CONDITION

Torular meningitis

Torular meningitis is an older name for a fungal infection of the tissues surrounding the brain and spinal cord.

WHAT IT IS
Fungal infection of the brain and spinal cord linings

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Headache, fever, nausea, confusion

WHAT CAUSES IT
Infection with Cryptococcus fungi

HOW IT IS DIAGNOSED
Spinal fluid cryptococcal antigen and fungal culture

MAIN TREATMENT
Prolonged antifungal therapy and pressure management

CAN IT BE CURED?
Sometimes - antifungals can clear infection

IS IT AN EMERGENCY?
Yes - suspected meningitis needs urgent hospital care

LONG-TERM OUTLOOK
Recovery possible; delayed treatment can cause disability or death

Overview

Torular meningitis is an older name for cryptococcal meningitis . Modern medical sources usually use the term cryptococcal meningitis.

It is an infection of the meninges, the thin layers of tissue surrounding the brain and spinal cord. It is caused by fungi from the Cryptococcus group, most often Cryptococcus neoformans or Cryptococcus gattii .

The infection usually begins after fungal cells are breathed in from the environment. They may settle in the lungs without causing symptoms. In some people, the fungi travel through the bloodstream to the brain.

Cryptococcal meningitis often develops gradually over days or weeks. This can make it less

obvious than some forms of bacterial meningitis. However, it remains a serious condition because it can increase pressure around the brain and damage the nervous system.

Treatment usually requires hospital care followed by antifungal medicine for several months. Starting treatment promptly improves the chance of recovery.

Symptoms

A headache is the most common symptom. It may become steadily worse or fail to improve with usual pain relief.

Other possible symptoms include:

Not everyone develops a high fever or a stiff neck. Symptoms may be especially subtle in someone whose immune system is severely weakened.

Pressure can build up in the fluid surrounding the brain. This may cause worsening headache, repeated vomiting, vision changes, confusion or reduced consciousness. These symptoms require urgent assessment.

Symptoms alone cannot show whether meningitis is cryptococcal or has another cause. Tests are needed to confirm the diagnosis.

- Fever
- Nausea or vomiting
- Sensitivity to light
- Neck pain or stiffness
- Unusual tiredness
- Confusion or changes in behaviour
- Blurred or double vision
- Problems with balance
- Seizures
- Reduced alertness

Causes and risk factors

Cryptococcal meningitis is caused by Cryptococcus fungi found in the environment. People usually encounter them by breathing in fungal cells. The condition is not generally passed

between people through ordinary contact.

The risk is highest when the immune system cannot control the fungus. Important risk factors include:

People without a known immune problem can also develop the infection. This is more often associated with Cryptococcus gattii , although either main type can sometimes affect an otherwise healthy person.

Exposure does not mean that meningitis will develop. Many people encounter environmental fungi without becoming ill. The condition usually reflects a combination of exposure, the type of fungus and the body's immune response.

- Advanced HIV infection, especially without effective treatment
- An organ transplant
- Medicines that suppress the immune system
- Long-term corticosteroid treatment
- Some blood cancers and immune disorders
- Certain treatments for cancer or inflammatory conditions

Diagnosis

Diagnosis usually requires a lumbar puncture, sometimes called a spinal tap. During this procedure, a clinician places a needle into the lower back and collects a small amount of cerebrospinal fluid. This is the clear fluid surrounding the brain and spinal cord.

The fluid is tested for:

The pressure of the spinal fluid is also measured. This is important because raised pressure is common and may need treatment.

Blood tests may look for cryptococcal antigen or fungi in the bloodstream. They also check kidney function, liver function and blood cell levels before and during treatment. HIV testing is usually offered when a person's HIV status is not already known because the result affects treatment planning.

A CT or MRI scan may be needed before or after the lumbar puncture if there are seizures, one-sided weakness, severe reduction in alertness or concern about a mass or blocked fluid flow. Imaging can also identify cryptococcomas, which are localised areas of fungal infection in the brain.

- Cryptococcal antigen, a substance from the fungus
- Fungal cells or genetic material
- Growth of the fungus in a laboratory culture
- Signs of inflammation

Treatment and management

Cryptococcal meningitis is treated with antifungal medicines. Treatment is usually divided into stages.

The first stage aims to reduce the amount of fungus quickly. It commonly uses a combination of strong antifungal medicines, often including amphotericin B and flucytosine. Hospital monitoring is usually needed during this stage.

A longer stage follows to clear the remaining infection and prevent it from returning. Fluconazole is commonly used for this part of treatment. The exact medicines, route and length of treatment are chosen according to factors such as immune status, fungal species, treatment response and local availability.

Antifungals like fluconazole or terbinafine can affect the kidneys, liver, salts in the blood or production of blood cells. Regular blood tests help the care team detect and manage these effects. Side effects should not be managed by stopping treatment without medical advice.

Raised pressure around the brain needs separate treatment. Removing spinal fluid through a lumbar puncture can relieve pressure and protect vision and brain function. Some people need this procedure more than once. If pressure remains difficult to control, a temporary drain or surgically placed shunt may be considered.

For people with HIV, effective HIV treatment is an important part of long-term recovery. Its timing must be planned carefully because starting it too soon after meningitis treatment begins can trigger intense inflammation called immune reconstitution inflammatory syndrome, or IRIS.

If immune-suppressing medicine contributed to the infection, clinicians may consider adjusting it. Sudden changes can be harmful, particularly after an organ transplant, so these medicines should not be stopped without specialist guidance.

Complications

Cryptococcal meningitis can interfere with the brain, cranial nerves and flow of spinal fluid.

Possible complications include:

Severe infection can be fatal. The risk is greater when diagnosis or treatment is delayed, the immune system is profoundly weakened or pressure around the brain is not controlled.

Some complications improve with treatment, while others may cause lasting disability. Rehabilitation, vision care, hearing support or help with memory and movement may be needed.

- Persistently raised pressure around the brain
- Loss of vision or hearing
- Seizures
- Stroke-like injury
- Memory, concentration or balance problems
- Hydrocephalus, meaning excess fluid within the brain
- Relapse or continued fungal infection
- IRIS after immune recovery begins

Prevention

There is no vaccine for cryptococcal meningitis. Because Cryptococcus fungi occur widely in the environment, completely avoiding exposure is not practical.

For people living with HIV, effective HIV treatment lowers the risk by helping the immune system recover. In settings where cryptococcal infection is common, people with advanced HIV may be offered a blood cryptococcal antigen test before symptoms begin. A positive result can sometimes be treated before meningitis develops.

If you take immune-suppressing medicine, use it as prescribed and attend planned monitoring. Do not reduce or stop it simply to lower the risk of infection.

Routine avoidance of soil, trees or bird droppings has not been shown to prevent all cases. The fungi can be present even when there is no visible contamination.

Living with it and what to expect

Treatment usually continues for months rather than days. The early part may involve a hospital stay, repeated lumbar punctures and frequent blood tests. Later treatment can often continue

at home with regular follow-up.

Headache and other symptoms may improve gradually. Recovery can be slower if the infection caused high pressure, nerve injury, a stroke or cryptococcomas. Tiredness and problems with concentration may continue after the infection is controlled.

Follow-up checks assess symptoms, medicine side effects and the health of the immune system. Another lumbar puncture may be needed if symptoms return, pressure remains high or tests suggest that the fungus has not cleared.

Relapse is more likely if antifungal treatment is stopped early or the underlying immune problem remains severe. For someone with HIV, maintaining effective HIV treatment is central to reducing this risk.

Many survivors return to their usual activities, although this may happen in stages. Some need rehabilitation or practical changes because of lasting vision, hearing, movement or memory problems. The long-term course cannot be predicted from the first few days alone.

When to get medical help

Seek emergency medical care now for a severe or rapidly worsening headache with fever, confusion, repeated vomiting, a seizure, fainting, new weakness, sudden vision loss or difficulty staying awake. Suspected meningitis requires urgent hospital assessment.

If you are already being treated for cryptococcal meningitis, get urgent medical advice for:

Routine follow-up remains important even when you feel better. Attend planned blood tests and appointments, and discuss stable side effects or recovery concerns there. Do not wait for a routine visit if neurological symptoms are new or getting worse.

- A returning or worsening headache
- New vision, hearing or balance problems
- Increasing confusion or unusual behaviour
- Repeated vomiting or inability to keep medicine down
- Much less urine than usual
- Yellowing of the skin or eyes
- A new rash, swelling or breathing difficulty

Common questions

Is torular meningitis the same as cryptococcal meningitis?

Yes. Torular meningitis is an older term. Cryptococcal meningitis is the name now used in medical guidance and test reports.

Is cryptococcal meningitis contagious?

It is not generally spread from one person to another through touching, coughing, sex or sharing a home. Infection usually follows exposure to Cryptococcus in the environment.

Can a healthy person get cryptococcal meningitis?

Yes, although it is more common in people with weakened immunity. Cryptococcus gattii can cause infection in people without an identified immune problem.

How long does treatment take?

Treatment usually lasts several months and has more than one stage. Some people need longer-term suppressive treatment until their immune system has recovered. The length is influenced by immune status, treatment response and whether complications remain.

Can cryptococcal meningitis come back?

It can recur if the fungus was not fully controlled, treatment was interrupted or the immune system remains severely weakened. New headaches or neurological symptoms after treatment need prompt assessment rather than being assumed to be a relapse.

Why might I need more than one lumbar puncture?

The infection can cause spinal fluid pressure to rise again after it has been lowered. Repeating the procedure can reduce headache, protect vision and help prevent brain injury. It is used as treatment as well as for testing.

Sources

- Centers for Disease Control and Prevention: Clinical Overview of Cryptococcosis
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