

Choroidal Melanoma in an African American Patient

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The incidence of uveal melanoma in African Americans and other ethnic groups is significantly less than that of Caucasians.¹⁻¹² Data from the Third National Cancer Survey, 1969-1971, revealed that Caucasians have more than 8 times the risk for development of uveal melanoma compared to African Americans.¹ A more recent review from the National Cancer Institute Surveillance, Epidemiology, and End Results (SEER) database showed that uveal melanoma is found in patients of white race (97.8%), black race (0.5%), and unknown (1.7%).² The reason for this ethnic disparity is not well understood.³ The link between ultraviolet (UV) radiation and cutaneous melanoma is well established.¹ However, the relationship between UV radiation and uveal melanoma has not been proven.^{1,4,6,7,10,12}

Herein we document uveal melanoma in an African American patient. We explore this rare condition and discuss the features in non-Caucasian ethnic groups.

CASE DESCRIPTION

A 65-year-old woman of African American descent and with moderately light skin pigmentation was found to have a chronic, slowly evolving choroidal melanocytic tumor of the right eye over 3 months (Figure 1A). There were no symptoms. Medical history revealed pulmonary large cell lymphoma, successfully treated with chemotherapy and radiotherapy 25 years previously and with no recurrence.

On ocular examination, BCVA was 20/20 bilaterally. Intraocular pressures were within normal limits. Funduscopy of the left eye was unremarkable. Examination of the right eye revealed an abruptly elevated superonasal choroidal mass of 12 mm in basal diameter and 5 mm in thickness. There was overlying subretinal fluid and retinal pigment epithelial mottling (Figure 1B). B-scan ultrasonography confirmed an acoustically hollow choroidal mass with subretinal fluid

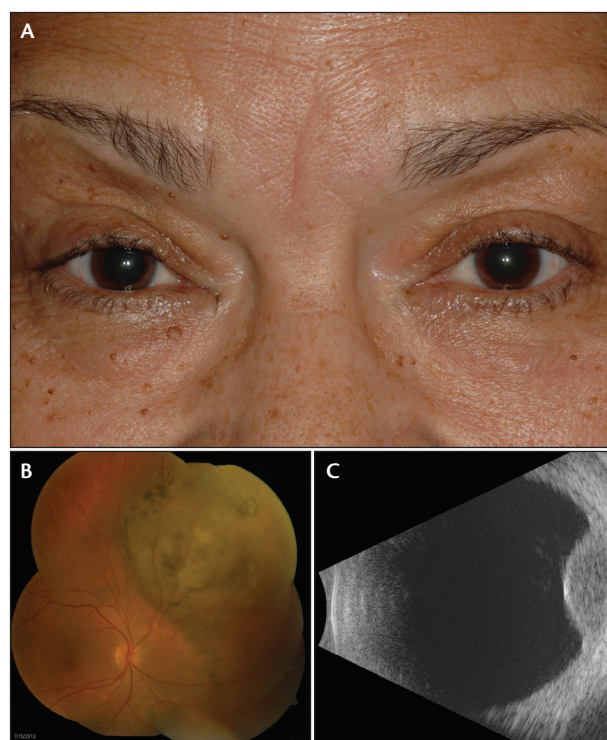


Figure 1. An African American with moderately light skin pigmentation, cutaneous nevi, and choroidal melanoma in the right eye (A). Fundus photograph showing choroidal melanoma in the superonasal region of the right eye (B). B-scan ultrasonography identifying acoustically hollow mass with subretinal fluid (C).

(Figure 1C). Optical coherence tomography revealed intact macula in both eyes. These features were suggestive of choroidal melanoma. Treatment options included enucleation or plaque radiotherapy. Given the location and moderate size of 12 x 12 x 5 mm, plaque radiotherapy using iodine-125 isotope on a 15 mm plaque was provided. Genetic testing for DNA abnormalities was performed.

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DISCUSSION

Choroidal melanoma is the most common primary intraocular tumour in the United States.^{1-7,9} Scotto et al reported the incidence at 6 cases per million among Caucasians. The risk among Caucasians was 8 fold that of African Americans.¹ To date, studies have focused on the Caucasian population due to lack of data in the African American or Hispanic population.⁴

In 2010, the National Census Bureau for the USA documented that the population in this country, currently at 308.7 million, is comprised of 72.4% Caucasian (63.7% non-Hispanic Caucasian) and 24.7% Non-Caucasian, including 12.6% African American, 4.8% Asians and 7.3% from other races. There were 2.9% who reported 2 or more races. Hispanics, not considered a racial category, made up 16.3% of the population. Non-Hispanic Caucasians, while still the largest single group, was projected by 2043 to no longer form the majority.¹³ Indeed the non-Caucasian population has grown from 16.8% of the population in 1980 to 19.7% in 1990 to 22.3% in 2000 before reaching 24.7% in 2010.^{14,15} Current population projections show the Hispanic population doubling from 53.3 million in 2012 to 128.8 million in 2060, meaning the Hispanic population will constitute 1 in 3 US citizens, an increase from the current ratio of 1 in 6.¹⁵ The changing demographic of this population illustrates the need for a more comprehensive understanding of this disease across all racial groups.

Racial differences in the incidence of uveal melanoma is well recognized.¹⁻¹² In a study on 8033 consecutive patients with uveal melanoma at Wills Eye Hospital in Philadelphia, 33 (< 1%) occurred in African Americans and 105 (1%) in Hispanics.⁵ Furthermore, a study from the Armed Forces Institute of Pathology in Washington, DC, identified 39 of 3378 (1%) patients with uveal melanoma of African American descent.³

Margo and McLean compared histopathologic features and survival outcomes in patients with uveal melanoma based on Caucasian versus African American heritage.³ They found that African American patients with uveal melanoma were more likely to clinically have larger tumors, secondary glaucoma, and inflammation.

Histopathologically, African American patients were more likely to display necrosis. Survival was the same in both groups at approximately 56% at 15 years.³

The etiology of uveal melanoma is unknown, and, unlike cutaneous melanoma, it cannot be definitively attributed to pigmentation in correlation with UV radiation.^{1,3,4,6,7,10-12} Studies examining host susceptibility factors and uveal melanoma have conflicting results.¹⁰ The development of uveal melanoma is likely multifactorial, involving both genetic and environmental elements including UV radiation.⁶ Phillpotts et al noted differences between the ratio of uveal melanoma cases among blacks and whites in the United States (8-15:1) and in South Africa (80:1); the authors suggested that this disparity may be due to mixed ethnic lineage among blacks in the United States.⁴ In an analysis of 10 black patients with posterior uveal melanoma, Phillpotts and colleagues identified 9 from the United States and 1 from the West Indies. There was no family history of either ocular or cutaneous malignant melanoma in any of the cases. Treatment included enucleation for 3, plaque radiotherapy for 5, observation for 1, and refusal of treatment for 1 patient. Of the 5 treated with plaque radiotherapy, 3 eventually required enucleation.⁴ The high rate of ocular morbidity among African American patients is hypothesized to be due to potentially higher rate of tumor necrosis and possible delay in clinical diagnosis in African Americans.³

Singh et al commented on the lack of latitudinal variation on the incidence of uveal melanoma across the United States.¹⁰ The lowest incidence of uveal melanoma, found in Hawaii (1 per million), has been explained by a higher Asian ethnic population there.^{10,12} Excluding Hawaii, there was no significant differences in the incidence of uveal melanoma with regard to latitude, suggesting that populations closer to the equator with increased sun exposure and UV radiation have no increased risk for uveal melanoma.¹⁰ In our case, the skin color was lighter than most African American complexion, and this could have represented some Caucasian lineage over the past generations.

CONCLUSION

We present a case of choroidal melanoma in an African American woman. This case underscores the rarity of melanoma in this population and illustrates the need for full ocular examination in both Caucasian and non-Caucasian populations. ■

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