

MIMR

Measles

Mumps

Rubella

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Measles, Mumps, Rubella

- ***Measles*** is a highly contagious viral infection of the throat, airways, lungs, and skin caused by rubeola (measles) virus (RNA V)
- ***Mumps*** is an acute viral disease involve mainly the salivary glands.
- ***Rubella*** is a mild acute disease that usually affects susceptible individuals of any age, but can affect the fetus

Measles

- ❖ **Highly communicable disease**
- ❖ **Incubation period:10-12 days**
- ❖ **Human is the only host**

Infectivity

Maximum during the prodromal stage (3 days before rash) until 5-7 days after appearance of the rash ..

Epidemiology

- ❖ **winter, Spring at 2-4 years intervals.**
- ❖ **Transmission – Droplet infection**
- ❖ **Rarely subclinical.**
- ❖ **Age : 6 months to 3 years even up to 10 years or more**
- ❖ **Incidence equal in both sexes**
- ❖ **Immunity – life long immunity**
- ❖ **Malnourished children are susceptible**

Clinical features

- Prodromal stage
- Eruptive stage
- Post-measles stage

Clinical features

- 3 Cs (Cough, Coryza & Conjunctivitis)
- Koplik spots
- Four days fever (40⁰c)
- Generalized, maculopapular, erythematous rash.

Prodromal stage.

3-5 days.

Low grade fever.

Cough, Running nose.

Conjunctivitis,
photophobia

Koplik's spots.



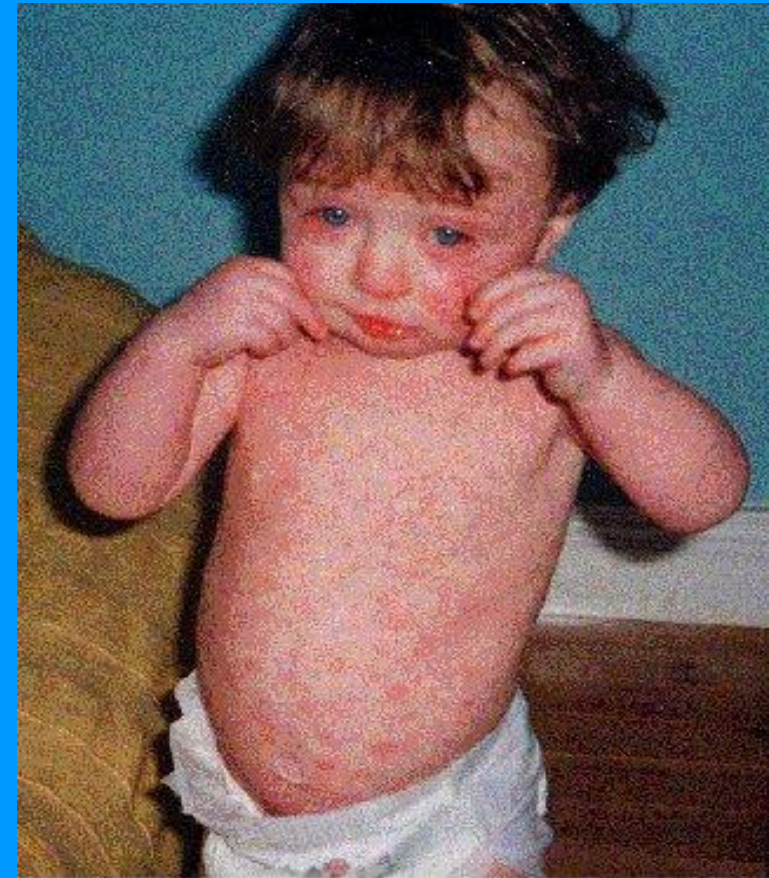
Koplik's spots

- Resembling tiny grains of white sand surrounded by inflammatory areolae
- Buccal mucosa opposite premolars



Exanthem stage.

- ❖ Maculopapular skin - 3-4 days., it fades over about 7 days
- ❖ Fever 40-41 C.
- ❖ Rash disappear the same way it appeared with improvement of fever and general wellbeing, often leaving a fine desquamation



Measles



Other symptoms and signs.

- ❖ **Diarrhea, and vomiting.**
- ❖ **Otitis media.**
- ❖ **Pneumonia.**
- ❖ **Lymphadenopathy**

Black Measles (rare)

- ❖ **Petechiae.**
- ❖ **Ecchymosis.**
- ❖ **Bleeding from the nose,mouth,and bowel.**

INAPPARENT MEASLES INFECTION and Modified measles.

The rash may be indistinct, brief, or, rarely, entirely absent.

Infants and recipients of blood products.

Some individuals who have received vaccine.

passively acquired antibody

Persons with inapparent or subclinical measles do not shed measles virus and do not Transmit infection to household contacts.

Measles in HIV infected children.

- Severe with a prolonged course.
- Severe form of encephalitis.
- Long infective period.
- Similar course occurs with Leukemia and lymphoma.
- Complications is common (Pneumonia) with high mortality .

Diagnosis of Measles.

- ❖ Based on clinical and epidemiologic findings
- ❖ Reduction in the total white blood cell count, with lymphocytes decreased more than neutrophils
- ❖ If not complicated by bacterial infection, the erythrocyte sedimentation rate and C-reactive protein level are normal.
- ❖ Immunoglobulin M antibody in serum. It appears 1-2 days after the onset of the rash and remains detectable for about 1 mo
- ❖ 4-fold rise in IgG antibodies

DD

- ❖ **Rubella.**
- ❖ **Exanthem subitum = Roseola infantum.**
- ❖ **Infectious mononucleosis.**
- ❖ **Kawasaki disease.**
- ❖ **Drug rash (Palms and soles).**
- ❖ **Scarlet fever.**
- ❖ **Rickettsial diseases (Palms and soles involvement)**
- ❖ **Chickenpox**

Meningococccemia.





Fifth disease.





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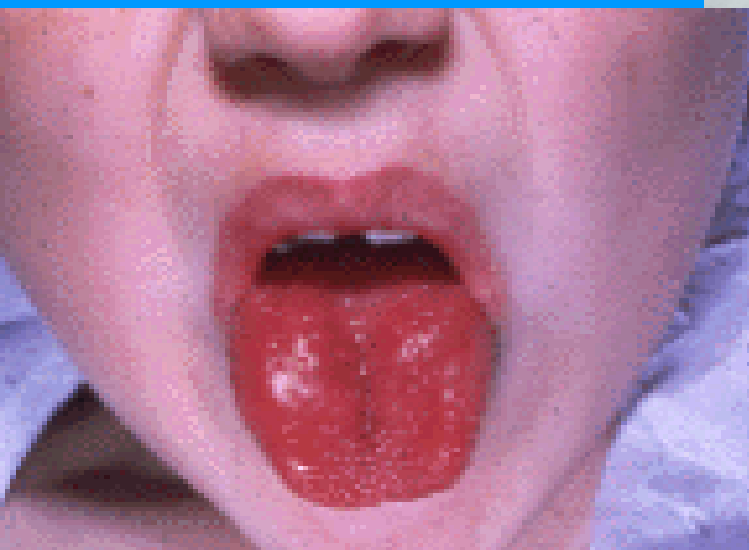


Kawasaki disease.



Kawasaki disease.





Complications

Otitis media.

Pneumonia , most common cause of death.

Laryngitis, tracheitis, and bronchiolitis.

Exacerbation of existing tuberculous process.

Bronchiolitis obliterans.

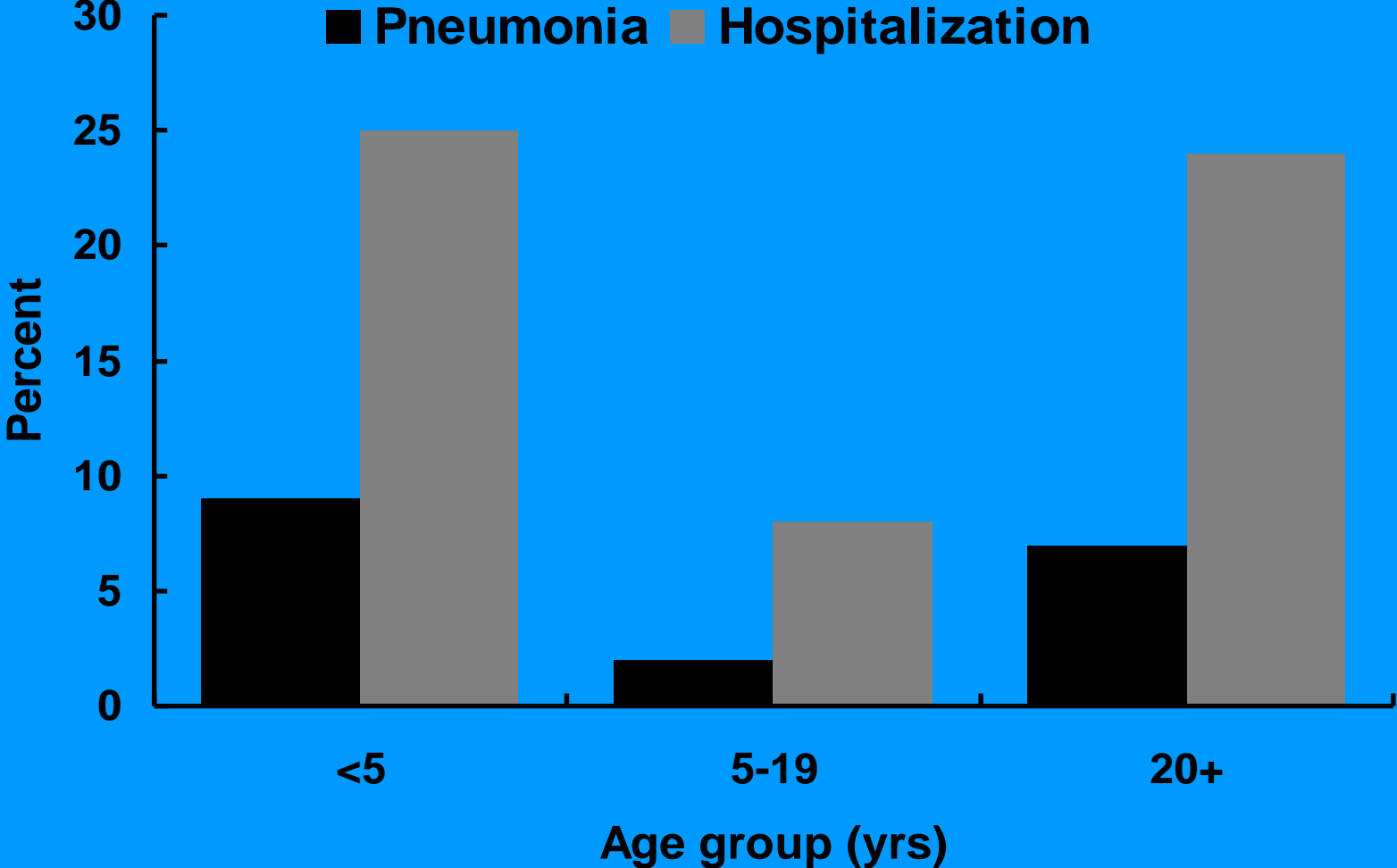
Thrombocytopenia

Myocarditis .

Keratitis and loss of vision .

During pregnancy (↑ incidence of Abortion – premature labour – Small for date)

Measles Complications by Age Group



Neurologic complications

- ❖ Encephalitis.
- ❖ Febrile seizures
- ❖ **Subacute Sclerosing Panencephalitis (SSPE) : Delayed complication**

Prophylaxis. prevention

Measles vaccine.

Measles immunoglobulins (in immunocompromised persons).

Treatment

- ❖ **Supportive.**
- ❖ **Vitamine A**
- ❖ **Treatment of complications**

Measles Vaccine

- Composition Live virus
- Efficacy 95% (range, 90%-98%)
- Duration of
Immunity Lifelong
- Schedule 2 doses
- Should be administered with mumps and rubella as MMR, or in some country with mumps, rubella and varicella as MMRV

Drug rash



3 ys old child

5 days of severe coryza followed by a rash started on the hair line behind the ear then extended downward to cover the whole body. Fever increased when the rash appeared .

What is your diagnosis ? Clinical findings?

What about roseola infantum?



A nine years old child presented with Measles- Management include all EXCEPT one:

- a.Paracetamol.
- b.Vitamin A.
- c.Aspirin.
- d.Normal diet.

Measles which is not transmitted to household contacts

- a.Measles before appearance of rash
- b.inapparent or subclinical measles
- c.Black measles.
- d.Measles in HIV infected children.

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9 years old child presented with fever and this rash !!! In OPD

What is your diagnosis ??

How you manage this patient ??

Any role for prophylaxis against this disease ?



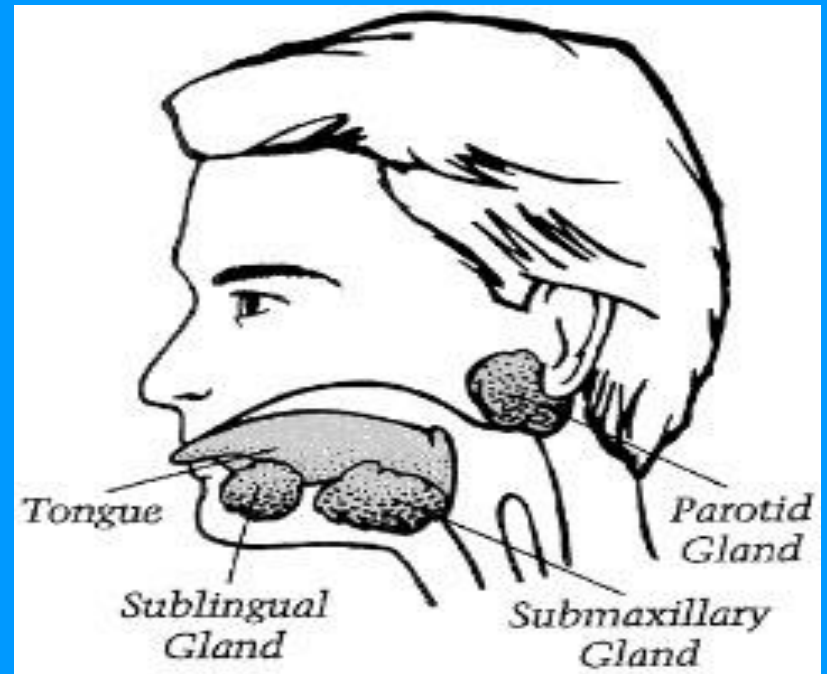
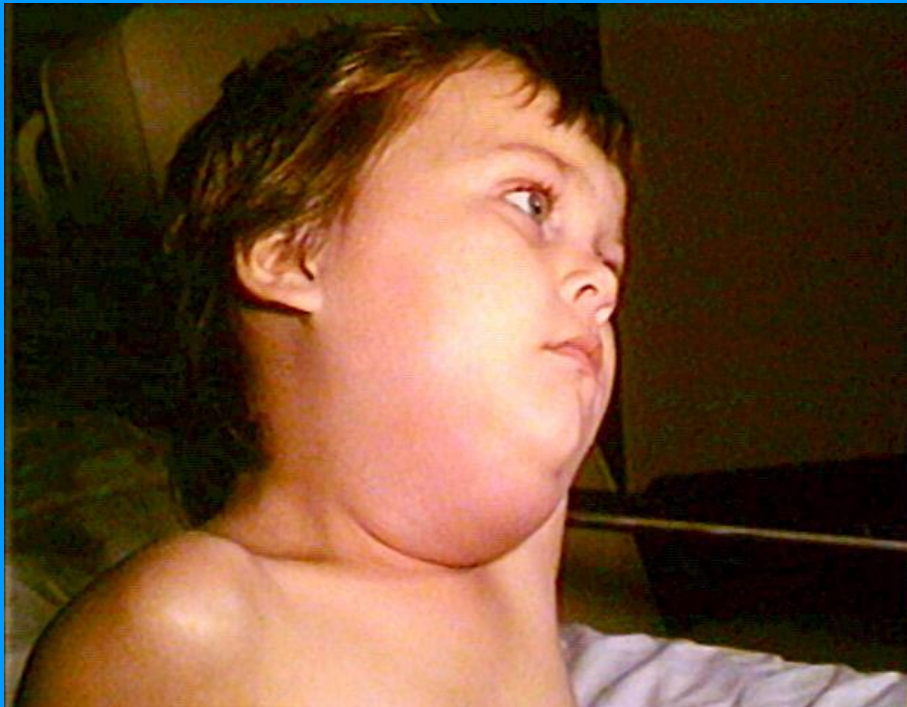
Mumps

- Painful enlargement of salivary gland mainly parotid.
- Caused by a virus belong to paramyxoviruses.
- More frequent in late winter and spring.
- 30-40% of cases are subclinical.
- Humans are the onlyl host

Transmission

- Mumps is spread by coughing and sneezing or touching something infected with the mumps virus
- It can occur anytime, from a few days prior to the onset of swelling of the salivary glands to 7 days after the onset of symptoms.
- Once the virus enters the body, it travels to the back of the throat, nose, and lymph glands in the neck, where it multiplies

Mumps



Clinical manifestations

Incubation period 14-24 days

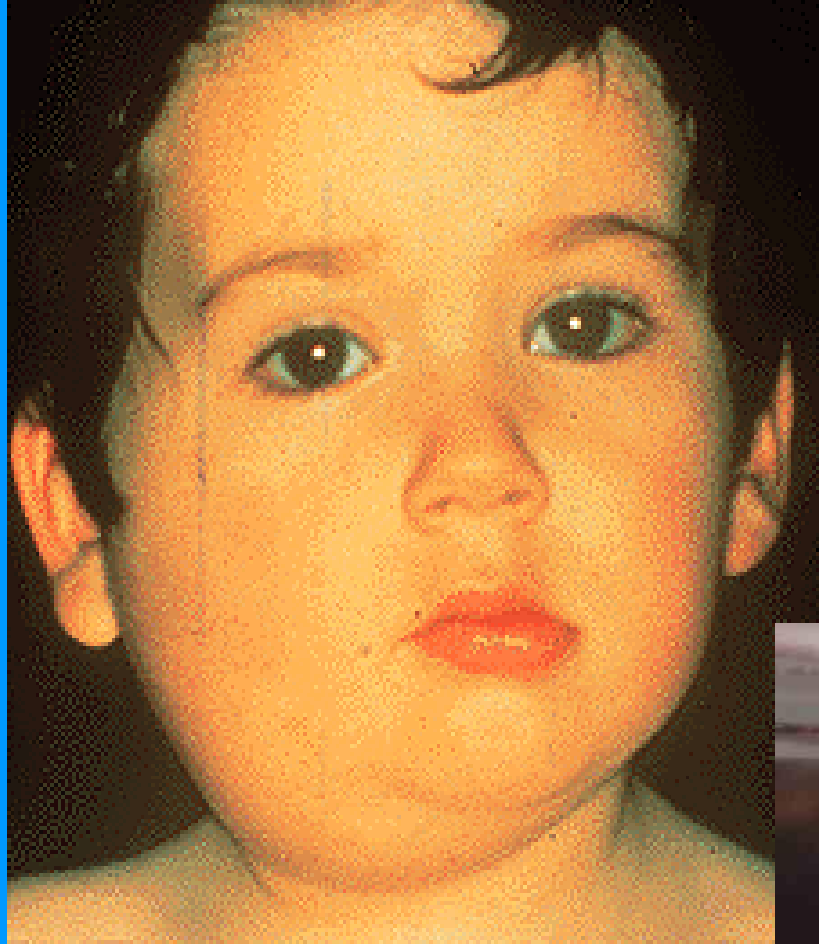
Prodromal manifestations rare

Fever- Muscular pain - Headache - Malaise

Parotid swelling

- Both parotid - No swelling - One gland
- The parotid swelling peaks in approximately 3 days and then gradually subsides over 7 days
- Pain is elicited by sour liquids
- Erythema around stensen duct opening
- Rash, edema – rare

Submandibular and sublingual gland can be affected



Complications.

- Meningoencephalomyelitis. Symptoms in 10-30% of infected individuals, but CSF pleocytosis has been found in 40-60% of patients with mumps parotitis.
- Myocarditis.
- Mastitis.
- Orchitis-Epididymitis common (adolescent and adult males) - Oophoritis. (uncommon)
- Optic neuritis- conjunctivitis.
- Pancreatitis - Nephritis.
- Deafness – Thyroiditis - Arthritis.
- Thrombocytopenic purpura

Mumps in early pregnancy ↑ incidence of abortions.

Diagnosis

- ❑ **Clinical** : history of contact – vaccination
- ❑ **Investigation** :
 - Elevated serum amylase
 - Mumps immunoglobulin M antibody
 - Increased serum mumps immunoglobulin G antibody

Other causes of Parotid swelling

- **HIV infection.**
- **Influenza virus infection.**
- **Parainfluenza virus 1,3.**
- **CMV**
- **Coxsackie virus**
- **Acute suppurative parotitis.**
- **Salivary calculus.**
- **Sjogren syndrome**

Treatment

- **Supportive.**
- **Orchitis** → local support + bed rest.
- **Arthritis** → Anti-inflammatory drug (Paracetamol).
Self limited -- no residual damage.

Prevention

MMR vaccine.

Immunoglobulin is not effective.



A



B

Is it parotitis or lymphadenitis ?

Rubella infection.

- **German Measles - Three-days Measles**
- **Incubation period: 14-21 days.**
- **RNA virus.**
- **Pandemics - every 6-9 years finished now.**
- **Outbreaks still occur in some areas of the world .**
- **Droplet infection**

Clinical Manifestations

- 2/3 of infection - subclinical.
- Prodromal phase: mild-short.
- very mild viral illness, Dx. often missed
- Post auricular, sub occipital or cervical
- Rash mainly face, never confluent, later extends
- Fever may or may not occur, usually low grade.
- Rubella during pregnancy may lead to miscarriage.
- **Forchheimer spots**: Discrete rose-colored spots on the soft palate.



Exanthem stage

- **First day** Maculopapular
- **Second day** Rash resemble scarlet fever with large areas of flushing
- **Third day** Rash disappear

Physical Examination



- Skin Lesions
- Petechiae on soft palate
- Enlarged lymph nodes

Rubella rash.



Skin rash

Complications

- **Encephalitis** : 2 forms:
 - an acute postinfectious
1 /5000 - 20% mortality rate
 - progressive panencephalitis
- **Thrombocytopenic purpura:** 1/3000.
- **Arthritis with or without effusion .**
- **Congenital Rubella syndrome.**

Investigation and treatment

Laboratory :

- 1- IgM antibodies
- 2- Fourfold rise in IgG antibody titer between acute- and convalescent-phase.

Treatment and prevention of German Measles

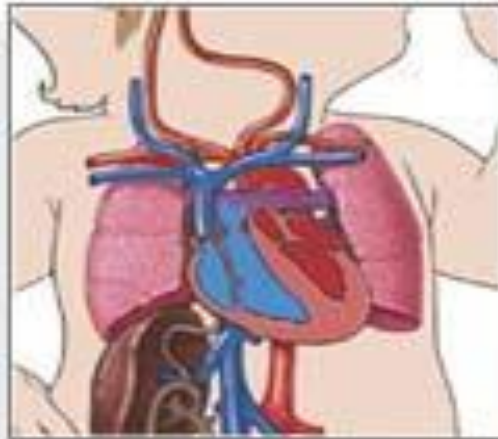
- 1- Supportive .
- 2- vaccination .

Congenital rubella syndrome.

Rubella syndrome



Microcephaly



PDA



Cataracts

Congenital Rubella Syndrome

Eye disorders.

Cloudy cornea.

Cataracts.

Glaucoma.

Microphthalmia.

Salt and pepper retinopathy

Congenital heart disease

PDA.

Pulmonary stenosis.

Myocarditis.

VSD ASD

Birth problems:

IUGR.

Prematurity.

Still births.

Abortions.

Neurological manifestations

1-Sensorineural deafness.

2-Microcephaly.

3-Seizures.

4-Meningoencephalitis.

Hematopoitic disorders:

1-Hepatosplenomegaly.

2-Lymphadenopathy.

3-Thrombocytopenia.

4-Anemia.

5-Extramedullary heamatopoiesis.

Other clinical manifestations

- 1-Long bone radiolucencies.
- 2-Pneumonitis.
- 3.Growth retardation.
- 4-Renal tract abnormalities.
- 5-DIC.
- 6- Endocrine problems can occur in the long term including Diabetes mellitus and hypothyroidism

Rubella (CRS)



Microcephaly



Congenital
Cataract



Deafness

Congenital Rubella Syndrome-**Diagnosis**

- infant presents with a combination of *cataracts*, *hearing impairment*, and *heart defects*
- *serum IgM antibodies* may be present for up to 1 year after birth. In some instances, IgM may not be detectable until 1 month of age
- *rubella serum IgG titer* persisting beyond the time expected after passive transfer of maternal IgG antibody
- *virus isolation* : throat swabs and less commonly from urine and cerebrospinal fluid. Infants with congenital rubella may excrete virus for up to 1 year, but specimens for virus isolation are most likely to be positive if obtained within the first 6 months after birth. Rubella virus in infants with CRS can also be detected by RT-PCR.

Congenital rubella (thrombocytopenia.).



شكرا لحسن الاستماع

