

# An Overview of Aseptic Meningitis

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## Perspective

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## INTRODUCTION

Aseptic meningitis, or viral meningitis, is a kind of meningitis caused by a viral infection. The meninges become inflamed as a result (the membranes covering the brain and spinal cord). Headache, fever, light sensitivity, and neck stiffness are all frequent symptoms.

The most prevalent cause of aseptic meningitis is viruses. Enteroviruses are the most prevalent cause of viral meningitis (common stomach viruses). Other viruses, such as West Nile virus, mumps, measles, herpes simplex types I and II, varicella, and Lymphocytic Choriomeningitis (LCM) virus, can cause viral meningitis. Viral meningitis cannot be reliably distinguished from bacterial meningitis based on clinical symptoms, despite the fact that viral meningitis has a more benign clinical history. There is no sign of bacteria in the Cerebral Spinal Fluid (CSF) in viral meningitis. As a result, lumbar puncture with CSF analysis is frequently required to diagnose the condition.

In the vast majority of instances, there is no particular therapy; instead, efforts are focused on alleviating symptoms (headache, fever or nausea). Treatments for a few viral culprits, such as HSV, are available.

## Signs and symptoms

Fever, headache, and neck stiffness are common symptoms of viral meningitis. Fever is caused by cytokines that influence the hypothalamus's thermoregulatory (temperature regulation) neurons. Increased intracranial pressure and cytokines trigger nociceptors in the brain, causing headaches. Neck stiffness is caused by inflamed meninges straining as the spine flexes. The meninges' multiple layers operate as a barrier between the brain and the skull. Symptoms of viral meningitis are frequently less severe and may not advance as fast as those of bacterial meningitis.

The most common cause of viral meningitis is an infectious agent that has colonized someplace in its host. People who are already immunocompromised are the most vulnerable to pathogen infection. Those with HIV, cancer, diabetes, malnutrition, certain genetic abnormalities, and chemotherapy patients are just a few instances of immunocompromised people. The skin, respiratory tract, gastrointestinal tract, nasopharynx, and genitourinary tract are also possible targets. At these places, the organism infiltrates the submucosa by attacking host defences such as local immunity, physical barriers, and phagocytes or macrophages. The immune system is triggered once a pathogen infiltrates the body. Meningeal illness can be caused by an infectious agent infiltrating the central nervous system through the circulation, a retrograde neural route, or direct contiguous spread.

General indications of a viral infection, such as muscular pains and malaise, as well as nausea, vomiting, and photophobia (light sensitivity), are also frequent. The region postrema is stimulated by increased cranial pressure caused by viral meningitis, causing nausea and vomiting. Cushing's reflex, an indication of critically high intracranial pressure, would be triggered by widened pulse pressure (systolic - diastolic blood pressure), bradycardia, and irregular breathing. Meningeal inflammation causes photophobia. Concomitant encephalitis (meningoencephalitis) may occur in severe instances.

Symptoms of viral meningitis include irritability, sleepiness, and difficulty eating. Infection during pregnancy might lead to infection in the newborn period. In extreme situations, concurrent encephalitis (meningoencephalitis) can occur, which is indicated by symptoms including altered mental state, convulsions, or localised neurologic abnormalities. Additional indications and symptoms in the pediatric population include jaundice and swollen fontanelles. Children are more likely than adults to have a biphasic fever. The first fever appears when general constitutional symptoms appear, and the second arises when neurological symptoms appear.

Symptoms vary based on the virus that has infected you. The hallmark symptoms of enteroviral meningitis (the most prevalent cause) are headache, photophobia, fever, nausea, vomiting, and nuchal stiffness. A maculopapular rash, or even the characteristic vesicles seen with Herpangina, may be seen with coxsackie and echo viruses. The emergence of a prodromal influenza-like sickness around 10 days before other symptoms begin distinguishes Lymphocytic Choriomeningitis Virus (LCMV) from the common presenting meningeal symptoms.

Mumps meningitis can manifest itself in the same way that isolated mumps do, with parotid and testicular enlargement. HSV-2 meningitis is most prevalent in those who have never had genital herpes, according to study,

and a strong frontal headache is one of the most common presenting symptoms. Varicella zoster meningitis patients may also have herpes zoster (Shingles) in addition to the characteristic meningeal symptoms. Meningitis can be a sign that an HIV-positive person is going through seroconversion, the process in which the human body produces antibodies in response to the infection.