
Examination Techniques

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Abstract

This chapter highlights examination techniques that are specific for assessment of a patient with an intraocular tumor. It is assumed that a full ophthalmic and systemic history is obtained for all patients in addition to complete examination of both eyes. Usual methods of ophthalmic examination, such as external examination, slit-lamp examination (including gonioscopy), and indirect ophthalmoscopy, can be adapted to assess important aspects of the tumor that provide clues to the correct diagnosis and management approach. Pertinent fundus findings may be documented by drawings and supplemented by ancillary investigations such as autofluorescence imaging, optical coherence tomography, angiography, and ultrasonography.

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This chapter highlights examination techniques that are specific for assessment of a patient with an intraocular tumor. It is assumed that a full ophthalmic and systemic history is obtained for all patients in addition to complete examination of both eyes. Various examination techniques described in this chapter need to be used selectively. Each requires special expertise in performing the test to ensure that the results are interpreted properly. We believe that these concepts are essential in establishing correct diagnosis of an intraocular tumor [1–3].

Clinical History

Careful questioning must include a history of prior eye examinations elsewhere and the specifics of any diagnosis rendered at those visits. In addition, the details of any family history of similar tumors (such as cancer predisposition syndrome or related tumors, including neuro-oculo-cutaneous syndrome) should also be sought. The details of prior interventions, such as laser therapy, surgery or chemotherapy, must be documented. Reports or actual images from ancillary studies, such as fundus photography, ultrasonography, and CT/MRI, should be reviewed. It is imperative to access prior diagnostic biopsy reports and even original slides, if available.

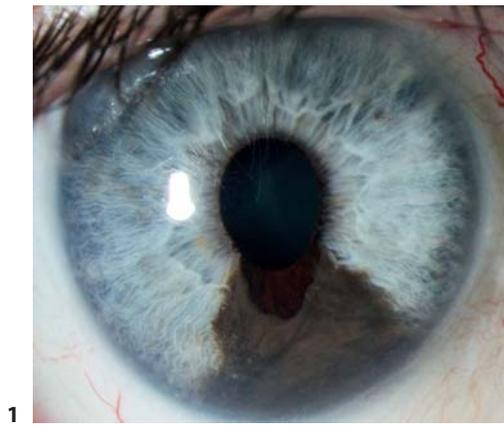
Examination Methods

Usual methods of ophthalmic examination, such as external examination, slit-lamp examination (including gonioscopic examination), and indirect ophthalmoscopy, can be adapted to assess important aspects of the tumor that provide clues to the correct diagnosis and management approach. It is essential to examine the entire fundus, with indentation if necessary, to identify any coexistent pathology. Both eyes should be examined, ideally with mydriasis.

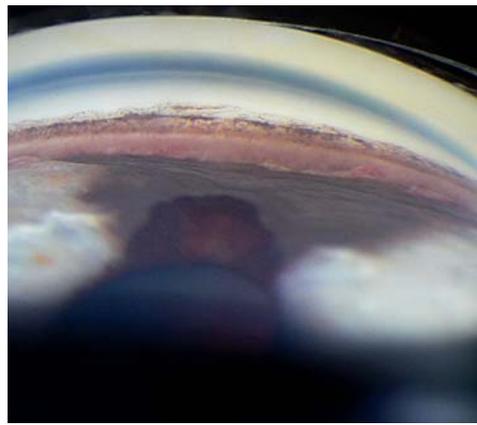
Tumor Characteristics

Tumor features that need to be noted include the following:

- Site of origin (iris, ciliary body, choroid)
- Location
 - Quadrantic (superior, supero-nasal, nasal, etc.)
 - Circumferential extent, in clock hours in the clockwise direction
 - Anterior margin (iris surface, angle, cornea) (fig. 1–3)
 - Posterior margin (pars plicata, pars plana, choroid, disc)
- Size
 - Longitudinal and transverse basal dimensions (mm); a 20D lens is considered to have a field diameter of approximately 12 mm
 - Height (mm)
- Shape: flat, dome shaped, multinodular
- Consistency: solid, cystic, multicystic
- Margins: diffuse, discrete
- Color: pink, white, yellow, red, orange, tan, brown, black
- Vascularity: present or absent
- Seeding: across iris, into angle, vitreous (fig. 4, 5)
- Extraocular spread: absent, nodular, diffuse



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Fig. 1. Slit-lamp photograph of an iris melanoma with ectropion iridis.

Fig. 2. Gonioscopic evaluation revealed pigment dispersion in the trabecular meshwork.

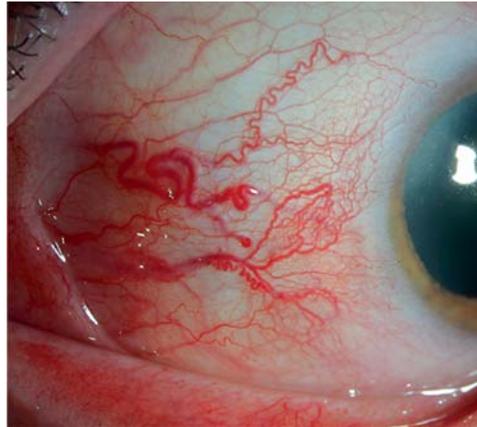


Fig. 3. Sentinel vessels indicative of a ciliary body tumor such as melanoma.

- Secondary effects: dilated episcleral vessels, band keratopathy, glaucoma, hyphe-ma, ectropion uveae, cataract (fig. 1)
- Predisposing factors: oculodermal melanocytosis, nevus, others

Transillumination

By identifying the shadow cast by a pigmented tumor, transillumination may assist in detecting, localizing, and measuring the size of an intraocular tumor. Transillumination may be performed across the pupil (transpupillary) or across the globe (transocularly) [4].

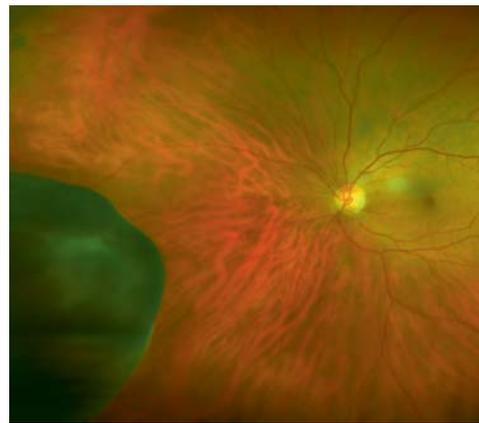
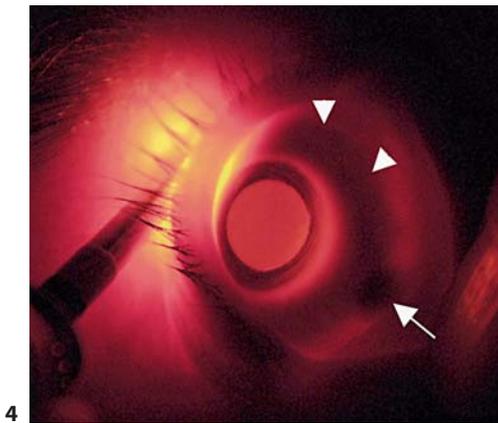


Fig. 4. Transillumination probe held against the globe (transocular). Note the ora serrata (arrowheads) and a circumscribed shadow due to a small ciliochoroidal tumor (arrow).

Fig. 5. Fundus photograph documenting ciliochoroidal melanoma in the patient shown in figure 3.

Documentation and Ancillary Tests

Pertinent fundus findings may be documented by drawings and supplemented by photographic techniques. Ancillary investigations such as autofluorescence imaging, optical coherence tomography, angiography, and ultrasonography are discussed in relevant chapters.

References

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