Hyperpigmented nodule on a young Black man

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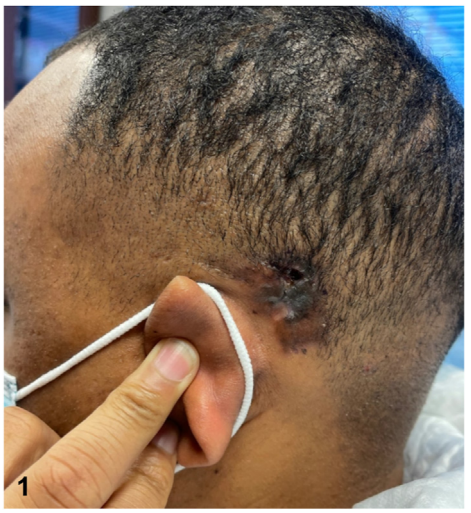
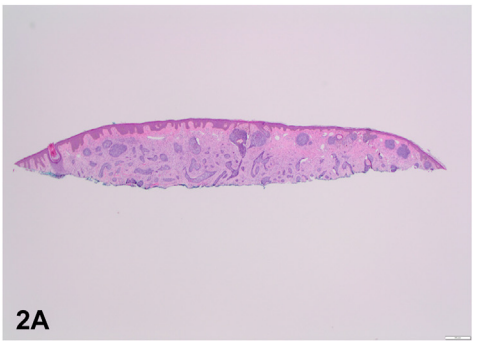
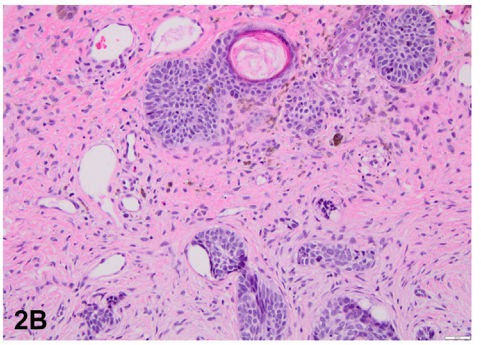
Key words: basal cell carcinoma; Black skin; dermatology; dermatopathology; hyperpigmented lesion; Mohs micrographic surgery; nodular and infiltrative basal cell carcinoma; nonhealing lesion; skin cancer; skin of color; young Black male.







A 32-year-old Black man without a significant medical history presented to the emergency department with a 2-year-old nonhealing lesion that was associated with recurrent bleeding on the left portion of the postauricular region of his scalp. He had no family history of malignancy. A physical examination revealed a 2.3 × 3.1-cm^2 hyperpigmented nodule associated with a brown patch with a hyperpigmented border. Clinically, there was no regional lymphadenopathy. Histopathology revealed nests and irregularly shaped strands of basaloid cells with scant cytoplasm and round, dark nuclei. At the periphery of tumor islands, the basaloid cells were palisaded (Figs 1 and 2).

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Question 1: What is the diagnosis?

A. Basal cell carcinoma (BCC)

B. Squamous cell carcinoma (SCC)

C. Keloid

D. Merkel cell carcinoma (MCC)

E. Melanoma

Answers:

A. BCC — Correct. This patient has a micronodular and infiltrative BCC. BCC is the second most common skin cancer in Black individuals. The common histopathologic features include aggregates of basaloid cells with palisading on the periphery, retraction artifacts, and a surrounding fibromyxoid stroma. Clinical pigmentation is often present in this patient population.[1,2]

B. SCC — Incorrect. SCC is the second most common skin malignancy in the United States after BCC; however, it is the most common skin cancer in Black individuals. Black patients are distinctive because SCC commonly develops in sun-protected locations in these individuals. The histopathology of SCC is characterized by pleomorphic keratinocytes that extend into the dermis.[1]

C. Keloid — Incorrect. Keloids are caused by aberrant fibroblast activity, which results in painful, disfiguring skin lesions during the process of wound healing. Histopathology shows thickened, hyalinized collagen with increased fibroblasts.[3]

D. MCC — Incorrect. MCC presents as a rapidly growing lesion that is often associated with immunosuppression. Histopathology typically reveals cells with large basophilic nuclei, speckled chromatin, minimal cytoplasm, and cytokeratin 20 positivity. Although Black individuals make up a small percentage of MCC cases, they typically present at later stages and with more poorly differentiated disease.[1]

E. Melanoma — Incorrect. Melanoma can be clinically recognized based on lesion asymmetry, irregular borders, and rapid evolution. On histopathology, melanoma is characterized by asymmetrical growth of atypical melanocytes. Black patients have a worse survival rate and a greater proportion of aggressive subtypes than non-Hispanic White patients.[1]

Question 2: Which of the following is true with respect to this diagnosis?

A. These tumors are typically erythematous in individuals with Fitzpatrick skin types IV through VI

B. Environmental arsenic exposure can be associated with their development

C. These tumors are common in young adults

D. These tumors have a rapidly progressive course, with metastasis seen in 5% of patients

E. Typically, these tumors are diagnosed early during their growth in all skin types

Answers:

A. These tumors are typically erythematous in individuals with Fitzpatrick skin types IV through VI — Incorrect. BCC often clinically presents as a pearly black lesion in this patient population. Clinical appearance is variable in Black patients, and BCC can often appear clinically similar to seborrheic keratosis or a congenital nevus.[2]

B. Environmental arsenic exposure can be associated with their development — Correct. Chronic arsenic poisoning has been found to increase the incidence of SCC and BCC. The mechanism is believed to be related to the inhibition of DNA repair mechanisms.[4]

C. These tumors are common in young adults — Incorrect. The risk of BCC increases significantly with age. A recent case series of BCC in Black patients showed the average age at diagnosis to be 61 years.[2]

D. These tumors have a rapidly progressive course, with metastasis seen in 5% of patients — Incorrect. BCC is often locally invasive, but the metastatic disease is noted in 0.0028% to 0.55% of cases.[5]

E. Typically, these tumors are diagnosed early during their growth in all skin types — Incorrect. Because BCC is less common in Fitzpatrick skin types IV through VI, delayed diagnosis may occur in these groups. A case series of Black patients undergoing Mohs micrographic surgery (MMS) for BCC showed a mean number of 2.2 stages and a postoperative defect size of 5.9 cm^2 compared with 1.8 stages and a postoperative defect size of 1.16 cm^2 in White populations. One-third of the tumors in this series took >3 years to be diagnosed.[2]

Question 3: Which of the following is the most effective treatment for this patient?

A. Topical 5-fluorouracil

B. MMS

C. Topical imiquimod

D. Cryotherapy

E. Intralesional triamcinolone

Answers:

A. Topical 5-fluorouracil — Incorrect. 5-fluorouracil forms a stable complex with thymidylate synthase and blocks the formation of deoxythymidine monophosphate, which is required for DNA synthesis. It has been approved by the US Food and Drug Administration for the treatment of superficial BCC on the trunk and extremities only.

B. MMS — Correct. The location of this skin cancer makes MMS the optimal choice because of its advantage of minimizing tissue loss while still ensuring clear margins. The rate of recurrence for MMS for primary BCC has been noted to be between 0.7% and 1.8%.[3]

C. Topical imiquimod — Incorrect. Topical imiquimod acts on both the innate and adaptive immune systems via direct and indirect actions. The direct action of imiquimod occurs by binding to toll-like receptors on macrophages, monocytes, and dendritic cells. The indirect action of imiquimod occurs by the induction of cytokine release. Imiquimod has been approved by the US Food and Drug Administration for use in the treatment of superficial BCC on the trunk and extremities only.

D. Cryotherapy — Incorrect. When used to treat BCC, cryotherapy has a high risk of recurrence and is associated with both scarring and hypopigmentation.

E. Intralesional triamcinolone — Incorrect. This treatment is used in patients with suspected keloids to diminish collagen synthesis and block fibroblast production.

Abbreviations used:

BCC: basal cell carcinoma
MCC: Merkel cell carcinoma
MMS: Mohs micrographic surgery
SCC: squamous cell carcinoma

Conflicts of interest

None disclosed.

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