

## Early Complications and Causes of Meningitis

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### DESCRIPTION

Meningitis is an acute or chronic infection of the meninges, which are the protective membranes that coat the brain and spinal cord. Fever, headaches, and stiff necks are the most frequent signs and symptoms. Other signs and symptoms include an inability to handle brightness or loud noises, altered consciousness or states of disorientation, and nausea and vomiting. Young children frequently only display generalised symptoms, including irritability, sleepiness, or poor feeding there might also be a non-blanching rash.

### Causes

Microorganism infection is the usual cause of meningitis. The most frequent causes of infections are viruses, followed by bacteria, fungi, and protozoa. It could also be brought on by a number of non-infectious factors. Meningitis instances that lack evidence of a bacterial infection are referred to as aseptic meningitis. Viruses typically cause this type of meningitis, but it can also result from partially cured bacterial infections, when bacteria vanish from the meninges, or when pathogens infect an area next to the meninges (e.g. sinusitis). Aseptic meningitis may result from endocarditis, an infection of the heart valves that disperses tiny bacterial clusters through the bloodstream. Spirochete infections, a class of bacteria that includes the bacterium spirochetes, can also lead to aseptic meningitis. Syphilis-causing bacteria *Treponema pallidum* and *Borrelia burgdorferi* (known for causing Lyme disease). Meningitis can occur as a result of amoebic meningitis, which is caused by infection with amoebae such *Naegleria fowleri* and acquired *via* freshwater sources, or cerebral malaria, which is malaria that affects the brain.

### Early complications

The pressure inside the skull may rise, the brain tissue may enlarge, and the swelling brain may herniate through the base of the skull. The loss of the pupillary light reflex, a decline in

consciousness, and aberrant posture can all be indicators of this. The natural flow of CSF around the brain could be impeded by the inflammation of the brain tissue (hydrocephalus). Seizures can happen for a variety of causes; among children, they are frequent during the first stages of meningitis (30% of the time), however they are not always indicative of an underlying cause. Increased pressure and regions of inflammation in the brain tissue can also cause seizures. Late-onset seizures, persistent seizures, focal seizures (seizures that only affect one limb or area of the body), and difficult-to-control seizures imply a worse long-term prognosis while taking medicine.

When the condition is in its early stage, other issues could arise. These occasionally signify severe sickness or a bad prognosis, and they may call for specialised care. Sepsis, a state of systemic inflammatory response characterised by rapid breathing, high or unusually low body temperature, and lowering blood pressure, may be brought on by the infection. Early onset of very low blood pressure is possible, particularly but not only in cases of meningococcal meningitis; this could result in insufficient blood flow to other organs. Blood flow to organs may be obstructed by disseminated intravascular coagulation, which paradoxically raises the risk of bleeding. Meningococcal illness can cause gangrene of the limbs. Extreme meningococcal and pneumococcal infections have the potential to cause adrenal gland haemorrhage, which can culminate in the catastrophic Waterhouse-Friderichsen syndrome.

The cranial nerves, a collection of nerves that emerge from the brain stem and supply the head and neck region and regulate a variety of processes, including eye movement, facial muscles, and hearing, may develop abnormalities as a result of meningeal inflammation. After a meningitis attack, hearing loss and visual impairments could linger. Weakness, loss of sensation, or abnormal movement or function of the part of the body supplied by the affected area of the brain can all result from inflammation of the brain (encephalitis), its blood vessels (cerebral vasculitis), as well as the formation of blood clots in the veins (cerebral venous thrombosis).

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**Received:** 19-Jul-2022, Manuscript No. ATBM-22-19119; **Editor assigned:** 22-Jul-2022, PreQC No. ATBM-22-19119 (PQ); **Reviewed:** 08-Aug-2022, QC No. ATBM-22-19119; **Revised:** 15-Aug-2022, Manuscript No. ATBM-22-19119 (R); **Published:** 23-Aug-2022, DOI: 10.35248/2379-1764.22.10.371

**Citation:** Smith E (2022) Early Complications and Causes of Meningitis. Adv Tech Biol Med.10:371

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