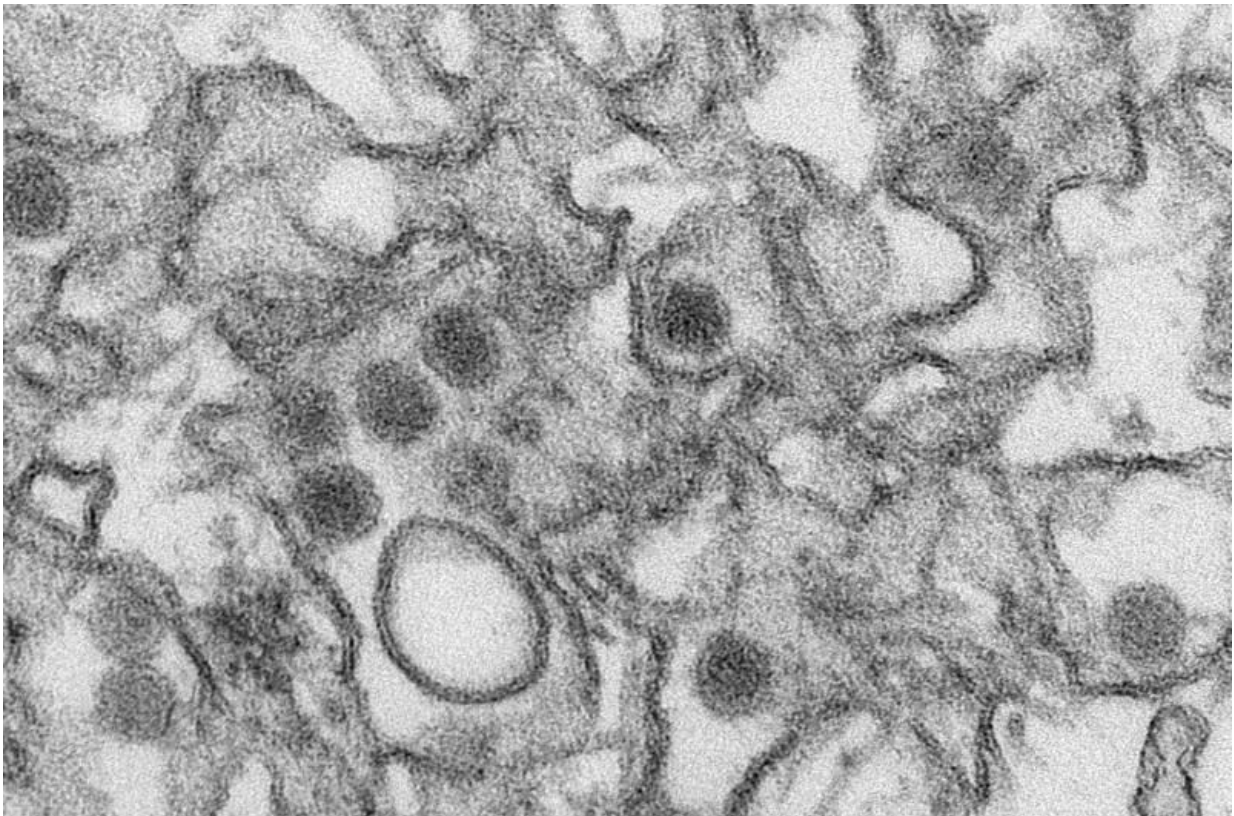


Eye abnormalities in infants with microcephaly associated with Zika virus

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Transmission electron micrograph (TEM) of Zika virus. Credit: Cynthia Goldsmith/Centers for Disease Control and Prevention

Vision-threatening eye abnormalities in infants in Brazil with microcephaly (a birth defect characterized by an abnormally small head) may be associated with presumed intrauterine infection with Zika virus,

according to a study published online by *JAMA Ophthalmology*.

An epidemic of Zika virus has been happening in Brazil since April 2015. Six months after the onset of the Zika virus outbreak, there was an unusual increase in newborns with microcephaly. In January 2016, the Brazilian Ministry of Health reported 3,174 newborns with microcephaly.

Rubens Belfort, Jr., M.D., Ph.D., of the Federal University of São Paulo, Brazil, and coauthors evaluated the ocular findings of 29 infants with microcephaly (head circumference less than or equal to 32 centimeters) with a presumed diagnosis of congenital Zika virus. The study was conducted during December 2015 and all the children and their mothers were evaluated at the Roberto Santos General Hospital, Salvador, Brazil.

Of the 29 mothers, 23 (79.3 percent) reported suspected Zika virus signs and symptoms during pregnancy, including rash, fever, arthralgia (joint pain), headache and itch. Among the 23 mothers who reported symptoms during pregnancy, 18 or 78.3 percent reported Zika virus symptoms during the first trimester of pregnancy, according to the report.

Abnormalities of the eye were observed in 10 of the 29 infants (34.5 percent) with microcephaly; of the 20 eyes in 10 children, 17 eyes (85 percent) had ophthalmoscopic abnormalities. Bilateral abnormalities were found in 7 of the 10 infants (70 percent) presenting with ocular lesions, the most common of which were focal pigment mottling of the retina and chorioretinal atrophy in 11 of the 17 eyes with abnormalities (64.7 percent). There also were optical nerve abnormalities in eight eyes (47.1 percent), along with other findings.

"This study can help guide clinical management and practice, as we observed that a high proportion of the infants with microcephaly had

ophthalmologic lesions. Infants with microcephaly should undergo routine ophthalmologic evaluations to identify such lesions. In high-transmission settings, such as South America, Central America and the Caribbean, ophthalmologists should be aware of the risk of congenital ZIKV-associated ophthalmologic sequelae," the authors write.

"The report by de Paula Freitas et al in this issue of *JAMA Ophthalmology* implicates this infection as the cause of chorioretinal scarring and possibly other ocular [abnormalities](#) in [infants](#) with microcephaly recently born in Brazil. Microcephaly can be genetic, metabolic, drug related or due to perinatal insults such as hypoxia, malnutrition or infection. The present 20-fold reported increase of microcephaly in parts of Brazil is temporally associated with the outbreak of Zika virus. However, this association is still presumptive because definitive serologic testing for Zika virus was not available in Brazil at the time of the outbreak and confusion may occur with other causes of microcephaly. Similarly, the currently described eye lesions are presumptively associated with the [virus](#)," writes Lee M. Jampol, M.D., and Debra A. Goldstein, M.D., of Northwestern University Feinberg School of Medicine, Chicago.

More information: JAMA Ophthalmol. Published online February 9, 2016.[DOI: 10.1001/jamaophthalmol.2016.0267](https://doi.org/10.1001/jamaophthalmol.2016.0267)

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