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Rare Zika case associated with Guillain-Barré Syndrome and Abortion: placental inflammation and fetal injury

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Zika virus (ZIKV) is an emerging virus involved in recent outbreaks in Brazil. The association between the virus and Guillain-Barré syndrome (GBS) or congenital disorders has raised a worldwide concern. In this work, we investigated a rare Zika case, which was associated with GBS and spontaneous retained abortion. Pregnant, black, 25 years old, started with rash of limbs, itching and vomiting. Transvaginal ultrasonography evidenced cephalic circumference suggesting 15 weeks of gestational age, lack of heartbeat, and non-apparent active movements, with diagnosis of death and retained fetus (stillbirth). The patient evolved to ascending and symmetrical flaccid tetraparesis, paresthesia, areflexia, presenting hands with pendular movement, disautonomia and signs of respiratory insufficiency, characterizing the GBS. Using specific anti-ZIKV staining, the virus was identified in placenta (mainly in Hofbauer cells) and in several fetal tissues,

such as brain, lungs, kidneys, skin and liver. Histological analyses of the placenta and fetal organs revealed different types of tissue abnormalities, which included inflammation, hemorrhage, edema and necrosis in placenta, as well as tissue disorganization in the fetus. Increased cellularity (Hofbauer cells and TCD8+ lymphocytes), expression of local pro-inflammatory cytokines such as IFN-g and TNF- α , and other markers, such as RANTES and VEGFR2, supported placental inflammation and dysfunction. The commitment of the maternal-fetal link in association with fetal damage gave rise to a discussion regarding the influence of the maternal immunity toward the fetal development. Findings presented in this work may help understanding the ZIKV immunopathogenesis under the rare contexts of spontaneous abortions in association with GBS.

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