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CASE REPORT

CONGENITAL CYTOMEGALOVIRUS INFECTION

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ABSTRACT

Cytomegalovirus (CMV) is a virus that can cause vertical transmission.

Pregnant women can be affected by a primary infection or secondary to reactivation or reinfection. After a primary infection or virus it can become latent in white cells with periodic reactivations and there is also the possibility of reinfection with a new strain since an initial infection does not guarantee cross-immunity.

Newborn (NB) CMV carriers may be affected in the future by neurological disorders in childhood and deafness. In the present work, we teach a case report of a male NB with probable CMV infection whose mother had tests compatible with immunity to the virus. It opens up possibilities for discussing other forms of transmission for the concept of a previously immune pregnant woman.

KEYWORDS: REINFECTION, REACTIVATION, VERTICAL TRANSMISSION

INTRODUCTION

Cytomegalovirus (CMV), of the Herpesviridae family, is the most common agent of congenital infection in humans. After a primary infection, the virus evades the host's cellular immunity, making the infection persistent or latent throughout life, with periodic reactivations being frequent. There is also the possibility of reinfection with different viral strains since cross-immunity does not occur [7].

In Brazil, the prevalence of congenital CMV infection at birth was 1% in a population with high maternal seroprevalence, that is, greater than 97%. [7]

In women not immune to CMV, primary infection results in transmission in about 33% of fetuses. Women with CMV immunity before conception transmit the virus to 1-2% of fetuses. [7]

CMV appears to be transmitted efficiently in all trimesters of pregnancy [2].

According to the National Registry of Symptomatic CMV Infection in the United States (CDC), the disease is defined by the simultaneous presence of three criteria: presence of one or more clinical signs (small for gestational age, petechiae, hepatosplenomegaly, microcephaly, among others); Detection of CMV in saliva, urine or other clinical specimens and the exclusion of other etiologies that cause abnormalities (syphilis, toxoplasmosis and congenital infections, respectively). [4]

For diagnostic purposes, the presence of specific IgG anti-CMV antibodies in the serum of a previously negative pregnant woman confirms a primary maternal infection. Within the context of maternal primary infection, we have the diagnosis of anti-CMV serum IgM detection, which reveals three different conditions: acute phase of primary infection (from one to three months after infection); convalescent phase of primary infection, which is more common when there is a decline in IgM levels and persistence of IgM antibodies, usually occurring more than three months after the onset of primary infection. Additionally, when the presence of anti-CMV IgM in the serum of a pregnant woman is not sufficient to identify a primary infection, it is suggested that an antibody avidity test be performed [8].

The detection of anti-CMV serum IGM in NB is suggestive of congenital infection by this virus, but it must always be confirmed by its detection in urine and/or saliva. [4]

CLINICAL CASE

NB admitted to the neonatal ICU of SANTA CASA in Anapolis, coming from Goianésia-Goias, gestational age by the Capurro method of 35 weeks and 3 days old, birth weight -1800g, male, who underwent emergency cesarean section in that city due to acute fetal distress. Report of being born bathed in meconium amniotic fluid, with Apgar 5/8; physical examination also presented

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jaundice, diffuse petechiae and hepatosplenomegaly (liver at 5 cm from the RCM and spleen at 4 cm from the LCM). Evolved with progressive respiratory distress. Admitted to the ICU at 8 hours of life, in respiratory failure, started mechanical ventilation, vasoactive drugs and antibiotic therapy to cover early neonatal sepsis.

The NB is the son of young, healthy, non-consanguineous parents, with no history of heredofamilial pathology. First pregnancy, the mother had 2 prenatal consultations. Ten days before delivery, she remained hospitalized for 1 week for treatment of a urinary tract infection (UTI). Maternal examinations and obstetric ultrasounds were within normal limits.

	1st Trimester	3rd Trimester	Reference value
Toxoplasmosis (IGG)	>200 UI/mL		Reagent >10ui/Ml Non-Reagent <10ui/mL
Rubella (IGG)	12,31 UI/mL		Reagent >10ui/Ml Non-reagent <10ui/mL
Cytomegalovirus Inclusion Disease	4,51 UI/mL		Reagent >0,5ui/Ml Non-reagent <0,5ui/mL
Syphilis	Non-reagent	Non-reagent	
AIDS	Non-reagent	Non-reagent	
Chagas	Non-reagent		
Hepatitis B	Non-reagent		
Hepatitis C	Non-reagent		
HTLV	Non-reagent		

Table 1- Serology performed by the pregnant woman.

Serologies were requested to clarify the clinical picture, according to the table below (Table 2):

Date	17/11	18/11	19/11	20/11	21/11	22/11
Hb	6,0	9,9	7,17	9,49	8,4	7,34
Ht	16,1	26,4	20	24,8	21,3	19,2
Plq	23600	17000	15000	14000	13000	17200
Leuc	25400	9600	4800	4500	12200	5400
Citomegalovirus			IGM-4,5 IGG-108,7			
VDRL			NON-REAGENT			

Table 2 – Serology performed on the patient from November 17 to 22.

He evolved with anemia, thrombocytopenia and hemodynamic instability in continuous use of vasoactive drugs and died on the seventh day of hospitalization.

DISCUSSION

We report the case of an NB with a clinical picture compatible with congenital neonatal infection. The mother had prenatal exams with immunity to rubeola, toxoplasmosis and CMV. According to the National Registry of Symptomatic CMV Infection in the United States (CDC), the disease is defined by the simultaneous presence of three criteria: presence of one or more signs (small newborn with gestational age, petechiae, hepatosplenomegaly, microcephaly, among others); Detection of CMV in saliva, urine or other clinical specimens and the exclusion of other etiologies that cause abnormalities (syphilis, toxoplasmosis and other congenital infections) [4]. In the case discussed, the NB had petechiae, cholestatic jaundice, hepatosplenomegaly, thrombocytopenia and from the serologies requested in the NB, the presence of CMV reagent IgM and IgG was observed. The detection of anti-CMV serum IgM in newborns is suggestive of congenital infection by this virus, but it should always be confirmed by its detection in urine and/or saliva [4]. There was no time to collect CRP in urine/saliva.

It is important to discuss the possibilities of vertical transmission of CMV in a mother with previous immunity.

The main mechanisms for non-primary infection include reactivation in an existing persistent infection or reinfection with a new strain of CMV [5].

On reactivation, in the latency period, there is the activation of CD3-4 and HPCs, which participate in the activation of the immune system, contemplating molecules

such as hematopoietic stem cells, pluripotent, myeloid progenitor, myeloblast, monocytes, macrophages and dendritic cells, leading to a quiescent or latent infection through superior activation of monocytes, which leads to an acute or chronic infection, in epithelial or dendritic cells and macrophages [3].

Regarding reinfection, it is known that there is no cross-immunity to other strains, being a risk factor for vertical transmission by the reinfected pregnant woman. [6]

CONCLUSION

This work presents a picture compatible with vertical transmission of CMV in a pregnant woman who had prenatal exams with immunity to the virus. The possibilities of fetal involvement due to non-primary causes, such as reactivation or reinfection, were discussed. With this, there is a need for greater attention for pregnant women in prenatal care in relation to preventive care, since even with a pre-existing immunity, contagions can occur. The reflection of the entire health team about this problem may prevent some children from having disabilities in the future, especially hearing impairments. In the meantime, we continue to look forward to the large-scale development and use of the vaccine.

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