

Zika virus intrauterine infections from the obstetrician's perspective

Maria Gańczak¹, Agnieszka Brodowska²

¹Department of Epidemiology and Management, Pomeranian Medical University, Szczecin, Poland

²Department of Gynecology and Urogynecology, Pomeranian Medical University, Szczecin, Poland

ABSTRACT

Zika virus (ZIKAV) infections could potentially occur in Poland due to international travel made by its nationals to regions where the *Aedes* mosquito is active. A causal relationship between prenatal ZIKAV infection and microcephaly and other serious brain anomalies has been found due to the time association between the infection in pregnancy and a presence of congenital nervous system malformations, together with the detectable pathogen in amniotic fluid and fetus's tissues. Two ZIKAV infection cases of pregnant women who were diagnosed with fetal microcephaly in the state of Paraiba, Brazil, later described in *Ultrasound Obstetrics and Gynecology* by Oliveira Mello et al. are discussed, in the context of the possible introduction of ZIKAV into Poland and the role the obstetrician should play in the detection and rapid reaction to potential threats. According to recommendations of international agencies for disease control and prevention, Polish obstetricians who take care of pregnant women and of those planning to become pregnant in the nearest future, and declaring travels to areas of the *Aedes* mosquito activity, should advise their patients to consider postponing travel or if they must travel, to take necessary precautionary measures to avoid mosquito bites. Pregnant women who have travelled to areas with ZIKAV transmission, or whose male partners had travelled to such areas and returned in the period of their female partner's pregnancy, should be monitored appropriately in the context of congenital abnormalities, including microcephaly.

Key words: diagnosis, pregnancy, infection, prevention, clinical manifestation, Zika virus

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INTRODUCTION

Zika virus (ZIKAV) infections could potentially occur in Poland due to international travel made by its nationals to regions where the *Aedes* mosquito is active. A causal relationship between prenatal ZIKAV infection and microcephaly and other serious brain anomalies has been found due to the time association between the infection in pregnancy and a presence of congenital nervous system malformations, together with the detectable pathogen in amniotic fluid and fetus's tissues.

Two ZIKAV infection cases of pregnant women who were diagnosed with fetal microcephaly in the state of Paraiba, Brazil, later described by Oliveira Mello et al. [1] are discussed, in the context of the possible introduction of ZIKAV into Poland and the role the obstetrician should play in the detection of such infections.

CASE DESCRIPTIONS

Fetal ultrasound examinations were performed at 30.1 weeks' (Case 1) and 29.2 weeks' of pregnancy (Case 2). Head circumference was below expected value in both cases and weight was estimated as 1179 g (21st percentile) and 1018 g (19th percentile) respectively. Abdominal circumference was normal for gestational age in Case 1, but below the 3rd percentile in Case 2; femur length was normal in both cases. Transcranial Doppler was normal regarding Case 1, as the width of the lateral ventricles. Anomalies were limited to the brain; atrophy with coarse calcifications involving white matter of the frontal lobes, including the caudate, lentostriatal vessels and cerebellum was demonstrated. In addition, enlarged cisterna magna as well as vermian and corpus callosal dysgenesis were found. In Case 2, cerebral hemispheres were markedly asymmetric with unilateral

Corresponding author:

Maria Gańczak

Department of Epidemiology and Management, Pomeranian Medical University, Żołnierska St. 48, 71–210 Szczecin, Poland
e-mail: mganczak@pum.edu.pl

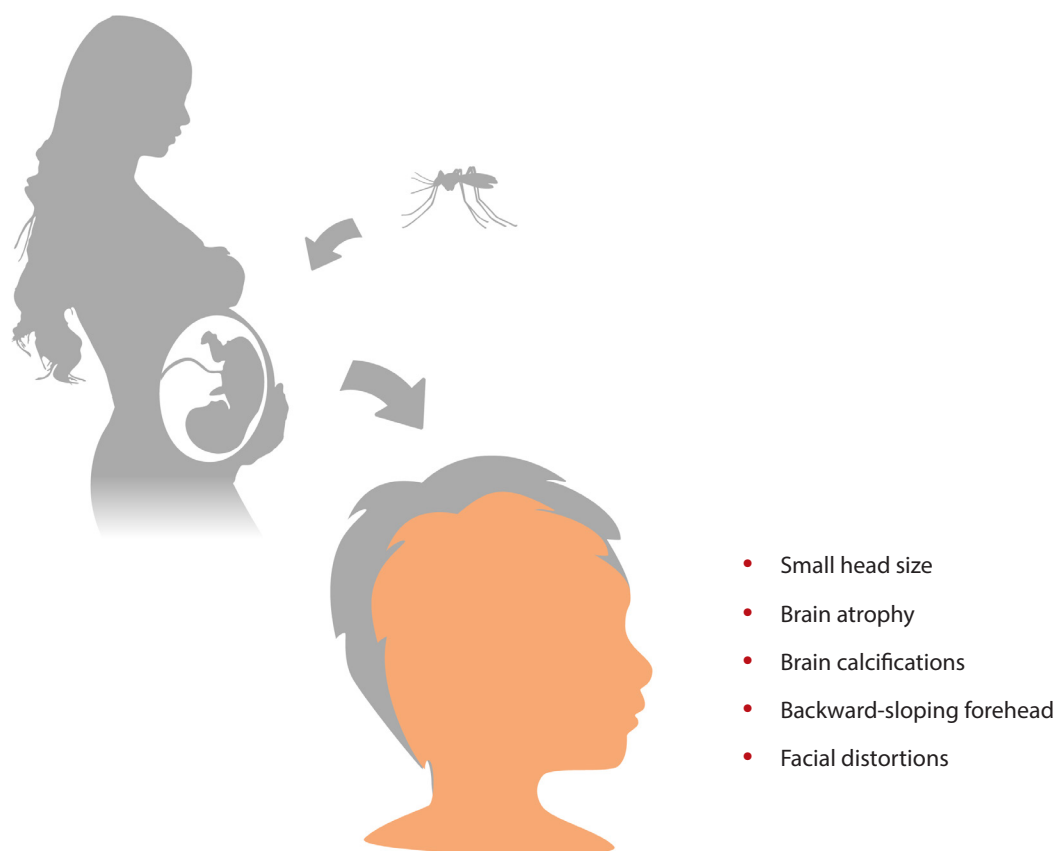


Figure 1. ZIKAV infection: transmission and clinical symptoms in fetus

hydrocephalus, displacement of the midline and thinning of the parenchyma on the dilated side. The pons and brainstem were thin and continuous with a non-homogeneous small mass at the position of the basal ganglia. Brain calcifications were observed around the lateral ventricles and fourth ventricle. Eyes differed in size and both had cataracts, as well as intraocular calcifications. Blood tests for ZIKAV were negative in both pregnant women. However, after an ultrasound diagnosis of fetal microcephaly, amniocentesis and a RT-PCR test for ZIKAV was performed. It was positive in both patients, most likely demonstrating the intrauterine transmission of the virus.

DISCUSSION

It is likely that Polish obstetric staff will care for pregnant women who have travelled or who plan to travel to areas of local ZIKAV transmission. Two cases described above demonstrate that prenatal ZIKAV infection could be linked to adverse

birth outcomes, most notably microcephaly and other serious brain anomalies (Figure 1) and highlight the important role obstetric staff would play not only in establishing diagnosis, but also in introducing preventive methods. Staff-patient communication is particularly vital, due to the lack of vaccine and antiviral treatment. According to CDC guidance, pregnant women should postpone journeys to areas of endemic ZIKAV transmission; those who must travel should discuss steps with medical staff to prevent mosquito bites during their trip. Sexual transmission of ZIKAV from male partners has been documented, and male subjects who have traveled to areas of endemic ZIKAV transmission with a pregnant partner should abstain from sexual activity or consistently use condoms for the duration of the pregnancy.

REFERENCES

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