

# CONGENITAL RUBELLA SYNDROME

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A stylized silhouette of a mountain range in shades of teal, located at the bottom right of the slide.

# What is Rubella

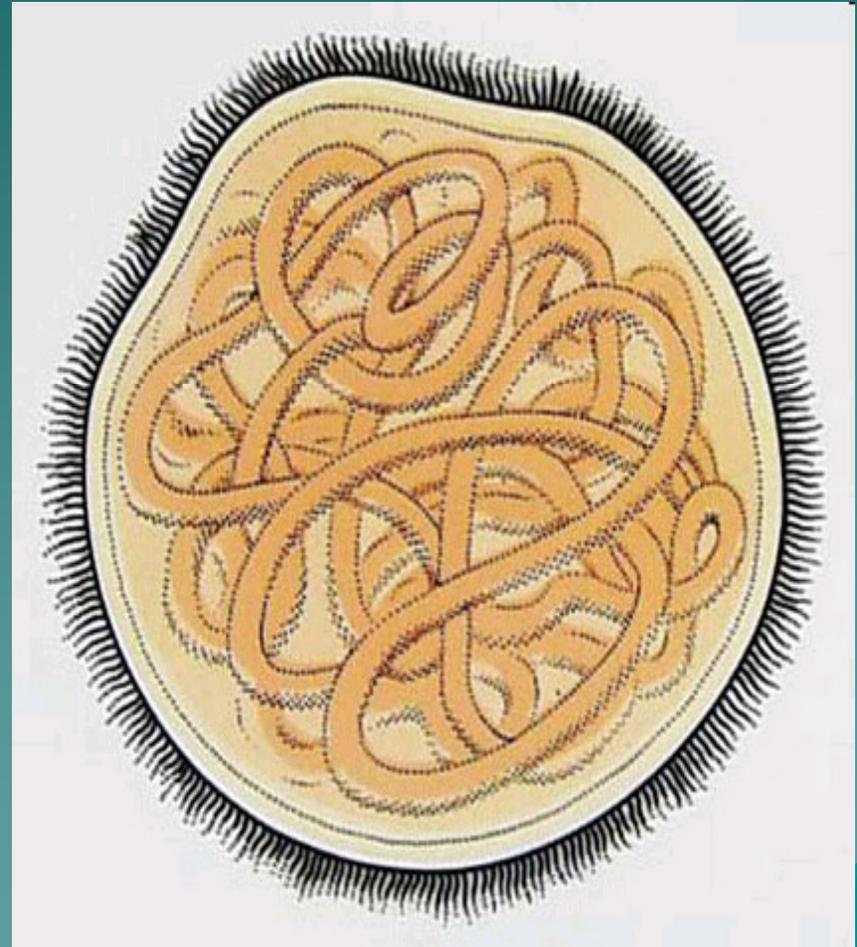
- ◆ Rubella (German measles) is a disease caused by the rubella virus. Rubella is usually a mild illness. Most people who have had rubella or the vaccine are protected against the virus for the rest of their lives. Because of routine vaccination against rubella since 1970 , rubella is now rarely reported.

# History - Rubella

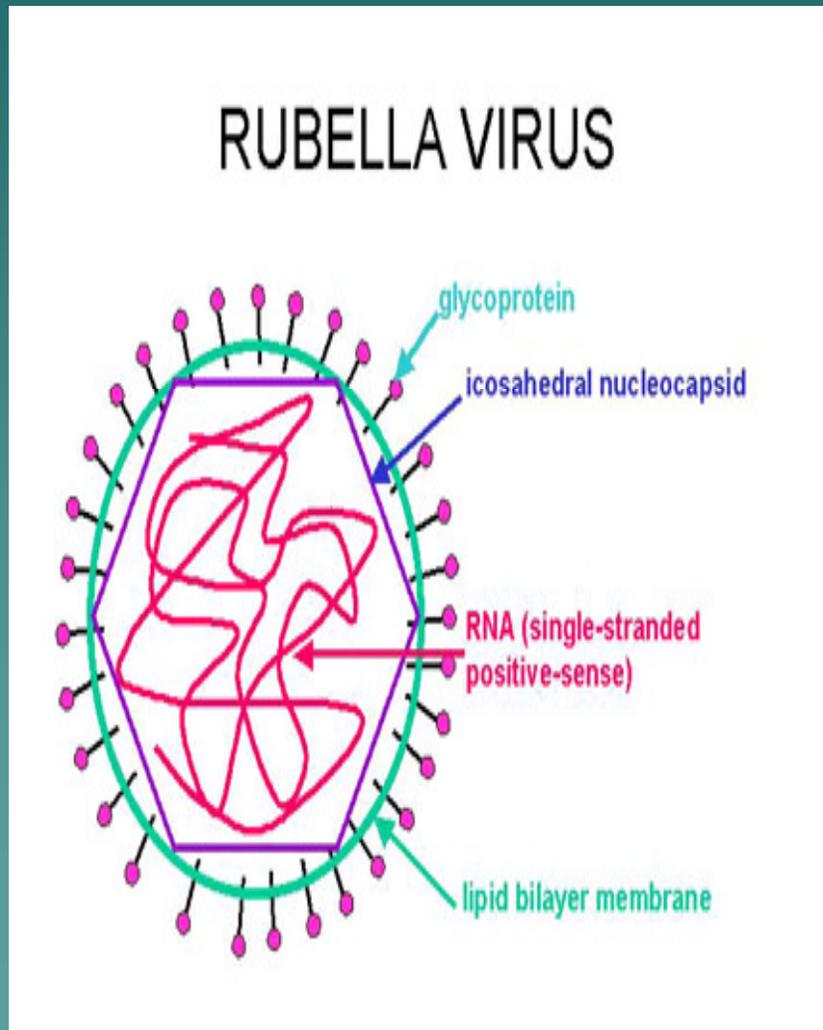
The Teratogenic property of the infection was documented by an Australian ophthalmologist Greeg in 1941

# Rubella ( German Measles )

- ◆ Rubella is also called as 3 day Measles or German Measles.
- ◆ Family – **Togaviridae**
- ◆ Genus - **Rubivirus**
- ◆ In general belong to Togavirus group



# Rubella Virus



- ◆ Rubella virus are ss – RNA virus
- Diameter 50 – 70 nm
- Enveloped Spherical
- Virus carry hemagglutinin
- Virus multiply in the cytoplasm of infected cell.

# Epidemiology

- ◆ Rubella is world wide in distribution
- ◆ Occurs round the year,
- ◆ Epidemics occur every 20 – 25 years
- ◆ Infection is transmitted by respiratory route
- ◆ The use of Rubella vaccine has now eliminated both epidemic and endemic Rubella in USA and several developed countries

# Treatment and Prevention

- ◆ Rubella is a mild self limited illness.
- ◆ No specific treatment or Antiviral treatment is indicated.
- ◆ However Laboratory proved and clinically missed Rubella in the Ist 3-4 months of pregnancy is associated with fetal infections.

# Congenital Rubella Syndrome

- ◆ Maternal viremia with Rubella infection during pregnancy may result in infection of placenta and fetus.
- ◆ The growth rate of fetal cells are reduced.
- ◆ Results in fewer number of cells after the birth.
- ◆ Lead to deranged and hypo plastic organ development.
- ◆ Results in structural damage and abnormalities

# Rubella infection – At various trimesters

- ◆ 1<sup>st</sup> trimester infections lead to abnormalities in 85 % of cases. and greater damage to organs
- ◆ 2<sup>nd</sup> trimester infections lead to defects in 16 %
- ◆ > 20 weeks of pregnancy fetal defects are uncommon
- ◆ However Rubella infection can also lead to fetal deaths, and spontaneous abortion.
- ◆ The intrauterine infections lead to viral excretion in various secretion in newborn upto 12-18 months.

# Clinical Findings ( Congenital Rubella Syndrome )

- ◆ May be transient effects in infants.
- ◆ Permanent manifestations may be apparent at birth, become recognized during the first year.
- ◆ Developmental abnormalities appear during childhood and adolescents.

# Classical Triad of Rubella

## Classical Triad

- ◆ Cataract
- ◆ Cardiac abnormalities
- ◆ Deafness

### Other manifestations

Growth retardation

Rash

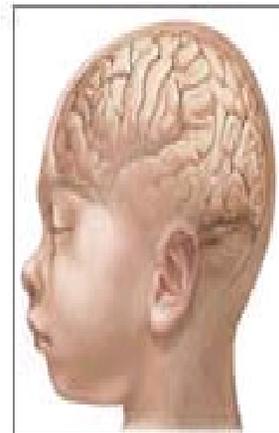
Hepatosplenomegaly

Jaundice

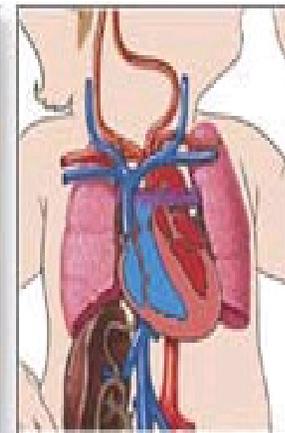
Meingoencephalitis

CNS defects lead to  
moderate to profound  
mental retardation

### Rubella syndrome



Microcephaly



PDA



Cataracts

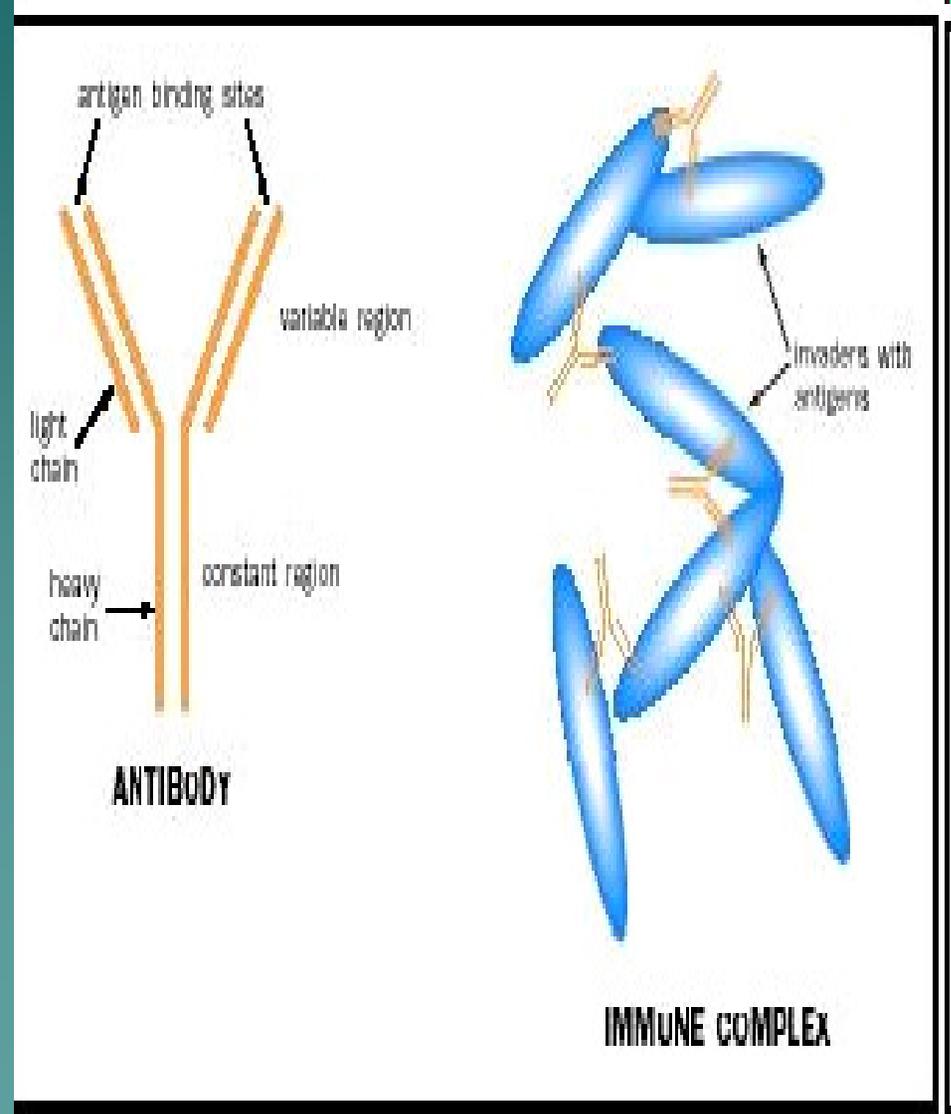
# Other Neurological manifestations

- ◆ Problems in balance
- ◆ Motor skills in preschool children altered.
- ◆ A rare complication of Pan encephalitis can occur in second decade with Congenital rubella syndrome may progress to death.



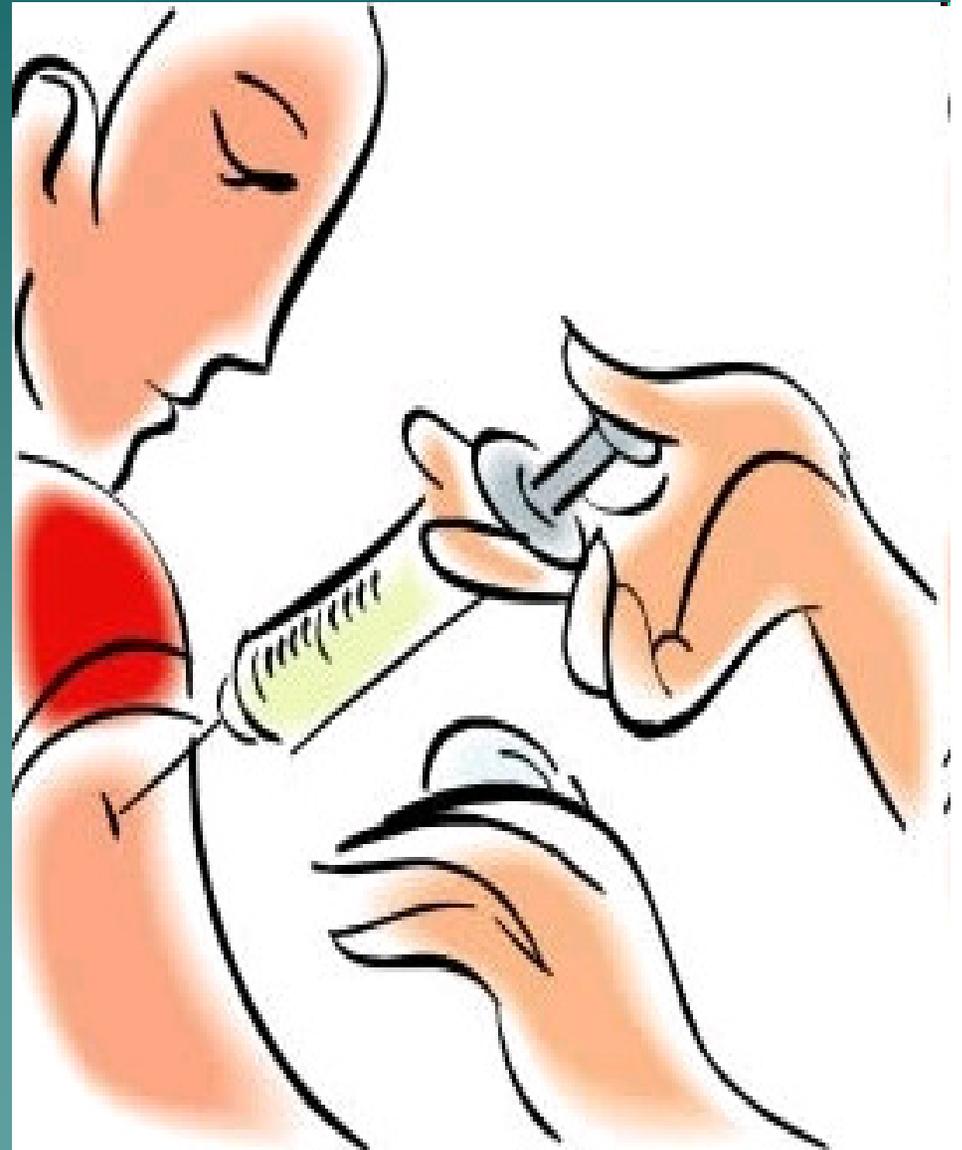
# Diagnosis of Congenital Rubella Syndrome

- ◆ Demonstration of Rubella antibodies of IgM in a new born is diagnostic value. As IgM group do not cross the placenta and they are produced in the infected fetus,



# Treatment, Prevention, Control

- ◆ No specific treatment is available



# MMR Vaccine

- ◆ The **MMR vaccine** is a mixture of three live attenuated viruses, administered via injection for immunization against measles, mumps and rubella. It is generally administered to children around the age of one year, with a second dose before starting school (i.e. age 4/5). The second dose is not a booster; it is a dose to produce immunity in the small number of persons (2-5%) who fail to develop measles immunity after the first dose. In the United States, the vaccine was licensed in 1963 and the second dose was introduced in the mid 1990s. It is widely used in all National, Universal Immunization programmes.