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## POSSIBILITY OF CONGENITAL CO-INFECTION IN TROPICAL AREAS - REPORT OF THE FIRST CASE IN BRAZIL OF ZIKA VIRUS AND TOXOPLASMOSIS IN NEWBORNS ALBINO

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### ABSTRACT

Congenital infections have a direct impact on the development of the fetus, and can cause several complications. Among them is toxoplasmosis, which has a high prevalence in Brazil's northern region. It is noteworthy that, in 2015, the epidemic of Zika virus emerged in the country, causing several cases of microcephaly in newborns. Thus, both infections cause damage to fetus nervous system and sometimes there is a risk of occurring simultaneously. This study reports a case of Toxoplasmosis and Zika virus in an albino newborn, diagnosed at the prenatal care and followed up until the third month of lifecongenital co-infection by Zika and Toxoplasmosis in newborn albino. The patient was followed by pregnancy until the first months of life.

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### INTRODUCTION

There is a group of congenital infections that occur worldwide with a variable prevalence according to several factors, especially environmental (Sarman Singh, 2016). This group includes toxoplasmosis, caused by the protozoan *Toxoplasma*

*gondii* (*T. gondii*) with high prevalence in Brazil's northern region (Bichara, 2012). In 2015, the world became aware of Zika virus epidemic, most known as a direct cause of microcephaly on newborns congenitally infected (Sophie Helena Eickmann, 2016). Zika virus (ZIKV) is a flavivirus that

was isolated in Uganda, in 1947, and spread to the rest of the African continent and Asia, reaching the Federated States of Micronesia, in 2007, until in 2013 it reached all of Oceania. It arrived in the Americas in 2015 with the first case reported in Brazil in May of the same year. In six months, it began the epidemiological wave of microcephaly secondary of this congenital infection, predominantly on northern and northeastern regions, leading the World Health Organization (WHO) to declare the Public Health Emergency of International Interest (Gunturiz, 2018). The infection by *T. gondii* or ZIKV is usually asymptomatic. However, the concern with pregnant women is justified by the risk of mother-to-child transmission, which is detrimental to fetal development (Sonja, 2016 and Jernej Mlakar, 2016). Congenital toxoplasmosis is classically manifested with retinochoroiditis, hydro or microcephaly and cerebral calcifications (Sarman, 2016 and Bichara, 2012). Congenital Zika syndrome affects the fetus with similar signs, but with a more exuberant clinical picture, highlighting bone, ocular and, mainly, neurological alterations, including microcephaly, calcifications, ventriculomegaly, cerebellar hypoplasia and reduced brain volume (Jernej Mlakar, 2016 and Daniel Lucey, 2017). Symptomatic cases of both aggravations are infrequent (James, 2014), but plausible due to the epidemiological moment we live in, considering the possibility of coinfection as observed in a single case reported in Colombia (Gunturiz, 2018), and now this one that will be related as the main objective of this paper (Tellechea, 2018).

## CASE REPORT

A 21-year-old nulliparous woman started prenatal care in the first trimester, asymptomatic throughout her pregnancy. Among the serologies performed, only the anti-*T. gondii* IgG antibody was a reagent. A third trimester ultrasound showed a decrease in biparietal diameter and fetal cranial circumference. Surgical delivery performed at 41st week. The newborn had low weight (2190 g), microcephaly (cephalic perimeter of 28.5 cm) and oculocutaneous albinism type 1. Serologies on the first day of life: non-reagent VDRL, non-reagent IgM and IgG anti-Rubella, anti-*T. gondii* IgM and IgG reagents and non-reagent IgM anti-Cytomegalovirus and IgG reagent. Computed tomography (CT) of the skull showed focal calcifications located in deep white matter and cortical/subcortical layers, in base ganglia and frontal horns; dilatation of the supratentorial ventricular system; cerebellar hypoplasia and reduction of skull dimensions. On the seventh day of life, new tests were requested: Chikungunya, Dengue and ZIKV tests by RT-PCR, all undetectable; in the IgM antibody test for Chikungunya, Dengue and ZIKV, it was only reagent for ZIKV, also confirming one more congenital infection, becoming a congenital co-infection of toxoplasmosis ZIKV. The diagnosis of congenital toxoplasmosis was confirmed by Western blot, which showed the production of anti-*T. gondii* IgG by the child, during second and third months of life. al institution with intensification of motor physiotherapy. Currently, the child is in multiprofessional follow-up in a referral institution in Belém do Pará.

## DISCUSSION

The epidemiological panorama will guide the possibilities of infectious involvement of the mother-child binomial, exactly as what occurred in Brazil with alignment of factors so that it would be possible to arise cases of congenital coinfections. In

the expectation that more of these cases could occur, due to the high prevalence of toxoplasmosis and high number of cases of ZIKV, this fact was not observed. Possibly, due to internal regional issues: the majority of cases of ZIKV occurred in the northeastern region, and the prevalence of toxoplasmosis is higher in the northern region. Or, many of the pregnant women affected by ZIKV were already immune to *T. gondii*. A similar case has already been reported in Colombia, with a pregnant woman of the age and either in soroconverting phase of infection. This fact shows the importance of the beginning of early prenatal care, with the performance of appropriate tests, guidance to all pregnant women on necessary preventive measures, and the performance of imaging tests, since it was what contributed to the diagnosis of fetal infection in the third trimester. Thus, it was possible to carry out an extensive investigation for the main congenital infections and finish with laboratory confirmation for toxoplasmosis and ZIKV, with the support of brain imaging exams of newborns with characteristic lesions of both diseases (Daniel Lucey, 2017; James, 2014 and Tellechea, 2018).

## CONCLUSION

Epidemic periods favor the emergence of unusual clinic situations. In this case report, low birth weight and microcephaly were attributed to congenital *Toxoplasma gondii* and ZIKV coinfection in a newborn with type oculocutaneous albinism. The diagnosis was suspected by the surveillance of microcephaly and confirmed by serology, molecular biology and imaging exams.

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