

Case Report

Congenital Rubella Syndrome- A Case Report

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ABSTRACT

Rubella or German measles or three day measles is a contagious viral infection caused by rubella virus, which belongs to Rubivirus genus of the Togaviridae family. ⁽¹⁾

Congenital rubella syndrome (CRS) occurs when rubella virus in an infected mother affects the developing fetus, usually during the first trimester. ⁽²⁾ The virus gets transmitted through the placenta and causes serious congenital defects even abortion and still births. ⁽³⁾

According to 2008 WHO estimates, 110000 numbers of infants are born with CRS, which makes rubella a leading cause of congenital anomalies. Health ministry surveillance estimates over 30000 cases of CRS in India every year. ⁽⁴⁾

The most common manifestation is the sensorineural hearing loss. Ocular abnormalities include cataract, infantile glaucoma and pigmentary retinopathy. Cataract and rubella retinopathy are the most frequent findings. ⁽⁶⁾

Another common manifestation includes the Congenital Heart Disease which includes the Patent Ductus Arteriosus and Pulmonary Artery Stenosis. ⁽⁵⁾

Intrauterine growth retardation, prematurity, stillbirth, abortion are common. CNS abnormality including mental retardation, behavioural disorders. ⁽⁵⁾

Other manifestations include jaundice hepatosplenomegaly, hepatitis. Skin manifestations such as blueberry muffin spots are also observed. ⁽⁵⁾

Haematological manifestations include anaemia and thrombocytopenia. Endocrine disorders and bone lesions such are also observed in some patients. ⁽⁵⁾

This is a case report of a 5 year old female child was admitted in a tertiary care hospital with complaint of non functional cochlear implant. Child was diagnosed with CRS at birth and she is presented with various sever clinical manifestations of CRS.

This case illustrates about the clinical manifestations importance of effective vaccination against Rubella.

Keywords: Rubella, congenital rubella, Rubivirus genus, sensorineural hearing loss, Cataract, Congenital Heart Disease, Centers for Disease Control, Measles, Mumps and Rubella (MMR)

INTRODUCTION

Rubella or German measles or three day measles is a contagious viral infection caused by rubella virus, which belongs to Rubivirus genus of the togaviridae family. ⁽¹⁾ It spreads through direct contact with the saliva or mucous of the infected person or from the air due to the respiratory droplets produced through cough or sneeze.

Congenital rubella syndrome (CRS) occurs when rubella virus in an infected mother affects the developing fetus, usually during the first trimester. ⁽³⁾ When a woman is infected with rubella at her early phase of pregnancy, she has 90% chance of passing the virus to her fetus. ⁽³⁾ The virus gets transmitted through the placenta and causes

serious congenital defects even abortion and still births. ⁽²⁾

EPIDEMIOLOGY

During the year of 1962-1965 according to the world wide epidemic, nearly 12.5 million rubella cases that resulted in 20,000 CRS was estimated. ⁽⁵⁾ A remarkable drop in the epidemics was attained after the introduction of live attenuated vaccines against rubella in the year of 1969 in US. According to 2008 WHO estimates, 110000 numbers of infants are born with CRS, which makes rubella a leading cause of congenital anomalies. The 2008 estimates also suggest that the highest incidence of CRS in developing countries, that is the Southeast Asian region (~48%) and the African region (38%). ^(7,8)

A health ministry surveillance programme conducted in India suggests that more than 50 among 150 screened for rubella syndrome in the year of 2018 had CRS and abnormal birth defects. The ministry estimates over 30000 cases of CRS in India every year. ⁽⁹⁾

ETIOPATHOGENESIS

Rubella is usually transmitted through aerosolized particles from the respiratory secretions of an infected patient. Virus gets attached in the respiratory endothelium. During the primary viremic phase it spreads hematogenously to regional and distant lymphatics .virus can be found in the blood 5 to 7 days after infection. During the secondary viremic phase that occurs within 6 to 20 days, virus gets spread throughout the body. The virus can be recovered from different body sites like lymphnodes, urine, CSF, synovial fluid, lungs.

An infected person can shed the virus from the nasopharynx 3 to 8 days after the exposure. ⁽⁵⁾

CONGENITAL RUBELLA SYNDROME

Fetal infections occur transplacentally during the maternal viremic phase in the 1st trimester. Rubivirus can also spread from pregnant mother to fetus

through blood stream. Fetal defect in CRS may be as a result of vasculitis which results in tissue necrosis.

Another mechanism involved is the direct viral damage which happens secondary to the reduced mitotic activity of the infected cells in the early fetal period. This is due to the chromosomal breakage or production of protein that inhibits mitosis. ⁽⁵⁾

CLINICAL PRESENTATION

The most common manifestation is the sensorineural hearing loss. 58% of patients are present with deafness that may be bilateral or unilateral. 43% are present with ocular abnormalities such as cataract, infantile glaucoma and pigmentary retinopathy. Cataract and rubella retinopathy are the most frequent findings. ⁽⁶⁾

Another common manifestation includes the Congenital Heart Disease which includes the Patent Ductus Arteriosus and Pulmonary Artery Stenosis. Cardiac defects and deafness occurs in the infected infants during the first 10 weeks of pregnancy.

Intrauterine growth retardation, prematurity, stillbirth, abortion is common with CRS. CNS abnormality includes mental retardation, behavioural disorders. Encephalographic abnormalities, hypotonia are also manifested in patients with CRS.

Other manifestations include jaundice hepatosplenomegaly, hepatitis. Skin manifestations such as blueberry muffin spots are also observed.

Haematological manifestations include anaemia and thrombocytopenia. Endocrine disorders and bone lesions such as radiographic lucencies are also observed in some patients. ⁽⁵⁾

TREATMENT

No specific antiviral agents are available for treatment of CRS. Supportive treatments are only available. Vision screening and hearing screening must be done in asymptomatic newborns. ⁽⁵⁾

The only way to prevent the epidemics of the disease is effective vaccination. It is an important public health concern globally and in India. Centers for Disease Control (CDC) recommend to get the 1st dose of MMR (Measles, Mumps and Rubella) at 12 to 15 months and the second dose at 4-6 years of age. Adults who haven't taken a single dose of vaccine should get at least a dose of MMR. Women of child bearing age should take the vaccine at least one month before trying to get pregnant. ⁽⁵⁾

CASE REPORT

❖ A 5 year old female child was admitted in a tertiary care hospital with complaint of non functional cochlear implant. The antenatal history was 2nd consanguineous marriage; mother had a history of fever during antenatal period of 4 months. Child was diagnosed with CRS at birth; she was detected to have impairment of hearing since she was 1 year old. On ophthalmic examination she was diagnosed with bilateral cataract underwent surgery at 3 months of age. She had history of inability to speak first noted since 1 year of age. She underwent surgical correction for PDA at the age of 3. Cochlear implantation was done for hearing loss. Right Cochlear explanation and reimplantation was done for the Cochlear implant device dysfunction. Child was treated with syrup cefuroxime, Syrup Sinarest AF and Otrivin p nasal drops.

DISCUSSION

In the above case the patient was diagnosed with CRS at birth. She is presented with variety of disease complications such as impairment of hearing, bilateral cataract, inability to speak, congenital heart disease.

The consequences of CRS may occur at any time of age, there is risk of development of new disease anytime during the whole life. ⁽¹⁰⁾ They include glaucoma, schizophrenia, thrombocytopenia, hepato-

splenomegaly, hepatitis, skin manifestations such as blueberry muffin spots. ⁽⁵⁾

There is no specific treatment recommended for CRS. ⁽¹¹⁾ The only way to prevent CRS is to ensure that everyone is vaccinated against rubella. It is very important to emphasize on the safe and effective vaccination against rubella to control the epidemics of the disease, especially among the women of childbearing age. Women who are planning for pregnancy should get vaccinated 4 weeks before planning. ⁽¹²⁾

CONCLUSION

Congenital rubella syndrome though is uncommon, still new cases are reported in India each year. ⁽¹³⁾ There is no single antiviral therapy available for the treatment of CRS. The epidemics of the disease can be reduced only by the safe and effective vaccination. The implementation of MMR vaccine had significantly reduced the incidence of the disease globally and in India. ^(14, 15)

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