

Zika virus can cause severe damage to retina in infants

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Transmission electron microscope image of negative-stained, Fortaleza-strain Zika virus (red), isolated from a microcephaly case in Brazil. The virus is associated with cellular membranes in the center. Credit: NIAID

In a study published online by *JAMA Ophthalmology*, Rubens Belfort Jr., M.D., Ph.D., of the Federal University of Sao Paulo, Brazil, and colleagues examined the affected retinal layers in infants with congenital Zika syndrome and associated retinal abnormalities using optical coherence tomography (OCT).

The study included 8 [infants](#) (age range, 3-5.1 months) with congenital Zika syndrome (CZS), the term created for a variety of anomalies associated with intrauterine Zika virus infection. Optical coherence tomographic images (a noninvasive diagnostic imaging tool that provides cross-sectional retinal images) were obtained in the affected eyes of 7 infants with CZS who had undergone previous ophthalmologic examinations on March 17, 2016, and in 1 infant on January 1, 2016. An IgM antibody-capture enzyme-linked immunosorbent assay for Zika virus was performed on the cerebrospinal fluid samples of 7 of the 8 infants, and other congenital infections were ruled out.

Among the 8 infants included in the study, 7 who underwent cerebrospinal fluid analysis for Zika virus had positive findings for IgM antibodies. Eleven of the 16 eyes (69 percent) of the 8 infants had retinal alterations and OCT imaging was performed in 9 (82 percent) of them. Optical coherence tomography was also performed in 1 unaffected eye. The main OCT findings included the abnormalities of severe neurosensory retinal thinning with discontinuation of the ellipsoid zone associated with choroidal thinning, and a hyperreflectivity underlying the atrophic retinal pigment epithelium.

"The use of OCT technology in this case series showed severe involvement of the neurosensory retina, including the internal and external layers, and the choroid. Although these findings provide important new information about this devastating disease, they are not unique to CZS, and therefore OCT cannot be used to differentiate CZS from other retinal diseases. Nevertheless, the OCT findings herein

identified confirm the primary involvement of the retina in infants with CZS. They indicate severe visual impairment in newborns; however, further studies should confirm the accuracy of this statement by correlating the findings with visual function in the future," the authors write.

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