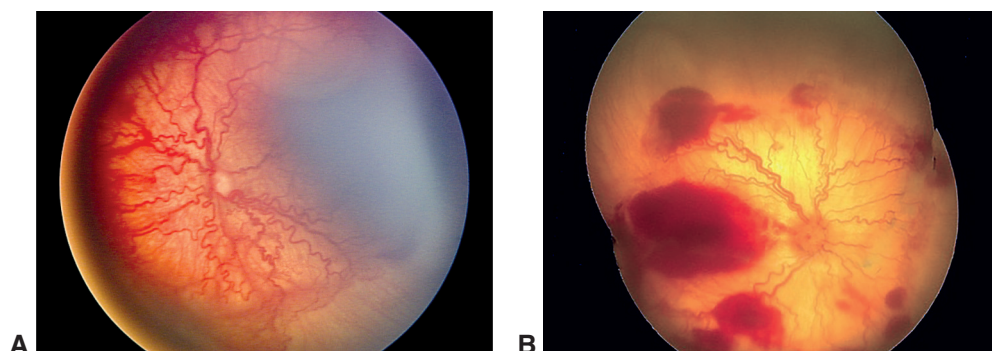


**Figure 8-6** Stage 5 ROP. Wide-angle fundus photographs show total ROP retinal detachment (RD). **A**, Total RD with visible optic nerve head is now defined as stage 5A. Persistent vascular activity accompanies the preretinal fibrovascular ridge that contracts circumferentially, acting like a purse string. **B**, Eventually, the vascular activity subsides, and the fibrosis starts to close the funnel anteriorly (evolution into stage 5B). The *arrow* denotes the optic nerve head, which is almost completely obscured. (Part A courtesy of Audina Berrocal, MD; part B courtesy of Franco M. Recchia, MD.)



**Figure 8-7** Fundus photographs show pronounced plus disease in eyes with ROP. The retinal arteries and veins are dilated and tortuous. **A**, The avascular retina and preretinal proliferations can be seen inferiorly and inferotemporally (*bottom right*). **B**, Preretinal hemorrhages are visible, originating from the proliferative disease. (Part A courtesy of Colin A. McCannel, MD; part B courtesy of Audina Berrocal, MD.)

According to the ICROP, an eye is classified on the basis of the most advanced disease noted. However, documentation should reflect all affected zones and stages observed, including their relative extent.



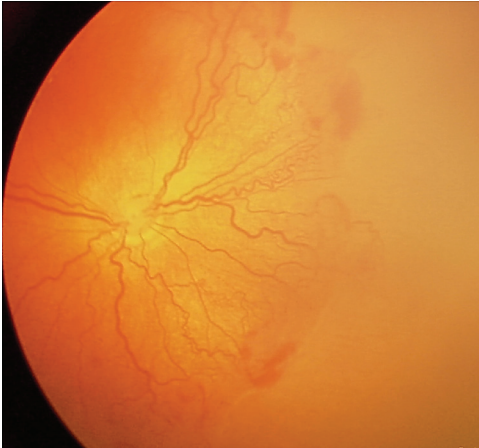
#### **ACTIVITY 8-1** Interactive schematic for type 1 ROP.

*Developed by Franco M. Recchia, MD.*



Chiang MF, Quinn GE, Fielder AR, et al. International Classification of Retinopathy of Prematurity, 3rd ed [epub ahead of print, July 8, 2021]. *Ophthalmology*. 2021;128(10):e51–e68. doi:10.1016/j.optha.2021.05.031

Early Treatment for Retinopathy of Prematurity Cooperative Group. Revised indications for the treatment of retinopathy of prematurity: results of the Early Treatment for Retinopathy of Prematurity randomized trial. *Arch Ophthalmol*. 2003;121(12):1684–1694.



**Figure 8-8** Aggressive ROP (A-ROP). Fundus photograph shows prominent plus disease and ill-defined retinopathy in zone I, accompanied by blot hemorrhages. (Courtesy of Franco M. Recchia, MD.)

**Table 8-2 Common Terms Used in Clinical Trials to Describe Acute Retinopathy of Prematurity (ROP)**

**Threshold disease (all 3 features must be present)**

Extraretinal neovascularization (stage 3 disease): EITHER 5 contiguous clock-hours  
OR 8 cumulative clock-hours  
Retinal vessels ending within zone I or zone II  
Plus disease

**Prethreshold disease**

All zone I and zone II changes, except zone II stage 1 and zone II stage 2 without plus disease, that do not meet threshold treatment criteria; subdivided into type 1 and type 2 disease

**Type 1 ROP**

Zone I, any stage ROP with plus disease, or  
Zone I, stage 3 ROP without plus disease, or  
Zone II, stage 2 or 3 ROP with plus disease

**Type 2 ROP**

Zone I, stage 1 or 2 ROP without plus disease, or  
Zone II, stage 3 ROP without plus disease

International Committee for the Classification of Retinopathy of Prematurity. The International Classification of Retinopathy of Prematurity revisited. *Arch Ophthalmol.* 2005; 123(7):991–999.

## Pathophysiology of ROP

A link between excessively exuberant perinatal oxygen supplementation and severe ROP was well recognized by the 1950s. After substantial reductions in oxygen use in neonatal intensive care units (NICUs), the incidence of ROP decreased dramatically. However, many infants experienced adverse neurologic outcomes as an unintended consequence of that oxygen restriction, and infant death rates rose. Once oxygen was again used more liberally, neurologic outcomes and survival improved, with the consequence of a resurgence of ROP.