

# MEASLES

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# MEASLES

- Measles also known as Rubeola, is a highly contagious illness that is caused by a **single-stranded RNA virus of the paramyxovirus family.**
- First described in 7th century
- Mode of transmission: **respiratory droplets produced by sneezing and coughing, close personal contact or direct contact with contaminated objects.**

## Cont..

- **Humans** are the only known **reservoir** for this viral infection.
- Incubation period is 7-10 days
- Contagious from **4 days** before to **4 days** after the rash.
- Rapidly inactivated by heat and light

# Pathophysiology

- The portal of entry for the virus is the **respiratory tract and the conjunctivae.**
- After undergoing **local replication in the respiratory tract it spreads to regional lymph nodes** where it causes destruction and profound leucopenia.
- Primary viremia then follows 2-3 days after exposure.

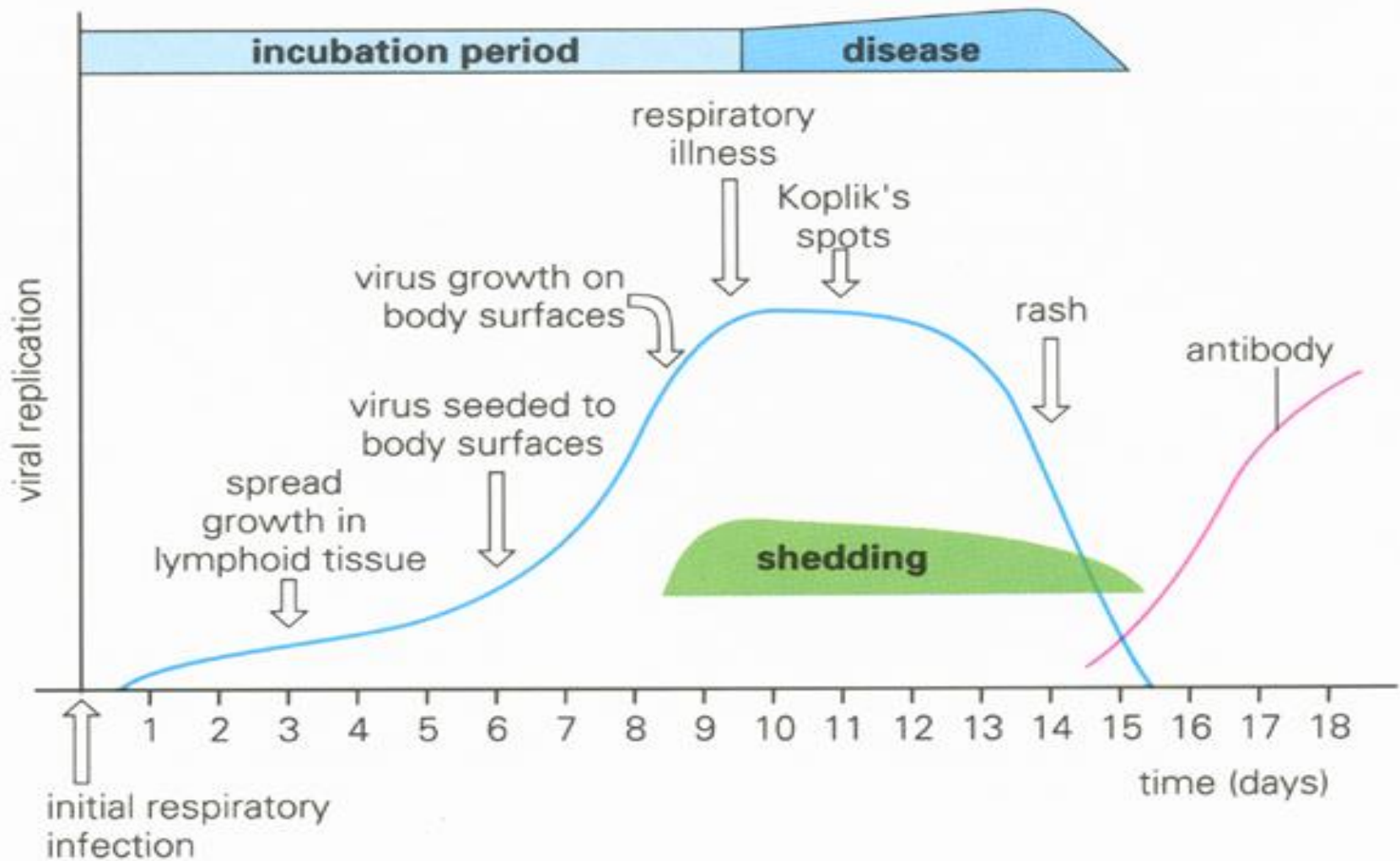
## CONT..

- This results in viral dissemination throughout the body, particularly to **rest of the reticuloendothelial system.**
- Secondary viremia follows 5-7 days after exposure with spread to the skin and various organs such as the kidney and bladder, prior to appearance of the rash.
- This results in the characteristic clinical features of the infection

# Summary of events

- Initial infection
- Incubation: virus migrates to regional lymph nodes, followed by primary viremia which disseminates virus to the RES, secondary viremia spread virus to organs and skin.
- Prodromal illness: follows secondary viremia, virus shedding occurs
- Exanthematous phase (onset of rash)
- Recovery follows

# THE PATHOGENESIS OF MEASLES



# Clinical

- Approximately 10 days after the initial exposure to the measles virus, the classic prodromal phase occurs. Characterized by:
  - Stepwise rise in Fever
  - Nonproductive cough
  - Coryza
  - Conjunctivitis
  - Koplik spots

## Clinical cont...

- Additional prodromal symptoms may include malaise, myalgias, photophobia, and periorbital edema
- The Koplik spots are pathognomonic of measles and typically arise on the buccal, gingival, and labial mucosae.

# Rash(Exanthematous) phase

- The rash typically begins at the hairline and spreads caudally over the next 3 days as the prodromal symptoms resolve.
- The rash lasts 4-6 days and then fades from the head downward (fades in order of appearance)
- Desquamation may be present but is generally not severe.

# Recovery phase

- Complete recovery from the illness generally occurs within 7-10 days from the onset of the rash.

# Clinical picture



Pic





# Diagnosis

- Is the classic clinical presentation thus laboratory investigations are generally unnecessary.
- During the prodrome and rash stages, the absolute lymphocyte count may be low.

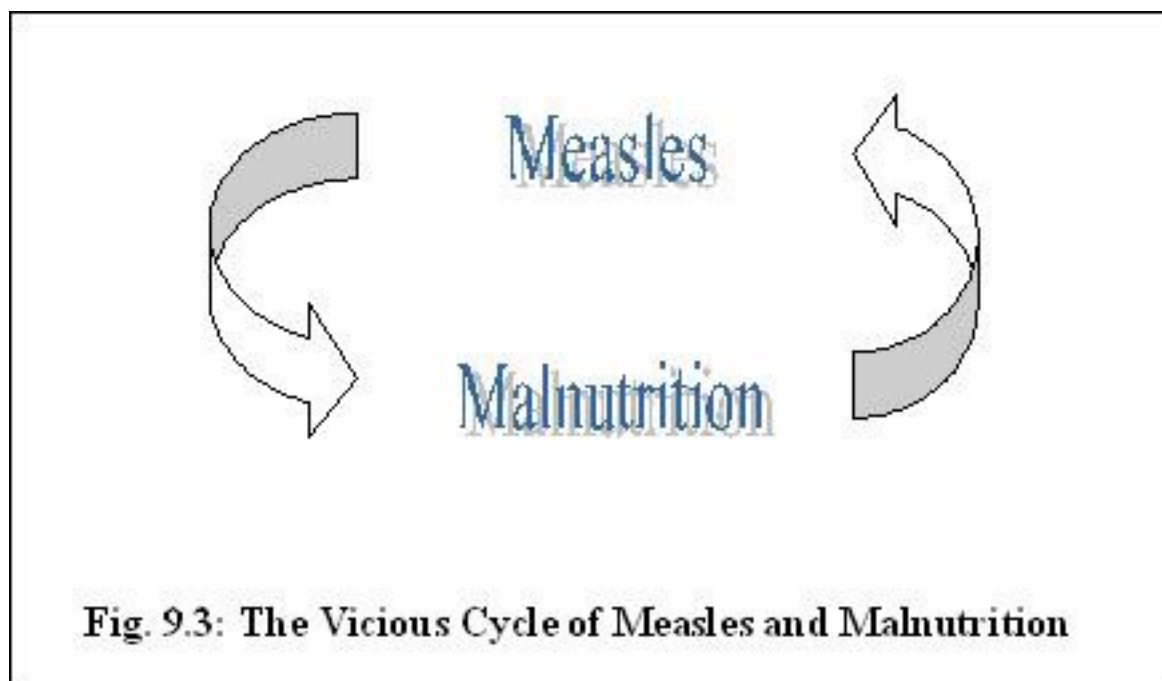
# Differentials

- Conjunctivitis
- Meningitis
- Infectious Mononucleosis
- Bacteremia and Sepsis
- Rubella
- Scarlet Fever
- Syphilis

# Complications

- Diarrhoea and vomiting
- Otitis media
- Severe keratitis, which may progress to blindness
- Malnutrition
- Flare up of underlying TB
- LTB
- Subacute sclerosing panencephalitis
- Thrombocytopenia with purpura and bleeding
- Myocarditis or Pericarditis
- Hepatitis

# Complications



# Management

Is usually supportive care.

- Intravenous (IV) hydration is required if vomiting and diarrhoea.
- Antipyretics for fever management.
- Antibiotics for only secondary infections, such as pneumonia and otitis media.

# Management

- Antibiotic drops for conjunctivitis
- Nutritious foods, ORS
- Vitamin A supplementation

Dose: 100,000 IU if below 10kg,  
200,000 IU if above 10kg, STAT then  
on day 2 and day 14 if eye signs

# Prognosis and follow up

- The prognosis is excellent, with full recovery without scarring in patients without complications.
- Measles encephalitis has a 10% mortality rate.
- Patients should receive follow-up care with their primary care physician for surveillance of complications arising from the illness.

# PREVENTION

- Measles vaccine
- Isolation of suspected cases
- Measles immunoglobulin indicated for:
  - all susceptible contacts of patients with measles who reside in the same household who are pregnant, immunocompromised, or aged 6-12 mo
  - infants less than 6 mo who were born to mothers without measles immunity
  - children and adolescents with HIV infection who are exposed to measles, regardless of measles immunization status.

# Measles dosage schedule

- HIV negative children
  - 2 doses: at 9 months and repeated at 18 months
- HIV positive children
  - 3 doses: at 6, 9 and at 18 months
- NB: Repeated to produce measles immunity in persons who failed to respond to the first dose (primary vaccine failure)
- May boost antibody titers in some persons

# Measles vaccine

- Composition - Live attenuated virus
- Efficacy - 95% (range, 90%-98%)
- Duration of Immunity - Lifelong

# Questions

- ???????