49-year-old white woman was referred to the Department of Ophthalmic Oncology at the Cole Eye Institute for evaluation of an incidentally detected amelanotic choroidal mass that had raised concerns about metastatic disease. Her personal and family history were noncontributory. Specifically, there was no history of prior cancer.

Her visual acuity with correction was 20/20 OU. The anterior segment examination of both eyes was normal, and a fundus examination of the left eye was unremarkable. On fundus examination of the right eye, the optic disc and fovea were normal. Further examination revealed a well-circumscribed amelanotic (yellow) choroidal mass measuring 8 x 8 mm in basal dimension in the inferior temporal quadrant (Figure 1A). Choroidal vessels could be seen within the lesion, and overlying drusen were present. There was no subretinal fluid (SRF) or orange pigmentation.

On examination with ultrasonography, the lesion measured 1.2 mm thick with medium to high reflectivity, and there was no intrinsic vascularity (Figure 1B). Indocyanine green angiography (ICG) confirmed the presence of normal choroidal vasculature within the lesion (Figure 1C). Spectral domain optical coherence tomography (SD-OCT) showed an irregularly thickened Bruch membrane, outer retinal atrophy, and confirmed the absence of SRF (Figure 1D).

Given the constellation of ophthalmoscopic features and the results of ancillary testing, a diagnosis of amelanotic choroidal nevus was made. Because the lesion was recently detected, the patient was reevaluated 4 months later, at which time the lesion was stable. The patient is scheduled for another visit in 6 months.

**DISCUSSION**

This case demonstrates the importance of medical history, meticulous examination, and ancillary testing for making the correct diagnosis. The differential diagnosis of an amelanotic choroidal mass includes metastasis, hemangioma, amelanotic melanoma, amelanotic nevus, inflammatory granuloma, and posterior scleritis. Other rare entities such as choroidal osteoma, choroidal schwannoma, and neurofibroma may also mimic an amelanotic choroidal mass.

A detailed past history (specifically prior cancer) that includes social history (eg, tobacco use) and a review of symptoms can provide supportive evidence for establishing a diagnosis. Intrinsic features of the lesion such as color (brown, yellow, orange, or white), margins (sharp or ill-defined), and visibility of intrinsic vessels (absent, normal, or abnormal) are important for differentiation. Secondary changes such as vitreous cells (inflammatory granuloma), drusen (chronicity), orange pigment (recent growth), SRF (acute), subretinal hemorrhage (indicative of secondary choroidal neovascular membrane), lipid exudation (vascular incompetence), retinal pigment epithelial (RPE) atrophy (chronic), and choroidal folds (subchoroidal location) provide subtle but important clues regarding the nature of the choroidal mass.

A metastatic tumor in the uvea is the most common intraocular malignancy.1 Choroidal metasteses characteristically appear as multiple yellow plateau-shaped lesions with associated SRF and alterations of the RPE.2 About one-third of patients do not have a history of malignancy...
at the time of diagnosis. In our patient, the absence of prior cancer, negative personal history for any risk factor (ie, smoking), and a negative review of systems suggested that neither metastases nor inflammatory causes were likely. The lesion was yellow in color (excluding hemangioma, which is orange in color, and osteoma, which is white in color) with sharp margins (excluding hemangioma, which is ill-defined), and normal intrinsic vessels were visible (excluding hemangioma). Secondary changes associated with the lesion (drusen was present, whereas SRF and orange pigment were absent) indicated chronicity.

Choroidal melanoma is the most common primary intraocular neoplasm. It is sometimes difficult to distinguish a small choroidal melanoma from a choroidal nevus. The Collaborative Ocular Melanoma Study prospectively observed 204 patients with small (1-3-mm thick) choroidal melanomas and reported that 31% grew in 5 years. Greater initial tumor diameter and thickness, orange pigment, and absence of drusen and surrounding RPE changes were all factors associated with growth. Other investigators have also reported thickness greater than 2.0 mm, presence of SRF, and orange pigment as important predictors of growth.

Ancillary testing, such as ultrasonography (B-scan and A-scan), ICG, and OCT may provide valuable information for establishing a clinical diagnosis. Typically, choroidal hemangioma has high internal reflectivity, melanoma has low internal reflectivity, and other tumors have variable or medium reflectivity. Intralosional vascularity is also an important diagnostic feature of choroidal melanoma. Although a mushroom-shaped configuration is highly suggestive of choroidal melanoma, there are no pathognomonic features that differentiate choroidal nevi from small choroidal melanoma.

ICG allows visualization of the tumor vasculature. The pattern of fluorescence within a melanoma is heterogeneous.

Enhanced depth imaging with SD-OCT yields high-resolution scans of the choroid and sclera in addition to secondary retinal and RPE changes.
patient, the SD-OCT showed features of chronicity, while retinal edema, SRF, and dispersed lipofuscin (orange pigment) associated with growing lesions were not observed.

If it is assumed that choroidal melanoma arises from preexisting nevi, then the risk of the malignant transformation of typical nevi is estimated to be one in 8,845.14

Because of recent detection and the possibility of malignant transformation of the lesion, the patient was reevaluated in 4 months and noted to have stable findings. Her next visit is scheduled in 6 months. If stable at that visit, annual examinations will be recommended.

Mary E. Aronow, MD, is a fellow in ophthalmic oncology at the Cole Eye Institute, Cleveland Clinic Foundation. Dr. Aronow may be reached at (216) 445-9479; aronowm@ccf.org.

Carlos A. Medina, MD, is a senior ophthalmology resident at UPMC Eye Center, University of Pittsburgh, Pennsylvania. Dr. Medina may be reached at medinaca@upmc.edu.

Arun D. Singh, MD, is the director of the Department of Ophthalmic Oncology at the Cole Eye Institute, Cleveland Clinic Foundation. Dr. Singh may be reached at (216) 445-9479; singha@ccf.org.