CONDITION

Spinal meningitis

Spinal meningitis is inflammation of the protective membranes around the brain and spinal cord.

WHAT IT IS
Inflammation around the brain and spinal cord

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Fever, severe headache, stiff neck, confusion

WHAT CAUSES IT
Usually infection, sometimes noninfectious inflammation

HOW IT IS DIAGNOSED
Lumbar puncture with cerebrospinal fluid testing

MAIN TREATMENT
Urgent cause-specific medicines and supportive hospital care

CAN IT BE CURED?
Sometimes - many causes respond to treatment

IS IT AN EMERGENCY?
Yes - suspected meningitis needs immediate assessment

LONG-TERM OUTLOOK
Many recover, but lasting complications can occur

Overview

Spinal meningitis is another name sometimes used for meningitis . It means that the meninges have become inflamed. The meninges are thin layers of tissue that protect the brain and spinal cord.

The term can be misleading because meningitis does not usually affect only the spine. The same protective membranes surround both the brain and spinal cord. It is also different from an infection inside the bones or discs of the spine.

Meningitis is most often caused by an infection. Bacteria and viruses are common causes, but fungi and other organisms can also be responsible. Less often, meningitis develops because of certain medicines, cancer, or an inflammatory condition.

Bacterial meningitis can become life-threatening quickly and needs immediate hospital treatment. Some viral forms are milder, but symptoms alone cannot reliably show which type you have. Anyone with possible meningitis should be assessed urgently rather than waiting to see whether it improves.

Meningitis can affect people of any age. The likely cause, treatment, and chance of complications differ according to age, general health, vaccination history, and the organism or condition involved.

Symptoms

Symptoms may appear suddenly or develop over several days. Not everyone has every symptom, and the usual pattern can be different in babies, older adults, and people with weakened immune systems.

Common symptoms in older children and adults include:

Some people develop a red or purple rash that does not fade when a clear glass is pressed against it. This can occur with meningococcal infection, which may cause meningitis, bloodstream infection, or both. A rash may appear late or not appear at all, so do not wait for one before seeking help.

Babies may not have a stiff neck or obvious headache. Possible signs include poor feeding, repeated vomiting, unusual sleepiness, irritability, a high-pitched cry, seizures, or a swollen soft spot on the head. A baby may feel unusually floppy or stiff and may dislike being held.

Older adults and people with reduced immune function may have less obvious fever or neck stiffness. Confusion, reduced alertness, or a sudden change in behaviour may be the main sign.

- Fever
- Severe or unusual headache
- Stiff or painful neck
- Nausea or vomiting
- Discomfort from bright light
- Sleepiness, confusion, or difficulty waking
- Seizures
- Muscle or joint pain

Causes and risk factors

Bacterial meningitis can be caused by several bacteria, including meningococcal, pneumococcal, and group B streptococcal bacteria. These organisms may spread from the nose and throat into the bloodstream and then reach the meninges. Bacteria can also spread from an ear or sinus infection, a skull injury, or an operation involving the brain or spine.

Viral meningitis is commonly linked to enteroviruses. Herpes viruses, chickenpox and shingles viruses, and several other viruses can also cause it. Viral meningitis is often less severe than bacterial meningitis, but some viral infections can cause serious illness.

Fungal meningitis is uncommon. It is more likely in people whose immune systems are weakened by illness or immune-suppressing treatment. Fungi are generally acquired from the environment rather than passed directly between people.

Tuberculosis can cause a slower-developing form of meningitis. Rarely, parasites or amoebas are responsible.

Noninfectious meningitis can occur because of autoimmune inflammation, cancer involving the meninges, or a reaction to certain medicines. This type is not contagious.

Factors that may increase risk include:

Having a risk factor does not mean that you will develop meningitis.

- Being a newborn, adolescent, young adult, or older adult
- Missing vaccines that protect against some meningitis-causing infections
- Living in close-contact settings, such as student accommodation
- Having a weakened immune system or no functioning spleen
- Having a cerebrospinal fluid leak or a cochlear implant
- Recent brain or spinal surgery, head injury, or infection nearby
- Travel to an area where particular meningococcal strains are more common

Diagnosis

Meningitis cannot be confirmed from symptoms or a physical examination alone. Hospital assessment usually includes questions about symptoms, vaccinations, medicines, travel, recent infections, and contact with anyone who has been unwell.

Blood tests can look for infection and identify bacteria in the bloodstream. Blood cultures are samples used to grow and identify bacteria.

The main test is usually a lumbar puncture , sometimes called a spinal tap. A clinician places a needle into the lower back to collect a small amount of cerebrospinal fluid, the clear liquid around the brain and spinal cord. The needle goes below the level where the spinal cord ends.

The fluid is checked for inflammatory cells, protein, sugar levels, and signs of bacteria, viruses, fungi, or other causes. Tests may include culture and polymerase chain reaction, or PCR, which looks for genetic material from an organism.

A CT scan may be needed before a lumbar puncture if there are signs that the procedure could be unsafe, such as certain neurological findings or concern about increased pressure inside the skull. A scan cannot by itself rule meningitis in or out.

If bacterial meningitis is suspected, treatment may begin before all tests are completed. Testing should not create an unsafe delay in treatment.

Treatment and management

Treatment takes place in hospital when bacterial meningitis is possible or symptoms are severe. Care is based on the suspected cause, test results, age, and overall health.

Suspected bacterial meningitis is treated urgently with antibiotics like amoxicillin or doxycycline given into a vein. Broad treatment may be started first and then changed when the responsible bacterium and its antibiotic sensitivity are known. A corticosteroid like prednisone or hydrocortisone may be given in selected cases to reduce inflammation and the risk of some complications.

Some viral meningitis needs only monitoring, fluids, rest, and treatment for pain or fever. Antiviral medicine may be used when a virus such as herpes is suspected or confirmed. Antibiotics do not treat viruses.

Fungal and tuberculosis meningitis require specific antimicrobial medicines, often for a prolonged period. Noninfectious meningitis is managed by treating the underlying inflammation, medicine reaction, or cancer.

Supportive care may include oxygen, intravenous fluids, seizure treatment, and close monitoring of blood pressure, alertness, and pressure inside the skull. People who become critically unwell may need intensive care.

Public health teams may become involved when meningococcal or certain other bacterial infections are diagnosed. People who had close contact with the affected person may be offered preventive antibiotics or vaccination. Casual contacts usually do not need treatment.

Complications

Inflammation can affect the brain, nerves, blood vessels, or the movement of cerebrospinal fluid. Complications are more likely with bacterial meningitis, delayed treatment, severe illness, or certain underlying health problems.

Possible complications include:

Some complications improve during recovery, while others can be long term. Hearing assessment is often important after bacterial meningitis because hearing loss may not be obvious at first. Children may need developmental follow-up to identify learning, communication, or movement difficulties early.

- Hearing loss or ringing in the ears
- Seizures
- Problems with memory, concentration, balance, or movement
- Speech, vision, or learning difficulties
- Weakness or nerve damage
- A build-up of fluid around the brain
- Bloodstream infection, shock, or organ injury
- Limb or tissue damage after severe meningococcal bloodstream infection

Prevention

Not every case of meningitis can be prevented. There is no single vaccine that protects against every cause, and noninfectious meningitis may not be preventable.

Vaccines can lower the risk from several important bacteria and viruses. These include vaccines against meningococcal bacteria, pneumococcal bacteria, Haemophilus influenzae type b, measles, mumps, chickenpox, and influenza. The vaccines offered depend on age, health, previous vaccination, travel, and local immunisation programmes.

Some bacteria and viruses spread through respiratory droplets, saliva, or close contact. Washing your hands, covering coughs, and not sharing drinks, eating utensils, cigarettes, or vaping devices may reduce exposure. These steps cannot remove all risk.

If someone close to you is diagnosed with meningococcal disease or another infection that requires contact management, public health staff will identify who needs preventive treatment. Preventive antibiotics should not be shared or taken without that assessment.

People with a known cerebrospinal fluid leak, no functioning spleen, or immune system problems may need specific vaccination planning and follow-up.

Living with it and what to expect

Recovery differs according to the cause and severity of the meningitis. Many people with uncomplicated viral meningitis recover without lasting neurological problems, although headache, tiredness, sleep changes, and difficulty concentrating may continue for weeks or occasionally longer.

Recovery after bacterial meningitis may take months. Some people return to their previous health, while others have lasting hearing, learning, movement, seizure, or memory problems. Severe illness can also affect mood and confidence. Children may show difficulties only when schoolwork or developmental demands increase.

After discharge, follow-up may include a hearing test, neurological assessment, rehabilitation, and checks on learning or development. Physiotherapy, occupational therapy, speech and language therapy, or psychological support may help when specific problems remain.

Progress is not always steady. Tiredness and headaches can improve gradually, and doing too much too soon may temporarily make symptoms feel worse. A planned return to work, school, exercise, and driving may be helpful. Driving rules can be affected by seizures or other neurological problems.

Keep routine follow-up appointments even if recovery seems to be going well. Report persistent hearing changes, repeated headaches, seizures, weakness, balance problems, or changes in memory and behaviour rather than waiting for the next routine review.

When to get medical help

Possible meningitis needs emergency assessment.

Call emergency services or go to an emergency department now if you or someone else has a combination of fever, severe headache, stiff neck, confusion, unusual sleepiness, repeated vomiting, a seizure, or strong discomfort from light.

Get emergency help for a red or purple rash that does not fade under pressure, especially with fever or rapid worsening. Do not wait for a rash if other meningitis symptoms are present.

A baby needs urgent assessment for poor feeding, unusual irritability, a high-pitched cry, repeated vomiting, seizures, a swollen soft spot, marked sleepiness, or unusual stiffness or

floppiness.

After meningitis treatment, seek urgent help for a new seizure, increasing confusion, fainting, new weakness, breathing difficulty, or a severe and rapidly worsening headache.

For routine follow-up, contact your usual healthcare service about continuing fatigue, mild headaches, hearing changes, poor concentration, low mood, or difficulty returning to everyday activities. These symptoms are not always an emergency, but they may need assessment and support.

Common questions

Is spinal meningitis the same as meningitis?

Usually, yes. "Spinal meningitis" is a nontechnical name for inflammation of the meninges around the brain and spinal cord. It does not normally mean that inflammation is limited to the spine.

Is spinal meningitis contagious?

Meningitis itself is inflammation and is not passed between people. Some infections that cause it can spread. Meningococcal bacteria can spread through close or prolonged contact with respiratory or throat secretions. Viral causes differ in how they spread. Fungal and noninfectious meningitis are generally not contagious.

Can you survive spinal meningitis?

Many people survive, especially when the cause is identified and effective treatment begins promptly. The outlook is less favourable with some bacterial, fungal, or tuberculosis forms and when severe complications develop. Symptoms alone cannot predict the outcome.

Does a lumbar puncture damage the spinal cord?

A lumbar puncture is performed in the lower back, below where the spinal cord usually ends. Headache and temporary back discomfort can occur afterward. Serious complications are uncommon, and the healthcare team checks for reasons the procedure may need to be delayed or avoided.

Can meningitis come back?

It can recur, but this is uncommon. Repeated episodes may be linked to immune problems, a cerebrospinal fluid leak, certain viruses, medicines, or inflammatory conditions. Recurrent symptoms need medical assessment.

Can I get meningitis if I have been vaccinated?

Yes. Vaccines greatly reduce the risk from particular bacteria or viruses, but they do not cover

every strain or every cause of meningitis. Vaccinated people still need urgent assessment if symptoms suggest meningitis.

Sources

- World Health Organization. Meningitis fact sheet
- Centers for Disease Control and Prevention. About Meningitis
- Centers for Disease Control and Prevention. Clinical Overview of Meningococcal Disease
- National Institute for Health and Care Excellence. NG240: Meningitis (bacterial) and meningococcal disease-recognition, diagnosis and management
- NHS. Meningitis
- National Institute of Neurological Disorders and Stroke. Meningitis