

Nodular Melanoma in an African American Japanese Male Sarah Gonzalez BS¹, Andrew King MD, PhD¹, Meena Moossavi MD, MPH¹ 1 Wayne State University School of Medicine Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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Abstract

Nodular melanoma (NM) is the third most common subtype of melanoma among African Americans (AA) behind acral lentiginous melanoma (ALM) and superficial spreading melanoma (SSM) (1, 2). This case of NM in an African American Japanese male was selected due the rare occurrence of NM in skin of color patients.

Introduction

Melanoma is a rare disease in non-Caucasians. In men, incidence of melanoma in Caucasians is 33 per 100,000 compared to 1.2 and 0.9 in African Americans (AA) and Asians, respectively.^{1,2} The US Surveillance, Epidemiology, and End Results (SEER) registry, containing data from 1988-2011 demonstrated that Acral lentiginous melanoma (ALM) was overwhelmingly the most common subtype of melanoma in AA: 18.0% of the cases were ALM compared to 0.91% in Caucasians. 55.9% of the cases in African Americans were classified as Melanoma not otherwise specified (NOS). The second and third most common subtypes in AA were superficial spreading (SSM) and nodular melanoma (NM), comprising 15.6% and 7.9% of the cases during the 23-year-period, respectively. In the Japanese population, however, melanoma is twice as high compared to other Asian races.^{2,4}

This case of nodular melanoma in an African American-Japanese male was selected due the rare occurrence of nodular melanoma in patients with skin of color (SOC). The relationship between epidemiology and risk factors for melanoma in non-Caucasian populations is not well investigated. Furthermore, nodular melanoma is largely unstudied in SOC.

Case Presentation

A 60-year-old male veteran of African American and Japanese descent, presented for concerns of a growing lesion on his left lower abdomen. The lesion was present for several years, but had been recently increasing in size, catching on his belt, and bleeding. The patient denied any personal or family history of skin cancer nor history of sunburns. Work history included service in the military, with deployments in Spain, Italy, and France. As a deckhand painting and cleaning ships, he spent significant time outdoors. Physical exam revealed a friable dark brown to black exophytic ulcerated tumor growing atop a broader dark brown plaque measuring 4.0 x 2.0 cm on the left lower abdomen with background Fitzpatrick V skin type (Figure 1).

Wide local excision and dissection of superficial left inguinal lymph nodes revealed nodular melanoma with Breslow depth of 5.1 mm and a Clark's level of IV (Figure 2). A *BRAF* V600E mutation was detected, and melanoma was confirmed in four lymph nodes. Subsequent imaging revealed innumerable 1-3 mm nodules in bilateral lungs and a solitary lesion in the left temporal lobe with TNM staging of T4bN3cM1. Treatment began with combined RAF and MEK inhibitors, dabrafenib and trametinib. Within 12 months, pulmonary and brain lesions disappeared, however progression was noted in T6 vertebra. 15 months after diagnosis, treatment was changed to combination checkpoint inhibition with ipilimumab and nivolumab and stereotactic beam radiation therapy (SBRT). The patient passed away 21 months after initial diagnosis.

Discussion

Published reports of nodular melanomas in patients of African descent are rare. In the United States from 2004 to 2019, two case reports of NM in AA have been published.^{5,6} The SEER database across 23 years records 87 cases of NM in AA, compared to 15,805 cases in Caucasians.¹ Of the Asian races, melanoma incidence is approximately twice as high in Japanese.^{2,4}

Darker skin filters twice as much ultraviolet (UV) radiation as lighter skin.^{2,7} In evaluating the relationship between melanin and UV damage, Tadokoro et al, demonstrated that subjects with darker skin repaired UV damage at a higher rate than lighter skin.⁸ Despite inherent photoprotection and higher rate of repair, individuals with SOC exhibited significant UV damage, highlighting that even with low UV exposure there is DNA damage to all skin types.

V600E *BRAF* mutations have been identified in 66% of melanomas and associated with increased thickness, tumor ulceration, and truncal anatomic site.^{9,10} NM is thought to arise from chronic sun-exposure, with similar risk factors as SSM: fair skin, freckling, and sunburns.¹¹ However, these risk factors are not predictive of the risk of melanomas in AA. Our patient received significant sun exposure during his time in service. His lesion is consistent with intermittent sun-exposure and an anatomical site, the abdomen, in which a *BRAF* mutation may occur.

Conclusion

NM is rare in the AA population in contrast to the prevalence of ALM. The relationship between UV radiation, skin pigmentation, and risk of melanoma in SOC is unclear and understudied. Recent review of 13 studies showed that most found no association between UV exposure and melanoma in SOC.¹² With an increasingly diverse range of pigmentary concentration in patients who identify as SOC, it is important to better understand the factors that put patients with SOC at risk of melanoma. This case highlights the rare but devastating consequences of UV-induced melanoma in a patient with SOC.

Author Contributions

Sarah Gonzalez, BS, Andrew King, MD, PhD, Meena Moossavi, MD, MPH have contributed significantly to the management, evaluation, and contents of the paper entitled "NM in an African American Japanese Male." All authors approved the final version.

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Conflict of Interest

None

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Data Availability Statement

All the required information is available in the manuscript.

Consent

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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