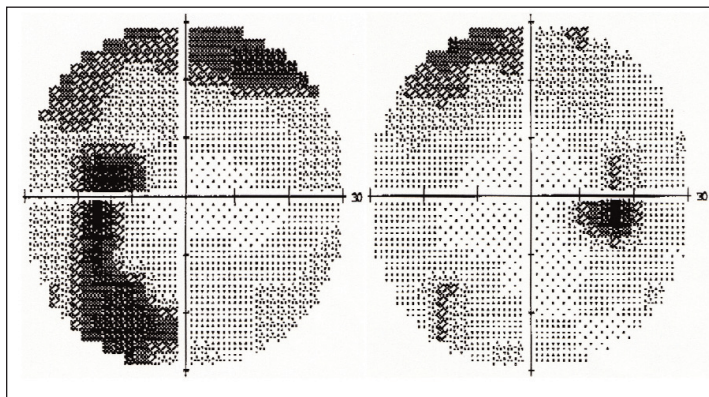


**CASE REPORT: BIRDSHOT RETINOCHOROIDOPATHY**


(continued from page 3)

**Figure 2:** Visual fields (left eye shown on the left)**Discussion**

The indications for initiating treatment and the modalities for

Disease Center of the Jules Stein Institute are currently conducting a study in collaboration with physi-

monitoring disease activity are not well established for patients with BSR. Further, it is not clear whether treatment alters the long-term prognosis for patients with this chronic disease. Physicians in the Ocular Inflammatory

cians in France, following 75 patients with BSR. Also, a study is being organized with physicians from the Wilmer Eye Institute at Johns Hopkins University, as well as from France and the Netherlands. This clinical research may help ophthalmologists better manage BSR patients in the future. 

**RECENT PUBLICATION**

Levinson RD, Gonzales CR. *Birdshot retinochoroidopathy: Immunopathogenesis, evaluation and treatment*. Ophthalmol Clinics N Am 2002;15:347-50

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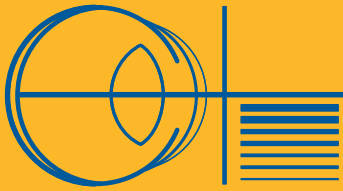
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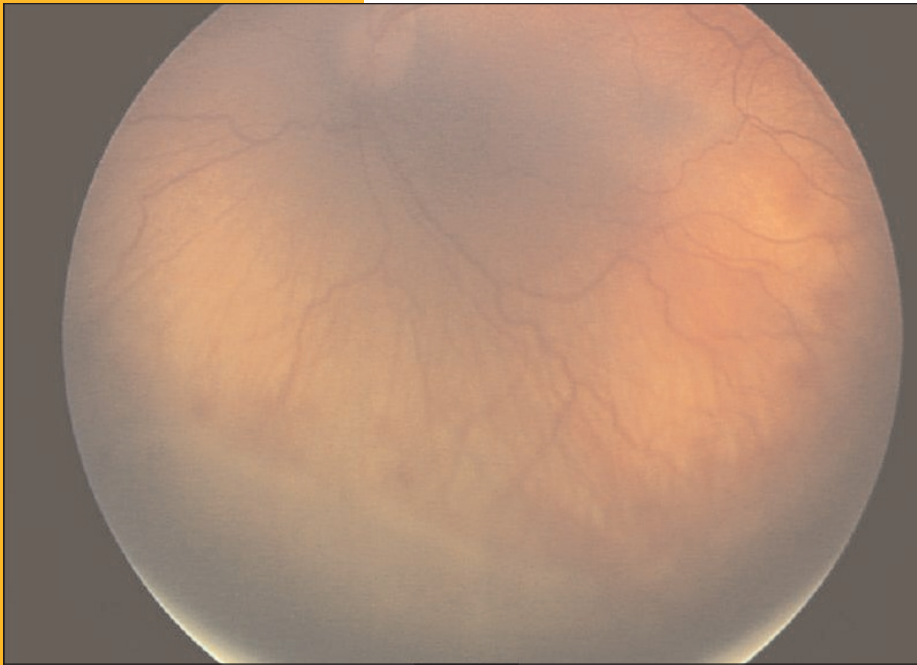


# Clinical Update

January 2004

Volume 13, Number 1

## Winning Against Retinopathy of Prematurity



Photograph of the left fundus from a child born at 24 weeks gestational age, weighing 970 grams demonstrating Threshold ROP. Intraretinal hemorrhages, severe plus disease, and neovascularization are seen along the ridge.

**T**hanks to technologic progress, managing retinopathy of prematurity (ROP) can be a game of one-upsmanship, according to Christine R. Gonzales, M.D., Assistant Professor of Ophthalmology in the Retina Division at the Jules Stein Eye Institute. "As medical advances enable neonatologists to keep smaller babies alive as well as to treat systemic comorbidities of prematurity more adequately, oftentimes ROP may be the only illness with long-term implications. Fortunately, newer surgical interventions and data have refined techniques and provided predictors for the success of various treatments for ROP," Dr. Gonzales says.

### Good Catch

To preclude visual disability from this leading cause of blindness in children, screening is recommended for babies weighing less than 1500 grams or who are less than 28 weeks gestational

age (performed when they are between 4 to 6 weeks of chronologic age or 31 to 33 weeks postconception), criteria set by the American Association of Pediatrics, the American Association of Pediatric Ophthalmology and Strabismus, and the American Academy of Ophthalmology. At the Institute, children falling outside those parameters but with other factors known to increase the risk of ROP—such as long-term oxygen care or anemia—also are screened. Dr. Gonzales says wide-field digital imaging and detailed retina drawings are part of its multifaceted approach. "The digital imaging allows us to follow the children, document and compare findings between examinations, and evaluate response to treatment. It's also useful for educating families about the implications of ROP and getting them involved in care," Dr. Gonzales notes.

### Zone Defense

Digital imaging has furthermore given retina specialists insights into the natural history of ROP, including the differences between posterior (zone 1) disease and more anterior disease. As Dr. Gonzales explains, "The traditional understanding of ROP is that there's a visible ridge of tissue between the avascular and the vascular retina marking the margin for laser treatment. However, in very posterior disease that ridge is much less visible, and neovascularization occurs not along an elevated ridge, but is rather flat and extends over a greater distance. We know now that untreated avascular regions within the retina provide a stimulus for vascular endothelial growth factor (VEGF), which can drive neovascularization and

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## WINNING AGAINST RETINOPATHY OF PREMATURITY *(continued from page 1)*



Photograph of the left fundus of the same child, two weeks after peripheral laser ablation for Threshold ROP. Note complete regression of the ridge, neovascularization, and plus disease.

contribute to disease progression.”

Because treatment must completely ablate the avascular retina, to avoid skip areas in the periphery Dr. Gonzales prefers using confluent laser treatment, shown by some studies to be superior to the non-confluent laser. Ongoing Institute research to identify specific isotypes of VEGF involved in ROP pathophysiology could further refine treatments for ROP.

### Timing is Everything

Whatever the disease status, Dr. Gonzales says speedy assessment and targeted treatment cannot be overemphasized to ensure the best visual outcome. Besides early detection and referral, timely follow-up tailored to the severity and rate of progression of disease for each child are critical. Weekly follow-up is usually sufficient, but failure to respond to treatment as expected or rapidly progressing disease may signal more frequent or aggressive follow-up. “Findings of moderate to severe ‘plus disease’ (dilation and tortuosity of retinal vessels) implies likely progression to threshold disease, so we may even perform laser treatment in the prethreshold stage and not wait until threshold disease is reached,” Dr. Gonzales says.

### Calling the Play

Treatment choices for ROP have advanced along with information and technical developments. Dr. Gonzales reports, “We can now recognize certain predictors of scleral buckling failure to help identify which patients may not be ideal candidates for buckling. Additionally, high speed vitreous cutters and wide angle viewing have improved our abilities to perform lens-sparing vitrectomy procedures.” Whereas initial treatment for early retinal detachment was once scleral buckling, and failing that, vitrectomy surgery, children with stage 4A retinal detachment have better anatomic outcomes when treated with lens-sparing vitrectomy initially rather than as last resort or secondary to scleral buckle failures. “If children are referred early with stage 4A detachments, we’re often able to reattach the retina in 90% or more of cases using lens-sparing vitrectomy. These children do not have the induced myopia and the anisometropia that scleral buckling can produce,” Dr. Gonzales says. “While cataract is a potential complication of vitrectomy occurring in about 10-15% of children, children treated with lens-sparing vitrectomy maintain the natural shape of the eye,

which translates into better visual acuity outcomes.”

### In the Key

To track outcomes, the Institute prospectively follows all children screened in its Registry of Retinopathy of Prematurity Patients, a database that includes digital images and clinical drawings. Additionally, for patients with difficult management issues outside hospital, digital imaging and state-of-the-art telecommunications systems enable an exchange of data between remote sites and either Dr. Gonzales or Dr. Steven Schwartz, Chief of the Retina Division, to confirm or clarify ROP staging and management possibilities. “Institute pilot studies comparing digital fundus images and indirect ophthalmoscopy findings demonstrated a 95 to 97% positive predictive value for detecting pre-threshold or threshold disease, plus disease, and retinal detachments,” she says.

The Institute is now participating in the multicenter Photo-ROP trial, hoping to validate the effectiveness of telemedicine for remote assessment of ROP. Wielding the latest data and technology to fight ROP gives Dr. Gonzales and her colleagues great satisfaction. She says, “Anything we can do to support early diagnosis and augment treatment strategies will help prevent unnecessary blindness.”

### REFERENCES:

- Shaikh S, Capone A., Jr, Schwartz SD, Gonzales C., Trese MT. *Inadvertent Skip Areas in Treatment of Zone 1 Retinopathy of Prematurity*; Photo Essay. *Retina* 2003; 23(1): 128-131.
- Gonzales CR, Straatsma BR. *Advances in Retinopathy of Prematurity. Screening, Diagnosis and Treatment*. Brazilian Journal of Ophthalmology



## Case Report: Birdshot Retinochoroidopathy

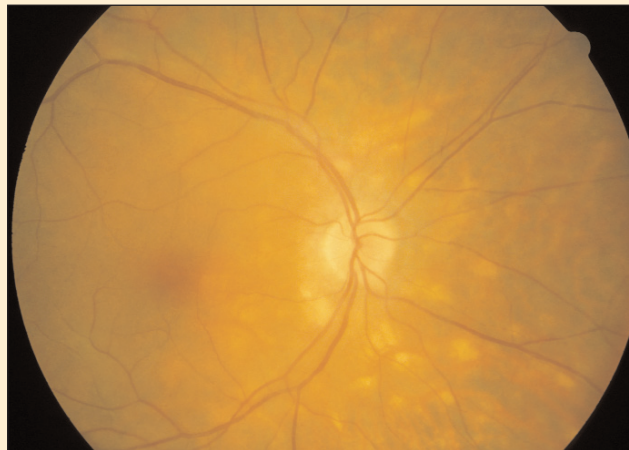
The following case report was submitted by Ralph D. Levinson, MD, Assistant Professor of Ophthalmology, in the Comprehensive Ophthalmology Division of the UCLA Jules Stein Eye Institute.

*A 52-year-old woman presented to her ophthalmologist with a history of visual disturbances that she described as floaters and “vibrating vision” in both eyes, over a period of several months.*

*Symptoms were worse in the left eye. The ophthalmologist found a posterior*

*vitreous detachment in the left eye with no retinal tears. Treatment was not recommended. The symptoms persisted, and two months later the ophthalmologist recognized mild vitritis and some hypopigmented choroidal lesions in both eyes. The patient was referred to the Jules Stein Eye Institute for further evaluation.*

*On presentation, the patient was found to have best corrected visual acuity of 20/20 in the right eye and 20/25 in the left eye. There were trace anterior chamber inflammatory cells and 1+ vitreous cells, as well as haze without snowballs or snowbanking, in both eyes. There was no vascular sheathing, and no cystoid macular edema. There were hypopigmented choroidal lesions in the posterior segment of both eyes (Fig. 1).*



**Figure 1:** Hypopigmented birdshot lesions

### Treatment

Fluorescein angiography showed mild staining of the large retinal veins in the left eye, without macular edema. Similarly, ocular coherence tomography showed no macular edema. A Humphrey visual field was obtained (Fig. 2). The right eye had foci of decreased sensitivity with a mean deviation of  $-2.61$  dB and pattern standard deviation of  $3.93$  dB. The left eye had a dense inferior arcuate scotoma, a mean deviation of  $-6.38$  dB, and pattern standard deviation of  $7.43$  dB. Color vision testing with the D15 showed a color confusion score of 28 in the right eye

and 54 in the left eye, which are moderately abnormal values.

The overall picture was consistent with birdshot retinochoroidopathy (BSR). The patient was found to have the HLA-A29 genotype, which is consistent with this diagnosis. The HLA-A29 gene is present in 96% or more of patients with BSR. Relative risk is estimated to be as high as 224, but it is not specific to the disease, as about 7% of the Caucasian population have this genotype. Therefore, BSR is still a clinical diagnosis, even in patients who have the HLA-A29 gene. Other infectious, inflammatory and neoplastic (including lymphoma) causes of multifocal

choroiditis must also be considered, but the clinical picture in this patient was very typical and an extensive workup was not needed. Since sarcoidosis is the disease that most commonly mimics BSR, a chest x-ray, angiotensin converting enzyme level, and FTA-ABS were obtained, which were normal.

Decreased visual acuity secondary to significant vitritis or cystoid macular edema is a common indication for therapy in BSR. But even with good Snellen visual acuity, most patients have great difficulty with visual tasks and quality of life. This patient is a good example. She felt that she could not function in terms of reading and driving. The evidence of abnormalities on visual field and color vision tests was consistent with her having deficits at either the photoreceptor or ganglion cell level. These problems were not reflected in her Snellen visual acuity. Another modality that has been used to help make these decisions and monitor function is electrophysiologic testing, in particular electroretinography.

The patient was started on oral prednisone, 1 mg/kg/day, resulting in a significant decrease in her visual symptoms. The prednisone was tapered over a period of several months, at which time cyclosporine was started. While cyclosporine has been one of the standard immunosuppressive agents used in this disease, it is not clear that it in any way alters long-term prognosis. Antimetabolites, such as methotrexate or mycophenolate, have been used as well. Since patients with BSR are often over 60, many nephrologists are hesitant to use cyclosporine on a long-term basis.

*(continued on page 4)*