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CONGENITAL RUBELLA - A CASE REPORT

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Abstract: *We present a case report of a newborn girl having congenital rubella syndrome. The main characteristic of her case were the eye abnormalities including mature cataract, complex heart malformation, hearing impairment and cerebral involvement. Her mother's antibodies towards rubella were positive showing recent infection. Vaccination is the only known prophylactic measure for congenital rubella syndrome.*

Key words: *congenital rubella, newborn, case report.*

1. Background

Congenital rubella syndrome still affects 110,000 children around the world. Due to the absence of a rash, 20-50% of rubella cases remain undiagnosed [1].

Rubella is a togavirus belonging to genus Rubivirus. It is closely related to group A arboviruses and it is a single enveloped antigenic strain RNA virus [23]. Rubella is usually a mild febrile rash disease in children, but to young women's' pregnancy, especially in their first 16 weeks, it has devasting consequences. During pregnancy the best described effects of the disease are fetal death, congenital rubella syndrome, or miscarriage [17].

The congenital rubella syndrome consists of sensorineural hearing defects, eye abnormalities such as cataracts, microphtalmia, retinopathy along with heart defects the most encountered one being patent ductus arteriosus. There are still congenital rubella syndrome cases reported around the world despite the introduction of rubella vaccine in the national immunization programme of many countries [16].

2. Case report

Newborn baby girl, three weeks old, admitted for failure to thrive and marked irritability, during November 2012 at University Children's Hospital Braşov, Romania. Her history revealed that the gestational age at birth was 38 weeks, having a birth weight of 2700 gr. Her weight at admittance was 2900 gr. Her parents had no history of chronic illnesses. Though the mother presented during the first trimester of pregnancy an episode of fever followed by a rash that lasted a few days.

The newborn general state at admittance was poor; she was irritable, with a dysmorphic face, micrognatia, a complete white pupil and marked eye asymmetry with microphtalmia, grade III heart murmur, the rest of examination being unremarkable.

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3. Results

The lab exams revealed leucocytes 6460/mm^3, with a slight predominance of granulocytes, platelets were in normal range, haemoglobin level of 10.7 g/dl, C reactive protein (CRP) = 1.26 mg/dl, with a slight increase in the values of bilirubin levels that were: total bilirubin= 2.86 mg/dl, conjugated= 2.10 and unconjugated= 0.76mg/dl, with normal values of transaminases.

The values of electrolytes were in normal range with the exception of potassium (K) that was 5.8 mmol/l.

The nasal swab was positive for Staphylococcus aureus MSSA.

The transfontanellar ultrasound revealed multiple subependimar cysts along with a lenticular vasculopathy, with a large suture between the two hemispheres raising the suspicion of a cyst between them. The CT scan confirmed the subependimar cysts, along with the hyperplasia of the anterior corpus callosum.

The ophthalmologic exam revealed the presence of a mature cataract the diagnoses being confirmed also through an eye ultrasound examination.

The heart ultrasound showed a ventricular and atrial septal defect along with a patent ductus arteriosus.

The antibodies for cytomegalovirus, toxoplasmosis, HIV and Ebstein Barr were negative, but for rubella both IgG and IgM were positive.

The ear, nose, throat (ENT) examination showed a hearing impairment that needed further evaluation for sensorineural hearing defect.

Under treatment with milk formula, i.v. perfusion and symptomatics the evolution was favourable. However, for the congenital heart malformation, treatment was started with Captopril (angiotensin converting enzyme inhibitor) and the evolution was good. Heart surgery was postponed until de age of one year. The long term follow up was poor, the infant being several times admitted for acute diarrhoea, failure to thrive and respiratory infections.

4. Discussion

We present a case report of congenital rubella syndrome (CRS) that was admitted for failure to thrive. The main characteristics of our case report were congenital cataract, complex cardiac malformation and sensory neural hearing impairment along with subependimal cysts.

The first description of CRS belongs to Gregg in 1941 but it was completely described in 1944 [20].

Webster showed, on a series of pathology examinations performed on abortion fetuses due to rubella syndrome, that the majority of the functional and structural defects had a disruptive pattern, resulting actually from the distruction of the normal tissues [5, 6], [20].

A study of Miller et al. [10] showed that the risk of congenital infection was 81% and the risk of malformation was of 69% if the mother had rubella in the first pregnancy trimester. The risk fall to 33% after 12 weeks of gestation and no defects were encountered after week 16.

Infants who are moderately or severely affected by CRS are recognizable at birth, but mild CRS might be recognized only month or years after birth or even not at all [5], [11].

Infants from mothers that were infected in the first 8 weeks of pregnancy, and that were followed for 4 years showed that 85% of them were affected [4].

The mother of our newborn had in the first trimester of pregnancy a viral exanthema with previous fever for a couple of days. As soon as the suspicion of congenital rubella syndrome was raised we have performed the mother's antibodies towards rubella. These were positive for recent infection.

In 1985, South and Sever, defined the CRS syndrome as a combination of findings of gestational rubella that include embryonic developmental defects induced in the first pregnancy trimester along with the persistency of infection at birth [18].

Some reports suggest that there may be a seasonal trend related to CRS [5].

The mother of this newborn was of romms' ethnicity. Ethnicity is considered a major risk factor especially for the hispanic population or refugees around the world [14, 15].

The features of congenital rubella syndrome may be associated to a various constellation of symptoms and syndromes.

There are several case reports of congenital rubella syndrome having its complete features corresponding to Greggs' definition [2, 7, 9, 19], while others present infants and children having associated to congenital rubella, syndromes, as is aplatis cutis congenita [9].

Some case reports discuss the association of CRS with different digestive malformations [3].

There are several surveillance reports regarding congenital rubella syndrome prior to introduction of universal vaccination around the world.

In 2000 the WHO published its first position paper related to universal vaccination for rubella in the national immunization schedule [24].

During 2009, 121,344 cases of rubella from 167 states, were reported to the WHO, that represents a decrease of 82% from 2000 [21].

WHO has published guidelines that recommend identifying all children with congenital birth defects that are associated with CRS and follow up of all risk pregnancies [12].

Serologic screening for rubella is not necessary if the person has an acceptable evidence of immunity against the disease. Women who are known to be pregnant but can not show any evidence of acceptable immunity should receive the vaccine. During outbreaks screening for rubella is not a recommended practice due to the time that is lost and it is considered that vaccination is the most important aspects in regard of ending the outbreak [12].

The only reliable evidence is the presence of rubella immunglobulin G (IgG). EIAs are the commercially assays used to test for rubella antibodies along with latex agglutination, immunofluorescence assay (IFA), hemolysis in gel, virus neutralization tests and passive hemagglutination [13].

In European region 53 countries have the MMR (measles, mumps, rubella) vaccine incorporated in their national immunization schedule, 87% have a reporting system, with an incidence of CRS of 1.30/100000 population and the number of reported CRS is 17 [22].

Efforts should be still done to vaccine all women of childbearing age especially high risk groups like hispanic population or refugees [8], [15].

However, the only prophylactic measure for congenital rubella syndrome remains the correct vaccination of mothers at childbearing age.

5. Conclusions

We present a case report of a newborn with congenital rubella syndrome, her mother having a positive history of rubella infection.

Vaccination at high risk groups is necessary in order to avoid the appearance of the congenital rubella syndrome.

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