

MENINGITIS



Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities...

By
Ms. RUPALI RUPASMITA ROUT
ASSISTANT PROFESSOR

INTRODUCTION:

Meningitis is a medical condition characterized by inflammation of the protective membranes (meninges) that surround the brain and spinal cord. This inflammation is typically caused by a viral or bacterial infection, but can also be caused by a fungal or parasitic infection.

CLASSIFICATION/ETIOLOGY/CAUSES:

Bacterial meningitis: This type of meningitis is caused by bacterial infections, which can be serious and life-threatening if not treated promptly. Common bacteria that can cause bacterial meningitis include *Neisseria meningitidis*, *Streptococcus pneumoniae*, and *Haemophilus influenzae*.

Viral meningitis: This type of meningitis is caused by viral infections, which are typically less severe than bacterial infections and often resolve on their own within a few weeks. The most common viruses that cause viral meningitis include enteroviruses and herpes simplex virus.

Fungal meningitis: This type of meningitis is caused by fungal infections, which are relatively rare but can be serious in people with weakened immune systems. The most common fungal causes of meningitis are *Cryptococcus* and *Aspergillus*.

Parasitic meningitis: This type of meningitis is caused by parasitic infections, which are also relatively rare but can be serious in people with weakened immune systems. The most common parasitic causes of meningitis are *Naegleria fowleri*, and *Angiostrongylus cantonensis*.

Non-infectious meningitis: This type of meningitis is caused by conditions such as lupus, certain medications, or cancers that affect the meninges. It is not contagious and is treated differently from infectious meningitis.

PATHOPHYSIOLOGY:

- Virus or other causing agents like bacteria, fungus and parasites enters into the body, it can travel through the bloodstream and infect different organs, including the brain and spinal cord.
- In the case of viral meningitis, the virus can cross the blood-brain barrier and enter the cerebrospinal fluid that surrounds the brain and spinal cord.
- Once the virus can cause an infection in the cerebrospinal fluid, leading to inflammation and swelling of the meninges in brain. This inflammation can result in symptoms such as headache, fever, and neck stiffness.

CLINICAL MANIFESTATION:

- Fever
- Headache
- Stiff neck
- Nausea and vomiting
- Photophobia (sensitivity to light)
- Altered mental status (confusion, lethargy, difficulty concentrating)
- Seizures
- Skin rash (in some cases)
- High fever
- Excessive sleepiness or irritability
- Poor feeding or lack of appetite
- Bulging fontanelle (the soft spot on the top of the head)
- Stiffness in the body or limbs
- Seizures

DIAGNOSIS:

Family history & Medical history

Physical examination: The healthcare provider will check for signs of meningitis, such as fever, neck stiffness, and skin rash.

Lumbar puncture (spinal tap): A small amount of cerebrospinal fluid (CSF) is removed from the spinal canal using a needle. The fluid is then examined for the presence of bacteria, viruses, or other signs of infection.

Blood tests: Blood tests may be done to check for signs of infection, such as elevated white blood cell count.

Imaging tests: CT or MRI scans of the brain may be done to check for swelling or other abnormalities.

Viral culture: A sample of body fluid, such as blood or saliva, may be tested to determine the presence of a virus.

PCR (polymerase chain reaction) test: This test detects the genetic material of the pathogen, such as bacteria or virus, in samples of body fluids.

PHARMACOLOGICAL MANAGERMENTS:

Antibiotics: Penicillin, Ceftriaxone, Vancomycin, Ampicillin

Any pain reliever:

- Acetaminophen (Tylenol)

- Nonsteroidal anti-inflammatory drugs (NSAIDs) such as aspirin, ibuprofen (Advil, Motrin), and naproxen (Aleve)
- COX-2 inhibitors such as celecoxib (Celebrex)
- Opioids such as codeine, oxycodone (OxyContin), and hydrocodone (Vicodin)

NON PHARMACOLOGICAL MANAGERMENTS:

- **Vaccination:** Vaccines are available to protect against certain types of bacteria and viruses that can cause meningitis, such as *Streptococcus pneumoniae*, *Neisseria meningitidis*, and *Haemophilus influenzae* type B.
- **Practice good hygiene:** Wash your hands frequently with soap and water or use an alcohol-based hand sanitizer. Avoid close contact with individuals who are sick or have symptoms of respiratory infections.
- **Cover your mouth and nose:** Cover your mouth and nose with a tissue or your elbow when coughing or sneezing. Dispose of used tissues immediately.
- **Stay healthy:** Maintain a healthy lifestyle by eating a balanced diet, getting enough rest, and exercising regularly. This can help boost your immune system and reduce the risk of infections.
- **Avoid sharing personal items:** Do not share personal items such as eating utensils, drinking glasses, or toothbrushes with others, especially those who are sick.