome.[5] The suspicion for nevoid BCC syndrome in our patient was low because she lacked other nevoid BCC syndrome stigmata. Although fewer young people are affected, 1 study found that aggressive subtypes of BCC, such as morpheaform, disproportionately affect younger populations.[6]

Morpheaform BCC is locally aggressive because of its associations with greater subclinical depth of extension and a greater rate of recurrence compared with other histologic subtypes.[2] Therefore, lesions with adequate clinical suspicion or those recalcitrant to standard therapy for the suspected clinical diagnosis should be biopsied even if presenting in a classically low-risk patient. Morpheaform BCC can be difficult to diagnose because it often resembles a scar with poorly defined borders and a shiny surface owing to its sclerotic collagenous stroma observed microscopically. Dermatoscopic characteristics of morpheaform BCC include porcelain-white coloration with structureless hypopigmentation.[7] Morpheaform BCC can thus be misdiagnosed as a scar or other depigmented condition, especially in a young person, until a biopsy is performed.

Histologic evaluation may be necessary to confirm a diagnosis for various hypopigmentation or depigmentation disorders. For example, nevus anemicus is a hypopigmentation condition that

arises because of a localized increased sensitivity to vasoconstricting catecholamines in the cutaneous vasculature and appears as normal skin on histology.[8] In contrast, vitiligo, which is an autoimmune disorder directed at melanocytes, can be differentiated because of a nearly complete absence of melanocytes.[8] Last, nevus depigmentosus, a form of cutaneous mosaicism, clinically appears hypopigmented and is due to decreased melanin with normal or decreased melanocytes.[8]

There is one comparable case reported. A 33-year-old white woman with a morpheaform BCC received a diagnosis within a solitary vitiliginous patch that had been present for 5 years on the cheek.[9] She was treated successfully with Mohs micrographic surgery, although it is unclear whether she truly had vitiligo initially or whether the lesion was misdiagnosed.[9] Recent reports reveal that vitiligo may actually have a protective effect against BCC.[2] Although counterintuitive, this association has been attributed to protective effects secondary to the upregulation of wild-type p53 and p76 controlling DNA repair in the keratinocytes of vitiligo patients.[10]

BCC has unique histopathologic features that distinguish it from other skin disorders. However, because of a wide range of clinical presentations, the diagnosis can be challenging to make without biopsy. Clinicopathologic correlation is important for growing lesions recalcitrant to standard therapy.

REFERENCES

1. Ezzedine K, Eleftheriadou V, Whitton M, van Geel N. Vitiligo. *Lancet*. 2015;386(9988):74-84.
2. Cameron MC, Lee E, Hibler BP, et al. Basal cell carcinoma: epidemiology; pathophysiology; clinical and histological subtypes; and disease associations. *J Am Acad Dermatol*. 2019; 80(2):303-317.
3. Christenson LJ, Borrowman TA, Vachon CM, et al. Incidence of basal cell and squamous cell carcinomas in a population younger than 40 years. *JAMA*. 2005;294(6):681-690.
4. Kimonis VE, Goldstein AM, Pastakia B, et al. Clinical manifestations in 105 persons with nevoid basal cell carcinoma syndrome. *Am J Med Genet*. 1997;69(3):299-308.
5. Keramidas DC, Anagnostou D. Basal-cell carcinoma of the lower lid in a 27-month-old child. *Z Kinderchir*. 1987;42(4): 250-251.
6. Leffell DJ, Headington JT, Wong DS, Swanson NA. Aggressive-growth basal cell carcinoma in young adults. *Arch Dermatol*. 1991;127(11):1663-1667.
7. Reiter O, Mimouni I, Dusza S, Halpern AC, Leshem YA, Marghoob AA. Dermoscopic features of basal cell carcinoma and its subtypes: a systematic review [e-pub ahead of print]. *J Am Acad Dermatol*. 2019. https://doi.org/10.1016/j.jaad.2019.11.008.
8. Ullah F, Schwartz RA. Nevus depigmentosus: review of a mark of distinction. *Int J Dermatol*. 2019;58(12):1366-1370.
9. Rustemeyer J, Gunther L, Deichert L. A rare association: basal cell carcinoma in a vitiliginous macula. *Oral Maxillofac Surg*. 2011;15(3):175-177.
10. Salem MM, Shalbaf M, Gibbons NC, Chavan B, Thornton JM, Schallreuter KU. Enhanced DNA binding capacity on up-regulated epidermal wild-type p53 in vitiligo by H_2O_2-mediated oxidation: a possible repair mechanism for DNA damage. *FASEB J*. 2009;23(11):3790-3807.