

Rubella

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Rubella (**German measles** or **3-day measles**) is a mild, often exanthematous disease of infants and children that is typically more severe and associated with more complications in adults. Its major clinical significance is transplacental infection and fetal damage as part of the **congenital rubella syndrome (CRS)**.

Etiology;

Rubella virus is a member of the family Togaviridae and is the only species of the genus Rubivirus. The virus is sensitive to heat, ultraviolet light, and extremes of pH but is relatively stable at cold temperatures. **Humans are the only known host.**

Epidemiology;

In the prevaccine era, rubella appeared to occur in major epidemics every 6–9 yr with smaller peaks interspersed every 3–4 yr, and was most common in preschool-aged and school-aged children.

Pathology;

Little information is available on the pathologic findings in rubella occurring postnatally. The few reported studies of biopsy or autopsy material from cases of rubella revealed only nonspecific findings of lymphoreticular inflammation and mononuclear perivascular and meningeal infiltration. The pathologic findings of CRS are often severe and may involve nearly every organ system

PATHOGENESIS.

The viral mechanisms for cell injury and death in rubella are not well understood for either postnatal or congenital infection.. Viral shedding from the nasopharynx begins about 10 days after infection and may be detected up to 2 wk following onset of the rash. The period of highest communicability is from 5 days before to 6 days following appearance of the rash.

The most important risk factor for severe congenital defects is the stage of gestation at the time of infection. Maternal infection during the 1st 8 wk of gestation results in the most severe and widespread defects. Defects occurring after 16 wk of gestation are uncommon, even if fetal infection occurs.

. The most distinctive feature of congenital rubella is chronicity. Once the fetus is infected early in gestation, the virus persists in fetal tissue until well beyond delivery. Persistence suggests the possibility of ongoing tissue damage and reactivation, most notably in the brain.

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Clinical manifestations;

Postnatal infection with rubella is a mild disease not easily discernible from other viral infections, especially in children. Following an incubation period of 14–21 days, a prodrome of low-grade fever, sore throat, red eyes with or without eye pain, headache, malaise, anorexia, and lymphadenopathy begins. Suboccipital, postauricular, and anterior cervical lymph nodes are most prominent. In children, the 1st manifestation of rubella is usually the rash, which is variable and not distinctive. It begins on the face and neck as small, irregular pink macules that coalesce, and it spreads centrifugally to involve the torso and extremities, where it tends to occur as discrete macules. About the time of onset of the rash, examination of the throat may reveal tiny, rose-colored lesions (**Forchheimer spots**) or petechial hemorrhages on the soft palate. The rash fades from the face as it extends to the rest of the body so that the whole body may not be involved at any 1 time. The duration of the rash is generally 3 days, and it usually resolves without desquamation. Subclinical infections are common, and 25–40% of children may not have a rash. **Laboratory findings;** Leukopenia, neutropenia, and mild thrombocytopenia have been described during postnatal rubella.

Diagnosis; .

Specific diagnosis of rubella is important for epidemiologic reasons, for diagnosis of infection in pregnant women, and for confirmation of the diagnosis of congenital rubella. The most common diagnostic test is rubella immunoglobulin M (IgM) enzyme immunosorbent assay.

Differential diagnosis;

Rubella may present with distinctive features suggesting the diagnosis.. In severe cases it may resemble measles. The absence of both Koplik spots and a severe prodrome as well as a shorter course allow for differentiation from measles. Other diseases frequently confused with rubella include infections caused by adenoviruses, parvovirus B19 (erythema infectiosum), Epstein-Barr virus, enteroviruses, and Mycoplasma pneumoniae.

Complications;

Complications following postnatal infection with rubella are infrequent and generally not life threatening.

Postinfectious **thrombocytopenia** occurs in about 1 : 3,000 cases of rubella and occurs more frequently among children and in girls. It manifests about 2 wk following the onset of the rash with petechiae, epistaxis, gastrointestinal bleeding, and hematuria. It is usually self-limited.

Arthritis following rubella occurs more commonly among adults, especially women. It begins within 1 wk of onset of the exanthem and classically involves the small joints of the hands. It also is self-limited and resolves within weeks without sequelae.

Encephalitis is the most serious complication of postnatal rubella. It occurs in 2 forms: a **postinfectious** syndrome following acute rubella and a rare **progressive panencephalitis** manifesting as a neurodegenerative disorder years following rubella.

Progressive rubella panencephalitis (PRP) is an extremely rare complication of either acquired rubella or CRS. It has an onset and course similar to those of the subacute sclerosing panencephalitis (SSPE) associated with measles.

Other neurologic syndromes rarely reported with rubella include Guillain-Barré syndrome and peripheral neuritis. Myocarditis is a rare complication.

Congenital Rubella Syndrome.

Clinical Manifestations of (CRS) ; deafness, cataracts, retinopathy , heart disease (patent ductus arteriosus ,right &left pulmonary artery stenosis , valvular pulmonic stenosis)low birthweight ,

Psychomotor retardation ,neonatal purpura &death Other findings: hepatitis, linear streaking of bone, hazy cornea, congenital glaucoma, delayed growth.

Treatment;

There is no specific treatment available for either acquired rubella or CRS.

Supportive care;

Postnatal rubella is generally a mild illness that requires no care beyond antipyretics and analgesics. Intravenous immunoglobulin or corticosteroids can be considered for severe, nonremitting thrombocytopenia.

Prognosis;

Postnatal infection with rubella has an excellent prognosis. Long-term outcomes of CRS are less favorable and somewhat variable. Reinfection with wild virus occurs postnatally in both individuals who were previously infected with wild-virus rubella and in vaccinated individual

Prevention;

Patients with postnatal infection should be isolated from susceptible individuals for 7 days after onset of the rash. Children with CRS may excrete the virus in respiratory secretions up to 1 yr of age and should be maintained in contact precautions until then unless repeated cultures of urine and pharyngeal secretions are negative..Exposure of susceptible pregnant women poses a potential risk to the fetus.

VACCINATION.

Rubella vaccine is the attenuated RA 27/3 strain that is usually administered combined with measles and mumps (MMR), in a 2 dose regimen at 12–15 mo and 4–6 yr of age. It theoretically may be effective as postexposure prophylaxis if administered within 3 days of exposure.

Adverse reactions to rubella vaccination are uncommon in children. MMR administration is associated with fever in 5–15% of vaccines and rash in about 5%. Arthralgia and arthritis are more common following rubella vaccination in adults. Approximately 25% of postpubertal females experience arthralgia and 10% experience arthritis. Peripheral neuropathies and transient thrombocytopenia may also occur