

# ALTERACIONES OCULARES EN INFECCIÓN CONGENITA POR ZIKA VIRUS / SCZ

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**ECHO ZIKA 2017  
AAP**

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## ZIKA VIRUS

- MICROCEFALIA
- ALERTA EPIDEMIOLÓGICO GLOBAL
- COMITE DE EMERGENCIA EPIDEMIOLOGICA



- WHO / CDC

**MICROCEPHALY - Brazil:**

**2010-2014 = 781 CASES**

**2015-2016 = 5909 CASES**



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The NEW ENGLAND JOURNAL of MEDICINE

**EDITORIAL**

Zika Virus and Microcephaly

Eric J. Rubin, M.D., Ph.D., Michael F. Greene, M.D., and Lindsey R. Baden, M.D.

*Centers for Disease Control and Prevention*

**MMWR**

Morbidity and Mortality Weekly Report

Early Release / Vol. 65

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**Notes from the Field**

**Evidence of Zika Virus Infection in Brain and Placental Tissues from Two Congenitally Infected Newborns and Two Fetal Lesions, Brazil, 2015**

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Brazil, for histopathologic evaluation and laboratory testing for suspected Zika virus infection. All four mothers had clinical signs of Zika virus infection, including fever and rash, during the first trimester of pregnancy, but did not have clinical signs of active infection at the time of delivery or miscarriage. The mothers were not tested for antibodies to Zika virus. Samples included brain and other autopsy tissues from the two newborns, a placenta from one of the newborns, and products of conception from the two miscarriages. FFPE tissues were tested by Zika virus reverse transcription-



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## OPHTHALMIC FINDINGS

Correspondence

- Publicaciones
- Alteraciones oculares
- Lesión Atrófica de Retina

**Zika virus in Brazil and muscular atrophy in a child with microcephaly**

Zika virus (ZIKV) is recognized here as a cause of microcephaly. During the 2015–2016 Zika virus outbreak in Brazil, we report two cases of congenital Zika virus infection associated with microcephaly and neuromuscular findings in three children with microcephaly born to mothers with documented ZIKV infection during pregnancy. Between April and November 2015, we identified 111 cases of congenital anomalies reported by the Ministry of Health in Brazil.

Among these, there was a 20-fold annual increase of microcephaly cases compared with 2014. In 2015, there has been 1538 new reported cases of microcephaly, with a rate of 957 per 100 000 live births.<sup>1</sup>

The World Health Organization confirmed the association between ZIKV infection and the transmission of ZIKV infection

with congenital malformations and microcephaly. We report two additional cases of microcephaly in three children with microcephaly born to mothers with documented ZIKV infection during pregnancy. These infants were asymptomatic at birth. They were born to mothers with documented ZIKV infection during pregnancy.

These infants presented with microcephaly, hypotonia, and delayed motor development. No other congenital anomalies were detected in these children.

This is the first report of oculo-vestibular findings associated with congenital Zika virus infection after the ZIKV outbreak. All three children presented with nystagmus, gaze palsy, and ataxia. In the first case, there was also evidence of epiphora, ptosis, blepharospasm, pupillary constriction, and conjunctival injection. The second case had conjunctival injection, epiphora, and blepharospasm. The third case had conjunctival injection, epiphora, and blepharospasm, falling eyelids, and nystagmus. All three children had normal funduscopic examination.

Two of the three children had normal funduscopic examination that included funduscopic examination of the macula region. The third infant had macula lesions. The three infants all had normal funduscopic examination of the macula region, all



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**SOCIEDAD DE OFTALMOLOGÍA PEDIÁTRICA DE LATINO AMERICA**

**Recomendaciones de la Sociedad de Oftalmología Pediatrica Latinoamericana (SOPLA) para manejo oftalmológico de pacientes pediátricos con sospecha de contaminación por virus Zika y pacientes recién nacidos con microcefalia**

1. En bebé con diagnóstico presuntivo o confirmado de microcefalia se requiere al menos un examen oftalmológico bajo MIRRIAGIS con oftalmoscopio INDIRECTA con el objetivo de detectar lesiones oculares, maculares o periféricas, similares a retinocoroiditis cicatrizal (similar a toxoplasma-histoplasmosis no tan pigmentadas, o colobomatous-like).

2. Se deben revisar a todos los bebés cuya madre tenga sospecha de contaminación por Zika.

3. Si hubieran lesiones en la mácula el bebé tendrá baja visión y deberá ser referido a rehabilitación visual.

4. Si las lesiones fueran periféricas sin daño macular se recomiendan examen periódicos de seguimiento (cada 3 meses el primer año y después del 1er año cada 6 meses)

5. Los bebés con microcefalia deben revisarse cada 2 años y los niños con microcefalia 3 meses por un año. Los bebés sin lesiones se revisan cada 6 meses por un año.

6. Debido a que no se conoce el grado de contaminación por lúgano se requiere protección del personal de salud y esterilización del equipo para realizar la revisión.

7. Hacer el relato de los casos con hallazgos oculares para control epidemiológico y para la Secretaría de Salud Ocular de su Ciudad.

8. Difundir las recomendaciones a las sociedades de Pediatría, Ginecología, Neurología.

02/2016  
*EBT*

Dra Marcia Beatriz Tartarella  
 Presidente SOPLA - 2015-2017

JUNTA DIRECTIVA 2015 - 2017

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**WOC MEXICO 2016**

**photo2un**

## Zika Embryopathy: Evaluation and Management Recommendations for Ophthalmologists

Sociedad de Oftalmología Pediatrica Latinoamericana  
 (SOPLA) - Guidelines

### Recomendaciones de SOPLA para manejo oftalmológico de pacientes pediátricos con sospecha de contaminación por virus de Zika y pacientes recién nacidos con microcefalia



**Sopla**

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### Recomendaciones de SOPLA:

- En bebés con diagnóstico presuntivo o confirmado de **microcefalia** se requiere al menos un examen oftalmológico bajo **MIDRIASIS con oftalmoscopía INDIRECTA** con el objetivo de detectar lesiones oculares, maculares o retina periférica (similar a toxoplasma-histoplasmosis no tan pigmentadas o colobomatous -like).
- Se deben revisar a todos los bebés cuya madre tenga sospecha de contaminación por Zika (rash cutáneo, fiebre, artralgia).

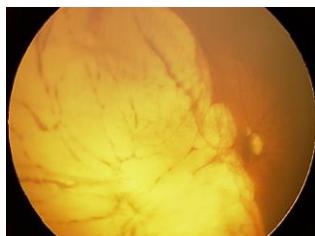
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## RECOMENDACIONES

Primera evaluación oftalmológica en los primeros 30 días de vida

**Red Reflex Test / Test del Reflejo Rojo**

**NO FUNCIONA !!** 72 patients with CZS: normal

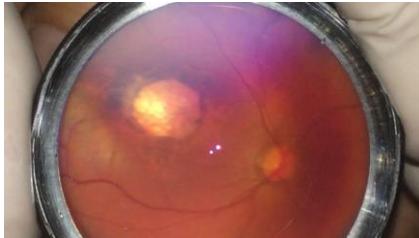


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## RECOMENDACIONES

-EXAMEN OFTALMOLOGICO :

= evaluación del fundo de ojo con oftalmoscopia  
Indirecta / RETCAM: TELEMEDICINA y  
documentación = con dilatación



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## RECOMENDACIONES SZC

Debido a que no se conoce el grado de contaminación por lágrima se requiere protección del personal de salud y esterilización del equipo para realizar la revisión.



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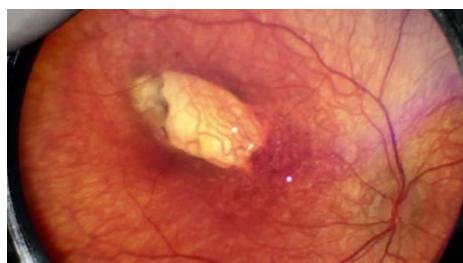
## ALTERACIONES OCULARES EN SCZ: 30%

- 1. ATROFIA CORIO-RETINIANA (LESIONES CIRCULARES O TIPO COLOBOMA): 65%**
- 2. ALTERACIONES PIGMENTARES EN FORMA DE MOTEADO: 65%**
- 3. HIPOPLASIA, PALIDEZ O AUMENTO DE ESCAVACION DEL NERVIO OPTICO: 50%**

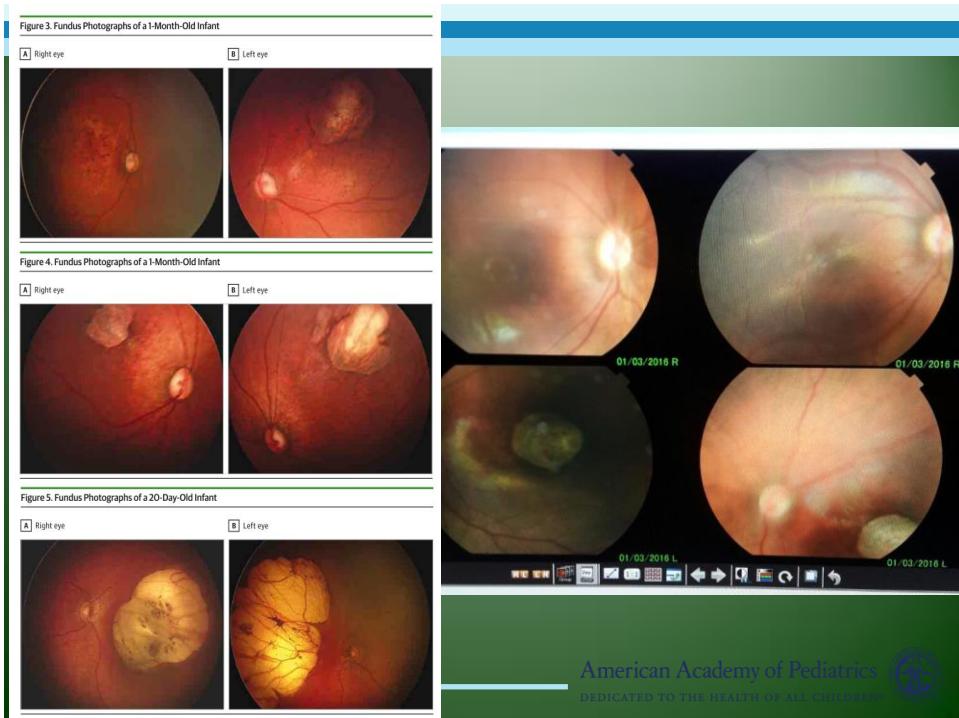
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### ATROFIA CORIO-RETINIANA EN REGIÓN MACULAR

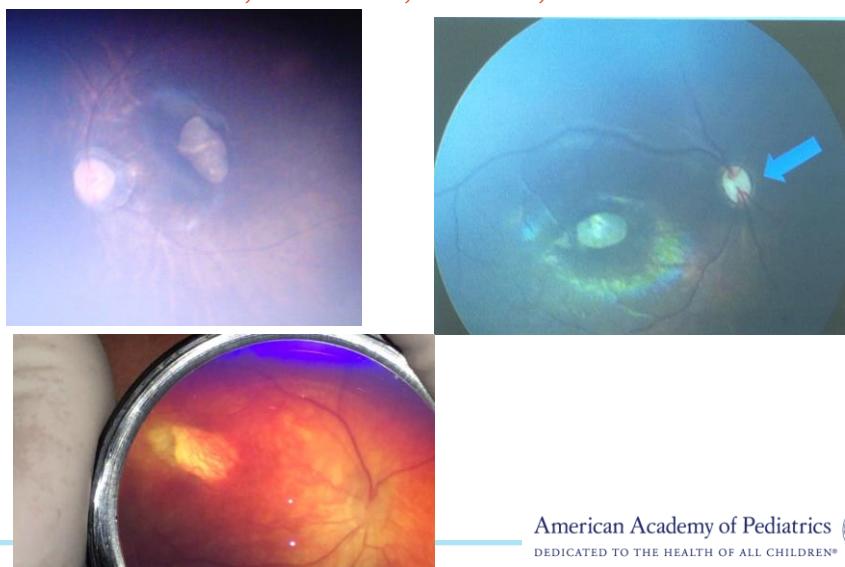
**IMPORTANTE CRITERIO DE DIAGNOSTICO  
CLÍNICO  
MAJOR SIGN EN SCZ**



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## NERVO OPTICO HYPOPLASIA, ATROPHY, PALLOR, DOBLE-RING SIGN



## RECOMENDACIONES

Repetir la evaluación de fundo del ojo cada 3 meses hasta los 12 meses.



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## RECOMENDACIONES

Los bebes con lesiones oculares o con baja visión por daño cerebral deben ser referidos para intervención precoz y rehabilitación visual



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## RECOMENDACIONES

Cerebral visual impairment may occur without ophthalmologic lesions = visual acuity Tests

Examen de Refracción = evaluación a los 12 meses: -Prescripción de gafas cuando necesiten



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YOU TUBE:  
**ZIKA OCULAR FINDINGS**

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Sociedad de Oftalmología  
Pediatrica Latinoamericana

## OTRAS ALTERACIONES OCULARES RELACIONADAS A INFECCIÓN CONGENITAL POR ZIKA VIRUS

- 1. CATARATA CONGENITA = 2 CASOS**
- 2. MICROFTALMIA = 1 CASO**
- 3. ESTRABISMO**
- 4. BAJA VISUAL DE ORIGEN CEREBRAL**
- 5. GLAUCOMA CONGENITO**



## RECOMENDACIONES

- Estrabismo precoz y nystagmus deben ser observados por los pediatras y oftalmólogos en las visitas: early onset strabismus

ESTRABISMO: 14% SCZ x 3-5% NL

MICROCEFALIA O NO !!!



## SUMMARY

- First Eye examination within 30 days of life
- Presence of ocular lesions: repeat eye exam every 3 months
- No ocular involvement: every 6 months
- Evaluation: Refraction, strabismus, nystagmus, low vision
- Early Intervention and Visual and motor Rehabilitation

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## GRACIAS THANK YOU

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### REFERENCES

- Zika Virus in Brazil and Macular atrophy in a child with microcephaly. Ventura,C, Mia, M, Bravo-Filho, V, Gois, A, Belfort Jr, R. *Lancet*, January, 2016.
- Ocular findings in Infants with Microcephaly associated with presumable Zika Virus Congenital Infection, in Salvador , Brazil. Freitas,BP, Dias, JRO, Prazeres, J, Sacramento, GA, Ko, AI, Maia, M, Belfort Jr, R. *JAMA*, February, 2016
- Ophthalmological findings in infants with microcephaly and presumable intra-uterus Zika virus infection. Ventura,CV , Maia,M , Ventura, BV, Van Der Linden,V , Araújo. EB , Ramos, RC, Rocha, MAW, Carvalho, MDCG , Belfort Jr., R , Ventura, LO *Arq. Bras. Oftalmol.* 79:1 jan./fev. 2016.<http://dx.doi.org/10.5935/0004-2749.20160002>

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