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Case Report

Congenital Toxoplasmosis and Cytomegalovirus Coinfection in a 13-Months Old Asymptomatic Girl

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Abstract

Congenital infections may present with mortality, morbidity or similar sequelae. Here, we present a 13-months-old girl who was initially diagnosed with congenital toxoplasmosis based on findings detected during routine eye examination and who was additionally diagnosed with congenital cytomegalovirus infection after sensorineural hearing loss, periventricular calcification, and high CMV copy number in urine were observed during etiological screening. The patient was treated simultaneously for both congenital toxoplasmosis (pyrimethamine, folinic acid, sulphadiazine) and congenital cytomegalovirus (valganciclovir) infection. The first control hearing test performed after the treatment process was completed without complications yielded bilateral normal results. The presence of coinfection should be kept in mind in patients diagnosed with any TORCH infection and the effect of early treatment in preventing late sequelae should not be forgotten.

Keywords: *Congenital Toxoplasmosis; Congenital Cytomegalovirus; Treatment; Sequel*

Introduction

Infections acquired in the prenatal period may cause mortality in the fetus and newborn, as well as growth and developmental retardation, congenital defects or disseminated disease [1]. Congenital infections are generally under the heading "TORCH" [T: Toxoplasma, O: other (*Listeria monocytogenes*, varicella, human immunodeficiency virus (HIV), parvovirus, enterovirus), R: rubella, C: cytomegalovirus (CMV), H: herpes simplex virus (HSV)] is collected [1].

Toxoplasmosis is an protozoal infectious disease caused by *Toxoplasma gondii*. Chorioretinitis, intracranial calcification and hydrocephalus, which are the classic triad of congenital toxoplasmosis that develops as a result of transmission from pregnant to acute fetus, is rarely seen together. Seventy ninety percent of infected newborns are normal in routine examination [2].

CMV, the most common cause of congenital infections in newborns, can be transmitted to the fetus during the primary or recurrent infection of the mother during pregnancy. While 90 - 95% of newborns with CMV infection are asymptomatic after birth; In the future, they may be diagnosed with sensorineural hearing loss or neurological sequelae.

Here, we present a 13-months-old asymptomatic girl who was diagnosed as congenital toxoplasmosis as a result of routine eye examination and whose presence was also detected congenital CMV infection.

Case Report

A healthy 13-months-old girl presented to the ophthalmologist for routine eye control. The patient was referred to us with suspicion of congenital toxoplasmosis after the lesion that did not hold the fovea in the temporal region of the right macula and a toxoplasma scar holding the left posterior pole in the arcads.

She was born in the 39th gestational week by a cesarean, from healthy mother, whose pregnancy period was completely normal. Newborn hearing screening was normal. Her immunization was performed appropriate with the ministry vaccination schedule.

She was appropriate for her age with a height, weight and head circumference. On physical examination, no pathological finding was detected. Neuromotor development was normal. In the laboratory examination, white blood cells were 6490/µL (neutrophil: 1600/µL, lymphocyte: 4100/µL), hemoglobin was 12.1 gr/dL, and platelet count was 27610^3/µL. Kidney and liver function tests were normal. Serum toxoplasma IgM antibody studied by ELISA was negative (< 0.5 IU/mL) and toxoplasma IgG antibody 108 IU/mL (positive < 3.0 IU/mL). The toxoplasma IgM antibody was 1.53 IU/mL (positive > 0.6 IU/mL), the toxoplasma IgG antibody was 150 IU/mL (positive < 3.0 IU/mL) in her mother's blood samples at the same time as the patient. In terms of immunodeficiency, immunoglobulins and lymphocyte subgroup analysis were appropriate for her age. Anti HIV was negative.

For concomitant CMV infection, 112.379 copies/mL (QIAamp DNA Mini Kit, Germany) was detected in the urine by the CMV Polymerase Chain Reaction (PCR) test. Simultaneous blood CMV PCR test was negative (COBAS AmpliPrep/Taqman CMV Test, COBAS AmpliPrep/Taqman system, range 150-10000000 copies/mL). In cranial imaging; mild atrophy in the left frontal lobe and calcifications in various regions were observed (Figure 1). In the cerebrospinal fluid (CSF) sample; microscopy, glucose 55 mg/dL (40 – 70 mg/dL) and protein 35 mg/dL (15 - 45 mg/dL) normal; CMV and toxoplasma PCR were negative. Audiological examination with brainstem evoked response audiometry (BERA) and acoustic immitansmetry tests revealed unilateral sensorineural hearing loss (SNHL) in the left ear. CMV PCR was found positive by studying the dry blood sample taken in the neonatal period due to suspicion of congenital CMV infection.

Treatment was planned with congenital toxoplasmosis and congenital CMV infection in the patient with evidence of active infection in the eye and SNHL. She received pyrimethamine, folinic acid and sulfadiazine for one year and valgancyclovir for six months. The patient was monitored closely with complete blood count (CBC) and biochemistry in terms of drug toxicity. The first control hearing test performed after the treatment process was completed without complications yielded bilateral normal results.

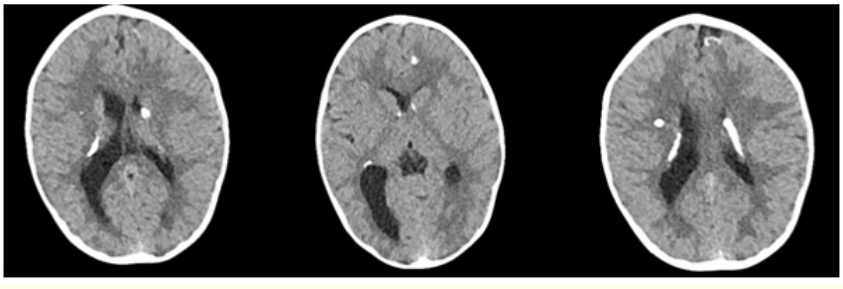

Figure 1: *On the computerized tomography of the brain taken for intracranial involvement; mild atrophy of the left frontal anteromedial lobe and linear calcifications, calcifications in the bilateral caudate lobe and in the left temporal lobe were detected.*

Discussion

Infections transmitted from mother to fetus during the intrauterine period may give signs of growth and developmental retardation, organ defects and disseminated disease. While some cases don't show any clinical findings at birth, they may present with hearing loss or neuromotor retardation in the future.

It is known that subclinical toxoplasmosis infections left untreated can cause cognitive, motor, auditory, and visual defects [3]. Continuity of anti-toxoplasma IgG after one year of life is considered as the gold standard for congenital toxoplasmosis [4]. Our patient was diagnosed with congenital toxoplasmosis infection with presence of retinitis, intracranial calcifications and anti-toxoplasma IgG positivity (108 IU/mL). Treatment is recommended with pyrimethamine, sulfadiazine and folinic acid for under 1 year with diagnosis of congenital toxoplasmosis because of the satisfactory ocular prognosis and expectation of decreasing in intracranial calcifications [5]. Although our case is older than 1 year; we planned therapy for one year due to the presence of diagnostic findings of congenital toxoplasmosis and expectation with treatment benefit.

CMV, is the most common congenital infection agent, and the most common cause of preventable hearing loss [6]. Sensorineural hearing loss may be seen in 36 - 56% and chorioretinitis in 9 - 18% [7]. CMV should be shown by PCR or culture method in urine and saliva sample in the first 3 weeks of life. Serological tests are not recommended due to low sensitivity and specificity. After three weeks, congenital or postnatal infections cannot be distinguished with urine or saliva samples. It has been shown that it is possible to make a diagnosis from dried blood samples retrospectively [8]. When the positive CMV PCR result detected in the dried blood taken at birth was added to the cranial imaging and hearing test results, the patient was additionally diagnosed with congenital cytomegalovirus infection.

The indications for treatment in patients diagnosed are still under discussion. Presence of isolated hearing loss, it is recommended to be treated for 6 months [9]. Although the current recommendations suggest that treatment should be started on babies between 1-3 months of age, it was decided to plan the treatment after talking to the family and considering the profit-loss situation. Oral valganciclovir treatment was also planned for 6 months.

Our case was closely monitored for side effects of treatment with complete blood count, liver and kidney function tests. For toxoplasmosis after treatment, an average of 3 - 6 months, eye examination and neurological examination are recommended [10]. Similarly, in terms of CMV infection, hearing evaluation every 6 - 12 months and eye examination at intervals determined by the ophthalmologist are recommended [11]. In line with these suggestions, normal hearing was detected in both ears in the control BERA test at the end of the treatment. No new active eye infection was observed.

As a result; every patient diagnosed for one of TORCH infections should also be examined for co-infections. The effect of starting treatment early on preventing late sequelae should never be forgotten.

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Conflict of Interest

No conflict of interest was declared by the authors.

Financial Disclosure

No financial disclosure was declared by the authors.

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