

## Photo Essay

# Documentation of Iris Tumors

## Slit-lamp Biomicrography, Goniophotography, and Anterior Segment Angiography

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**Abstract:** *Ophthalmic photography plays an important role in documenting the appearance and growth of anterior segment lesions. Three types of photographic techniques were used to follow a case of iris malignant melanoma.*

### Case Report

On February 7, 1977, a 45-year-old Caucasian woman came to the Emory Eye Center with an elevated, grayish lesion that occupied the inferior iris in the 5:30 to 7:30 position (Fig 1). The lesion dimensions were approximately 4 mm high by 4 mm wide and consisted of a lobular, vascularized surface on the anterior iris extending from the pupil at the 6 o'clock position inferiorly, stopping short of the angle just anterior to the anterior arcade. There was no extension into the angle, and the lesion was not emanating from the ciliary body (Fig 2). The impression was that the tumor was an amelanotic iris malignant melanoma. The patient was observed in follow-up visits for evaluation of growth and to ensure that there was no angle involvement. After five years of observation, the tumor dimensions were 4 mm high by 4.5 mm wide, and it now blocked the view to the angle and also just contacted



**Figure 1:** Low magnification slit lamp photograph showing location of iris tumor.



**Figure 2:** Goniophotograph showing relationship of tumor to the angle.

the corneal endothelium.\* After 12 years, the tumor dimensions were measured at 4 mm high by 4.8 mm wide.

Slit lamp photographs and goniophotographs were taken of this tumor on several follow up visits. In addition, an iris angiogram was obtained in 1986 which showed the fine vascular bed of the tumor filling early in a "corkscrew" pattern of fluorescence (Fig 3A). As time elapsed, the vascular outline of some of the vessels became increasingly hyperfluorescent, indicating leakage of fluorescein (Fig 3B). In the late recirculation phase of the angiogram, the iris lesion glowed with a diffusely hyperfluorescent border, indicating a fenestrated-like vascular network within the tumor (Fig 3C).

### Differentiating Iris Nevi From Melanomas

Iris melanomas are difficult to differentiate clinically from benign iris nevi (and occasionally iris cyst, iris atrophy, and foreign body as well). Iris nevus is composed of benign pigmented spindle cells, in some cases plump polyhedral cells similar to those of melanocytoma of the optic nerve. Iris nevi will block fluorescence of the underlying iris vessels during angiography and do not leak. Malignant melanomas of the iris are most often composed of spindle A or spindle B cells, are

[Editor's note: A photograph showing the tumor's distance from the corneal endothelium was not available, however such documentation would be helpful in these cases.]

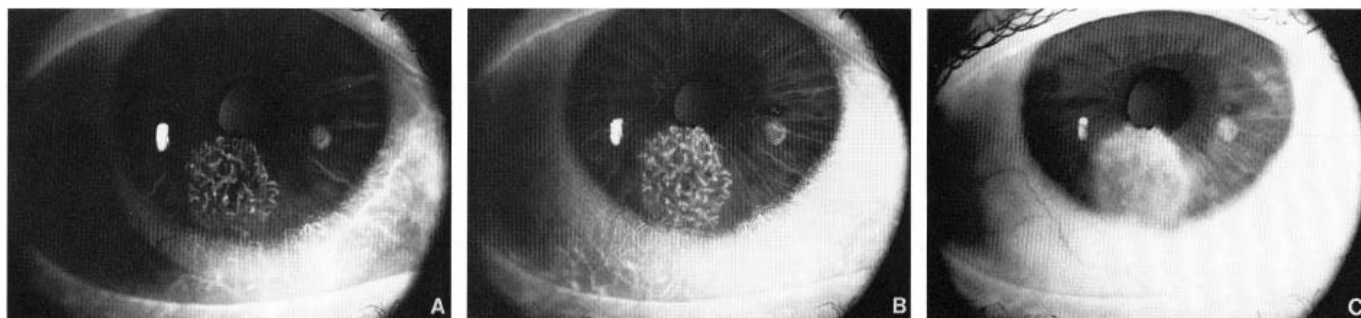


Figure 3: Iris angiogram showing early filling of iris tumor (A); increased fluorescence as time increases (B); and diffuse leakage in the late recirculation phase (C).

usually slow-growing, and rarely metastasize. Pigmentation and vascularity vary with the individual. Some iris melanomas are so vascular that they are confused with primary vascular tumors. During angiography, fluorescein will leak profusely from the vascular bed and pool in or around the tumor, usually delineating its contours. (In differentiating contrast, inflammatory masses tend to exhibit more diffuse leakage elsewhere in the iris.)

Malignant change in iris nevus is usually indicated by growth, ectropion iris, sector cataract, and glaucoma. Patients should be followed with serial photographs of the lesion for growth determinations. Distortion of the iris or pupil and incomplete dilation of the pupil are signs of iris stroma or dilator muscle involvement. If the lesion size exceeds 2 clock hours, it will usually involve angle structures, such as the ciliary body. If a growth pattern is established where more than 2 clock hours is occupied by the lesion, and fine needle aspiration confirms a malignant cell type, the recommended management is excisional iridectomy followed by cyclectomy if the ciliary body is involved.

### Photographic Techniques for Documenting Iris Tumors

Low-magnification slit lamp photographs (e.g., Fig 1) are taken to show complete iris orientation, the location of the iris tumor, and that no other similar lesion exists elsewhere. Dual diffuse illumination, using both the main illuminator and fill-light, serves to eliminate the shadowing from one side.

Goniophotographs (e.g., Fig 2, taken with Kodachrome 64 film) serve to document the tumor height and possible extension into the angle. The gonioscope used was a three-mirror lens (Ocular Instruments), and the 67° mirror was oriented in the 12 o'clock position to reflect the image of the lesion in the 6 o'clock position.

Since our slit lamp biomicroscope was not originally designed to perform fluorescein angiography, the iris angiogram was obtained by placing onto the slit lamp a "coffee can" (flashtube attachment) that is connected

to the power supply for the Zeiss Fundus Camera FF-III, in order to provide the faster recycling time necessary for performing angiography. For flash synchronization, the pc cord is connected to the camera body on the photo slit lamp. A cobalt blue filter is placed over the illuminator to simulate the blue exciter filter that covers the flash. A yellow barrier filter is inserted into the 1.6X magnifier connected to the camera body. The fundus camera power supply is set to flash power 4, and the slit lamp system switch is set to the alternate flash source. The iris diaphragm on the elbow of the slit lamp microscope is opened all the way to *f* 14. Any black-and-white film conventionally used for retinal angiography (such as Kodak Tri-X 400, Fugi Neopan 400, or Ilford HP-5) can be used for anterior segment angiography. We process our iris angiograms in Kodak HC-110, dilution A, for 9 min at 70°F.

### Conclusion

In over 23 years of follow up visits, slit lamp photographs and goniophotographs have documented only minor qualitative as well as quantitative changes of the lesion described in this report. The documentation of slow growth, in addition to the diffuse leakage during angiography, are suggestive of iris melanoma (although actual diagnosis can only be determined from histology following surgical resection), and surgery to remove this tumor is still not indicated.

#### FOR FURTHER READING

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*Key words:* tumor, iris; goniophotography; fluorescein angiography, iris