Anterior segment imaging may have saved a life

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There is a misunderstanding among patients that when they are examined in an optometrist's office, their entire eye is being examined. In reality, the optometrist is examining every part of the eye except the ciliary body. But with the advent of advanced anterior segment imaging, we as optometrists are tasked with the responsibility of going beyond knowing the basics of the eye's anatomy.

Imaging the anterior segment is helpful in the differential diagnosis of open-angle glaucoma from glaucomas with abnormal angles, but it will also enable us to make diagnoses that aren't necessarily common, such as tumors. Although it is rare that a patient presents with a mass lesion in the anterior segment, it is possible, and anterior segment imaging devices are the only imaging modalities available through which optometrists can view the ciliary body. The following case is an example of how my colleague, Sanjeev Nath, MD, and I made a discovery during imaging of the anterior segment that may have saved a patient's life.

Case presentation

A 71-year-old woman was a patient at the Eye Institute and Laser Center in New York for approximately 5 years, where she received routine eye care. She underwent an uneventful cataract extraction and an implantation of a posterior chamber intraocular lens (IOL). Her vision had always been good, and she had never had any significant problems. Prior to her cataract surgery, she had an ultrasound biomicroscopy (UBM) (Aviso, Quantel) of the anterior segment and ultra-widefield retinal imaging (Optos). Both sets of images were interpreted as normal.

![Figure 1](image-url)
The patient presented in the summer of 2013 with a new complaint. She explained that, about 2 weeks prior, her daughter recognized that when the patient looked to the left, her right eye was red on its right side. The patient's visual acuity was 20/20 and her intraocular pressures (IOPs) were normal in each eye. However, we did recognize that her eye was hyperemic temporal to the limbus in the right eye. When we examined the eye, we noticed that the superficial vessels of the conjunctiva didn’t blanch with the application of neosynephrine. We performed ultra-widefield retinal imaging, which we do routinely, and recognized an elevated lesion in the far temporal periphery in the right eye at 9 o'clock (Figure 1). It had the appearance of retinoschisis (which is present in about 1% of all patients) but appeared solid. We then performed UBM, which confirmed the presence of a solid lesion (Figure 2).

Fortunately, David Abramson, MD, chief of the ophthalmic oncology service at Memorial Sloan Kettering in New York, has a private practice on the same street as our office. Knowing that the patient had a serious problem, I was truthful with her and told her that I thought she had a tumor in her right eye, and that I wanted her to be seen by one of the world’s experts. I physically walked her over to the office to ensure that she scheduled an appointment as soon as possible. The patient was seen within a matter of days, and Dr. Abramson and colleagues confirmed the presence of a ciliary body malignant melanoma, which appeared to be extending to the anterior choroid.

The patient was treated with a radioactive plaque, which was placed on the surface of the globe corresponding to the location of the tumor for a period of time. The plaque was made of iodine that emits radiation, killing the tumor cells. The plaque was then removed, and over the next several months, the patient’s tumor shrank significantly. Ciliary body malignant melanomas are usually primary and can spread to other parts of the body, so the patient had a positron emission tomography (PET) full body scan to confirm there were no other tumors in her body. Once the primary tumor is destroyed, there is little probability of it spreading to any other part of the body.