

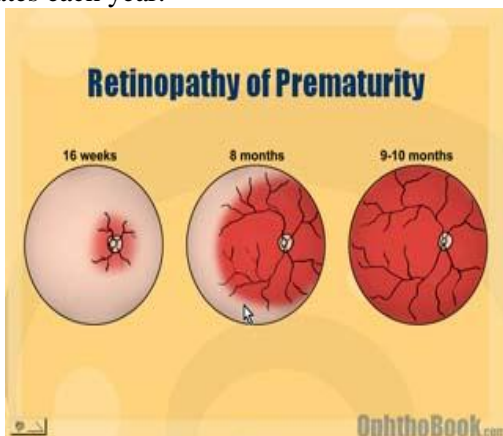
Retinopathy of Prematurity

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Retinopathy of Prematurity (ROP) is a disease that affects a small percentage of premature babies. It is a very serious disease that affects the retinal blood vessels of the eye and may lead to blindness. The retina forms early in the development of the fetus, but the blood supply to the retina does not form until 16 weeks after conception. It is not until the ninth or tenth month that the blood supply has reached the whole retina. So if a child is born prematurely, then the retina is not ready to work but it is forced to.

When the child's environment is changed to hypoxic, lacking oxygen, outside the womb, the areas of the retina without a good blood supply become ischemic. This simply means they have an insufficient supply of blood. Because that area is ischemic they begin to form molecules that stimulate the growth of blood vessels. This would be very good but these growths are abnormal and in the wrong place. As these new blood vessels form they make a ridge and this can cause scarring and retinal detachment. Between 500 and 700 infants become blind as a result of ROP in the United States each year.



Infants are at high risk for ROP if they are younger than 30 weeks and weigh less than 3 pounds. Although this is a serious disease, ROP cannot be detected until several weeks after birth

and this is when the first retinal exams are given. The Optical Coherence Tomography or OCT is a noninvasive tool used to view the retina. This device forms two dimensional images of the internal tissue microstructures of the retina.

A new device has been introduced by Duke University Medical Center called the Spectral Domain Optical Coherence Tomography (SD OCT). This is a hand held piece of equipment that produced 3-D imagery from a narrow beam of band light source. Doctors now have access to the deeper layers of eye tissue. This device collects many cross-sectional images of the retina while snapping images 40 times faster than any previous version of the OCT. Also, the infant can stay in the incubator during the testing.

In conclusion the speed of this new device will decrease time spent to diagnose and increase the ability to detect ROP along with the severity of it.

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