CONDITION

Viral meningitis

Viral meningitis is inflammation around the brain and spinal cord caused by a viral infection.

WHAT IT IS
Inflammation around the brain and spinal cord from a virus

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Headache, fever, stiff neck, light sensitivity

WHAT CAUSES IT
Viral infection

HOW IT IS DIAGNOSED
Lumbar puncture with spinal fluid testing

MAIN TREATMENT
Supportive care, sometimes with antiviral medicine

CAN IT BE CURED?
Sometimes - specific antivirals treat certain viruses

IS IT AN EMERGENCY?
Sometimes - confusion, seizures, or rapid worsening need emergency care

LONG-TERM OUTLOOK
Most recover completely, though fatigue may linger

Overview

Viral meningitis is inflammation of the meninges, the thin layers of tissue that surround the brain and spinal cord. It happens when a viral infection reaches these tissues or triggers inflammation around them.

Many viruses can cause meningitis. Enteroviruses, a large group that commonly causes mild respiratory or stomach illnesses, are frequent causes. Herpes simplex virus, varicella-zoster virus, mumps virus, and viruses spread by mosquitoes or ticks can also be responsible.

Viral meningitis is generally less dangerous than bacterial meningitis. However, the symptoms can look similar at first. Bacterial meningitis can become life-threatening quickly, so suspected meningitis needs prompt medical assessment rather than home diagnosis.

Most people with viral meningitis recover without lasting problems. Recovery may still take

time, and headaches, tiredness, poor concentration, or sensitivity to noise can continue after the infection has cleared.

Meningitis is different from encephalitis. Meningitis affects the tissues around the brain. Encephalitis involves inflammation within the brain itself and is more likely to cause confusion, seizures, unusual behaviour, weakness, or reduced consciousness. The two conditions can occur together.

Symptoms

Symptoms may develop suddenly or build over a few days. They often begin after a mild illness that seemed like a cold, flu, stomach infection, or rash.

Common symptoms in adults and older children include:

A rash is not a defining feature of viral meningitis, although some viruses can cause one. A dark red or purple rash that does not fade when pressed may indicate meningococcal infection, a medical emergency.

Babies may not develop the usual stiff neck or describe a headache. Possible signs include poor feeding, vomiting, unusual sleepiness, persistent crying, irritability when handled, fever, or a bulging soft spot on the head. A baby may also be difficult to wake or unusually floppy.

Symptoms alone cannot reliably show whether meningitis is viral or bacterial. Confusion, seizures, fainting, new weakness, trouble speaking, or increasing difficulty staying awake can suggest encephalitis or another serious problem.

- Severe or persistent headache
- Fever
- Stiff or painful neck
- Sensitivity to bright light
- Nausea or vomiting
- Muscle aches and marked tiredness
- Reduced appetite
- Irritability or difficulty concentrating

Causes and risk factors

Enteroviruses cause many cases of viral meningitis. They spread through respiratory droplets, saliva, close contact, and traces of stool, especially when hand hygiene is poor. Infection with an enterovirus is common, but meningitis develops in only a small proportion of infected people.

Other possible causes include:

Sometimes testing does not identify the exact virus.

Anyone can develop viral meningitis. Babies, young children, and people with weakened immune systems may be more likely to become seriously unwell. Immune suppression can result from certain health conditions, cancer treatment, organ transplantation, or medicines that reduce immune activity.

Season can affect risk. Enterovirus infections are more common during summer and early autumn in many temperate regions. Mosquito-borne and tick-borne infections also follow local insect activity and travel patterns.

- Herpes simplex virus, particularly herpes simplex type 2
- Varicella-zoster virus, which causes chickenpox and shingles
- Mumps virus
- Human immunodeficiency virus during early infection
- Viruses carried by mosquitoes or ticks
- Less common viral infections linked to travel or local outbreaks

Diagnosis

A healthcare professional will ask about your symptoms, recent infections, medicines, vaccination history, travel, insect bites, and contact with anyone who has been unwell. The examination may include checking neck movement, alertness, strength, skin changes, and sensitivity to light.

The main test for meningitis is a lumbar puncture, sometimes called a spinal tap. A needle is placed into the lower back to collect a small sample of cerebrospinal fluid, the clear fluid around the brain and spinal cord. The needle is inserted below the level of the spinal cord.

The fluid is checked for signs of inflammation, bacteria, and viruses. A polymerase chain reaction, or PCR, test can detect genetic material from viruses such as enteroviruses, herpes simplex, and varicella-zoster. Bacterial cultures and other tests are often performed because bacterial meningitis must be excluded.

Blood tests may help identify infection and assess how the body is responding. Samples from the throat, stool, skin lesions, or other areas may be useful in selected cases.

A CT scan does not confirm viral meningitis. It may be needed before a lumbar puncture if there are concerns about pressure inside the skull, seizures, reduced consciousness, or a new neurological problem such as weakness. Not everyone needs a scan.

A negative viral test does not always rule out viral meningitis. The virus may no longer be detectable, or the available test may not cover the virus involved. The diagnosis is then based on the fluid findings, symptoms, and exclusion of other causes.

Treatment and management

Treatment depends on how unwell you are, your age, your immune health, and whether a particular virus has been identified.

Because viral and bacterial meningitis can look alike, treatment may begin before test results are available. This can include antibiotics like amoxicillin or doxycycline for possible bacterial meningitis. Antibiotics do not treat viruses, but delaying them when bacterial meningitis is possible can be dangerous.

Antiviral medicine may be given when herpes simplex or varicella-zoster virus is suspected. Antiviral medicines do not work against every cause of viral meningitis. Treatment may also be needed for the underlying infection, such as HIV, when relevant.

Supportive care helps your body recover and may include:

Some people can recover at home after serious causes have been excluded and their symptoms are stable. Others need hospital care, particularly babies, people with reduced immunity, and anyone with severe symptoms or possible encephalitis.

Follow the discharge advice you receive. Seek reassessment if symptoms worsen, return after improving, or do not follow the expected recovery pattern.

- Fluids and rest
- Medicines for pain, fever, or nausea
- Monitoring of breathing, alertness, and fluid balance
- Treatment for seizures or other complications if they occur

Complications

Most people recover completely, but viral meningitis can still cause significant short-term illness. Headache, weakness, poor sleep, dizziness, and difficulty concentrating may continue for several weeks.

Less common complications include seizures, hearing problems, problems with balance, or persistent difficulties with memory and attention. Complications are more likely when infection also affects the brain, spinal cord, or nerves.

Some herpes viruses can cause repeated episodes of meningitis. This is sometimes called recurrent lymphocytic meningitis or Mollaret meningitis. Repeated severe headaches and neck stiffness should be medically assessed rather than assumed to be a previous infection returning.

Babies and people with weakened immune systems may have a more complicated course. Follow-up may be arranged to check hearing, development, neurological symptoms, or recovery from the underlying infection.

Prevention

Not every case of viral meningitis can be prevented. Many viruses that cause it spread before symptoms appear, and there is no vaccine against all enteroviruses.

Vaccination can prevent some infections that may lead to meningitis. Depending on your country and circumstances, these may include vaccines against mumps, measles, chickenpox, influenza, and polio. Routine meningococcal and pneumococcal vaccines do not prevent viral meningitis, but they protect against important bacterial causes of meningitis.

Regular handwashing is especially useful after using the toilet, changing nappies, and before preparing food. Avoid sharing drinking containers, cutlery, lip products, or toothbrushes with someone who is unwell.

Cleaning frequently touched surfaces may reduce enterovirus spread. If you have vomiting, diarrhoea, fever, or another contagious illness, follow local advice about staying away from school, childcare, or work.

Barriers such as condoms can reduce, but not remove, the risk of sexually transmitted herpes. Avoiding sexual contact during active genital sores or warning symptoms also lowers transmission risk.

In areas with mosquito-borne or tick-borne viruses, use recommended insect repellent, suitable clothing, window screens, and local tick precautions.

Living with it and what to expect

Many people begin improving within several days and recover over one or two weeks. Recovery is not identical for everyone. The virus involved, the severity of the inflammation, age, and immune health can all affect the course.

Tiredness and headaches may last longer than the fever and neck stiffness. You may find that screens, bright lights, noise, exercise, or a full day at work or school bring symptoms back. A gradual return to normal activity may be more manageable than trying to resume everything at once.

Rest is useful early in recovery, but prolonged complete inactivity is not usually necessary once you are improving. Increase ordinary activity according to how you feel and the advice given at discharge. Avoid driving or safety-sensitive work if you are dizzy, unusually sleepy, confused, or taking medicine that affects alertness.

Arrange routine follow-up if headaches, fatigue, sleep problems, hearing changes, or concentration difficulties are not steadily improving. Follow-up is also important after a seizure, encephalitis, repeated meningitis, or infection during infancy.

Most people do not continue to carry a lifelong meningitis condition. However, the virus itself may remain in the body in some infections, including herpes viruses, and can occasionally reactivate.

When to get medical help

Get urgent medical assessment for a new combination of severe headache, fever, neck stiffness, vomiting, or marked sensitivity to light. Do not wait for every typical symptom to appear or for a rash to develop.

Call emergency services if you or another person has:

After diagnosis, seek urgent reassessment if symptoms worsen, fever returns, vomiting prevents fluids from staying down, or new neurological symptoms appear.

Routine follow-up is appropriate for recovery concerns that are stable rather than worsening, such as lingering fatigue, mild headaches, sleep disruption, or difficulty returning to work or school.

- Confusion, collapse, or increasing difficulty waking
- A seizure

- New weakness, trouble speaking, or unusual behaviour
- Severe breathing difficulty
- Rapidly worsening symptoms
- A dark red or purple rash that does not fade when pressed
- Severe illness in a baby, including poor feeding, unusual sleepiness, floppiness, or a bulging soft spot

Common questions

Is viral meningitis contagious?

The meningitis itself is not usually passed directly from person to person. The virus causing it may be contagious. Most people who catch that virus will develop a mild illness or no symptoms rather than meningitis. How it spreads depends on the virus.

How long does viral meningitis last?

Many people improve within about one to two weeks. Headaches, tiredness, light sensitivity, and poor concentration can last longer. Severe, worsening, or returning symptoms need reassessment.

Is viral meningitis less serious than bacterial meningitis?

It usually has a better outlook, but the symptoms overlap. It is not safe to decide at home that meningitis is viral. Medical testing is needed to exclude bacterial meningitis and other urgent causes.

Do antibiotics treat viral meningitis?

No. Antibiotics treat bacteria, not viruses. They may still be started while test results are pending because bacterial meningitis needs immediate treatment. Antiviral medicines are useful only for certain viruses.

Can viral meningitis come back?

It can, but recurrence is uncommon. Herpes simplex virus type 2 is one possible cause of repeated episodes. A returning severe headache with fever or neck stiffness should be assessed again.

When can I return to work or school?

This depends on your recovery and on how the underlying virus spreads. You should be fever-free, well enough for normal activity, and able to eat and drink. Follow any specific infection-control advice given for the virus identified.

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