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Footnotes and Disclosure

The authors have no proprietary or commercial interest in any materials discussed in this article.

Biopsy of a diffuse anterior chamber angle melanocytoma using a Kahook Dual Blade



A 68-year-old female was referred to the emergency ophthalmology clinic with a pigmented iris lesion and an intraocular pressure (IOP) of 38 in her left eye. Initial clinical assessment revealed the presence of a localized, flat, plaque-like peripheral and midperipheral iris lesion in one quadrant. Pigmented seeding on the rest of the iris surface and associated mild corectopia were observed. There were no notable episcleral sentinel vessels, and there was no iris neovascularization. On gonioscopy, heavy pigment invaded 8 clock hours of the angle (Fig. 1). The ciliary body was normal. Fundus examination, visual field testing, and optical coherence tomography all showed severe glaucomatous damage in the left eye (with normal testing in the right

eye). The patient was initially managed medically using 4 topical glaucoma medications and systemic acetazolamide.

Evaluation by the ocular oncology service was highly suspicious for a diffuse melanoma. The patient initially refused any diagnostic surgical procedure. She finally agreed to undergo a fine needle aspiration biopsy (FNAB). However, it did not yield a sufficient specimen for adequate diagnosis.

Given the unsuccessful FNAB, additional options for incisional biopsies were discussed. The patient agreed to proceed with a goniotomy using the Kahook Dual Blade (KDB; New World Medical, Rancho Cucamonga, Calif.). Through a clear corneal temporal 1-mm incision, an ophthalmic viscosurgical device (OVD) was injected in the anterior chamber and used to inflate the nasal angle. The patient's head was turned away from the surgeon and the microscope was tilted to 40 degrees. Under gonioscopic visualization, the KDB was used to obtain a trabecular meshwork biopsy of approximately 2 clock hours (Fig. 2). The

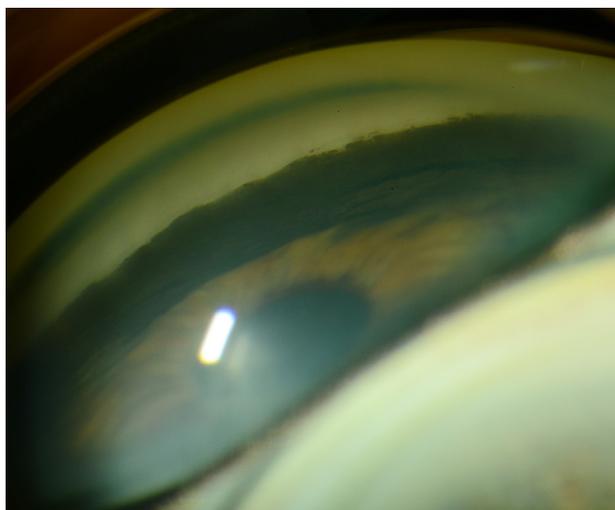


Fig. 1—Nasal gonioscopic view of the left eye, showing prominent dark pigment invasion.

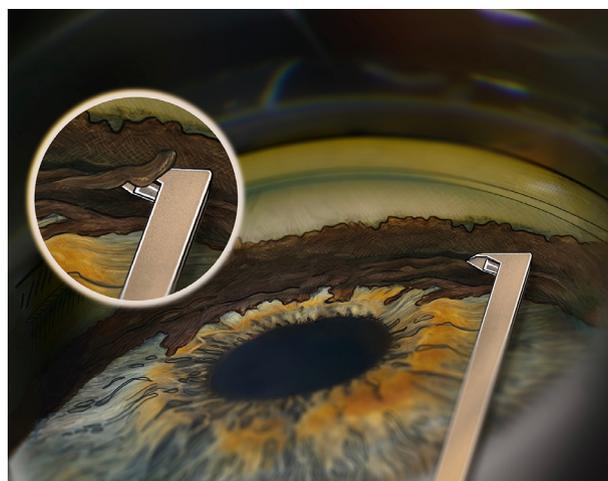


Fig. 2—Artist rendering illustrating incisional biopsy using the Kahook Dual Blade.

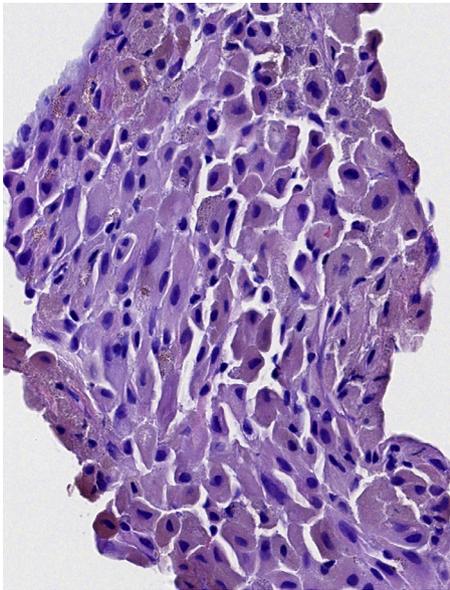


Fig. 3—Bleached macroscopic section (400 ×, hematoxylin and eosin) of the lesion, showing cells with abundant cytoplasm and small, round nuclei devoid of nucleoli.

OVD was manually removed from the eye. Minimal heme was noted during the procedure, and the incision was sealed with balanced salt solution at the end of the case.

The bleached pathologic specimen (Fig. 3) revealed pigmented cells with small, regular nuclei and abundant bland cytoplasm. Immunohistochemistry staining was positive for anti-HMB-45, anti-SOX-10, and anti-Melan-A, but negative for anti-CD-68. A diagnosis of melanocytoma of the anterior chamber angle and iris was made. There was no histopathological evidence of malignancy. The IOP initially improved after the KDB. However, 3 rounds of diode cyclophotocoagulation were required to achieve IOP control. At last follow-up, 14 months following the initial presentation, the eye was comfortable with a visual acuity of 20/150 and an IOP of 8 on 4 topical medications.

Discussion

Although melanocytomas are benign, they may mimic malignant uveal melanoma, representing a diagnostic challenge. Management of uncomplicated cases includes periodic observation¹ to detect local complications such as pigment dispersion, sectoral cataract, glaucoma,² and a small risk of malignant transformation. In addition, local complications may require specialized surgical management. Proper diagnosis is therefore essential before proceeding with any surgical intervention.

In select cases, FNAB may be warranted to determine malignancy. However, an insufficient sample is a known limitation of the technique, which may warrant more invasive biopsy techniques if the suspicion of malignancy is high. Also, tissue diagnosis is mandatory when additional

surgical options are needed to control IOP because filtering techniques are contraindicated in the management of glaucoma associated with anterior segment malignancies.

The KDB is a surgical device designed to perform an ab interno goniotomy using a specialized blade that shaves the trabecular meshwork (TM) and unroofs Schlemm's canal.³ Since its release in 2012, it has been used as a stand-alone or an adjunct procedure during cataract surgery to decrease IOP in patients with open-angle glaucoma. Trabecular meshwork tissue excised with the KDB has been previously analyzed,⁴ but this device has never been used for diagnosis of lesions invading the anterior chamber angle.

This is the first case report of the KDB being used for tissue diagnosis of a pigmented lesion of the anterior chamber angle. In patients with TM seeding, KDB is an interesting option to allow for adequate tissue sampling and to avoid some ocular morbidities described in more invasive procedures such as iridectomy or iridocyclectomy, including glare, pain, and monocular diplopia. The role of this technique as a therapeutic method for the treatment of the associated glaucoma remains to be explored.

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Footnotes and Disclosure

The authors would like to thank Caroline Campeau for her contribution in creating an artist's rendering of the surgical procedure. Consent to publish the case report was obtained from the patient. This report does not contain any personal information that could lead to the identification of the patient.

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