



SNS COLLEGE OF ALLIED HEALTH SCIENCES
SNS Kalvi Nagar, Coimbatore - 35
Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT: ALLIED HEALTH SCIENCES
COURSE NAME: Paediatrics

Topic: Dengue fever



CASE SCENARIO



- A 15 year old boy presented with an complaints of high grade fever associated with myalgia, vomiting and headache and the investigation showed low platelet count.
- What is the diagnosis and management?



Introduction



DEFINITION- Break Bone fever

A mosquito-borne viral disease occurring in tropical and subtropical areas.

Dengue fever is a mosquito-borne illness that occurs in tropical and subtropical areas of the world. Mild dengue fever causes a high fever and flu-like symptoms.

The severe form of dengue fever, also called dengue hemorrhagic fever, can cause serious bleeding, a sudden drop in blood pressure (shock) and death.

Incubation-an incubation period of 5–7 days (range 3–10 days) and has a 3-phase clinical course: febrile, critical, and convalescent. Fever typically lasts 2–7 days and can be biphasic.



Aedes aegypti



Aedes albopictus

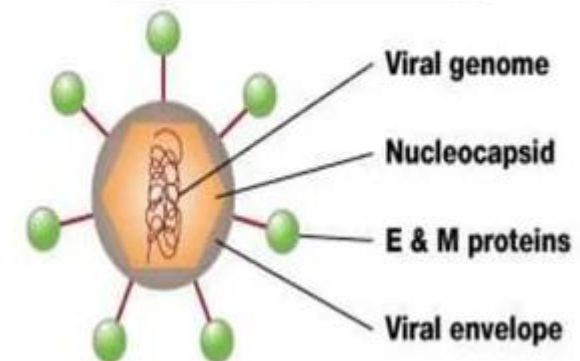


Aedes polynesiensis



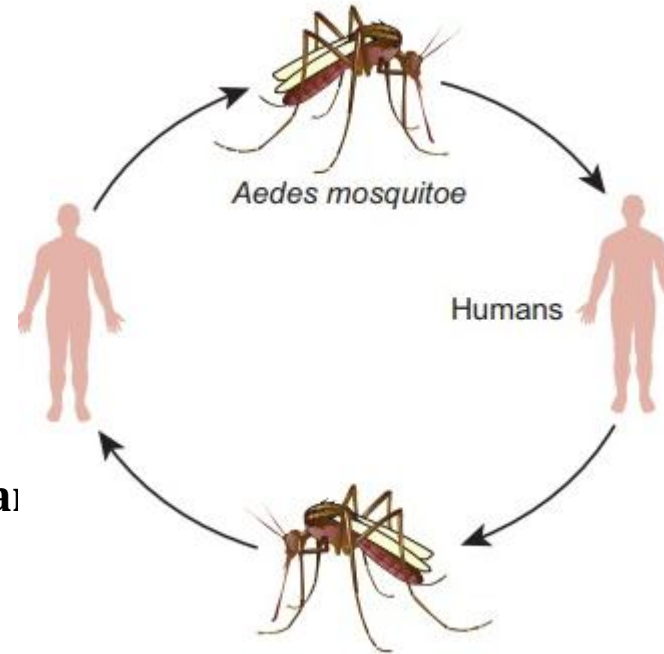
Aedes niveus

DENGUE VIRUS



Transmission of virus

- **Insect bites:** the virus that causes dengue can be transmitted by the bite of infected female mosquitoes of the species *Aedes aegypti* and, to a lesser extent, the species *Aedes albopictus*
- **Maternal transmission-Mother-to-child:** possible transmission from mother to child during pregnancy or childbirth
- Rare cases of transmission via **blood products, organ donation, and transfusions**

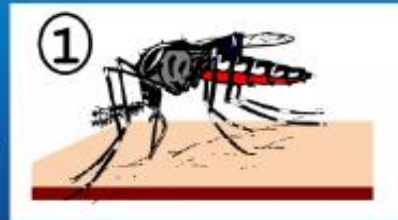


Incidence About half of the world's population is now at risk of dengue with an estimated 100–400 million infections occurring each year.

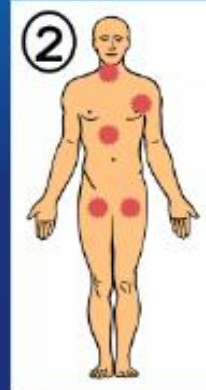
Replication & Transmission

Replication and Transmission of Dengue Virus

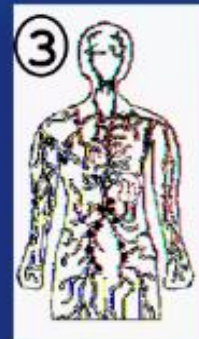
1. Virus transmitted to human in mosquito saliva



2. Virus replicates target organs



3. Virus infects white blood cells and lymphatic tissues



4. Virus released and circulates in blood

- Infectivity Period (about 7 days)
- Extrinsic Incubation Period (8–12 days)
- Intrinsic Incubation Period (3–14 days)

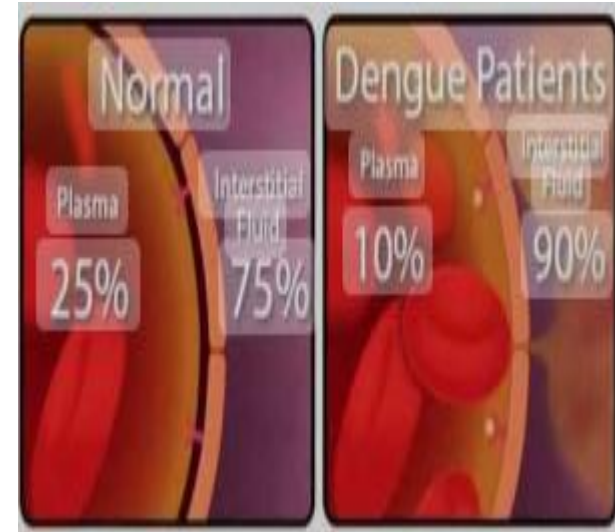


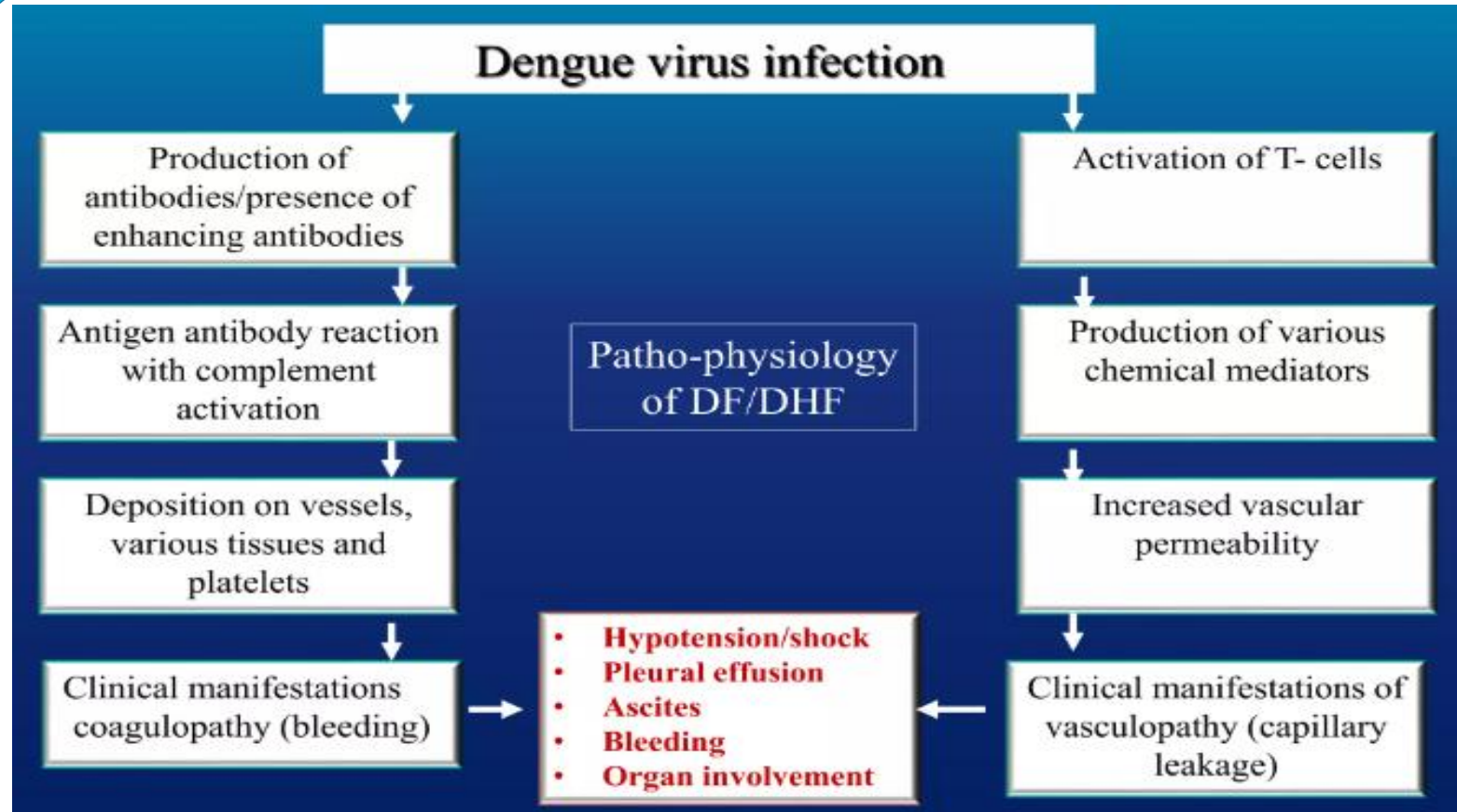


Pathogenesis



- Circulation of infection-enhancing antibodies at the time of infection strongest risk factor for development of severe disease.
- Rapid activation of the complement system.
- Capillary damage - internal redistribution of fluid, resulting in
 - hemoconcentration
 - hypovolemia
 - increased cardiac work
 - tissue hypoxia
 - metabolic acidosis, and
 - hyponatremia







Clinical manifestation



- Dengue fever causes a high fever — 104 F (40 C) — and any of the following signs and symptoms:
- Headache
- Muscle, bone or joint pain
- Nausea
- Vomiting
- Pain behind the eyes
- Swollen glands
- Rash

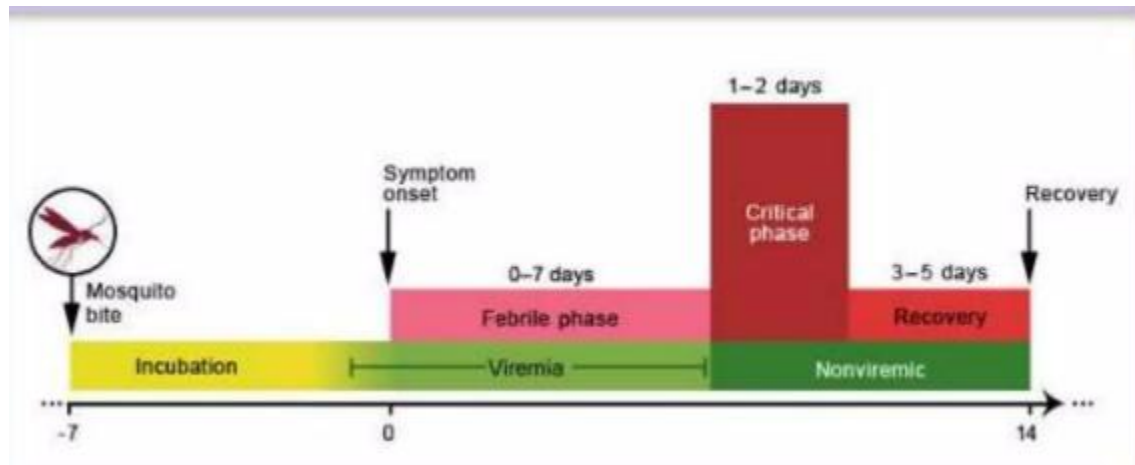
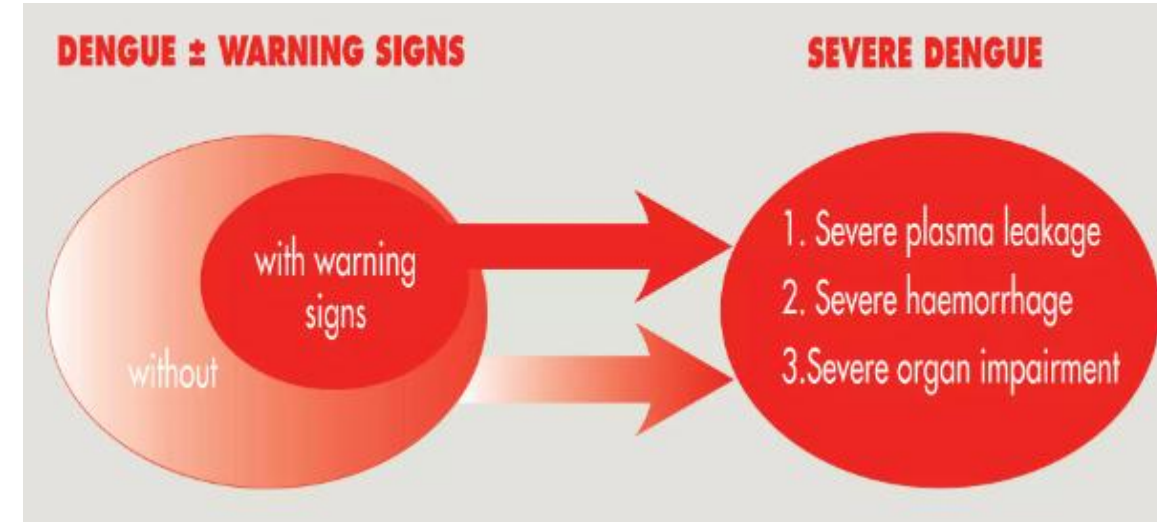
In some cases, symptoms worsen and can become life-threatening. This is called severe dengue, dengue hemorrhagic fever or dengue shock syndrome.

The warning signs usually begin the first day or two after the fever spikes settled and may include:

- Severe stomach pain
- Persistent vomiting
- Bleeding from the gums or nose
- Blood in the urine, stools or vomit
- Bleeding under the skin, which might look like bruising
- Difficult or rapid breathing
- Fatigue
- Irritability or restlessness

Risk factors

- Previous infection with DENV increases the risk of the individual developing severe dengue.
- Urbanization (especially unplanned), is associated with dengue transmission through multiple social and environmental factors: population density, human mobility, access to reliable water source, water storage practice etc.



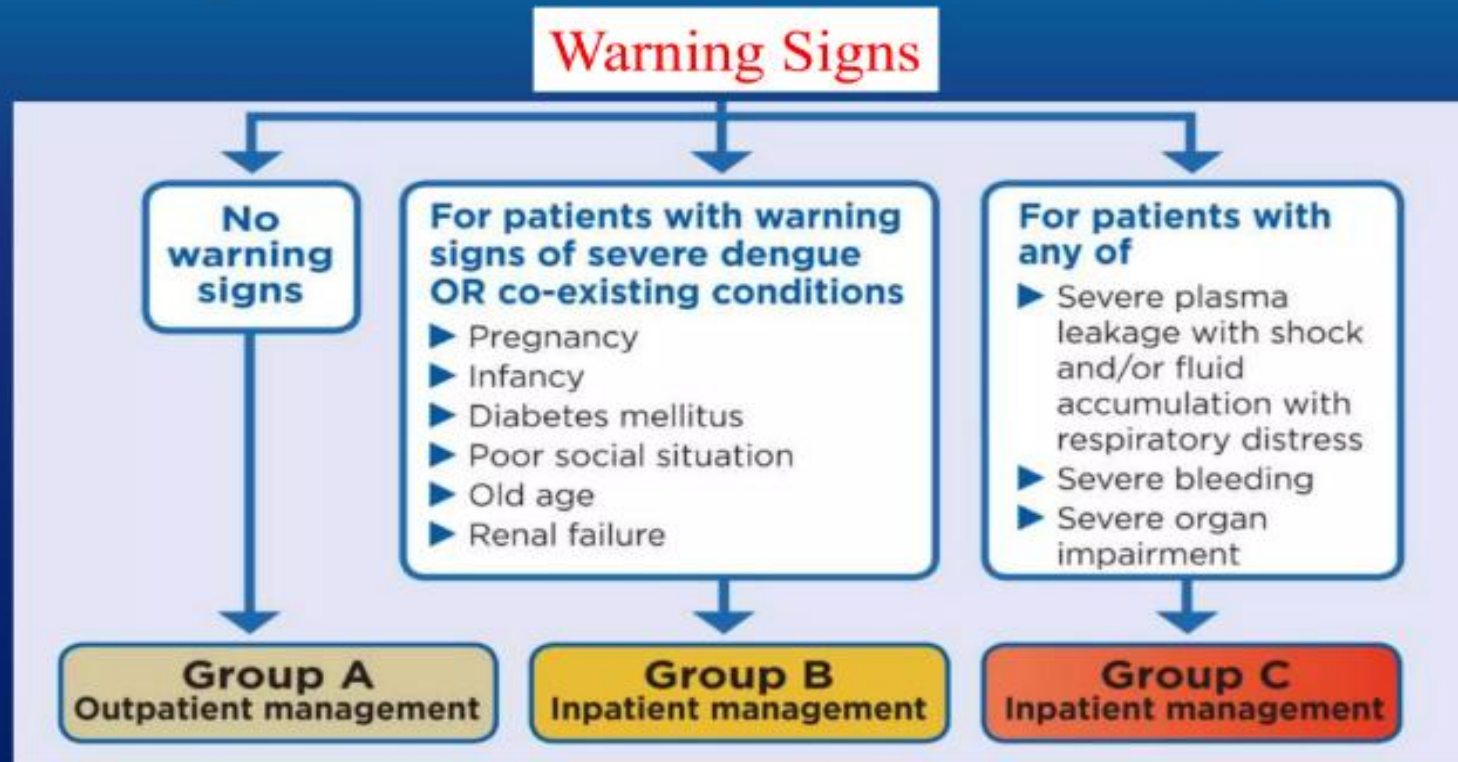


Diagnosis



- dengue virus (rRT-PCR or NS1) and IgM. For patients presenting >1 week after fever onset, IgM detection is most useful, although NS1 has been reported positive up to 12 days after fever onset
- Complete blood count (CBC)—to look for low platelet count typical of the later stages of the illness and to detect the decrease in hemoglobin, hematocrit, and red blood cell (RBC) count

Algorithm for management of Dengue





Manager



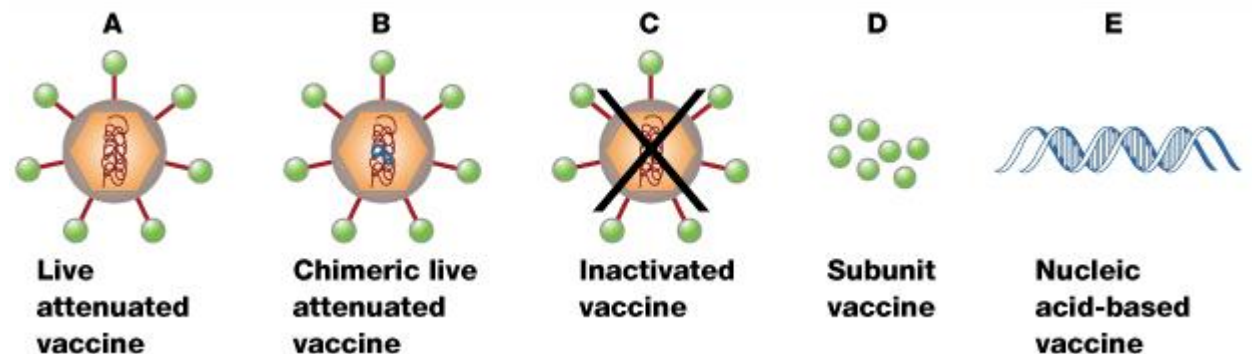
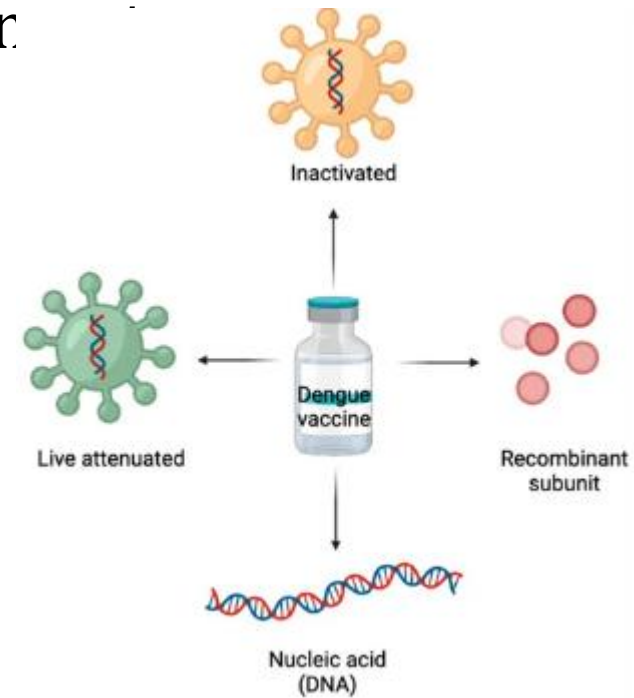
vaccination

- dengue fever vaccine (Dengvaxia) is approved for people ages 9 to 45 who have already had dengue fever at least once. The vaccine is given in three doses over the course of 12 months.

(a blood test that shows previous infection with one of the dengue viruses — called seropositivity.)

Analgesics-Acetaminophen (paracetamol) is often used to control pain. Non-steroidal anti-inflammatory drugs like ibuprofen and aspirin are avoided as they can increase the risk of bleeding.

Fluid intake- regular hydration





Assessment 1



1. Name of the virus causing dengue fever
2. Incubation period of dengue fever
3. Pathogenesis of Dengue virus
4. What are the types of vaccination?



Reference



- The Text Book of Pathology author Nithin chawla
- The Text Book of Paediatric author Santhosh kumar
- For further reference –

<https://www.slideshare.net/csnvittal/dengue-in-children>

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