

IR TRANSILLUMINATION VIDEOGRAPHY IN THE EVALUATION OF INTRAOCULAR TUMORS

JP Brinton^{1A}, NS Leslein^{1B}, RE Verdick^{1A}, HC Boldt^{1A}, WLM Alward^{1A}

^A Department of Ophthalmology and Visual Sciences, ^B Carver College of Medicine, ¹ University of Iowa, Iowa City, IA

BACKGROUND

Tumors of the posterior iris, ciliary body, and adjacent peripheral retina are among the most difficult intraocular lesions to diagnose and follow. Ocular ultrasound is an excellent tool in evaluating these lesions but has several limitations. We describe the use of infrared transillumination (IR-T) videography as a complimentary imaging modality for the evaluation and ongoing management of these lesions. We discuss the advantages and features of this modality based on nearly two decades of experience with its use.

MATERIALS AND METHODS

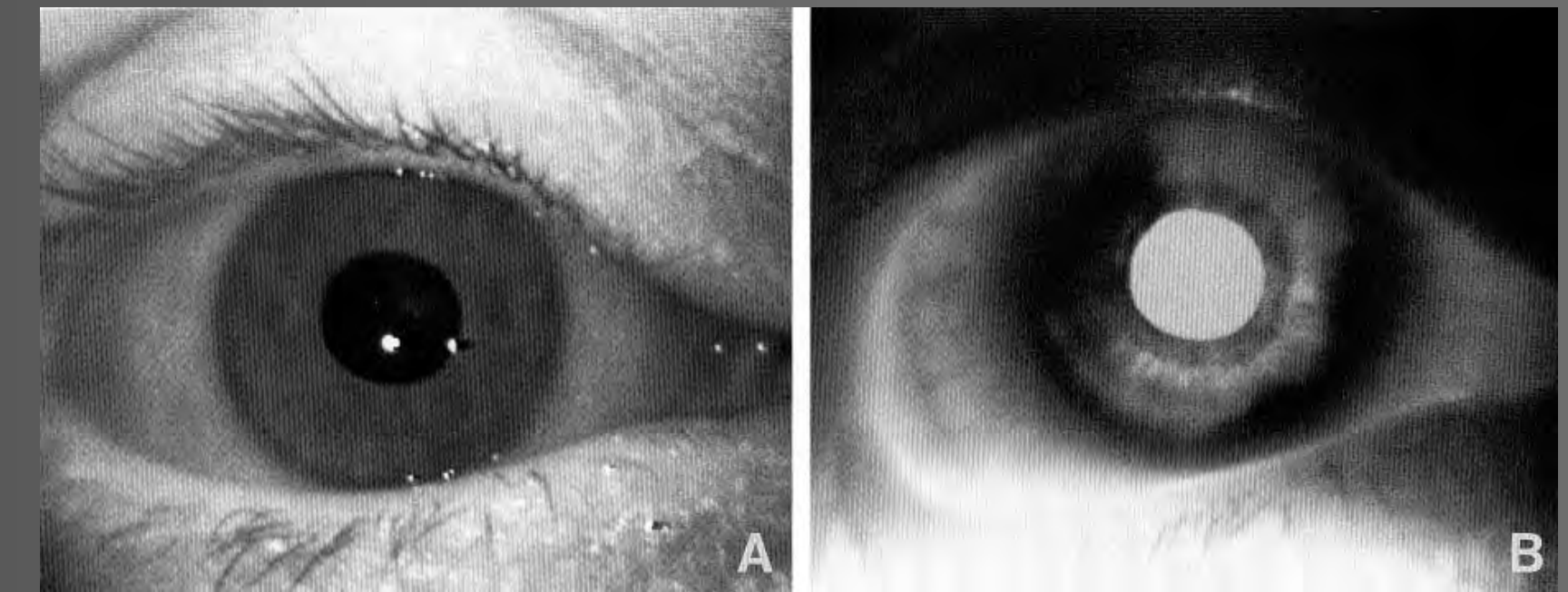
A Donpisha low light black and white charged coupled device (CCD) video camera is mounted next to a slit lamp biomicroscope in an exam room. A Javelin 18-108mm F 2.5 macro TV zoom lens is attached and the patient is positioned at the slit lamp chinrest 12cm from the camera lens. The room is darkened and a Finhoff transilluminator is held in contact against an area of anesthetized conjunctiva distant from the area of interest. Video footage is obtained and compared at successive visits. Lesion dimensions are compared with spatial information obtained by ocular ultrasound and by gross pathology examination following enucleation, where applicable.



IMAGE #1: SLIT LAMP PHOTO, LEFT EYE



IMAGE #2: IR TRANSILLUMINATION PHOTO, LEFT EYE



RESULTS

From July 1991 to July 2010, 46 patients at the University of Iowa underwent IR-T videography to evaluate tumors of the posterior iris, ciliary body, and peripheral retina. Twenty of the 46 studies demonstrate anterior tumor extent; several studies demarcate the entire boundaries of a lesion. Five of 20 eyes underwent enucleation; in each case, tumor dimensions on IR-T compared favorably with dimensions on ultrasound and gross pathology. Eight of 20 eyes underwent I-125 plaque brachytherapy, based on IR-T measurements. There have been no tumor recurrences in any of these eyes. The remaining 7 tumors were treated with excision or observation. Photographic case: A 44-yo woman was referred for an enlarging darkly pigmented scleral mass measuring 2.9 x 3.0mm on external examination (see Image #1, at left). IR-T videography showed a much larger 8 x 6mm oval plaque extending over an area of the ciliary body (see Image #2, at left). Fundoscopy localized the posterior edge of the tumor to the pars plana. Standardized echography showed a tumor height of 2.3 mm. FNAB confirmed the diagnosis of melanoma. Brachytherapy based on IR-T dimensions was performed, and the tumor has remained involuted on follow-up for 6 yrs.

CONCLUSIONS

IR-T videography is a highly useful modality to define and follow the margins of intraocular tumors involving the ciliary body, iris, and peripheral retina. IR-T is easily and rapidly performed, comfortable for the patient, and requires inexpensive technology that is widely available. Limitations arise in cases of minimally pigmented lesions and when other pigmented material such as hemorrhage obscures lesion borders.