Clinical manifestation of Measlses in children

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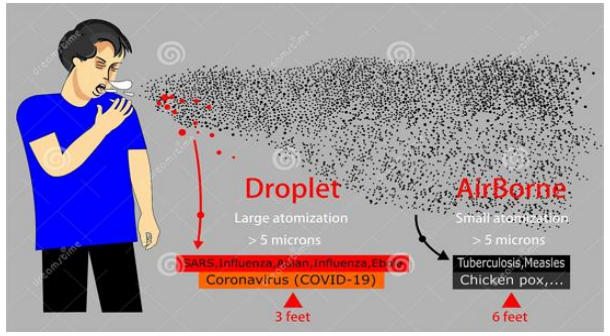
Measlse

- Before the present vaccine era, measles was an inevitable disease of childhood that was recognized readily by parents and other laypersons, as well as by physicians.

- Despite the occasional confusion with other exanthematous diseases, the epidemic character of measles usually resulted in an accurate diagnosis

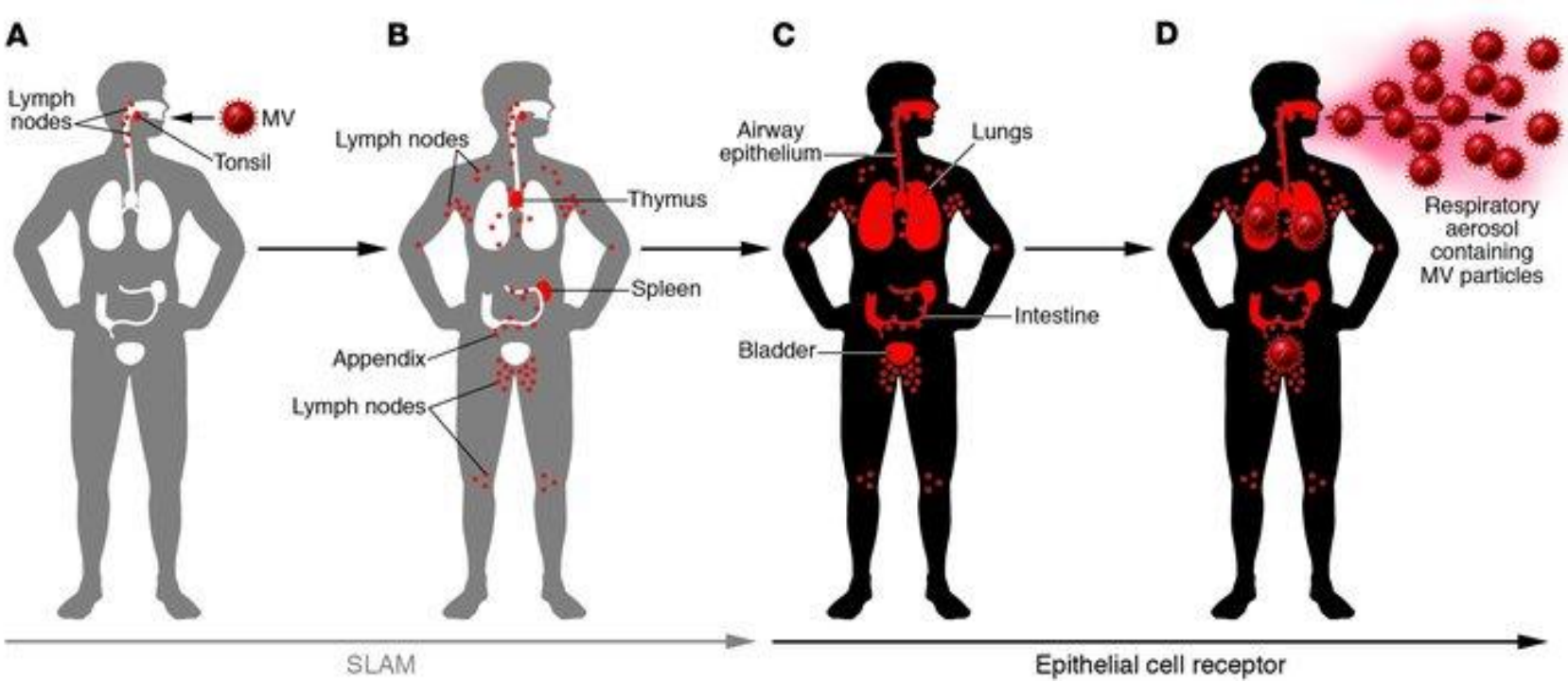
The routes of transmission

- Respiratory
  - Droplet
  - Air born
- Contact
  - Direct
  - Indirect



❖The measles virus can live on contaminated surfaces and in the air for **up to two hours**.

Pathogenesis



A

MV enters humans through the respiratory route and initiates its infectious cycle in lymphoid organs in the upper respiratory tract by using SLAM as a receptor.

B

MV-infected lymphocytes enter the bloodstream, and MV propagates in lymphoid organs throughout the body

C

MV-infected immune cells appear to transmit MV to epithelial cells in various organs (e.g., airway, intestine, bladder). A putative epithelial cell receptor appears to play an important role in MV infection of epithelial cells

D

MV then replicates in epithelial cells and actively releases progeny viruses into the airway. Consequently, respiratory aerosols of patients contain large amounts of MV particles.

Types of measlse

- Typical Illness
- Modified Illness
- Atypical Measles
- Measles in Developing Countries
- Measles in Immunocompromised Hosts

I. Typical Illness

❑Three distinct clinical stages:

I. Incubation :10 days (range, 8−12 days).

II. Prodromal :3 days (range, 2−4 days).

III. Exanthematouse:the exanthem appears on approximately the 14thday after exposure and last usually for 6 to 7 days.

- Infectious period: 3-5 days before to 4 days after the appearance of the rash.

Typical Illness

Incubation period

- From exposure to prodrome
- Averages 8–12
- The measles virus spreads in the body.
- There are no signs or symptoms of measles during this time.

Typical Illness

Prodromal phase

- After incubation period and before appearing of classic exanthems
- lasts 2 to 4 days, with a range of 1 to 7 days.
- The first sign is usually a mild to moderate fever.
- Other symptoms are malaise, conjunctivitis, and upper respiratory symptoms such as cough, nasal discharge, and sneezing.
- These symptoms worsen during the phase.

Typical Illness

Prodromal phase

➢**Symptoms**

- Fever
- Malaise
- Conjunctivitis
- Cough
- Nasal discharge
- Sneezing

➢**Signes**

- Fever
- Transitory rash
- Enantem
- Koplic spots

❑ Conjunctivitis

- Bulbar and palpebral
- Associated with considerable lacrimation and photophobia
- Conjunctivitis of varying severity is noticed in the **half of the cases** without using ophthalmological instrumentation.
- Using ophthalmological instrumentation, the mild forms of conjunctivitis can be diagnosed,in **near to all** of patients
- Slit-lamp examination reveals both ***corneal*** and ***conjunctival*** lesions

❑ Cough

- Frequently is troublesome.
- It worsens throughout the prodromal period and often has a brassy quality(hard&loud) suggesting laryngeal and tracheal involvement.
- The cough may persist for 10 days or more.

❑ Transitory rash

- Early in the prodromal phase,a transitory rash occasionally has been observed.
- It has been *urticarial* or *macular*,has occurred with the initial onset of fever, and has disappeared before onset of the typical exanthem.

❑ Enantem

- During the prodromal period, Erythematous maculopapular lesions also are observed occasionally on the palate.

- At the end of the prodromal period, the posterior pharyngeal wall usually is erythematous, and the patient may complain of a **sore throat.**

❑ Koplik spots*

- On day 10 ± 1
- Pathognomonic enanthem of measles.
- White or bluish-white specks on a bright-red mucosal surface.
- First arise on the buccal mucosa opposite the lower molars but usually

Spread quickly to involve most of the buccal and lower labial mucosa.

- Initially, only a few lesions appear, but within 12 hours the number usually is uncountable.

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* *The term Koplik spot derives its name from Dr. Henry Koplik of New York, who first described them in 1896.*

Typical Illness

Exanthem Period

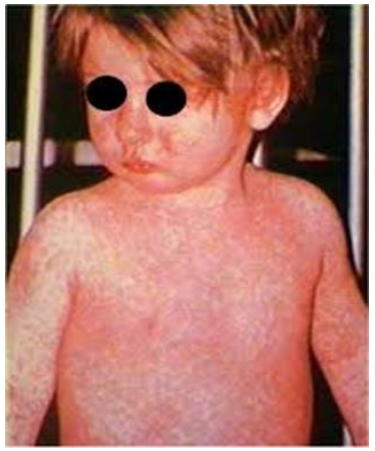
- In typical measles, the exanthem appears on approximately the **14th**day after exposure.
- The exanthem occurs at approximately the **peak of the respiratory symptoms** and when the temperature usually is approximatel 39.5°C.
- First appears behind the ears and on the forehead at the hairline.
- Spread of the rash is centrifugal from the head to the feet
- The duration of the exanthem usually is 6 to 7 days.

Typical Illness

Exanthem Period

- By the third day, the rash has involved the face, neck, trunk,upper extremities, buttocks, and lower extremities sequentially.

- Confluence always is more prominent on the face; frequently, the lesions on the lower extremities remain discrete.



- The exanthem begins to clear on the third to fourth day, again following the centrifugal course of progression.

Typical Illness

Exanthem Period

- With healing, a fine desquamation frequently occurs in confluent areas with brownish discoloration.

Clinical course

The patient is a child who develops fever, runny nose, and sneezing about 10 days after contact

Gradually the fever increases. Conjunctivitis and caugh appear and about 3 to 4 days after the onset of the symptoms, skin rashes appear

1-2 days befor until 1 day after skin rash koplic spots are visible

On the second or third day of the rash fever generally peaks, and then falls by lysis during next 24-hour

Conjunctivitis and nasal discharge usually improves as the fever subsides

Maculopapular rash begin from the head &neck and distribute downward

Rash last for about 6-7 days and will be disappear at the same manner

Pilling may appear after skin rash

Measlse

Clinical course

- Fever that persists after the third or fourth day of exanthem usually is an indication of a complication.
- Conjunctivitis and nasal symptoms generally subside at about the time of defervescence.
- Continued nasal discharge, whether purulent or not, suggests bacterial secondary infection.
- With the appearance of the rash, the cough loosens up, and in older persons it frequently becomes productive.

II. Modified measlse

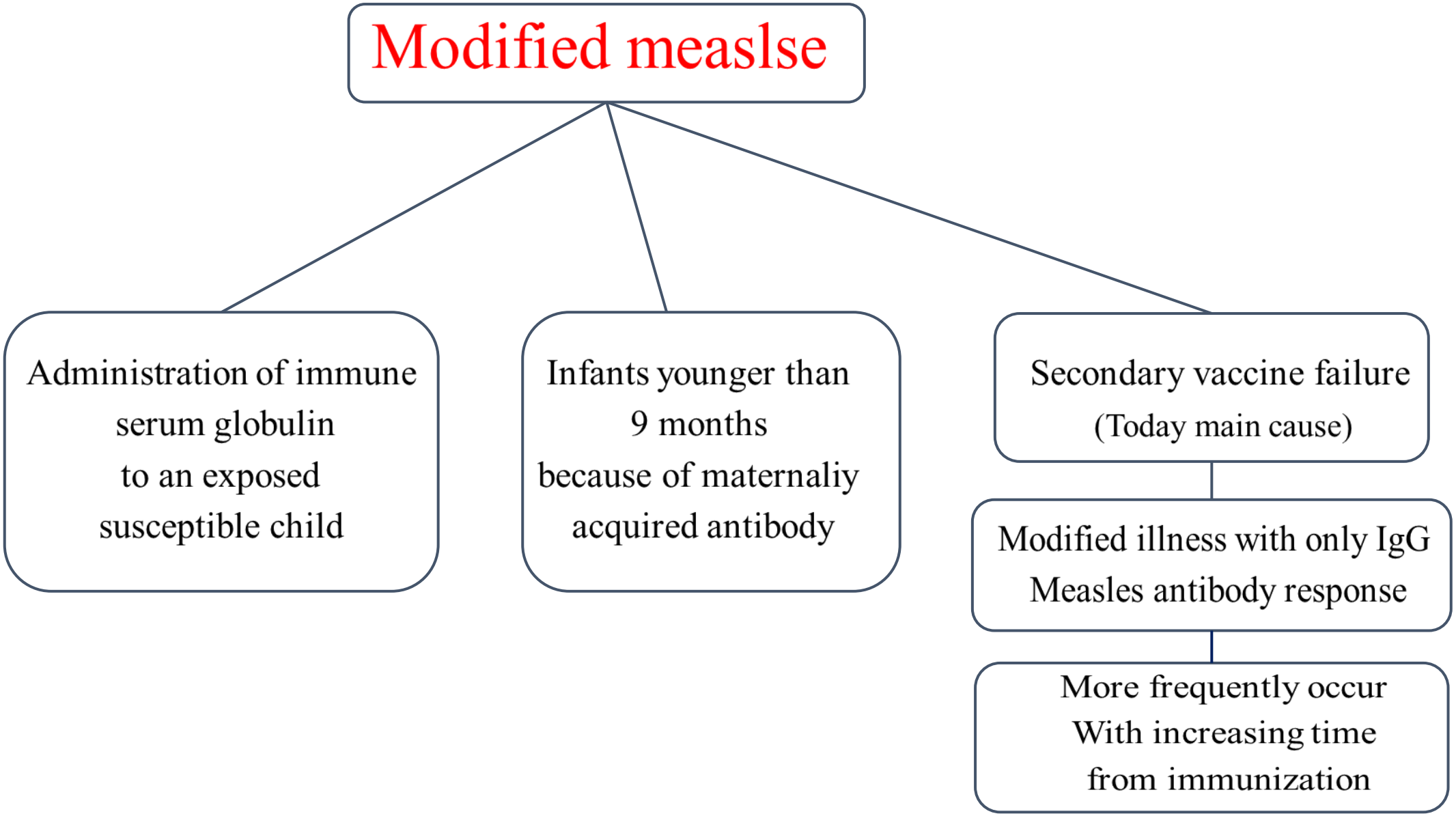
- Modified measles is an infection that occurs in a partially immune person.
- Mild illness & regular sequence of events:

➢ Shorter prodromal period

➢ Minimal cough, coryza, and fever

➢ ± Few and transient koplik spots

➢ The Regular progression pattern of the exanthema without confluence.


Modified measlse
Administration of immune serum globulin to an exposed susceptible child
Infants younger than 9 months because of maternaliy acquired antibody
Secondary vaccine failure (Today main cause)
Modified illness with only IgG Measles antibody response
More frequently occur With increasing time from immunization

III. Atypical measlse

- In some previously immunized persons with **inactivated measles vaccines**, but some also have been noted in children who received only live measles

- Incubation period
  - Between 7 and 14 days

- Prodromal period
  - Sudden onset of high fever
  - Headache
  - Abdominal pain & vomiting
  - Myalgia & weakness
  - Dry, nonproductive cough
  - Pleuritic chest pain
  - ±Koplik
  - Edema of the extremities
  - Respiratory distress

- Unique rash
  - First on the distal end of the extremities
  - Progresses in a cephalad direction
  - prominent on the wrists and ankles
  - Petechial or purpuric and urticaria also occurs
  - Pulmonary involvement in virtually all cases
  - Hilar adenopathy. Pneumonia.Pleural effusion
  - Hepatosplenomegaly,Hyperesthesia&paresthesia
  - ±Vesicular rash pruritus

IV. Measles in Developing Countries

- The mortality rate in much of Africa was approximately 10%, and a reasonable assumption is that the rates are similar in some regions of Asia
- High morbidity and mortality because of :
- Age at infection(disease of young children)
- Suboptimal medical facilities
- Nutritional status of the infected children (thought to be the single overriding factor)

➢ Low serum retinol concentrations nearly always are present in children with measles in developing countries.

➢ Low retinol levels correlate directly with measles mortality, and treatment with vitamin A reduces this mortality rate.

Measles in Developing Countries

Clinical Manifestations

- Measles in children in developing countries is characterized by two different types of severe disease.

I. One type of illness is a fulminant, toxic illness without apparent localizing complications.

II. More prolonged illness with obvious complications .

The complications may be caused by:

1. Infection with secondary bacterial or other infectious agents
2. Persistent measles virus infection
3. Or a combination of both.

Measles in Developing Countries

Clinical Manifestations

- The measles rash in malnourished children tends to result in greater confluence and progresses to dark red and then violet.
- Desquamation is marked and occurs in large scales.
- After desquamation, patchy depigmentation lasts for some weeks.
- Other common problems are
- Stomatitis and sore mouth, leads to further loss of nutritional intake.
- Acute corneal ulceration(Common cause of blindness).
- Multiple skin abscesses and noma

Measles in Developing Countries

Clinical Manifestations

V. Measles in Immunocompromised Hosts

- Measles virus infection in a patient with disease-induced or iatrogenically caused immune deficiency usually is **severe** and protracted and frequently is **fatal**.
- The most common severe measles virus infection in an immunocompromised host is *giant-cell pneumonia*.
- The mode of manifestation of this illness varies:

Measles in Immunocompromised Hosts

Clinical Manifestations

a. Some patients initially have severe but otherwise typical measles after a normal incubation period.

Clinical findings at the time of the exanthem indicate pulmonary involvement

and respiratory distress, and radiographic findings become rapidly worse over a period of about a week or less

b.Other patients initially have rather vague illness, frequently without rash.

In these cases, the pulmonary process may progress over the course of a month or

longer.

Measles in Immunocompromised Hosts

Clinical Manifestations

- A unique form of measles encephalitis also is manifested in immunosuppressed patients.
- intermediate between the acute encephalitis occurring in patients without known immune defects and the chronic picture of SSPE.
- The incubation :5 weeks and 6 months.
- Focal, unilateral Convulsions or permanent localized twitching
- Other findings include hemiplegia, stupor, coma, hypertonia, and slurred speech.
- Usually fatal

Notice

It should be noted that successfully treated children with leukemia, solid tumors, and Hodgkin disease lose humoral immunity to measles and thus should all be revaccinated.

VI. Black measles

- Severe and often fatal
- Characterized by a confluent hemorrhagic skin
- Signs of both encephalitis or encephalopathy and pneumonia.
- Extensive bleeding from the mouth, nose, and bowel
- Rarely is seen today, and Pathogenesis is little known . (Dic?)

for
your attention

Thank you