

Retinal Imaging for ROP

RetCam photography enables the clinician to determine when surgical or medical intervention is necessary.

BY AUDINA M. BERROCAL, MD

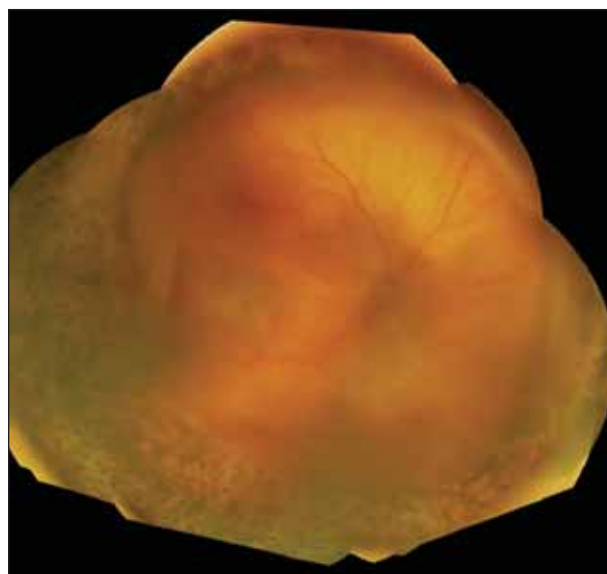
Since the ETROP (Early Treatment for Retinopathy of Prematurity) study was published in 2004, referrals for advanced retinopathy of prematurity (ROP) retinal detachments (RD) have decreased because treating ophthalmologists had hard data demonstrating that earlier treatment decreased poor outcomes. That study found that treatment for ROP resulted in a reduction in poor visual acuity outcomes (19.8% to 14.3%; $P < .005$) and a reduction in poor structural outcomes (15.6% to 9.0%; $P < .001$).¹

Simultaneous to our increased understanding of when intervention should take place, improvements in neonatology have changed the types of ROP that clinicians see. Smaller babies present with more aggressive disease and at a slightly earlier age. This type of ROP is difficult to diagnose, the babies are extremely small and sick with multiple comorbidities, and the laser treatment itself is quite challenging. I have found that RetCam photography (Clarity Medical, Pleasanton, CA) is critical for the diagnosis and treatment of this type of aggressive ROP.

The RDs referred most commonly today are zone 1 or posterior zone 2 RDs. Here we present a case of a child treated late who, despite dense laser pattern, progressed to bilateral RDs. In this case, RetCam photography was helpful in the documentation of the disease, in monitoring the response to treatment of this child after off-label, salvage use of intravitreal bevacizumab (IVB; Avastin, Genentech, Inc.), and in the decision process of when to intervene surgically. Most cases of progression to RD occur because laser is delayed or because laser is not applied in a complete fashion. In some of these cases off-label, salvage treatment with IVB seems to help in controlling the vascular component of the disease.

CASE PRESENTATION

A baby born at 24 weeks gestation and weighing 480 grams developed aggressive, posterior ROP (Figure 1).



RetCam images taken by Ditle Hess, CRA

Figure 1. Photo montage at 24 weeks and 420 grams.

This baby was treated at 37 weeks with very dense and complete laser. A week after treatment, the baby exhibited progression of the disease in both eyes. The left eye presented with a complete retinal detachment with vitreous hemorrhage and the right eye with a stage IVA detachment in a circumferential fashion. The baby was transferred to Jackson Memorial Hospital/Bascom Palmer Eye Institute for treatment.

IMAGING AND TREATMENT

Upon the patient's arrival, photographs and ultrasonography were performed for documentation (Figure 2). We treated the child with off-label, salvage IVB because of the active vascular pattern. At the time of the injection, it was known that we would intervene surgically within 1 week. Three days later, we obtained RetCam

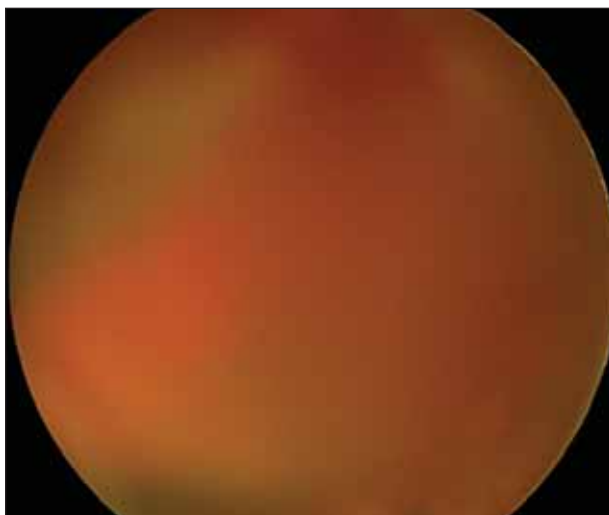


Figure 2. Photo at 38 weeks at presentation, after dense and complete laser.

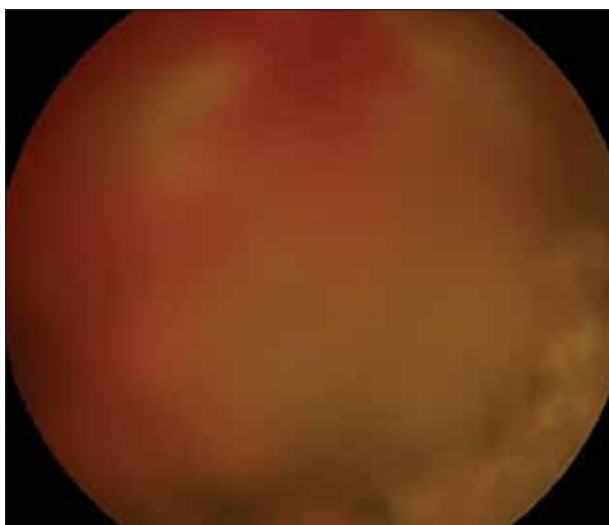


Figure 4. RetCam photo at 6 months after salvage bevacizumab and subsequent lens-sparing vitrectomy.

(Clarity Medical, Pleasanton, CA) photographs that showed progression of the vitreous traction, in a circumferential fashion. At this time, it was decided to intervene sooner. The baby underwent a lens-sparing vitrectomy with no complications. The baby was transferred back to the referring facility and has remained stable. The last photographs were taken 6 months after surgery, and the retina is flat with no tractional component (Figures 3 and 4).

DISCUSSION

RetCam photography in this case was critical for the documentation of the disease, the parents understanding of the disease, for the decision of when to intervene

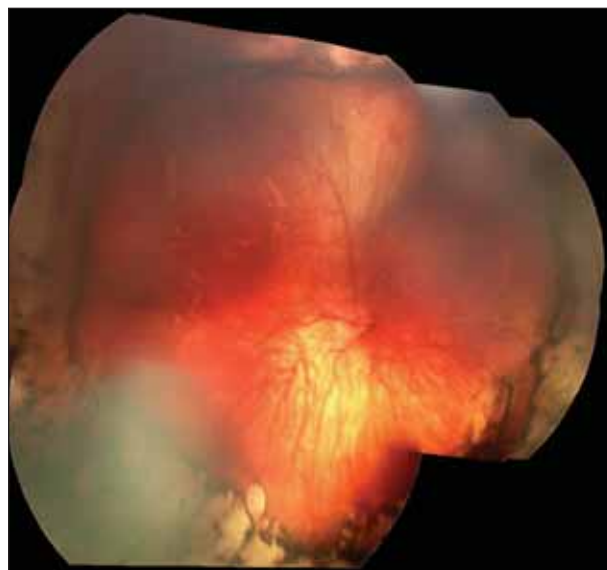


Figure 3. Photo montage at 6 months after salvage bevacizumab and subsequent lens-sparing vitrectomy.

RetCam photography in this case was critical for the decision of when to intervene surgically.

surgically, and for follow-up documentation. In the comparison of the images one can appreciate it how the circumferential traction starts closing in like a purse string, after the intravitreal injection. Once we observed the progression both clinically and objectively in the photographs we made the decision to perform surgery.

This case illustrates how we can use off-label, salvage treatment of bevacizumab as an adjunct in the surgical management of cases of retinal detachments, in where we see an active vascular component. ■

Audina M. Berrocal, MD, is an Associate Professor of Clinical Ophthalmology and Secondary Appointment in the Department of Pediatrics at the Bascom Palmer Eye Institute, University of Miami Miller School of Medicine. She reports that she is a paid consultant to Clarity Medical Systems. Dr. Berrocal can be reached at +1 305 326 6000; fax: +1 305 326 6417; or via email at aberrocal@med.miami.edu.



1. Good VW; Early Treatment for Retinopathy of Prematurity (ETROP) Cooperative Group. Final results of the Early Treatment for Retinopathy of Prematurity (ETROP) randomized trial. *Trans Am Ophthalmol Soc.* 2004;102:233-250.