

Measles
Roseolla infantum
Scarlet fever

Learning objectives

- *State the etiologic agent of these diseases*
- *List down the clinical manifestations and Be familiarized with the distribution of rash*
- *Determine the diagnostic features*
- *Establish a case definition of each diseases*
- *Manage these disease and its complications*
- *Remembering the prevention methods of each one*

 **Causes of fever and a rash**

Maculopapular rash:	Vesicular, bullous, pustular
Viral <ul style="list-style-type: none"> • <i>Roseola infantum</i> • <i>Measles</i> • <i>Rubella</i> 	Viral <ul style="list-style-type: none"> • <i>Varicella zoster virus – chickenpox,</i> • <i>Coxsackie virus – hand, foot and mouth</i>
Bacterial <ul style="list-style-type: none"> • <i>Scarlet fever (group A streptococcus)</i> • <i>Rheumatic fever-erythema marginatum</i> • <i>Salmonella typhi (typhoid fever)</i> 	Bacteria <ul style="list-style-type: none"> • <i>Impetigo –characteristic crusting Boils</i> • <i>Staphylococcal scalded skin</i>
Other <ul style="list-style-type: none"> • <i>Kawasaki disease</i> • <i>Systemic onset juvenile idiopathic arthritis</i> 	Other <ul style="list-style-type: none"> • <i>Erythema multiforme;</i> • <i>Stevens– Johnson syndrome</i>

Measles

- Measles is an acute viral infection
- Caused by measles virus –is a single stranded RNA paramyxovirus
- Transmission–large or small droplet aerosols (in which the virus is suspended) from upper respiratory tract and require close contact
- Source– Oro-pharyngeal, conjunctiva &Respiratory tract.
- Most young infant s are protected by transplacental antibody ,and become susceptible toward the end of first year of life

Measles infection is divided into four phases

- Incubation
- Prodroma(catarrhal)
- Exanthematous(rash)
- Recovery

Incubation period:

- 8-12 days
- **Infected person are contagious** : about 3 days before onset of rash to 4-6 days after appearance of the rash
- Most young infant s are protected by transplacental antibody ,and become susceptible toward the end of first year of life

Prodromal stage (3-4 days)

- Cough
- Coryza Runny nose
- Conjunctivitis with stimson line and photophobia
- A prominent cough, and increasing fever
- Pathognomonic rash : Koplik's spot

Koplik's spots

- Koplik spots are the pathognomonic lesions of the measles
- Discrete red lesions with bluish-white spots in the center, on the inner aspects of the cheeks at the level of the premolars
- Last 12-24 hours
- It appear 1-4days before the rash.

Exanthematous (rash)

- The measles rash a typically has a red macule appeared 3-5 days after prodromal symptoms
- A first usually shows up on the forehead, then spreads downward over the face, neck, and body, then down to the arms and feet in 24 hours (in cephalic to caudal pattern)

Other symptoms

- The rash fades over about 7 days in the same progression as it evolved, often leaving a fine desquamation of skin.
- The cough lasts the longest, often up to 10 days.
- Generalized lymphadenopathy may be present,

Laboratory finding

- Non specific
- Leukopenia is characteristic
- Measles virus culture
- Serological test for IgM antibodies which appear within 1-2 days of rash and persist for 1-2 month

Treatment

- Supportive care
- Adequate hydration
- **Vitamin A supplement** (decrease morbidity and mortality of measles) and is indicated for all patients with measles. should be administered once daily for 2 days at doses of :

- **200,000 IU orally for children \geq one year**
- **100,000 IU for infants 6 mo-one year**
- **50,000 IU for infants < 6 mo. of age.**
- Dose can be repeated again after 4 weeks for those ophthalmology evidence of sever vitamin A deficiency

Complications

- Otitis media
- **Pneumonia** (is the most common of death in measles) Interstitial measles pneumonia or pneumonia from secondary bacterial infection
- A Sever form of measles rarely seen now is hemorrhage or **black measles** is often fatal
- Diarrhea and vomiting are common symptoms
- **CNS complications**
 - Encephalomyelitis(rare)occur usually 2-5 days after the onset of rash
 - **Subacute sclerosing panecephalitis(SSPE)** : is rare later neurological complications of slow measles infection that characterized by progressive behavioral and intellectual deterioration and eventual death ,an average of 8-10 years after measles, there is no effective treatment

Prevention

- Isolation of patient until 5 days after the rash has appeared.
- **MMR Vaccination** for all susceptible children >12 m age within 72 hr. of contact
- **Immunoglobulin** (should be given up to 6 days following exposure) ,single IM dose should give to all:
 - **Household and hospital contact<12 m.**
 - **Pregnant mother.**
 - **Immunocomprised**

Roseolla infantum

- Exanthema subitum or sixth disease
- **Caused by human herpesvirus type 6 (HHV-6)** and sometimes **HHV-7**, Double-stranded DNA viruses that are member of herpesvirus family
- Roseola is an illness of young children, with a peak prevalence between 7 and 13 months (Mostly 2 years)

TRANSMISSION

- most cases of roseola occur sporadically, without known exposure, most likely is transmitted by asymptomatic shedding of virus in secretions of close contacts

Clinical manifestations

- **The mean incubation period** for HHV-6 is 9 to 10 days
- Most common cause of acute febrile illness in infancy
- Characterized by high grade fever (often >40 c) with abrupt onset that lasts 3-5 days
- The fever often is accompanied by irritability
- **Maculopapular red-colored rash:** As the child's fever abates, a blanching macular or maculopapular rash develops, starting on the neck and trunk and spreading to the face and extremities, it is generally nonpruritic. The rash persists for one to two days

Other symptoms:

- Upper respiratory tract symptoms ,nasal congestion
- Erythematous tympanic membrane and cough may occur
- Roseola is associated with febrile convulsion (in approximately one third of cases)

Diagnosis

- Laboratory investigation is seldom necessary for patients with classic roseola
- Non specific
- Documentation of HHV-6 by PCR, viral culture

Treatment

- No specific therapy
- Maintain adequate hydration and antipyretic

Complication and prognosis

- Roseola is usually a benign, self-limited illness
- The prognosis for the great majority of children with roseola is excellent, With no obvious sequel

Prevention:

- No vaccine
- No specific recommendation

❖ Scarlet fever

- Scarlet fever is an upper respiratory tract infection associated with a characteristic rash, which is caused by an infection with *Group A streptococcus (GAS)*, also known as *Streptococcus pyogenes*
- Mainly affects children between the ages of 5 and 15 years.
- Transmission : from person to person by respiratory droplet

Clinical manifestation:

A rash is the most common sign of scarlet fever

- It appear 24-48 hour after onset of symptoms
- It often begins around the neck and spreads over the trunk and extremities.
- The rash is a diffuse, finely papular, erythematous eruption producing bright red discoloration of the skin.
- It is often accentuated in the creases of the elbows, axillae, and groin.
- The skin has a goose-pimple appearance and feels rough.
- The cheeks are often erythematous with pallor around the mouth.
- After the rash has subsided, about seven days, the skin on the tips of the fingers and toes and in the groin may peel. This can last for several weeks.

Other common symptoms of scarlet fever include:

- Flushed face
- Strawberry tongue, or a white tongue with red dots on the surface
- Red, sore throat with white or yellow patches
- Fever above 101°F (38.3°C)
- Headaches
- Nausea and vomiting
- Abdominal pain
- Cervical lymphadenopathy
- Pale skin around the lips

Diagnosis

- Typical scarlet fever is not difficult to diagnose.
- **Laboratory features**
 - Evidence of group A streptococci.
 - **Throat culture**
 - **Rapid antigen detection tests**
 - White blood cell count reveals leukocytosis

Complications of scarlet fever

- Suppurative complications
- Nonsuppurative complications:
 - Acute rheumatic fever, acute glomerulonephritis

Treatment

- To prevent primary attacks of rheumatic fever, treatment should ensure penicillin levels for at least 10 days.
- Penicillin is the drug of choice for pharyngeal infections as well as for suppurative complications. Treatment with oral penicillin V is recommended and must be taken for a full 10 days even though there is symptomatic improvement
- IF penicillin allergy is suspected, the drug of choice is erythromycin (30-40 mg/kg/day).