Rubella

Rubella is a viral exanthem that occurs in both children and adults. It is caused by the rubella virus, which is an enveloped, single-stranded icosahedral RNA virus and a member of the Matonavirus family. It is also known as the German measles or the three-day measles. Rubella can present with fever and tender postauricular lymphadenopathy. Following this is a diffuse, light pink maculopapular rash that first appears on the face and then spreads to the trunk and extremities within 24 hours. The rash usually lasts about three days, hence the name three-day measles. Adults with rubella can also have arthritis. In pregnancy, rubella is a TORCH infection and can cause serious complications, including hearing loss, ocular and cardiovascular defects, and intellectual disability.



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Characteristics

RNA Virus
RNA-rhino
Rubella is an RNA virus, meaning its genetic code consists of ribonucleic acid as opposed to deoxyribonucleic acid.

Matonaviridae
Madonna
The Rubella virus is a member of the Matonaviridae Family (formerly belonging to the Togaviridae Family), which are all small enveloped RNA viruses.

Enveloped
Envelope
Rubella is an enveloped virus. Viral envelopes are outer membranes that cover their protein capsids that help to enter host cells.

Icosahedral
Ice-cathedral
Rubella has an icosahedral virion, a capsid with 20 triangular faces, and a tightly coiled RNA strand in the middle.

SS Positive Linear
Plus-sign on Ice-cathedral
Rubella has RNA in a linear arrangement as opposed to a circular formation. Single-stranded positive sense linear viruses have their genome directly utilized as mRNA. Host ribosomes translate the RNA genome directly into a single protein that is modified by host and viral proteins to form the various proteins necessary for replication.

Signs and Symptoms

German Measles or Three-Day Measles
German-shepherd (3) Tree and Mustache-weasel
Rubella is also known as the German measles, named after the two German physicians who first described rubella in the 1750s. Rubella can be mistaken for rubeola (measles), which has a rash that presents similarly, except that rubella spreads faster and remains light pink in color. The rash usually lasts about three days, hence the name three-day measles.

Fever
Fever-beaver
Rubella is associated with a low-grade fever and often appears several days before a rash develops. A fever may present at the same time as lymphadenopathy and arthritis in adults.

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Postauricular Tenderness

Post-in-ear-aura

Rubella is known to cause tender postauricular lymphadenopathy, which is enlarged lymph nodes behind the ears. This specific region of lymphadenopathy is common in rubella and can help with differential diagnosis.

Lymphadenopathy

Lymph-lime-add (+)

Rubella is known to cause lymphadenopathy in the postauricular, cervical, and suboccipital regions.

Truncal Rash

Tree-trunk Rash

The rash associated with rubella has pinpoint, pink maculopapules that first appear on the face and then spread to the trunk and extremities within 24 hours, unlike rubeola (measles) which spreads slower and darkens with time. The rash usually lasts about three days, hence the name three-day measles.

Arthritis

King-Arthur

Arthritis in rubella is more common in adolescents and adult females and may persist after other symptoms disappear.

Congenital TORCH Infection

Torch

TORCH infections are infections that are acquired in utero or during the birthing process. Congenital rubella can cause hearing loss, ocular and cardiovascular defects, and intellectual disability. Due to its serious complications, all pregnant women get rubella titers as part of their routine prenatal care.

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