

HEMORRHAGE OVER A CHOROIDAL NEVUS—HARMLESS OR HAZARDOUS?



Choroidal neovascularization may lead to worrisome findings on fundus autofluorescence, but these do not necessarily indicate malignancy.

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Choroidal nevi are common intraocular melanocytic tumors found in approximately 6% of the White population.¹ Despite their benign nature, these lesions can assume suspicious features that may be misdiagnosed as choroidal melanoma. Choroidal neovascularization (CNV), a rare complication of choroidal nevi, can cause visual impairment and pseudo-enlargement of the mass in both base and thickness, raising suspicion for malignancy.² Herein, we describe a case of a choroidal nevus that raised concern for malignancy following abrupt evolution with subretinal and subhyaloid hemorrhages.

CASE

A 66-year-old White man presented to the Ocular Oncology Service with decreased vision in his left eye for 2 weeks. He was known to have a choroidal nevus in his left eye identified 9 years earlier. At that time, the nevus was 2.9 mm in thickness and 8 mm in largest basal diameter with overlying drusen and focal retinal pigment epithelial (RPE) hyperplasia (Figure 1A). Fundus autofluorescence (FAF) demonstrated focal patches of hypoautofluorescence overlying the nevus, corresponding to the areas of RPE hyperplasia and atrophy (Figure 1B). Ultrasonography revealed a somewhat acoustically hollow, dome-shaped mass of 2.9 mm thickness (Figure 1C). Routine monitoring was advised.

At presentation, the patient's VA was 20/30 OD and 20/60 OS, and the nevus in his left eye had changed. There was a pigmented choroidal mass measuring 8 mm in largest basal diameter, with overlying RPE atrophy. The most striking change was the presence of overlying fresh subretinal hemorrhage and curvilinear dependent yellow, partially dehemoglobinized chronic subretinal hemorrhage, and "breakthrough"

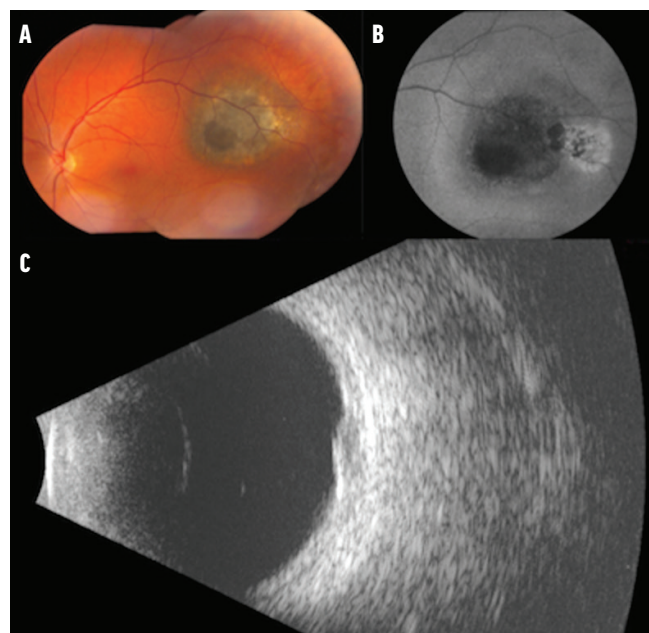


Figure 1. Wide-angle color fundus photograph shows a choroidal nevus measuring 8 mm in basal diameter with overlying drusen and RPE hyperplasia in the left eye (A). FAF shows focal patches of hypoautofluorescence overlying the nevus corresponding to areas of RPE hyperplasia and atrophy (B). Ultrasonography shows an echolucent, dome-shaped mass 2.9 mm in thickness (C).

subhyaloid hemorrhage in the inferior macular region (Figure 2A). The fresh hemorrhage was hypoautofluorescent, whereas the more chronic, dehemoglobinized hemorrhage was hyperautofluorescent (Figure 2B).

Ultrasonography confirmed a shallow, dome-shaped, echodense choroidal mass measuring 2.6 mm in thickness (Figure 2C). OCT imaging showed vitreomacular traction

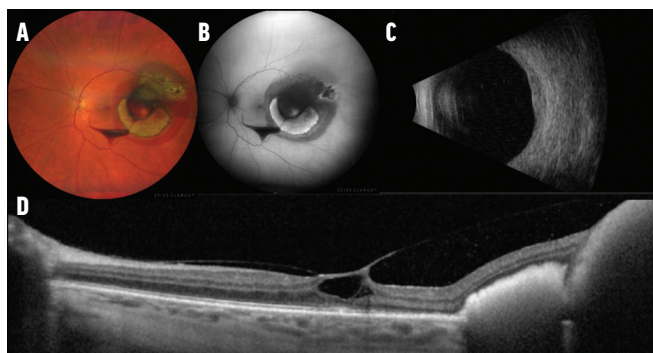


Figure 2. Wide-angle color fundus photography shows the choroidal nevus with fresh overlying subretinal hemorrhage, yellow, partially dehemoglobinized curvilinear subretinal hemorrhage inferiorly, and "breakthrough" subhyaloid hemorrhage in the inferior macular region (A). FAF reveals hypoautofluorescence of the fresh blood and hyperautofluorescence of the chronic blood (B). Ultrasonography confirms a shallow, dome-shaped, echodense choroidal mass of 2.6 mm in thickness (C). OCT shows vitreomacular traction with cystoid macular edema, as well as subretinal and subhyaloid hemorrhage (D).

with cystoid macular edema, as well as subretinal and subhyaloid hemorrhage (Figure 2D). Although the associated hemorrhages were new and suspicious on clinical examination, these features, along with ancillary testing, were more consistent with a chronic choroidal nevus with CNV and hemorrhage rather than evolution to melanoma. Anti-VEGF injections were administered, and observation was advised.

DISCUSSION

Distinguishing between choroidal nevus and melanoma can be facilitated by the use of the mnemonic: To Find Small Ocular Melanomas Doing IMaging (TFSOM-DIM), look for Thickness > 2 mm on ultrasound, subretinal Fluid on OCT, Symptoms of vision loss, Orange pigment on FAF, hollow Melanoma on ultrasound, and DIaMeter > 5 mm). As the number of TFSOM-DIM factors increases for a given lesion, the risk of growth into melanoma increases. The mean 5-year estimates of nevus growth into melanoma are 1% for no risk factors, 11% with one factor, 22% with two, 34% with three, 51% with four, and 55% with five or more risk factors.³

CNV is a rarely reported complication of choroidal nevus. The presence of CNV is not a recognized risk factor for malignant transformation and likely represents a sign of nevus chronicity.³⁻⁵ Shields et al found that, of 3,806 choroidal nevi followed over time, 1% were associated with CNV.³ A retrospective analysis of 23 patients with choroidal nevus-related CNV demonstrated that only one nevus (4%) exhibited slight growth, and no nevi demonstrated transformation into melanoma.⁴ A more recent retrospective study of 17 patients with choroidal nevus-related CNV found that none of the lesions developed signs of malignancy after a mean follow-up period of 12 months.⁵

The autofluorescence findings are interesting relative to the chronicity of the overlying hemorrhage. The fresh subhyaloid and subretinal blood demonstrated hypoautofluorescence,

and the chronic subretinal blood showed hyperautofluorescence, as has been shown by others.⁶ The intense hyperautofluorescence of devitalized blood is related to the degree of fluorescence in free-base porphyrins, which are breakdown products of heme that exhibit intense fluorescence in the range of wavelengths recorded by FAF imaging systems.⁶ With time, as the free-base porphyrins are further broken down, the hyperautofluorescence gradually fades. This phenomenon has been demonstrated in diabetic retinopathy,⁶ and it was described in a previous *Retina Today* article by our group on neovascularization secondary to radiation retinopathy.⁷

Despite the dramatic appearance of bleeding present in both the subretinal and subhyaloid spaces, our patient presented with only two risk factors for growth to melanoma (thickness > 2 mm and diameter > 5 mm), so an anti-VEGF injection was given and observation was advised.

CONCLUSION

The features described here might superficially appear worrisome for tumor growth, but they ultimately represent tumor chronicity with development of CNV. ■

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