

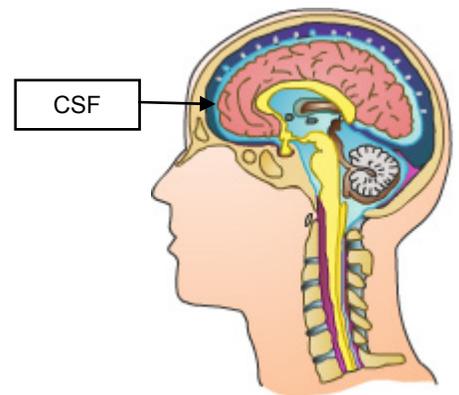
Introduction

Encephalitis is an inflammation, or swelling, of the brain. It is usually caused by a viral or bacterial infection. Most cases of encephalitis are not serious and only cause flu-like symptoms. However, severe cases of encephalitis may require hospitalization.

This reference summary explains what encephalitis is. It covers the symptoms, causes, diagnosis, and treatment.

Encephalitis

Encephalitis is an inflammation, or swelling, of the brain. The brain is a very important organ in the body. It controls our senses, movement, thinking, speech, and many other functions. The brain is surrounded by a fluid called the cerebrospinal fluid. This fluid acts as a cushion so the brain does not hit the skull.



Germs are all around us. There are millions of them in the air and on our skin. Viruses and bacteria are examples of germs. Many parts of the body specialize in fighting germs. All of the germ-fighting parts of the body together make up the immune system. Sometimes germs can get past the immune system's defenses and cause infection and inflammation. Encephalitis is an inflammation of the brain, most commonly caused by a virus.

If the immune system does not win the fight against an infection, the infection could spread to the blood and to other parts of the body. If left untreated, these infections could be life threatening.

Encephalitis can be contagious. This depends on the germ causing the infection. It can spread through saliva, nasal discharge, and throat secretions.

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Causes

There are three different groups of germs that are often responsible for causing encephalitis. The first group is the herpes viruses. The herpes viruses include chickenpox, the Epstein-Barr virus that causes mono, and the herpes simplex virus, which causes cold sores.

The second group is made up of viruses and other germs that are spread by insects. The most common is the West Nile virus, which is spread through a mosquito bite. Others in this group are germs that cause Lyme disease and Rocky Mountain spotted fever, which are spread through tick bites.

The third group includes viruses that cause childhood infections. Some of these viruses cause measles and mumps. However, it is rare to get encephalitis from these infections since most countries vaccinate their children. Vaccinations prevent children from getting these diseases.

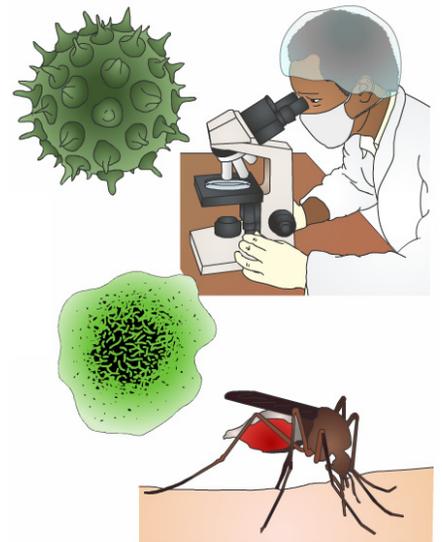
Encephalitis may also have other causes, including:

- Fungi
- Other bacteria
- Parasites

There are two ways that an infection can affect the brain and cause encephalitis: primary and secondary encephalitis.

Primary encephalitis happens when a virus, bacterium, fungus, or parasite directly infects the brain. The infection may be located in only one area. It may also be located in many areas and spread throughout the brain. Primary encephalitis may also appear after having an illness from an infection. For example, some viruses stay in the body after you get better and are no longer sick. The virus may travel to the brain and become active again, causing encephalitis.

Secondary encephalitis is inflammation in the brain that is caused by the immune system reacting to an infection in a different part of the body.



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Symptoms

Symptoms of encephalitis vary from person to person. Encephalitis may be mild or severe. Mild cases of encephalitis may cause no symptoms. If symptoms appear, they are often similar to symptoms of the flu and include:

- Aching muscles or joints
- Extreme tiredness
- Fever
- Headache

More severe cases are less common but can be life threatening. It is important to seek immediate medical care if you have the symptoms of a severe case of encephalitis, which include:

- Double vision
- Hallucinations
- Impaired judgment

Other symptoms of severe encephalitis include:

- Loss of consciousness
- Loss of sensation in some parts of the body
- Memory loss
- Muscle weakness
- Partial paralysis in the arms and legs
- Personality changes
- Problems with speech or hearing
- Seizures
- Sudden, severe dementia.



Dementia is a condition in which a person loses the ability to think, remember, learn, make decisions, and solve problems.

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Encephalitis in infants may cause different symptoms. Some of these symptoms include:

- A full or bulging soft spot on top of an infant's head
- Body stiffness
- Constant crying
- Crying that gets worse when the child is picked up
- Vomiting

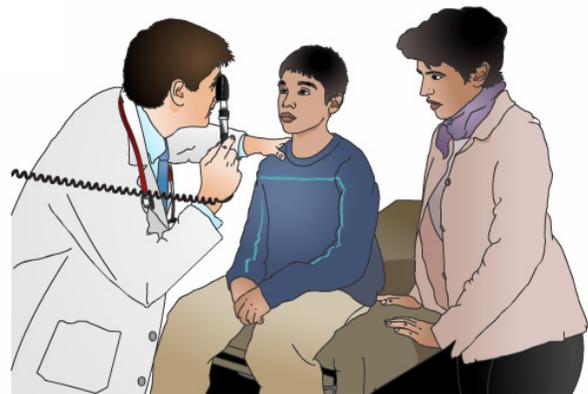


If your infant has the symptoms of encephalitis, seek immediate medical attention.

Diagnosis

To diagnose encephalitis, your healthcare provider will ask about your medical history and symptoms. He or she will also perform a physical exam. A neurological examination will also be performed. This exam involves a series of tests that evaluate:

- Changes in mood or behavior
- Coordination and balance
- Hearing and speech
- Mental status
- Motor and sensory function
- Nerve function
- Vision



If your healthcare provider thinks you may have encephalitis, brain imaging is usually the first test done. Brain imaging can show swelling in the brain or another cause of your symptoms, such as a tumor. Imaging tests may include a CT scan or MRI. A CT scan is an x-ray machine linked to a computer. A CT scan takes a series of detailed pictures of your organs. An MRI uses strong magnets to create images of the inside of the body.

A spinal tap checks the fluid around the brain and spinal cord for signs of inflammation and infection. This fluid is called cerebrospinal fluid, or CSF. A spinal tap is done by inserting a needle into the spinal column. Another name for a spinal tap is a lumbar puncture. The CSF fluid taken during a spinal tap will also be tested to find the cause of encephalitis. It may show which type of virus or germ is causing the inflammation.

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Other lab tests may also be done to find the cause of encephalitis. Samples of urine, blood, or mucus may be tested.

Encephalitis may also be diagnosed using an electroencephalogram, or EEG. For this test, electrodes are attached to the scalp. The electrodes record the electrical activity of the brain. Encephalitis may cause abnormal electrical activity.

Treatment

Treatment for encephalitis varies from person to person. It depends on the virus or germ that caused the inflammation. For mild cases of encephalitis, you may just need rest, plenty of fluids, and a pain reliever. The goal of these treatments is to reduce fever and headache.



Bacterial encephalitis is treated with antibiotics. Antibiotics do not work on encephalitis caused by viruses. However, there are antiviral medications that can fight some viruses that cause encephalitis. Steroid medications may also be prescribed. These medications reduce inflammation in the brain.

For more severe cases of encephalitis, you might need to be hospitalized. Patients with severe cases can be better monitored and treated in a medical facility. Medications may also be given in a hospital to control severe symptoms of encephalitis, including:

- Nausea
- Seizures
- Vomiting

Sedatives can also be given in a hospital to calm a person with encephalitis. Sometimes encephalitis can cause impaired judgment, hallucinations, or personality changes that make a person a danger to themselves or others.



Severe cases of encephalitis may also cause breathing problems. If needed, this may be treated with artificial respiration.

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Rarely, inflammation of the brain may cause additional problems after the illness is gone. Treatments needed after the illness may include:

- Occupational therapy
- Physical therapy
- Psychotherapy
- Speech therapy



Occupational therapy helps a person learn everyday skills. Sometimes devices may be needed to help with performing everyday activities. Occupational therapy also teaches a person how to use these devices. Physical therapy focuses on strengthening the body and improving mobility. Psychotherapy may be used to treat personality changes or mood disorders.

Preventing Encephalitis

You can prevent encephalitis by practicing good hygiene and protecting yourself from the bites of mosquitoes, ticks, and other insects. Here are some tips:

1. Wash your hands frequently with soap and water.
2. Apply mosquito repellent and dress to protect yourself from mosquitoes.
3. Do not share towels or eating utensils.
4. Ask your doctor about vaccinations you may need when you travel.

Summary

Encephalitis is an inflammation, or swelling, of the brain. It is most often caused by a viral infection. However, it can also be caused by bacteria, fungi, or parasites.

Treatment for encephalitis varies from person to person. It depends on the virus or germ that caused the inflammation.

Severe cases of encephalitis may require hospitalization and further treatment after the illness is gone. Thankfully, most cases of encephalitis are not serious and only cause flu-like symptoms.



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