CONDITION

Tabes dorsalis

Tabes dorsalis is late nerve damage caused by a long-standing, untreated syphilis infection.

WHAT IT IS
Late nerve damage from untreated syphilis infection

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Lightning pains, unsteady walking, numbness, bladder problems

WHAT CAUSES IT
Long-standing infection with syphilis bacteria

HOW IT IS DIAGNOSED
Neurologic examination, blood syphilis tests, spinal fluid tests

MAIN TREATMENT
Antibiotics plus symptom and mobility support

CAN IT BE CURED?
Sometimes - infection clears, but nerve damage may remain

IS IT AN EMERGENCY?
Sometimes - sudden weakness or loss of bladder control

LONG-TERM OUTLOOK
Treatment may stabilize symptoms, but nerve deficits can persist

Overview

Tabes dorsalis is a late form of neurosyphilis. Neurosyphilis means that the bacteria causing syphilis have affected the nervous system.

The condition mainly damages the sensory nerve roots and the back part of the spinal cord. These areas carry information about pain, touch, vibration, and the position of your limbs. Damage can cause sudden nerve pain, loss of feeling, poor balance, and problems controlling the bladder.

Tabes dorsalis usually develops years or decades after a syphilis infection that was not treated, or was not treated adequately. It is now uncommon where syphilis is found and treated early, but it remains important because established nerve damage may be permanent.

Antibiotics like amoxicillin or doxycycline can clear the underlying infection and may stop further injury. They cannot reliably repair nerve tissue that has already been damaged. Rehabilitation, pain management, mobility support, and care for bladder or joint problems may therefore remain important after antibiotic treatment.

Symptoms

Symptoms usually develop slowly. They may come and go at first, then become more noticeable over time. Not everyone has the same combination.

Common features include:

Some people develop an eye finding called an Argyll Robertson pupil. The pupils become small and respond poorly to light, although they can still adjust when focusing on a nearby object. Reduced vision can also occur if the optic nerves are affected.

Loss of position sense is especially important. Position sense tells your brain where your feet and legs are without looking at them. When it is impaired, you may rely heavily on vision to stay upright. Walking can become harder in dim light.

Because pain sensation may be reduced, injuries, pressure sores, or joint damage may not hurt as much as expected.

- Sudden, severe, stabbing pains, often called "lightning pains"
- Numbness or reduced awareness of pain, temperature, and touch
- Poor balance, especially in darkness or with the eyes closed
- A wide-based or stamping walk
- Reduced or absent reflexes, often at the knees and ankles
- Bladder problems, including difficulty emptying the bladder or leakage
- Sexual difficulties
- Abdominal pain, nausea, or vomiting in episodes called gastric crises
- Joint damage caused by loss of protective sensation

Causes and risk factors

Tabes dorsalis is caused by Treponema pallidum , the bacterium that causes syphilis. The bacteria can enter the nervous system during infection. In a small proportion of people whose

infection remains untreated, inflammation and gradual nerve damage later develop.

The long delay can make the connection easy to miss. A person may not remember having a genital sore, rash, or other early symptom. Early syphilis can also cause mild symptoms or no recognized symptoms.

Factors linked with a greater chance of neurosyphilis include untreated syphilis, incomplete treatment, and delayed diagnosis. HIV can affect the course of syphilis, particularly when it is not well controlled, although tabes dorsalis can occur without HIV.

Tabes dorsalis is not inherited. It cannot be caused by stress, physical activity, or ordinary contact with someone who has it.

Tabes dorsalis itself is not contagious. Whether the underlying syphilis infection can be passed to another person depends on its stage. Sexual partners may need testing or treatment based on the timing and stage of the infection.

Diagnosis

Diagnosis is based on your symptoms, a neurologic examination, blood tests for syphilis, and usually an examination of the fluid surrounding the brain and spinal cord.

During the examination, a clinician may check:

Syphilis blood testing generally uses two types of test. Treponemal tests detect antibodies directed against syphilis bacteria and often remain positive for life, even after successful treatment. Nontreponemal tests, such as RPR or VDRL, give a level called a titre that can help assess infection activity and response to treatment.

A lumbar puncture may be needed. This procedure uses a needle in the lower back to collect cerebrospinal fluid, also called spinal fluid. The fluid can be tested for antibodies and signs of inflammation. A positive cerebrospinal fluid VDRL test supports neurosyphilis, but a negative result does not always rule it out. Other spinal fluid tests and the full clinical picture may therefore be considered.

MRI or other imaging may be used to look for different causes of the symptoms. Imaging alone does not confirm tabes dorsalis. Conditions such as vitamin B12 deficiency, diabetes-related nerve damage, spinal cord compression, multiple sclerosis, and some inherited nerve conditions can cause overlapping symptoms.

Testing for HIV is usually offered when syphilis is diagnosed. Eye or hearing symptoms may also lead to specialist eye, ear, or neurologic assessment.

- Reflexes, muscle strength, and coordination

- Sensation to vibration, touch, pain, and temperature
- Awareness of joint and limb position
- Balance with the eyes open and closed
- Walking pattern
- Pupil reactions and vision
- Bladder function

Treatment and management

The main treatment is an antibiotic that reaches effective levels in the nervous system. Penicillin given into a vein is the standard treatment for neurosyphilis. The exact plan is determined by the clinical setting, allergy history, examination findings, and test results.

If you have a reported penicillin allergy, it is important to discuss what reaction occurred. Allergy assessment or a supervised process to allow penicillin treatment may sometimes be recommended. Alternative antibiotics are considered in selected situations, but the evidence supporting them is more limited.

Antibiotics kill the syphilis bacteria and help prevent further infection-related damage. Long-standing problems with sensation, balance, vision, bladder control, or joints may not fully reverse.

Some people develop fever, chills, headache, or muscle aches within the first day after starting treatment. This is called a Jarisch-Herxheimer reaction. It is caused by the body's response as bacteria are killed and is not the same as a penicillin allergy. Medical advice is still appropriate if symptoms are severe or there are signs of an allergic reaction, such as facial swelling or trouble breathing.

Ongoing management may include:

Follow-up blood tests track changes in the RPR or VDRL titre. A repeat lumbar puncture is not needed for everyone, but may be considered when symptoms or blood results do not improve as expected.

- Medicines or specialist care for nerve pain
- Physical therapy to improve strength, balance, and walking safety
- A cane, walker, braces, or other mobility equipment
- Occupational therapy for safer daily activities

- Bladder assessment and treatment
- Foot and skin care where sensation is reduced
- Joint protection and orthopedic care for damaged joints
- Vision support if optic nerve damage is present

Complications

Reduced sensation and poor balance can lead to falls, fractures, burns, wounds, and pressure injuries. Checking the feet and other numb areas can help identify damage before it becomes severe.

A neuropathic joint, also called a Charcot joint, can develop when loss of pain and position sensation allows repeated unnoticed injury. The joint may become swollen, unstable, or deformed, often with less pain than the amount of damage would usually cause.

Bladder dysfunction can result in urinary retention, leakage, repeated urinary infections, or, in severe cases, kidney problems. Sexual dysfunction may also persist.

Other possible complications include chronic nerve pain, visual loss from optic nerve damage, and loss of independent mobility. Some people have other forms of neurosyphilis at the same time, which can affect thinking, mood, hearing, vision, or blood vessels in the brain.

Prevention

Tabes dorsalis can usually be prevented by finding and adequately treating syphilis before lasting nerve damage develops.

Ways to reduce risk include:

Barriers reduce the chance of syphilis transmission but do not remove it completely. A syphilis sore can be on skin that a condom does not cover.

There is no vaccine against syphilis. Previous infection and treatment do not provide lasting immunity, so reinfection is possible.

Once tabes dorsalis has caused permanent nerve injury, that existing damage cannot always be prevented from continuing to affect daily life. Antibiotic treatment, fall prevention, skin care, and management of bladder or joint problems can reduce further harm.

- Having syphilis testing when advised because of symptoms, pregnancy, or exposure

- Completing treatment and recommended follow-up blood tests
- Making sure recent sexual partners receive appropriate advice and testing
- Using condoms or other barriers during sex

Living with it and what to expect

After effective antibiotic treatment, the infection can be cleared. Some people stabilize, while others have partial improvement in pain, balance, or bladder symptoms. Nerve damage that has been present for a long time is less likely to recover fully.

Recovery, when it occurs, may take months. Rehabilitation often focuses on making the best use of remaining sensation and strength rather than restoring normal nerve function. Mobility equipment can increase independence and reduce falls; using it is not a sign that treatment has failed.

Poor balance is often more noticeable in low light. Good lighting, secure handrails, supportive footwear, and removing trip hazards may help. If sensation is reduced, check your feet and skin regularly rather than relying on pain to warn you about an injury.

Routine follow-up may include neurologic review, blood tests, pain management, bladder care, and physical therapy. New or worsening symptoms should be assessed rather than assumed to be permanent tabes dorsalis.

Successful treatment does not prevent a new syphilis infection. Future testing may be recommended according to your sexual health and exposure risk.

When to get medical help

Arrange a medical assessment if you have unexplained lightning-like pains, worsening balance, numbness, bladder problems, or a history of syphilis with new neurologic symptoms. These symptoms have several possible causes and do not confirm tabes dorsalis.

Seek prompt, same-day advice for:

Call emergency services for sudden one-sided weakness, facial drooping, trouble speaking, collapse, a seizure, or a sudden severe headache. These can be signs of a stroke or another emergency.

Emergency assessment is also needed for sudden loss of bladder or bowel control with numbness around the groin, new severe leg weakness, a serious fall, or inability to pass urine with severe lower abdominal pain.

Trouble breathing, facial or throat swelling, or widespread blistering after an antibiotic also needs emergency care.

- New changes in vision or hearing
- Rapidly worsening walking or balance
- Increasing difficulty passing urine
- A swollen, unstable joint, especially when sensation is reduced
- A wound, burn, or foot injury that is not healing

Common questions

Can tabes dorsalis be cured?

Antibiotics can cure the syphilis infection and may stop further infection-related injury. They cannot reliably reverse established damage to the spinal cord and nerves. Pain, poor balance, numbness, or bladder problems may therefore continue.

How long after syphilis does tabes dorsalis appear?

It usually appears many years after the original infection, sometimes decades later. The earlier stages may have been mild, unnoticed, or forgotten.

Is tabes dorsalis contagious?

No. Nerve damage itself cannot spread between people. Syphilis can be transmitted during certain stages, so sexual health testing and partner follow-up may still be needed.

Can a blood test alone diagnose it?

Usually not. Blood tests can show evidence of present or past syphilis, but they do not prove that neurologic symptoms are caused by tabes dorsalis. Diagnosis also uses the neurologic examination and, in most suspected cases, spinal fluid testing.

Will I be able to walk normally again?

Some people improve or remain stable after treatment and rehabilitation. Others continue to need a cane, walker, braces, or other support because established loss of position sense may be permanent. The outcome is influenced by how much damage was present before treatment.

Can tabes dorsalis come back after treatment?

Proper antibiotic treatment clears the infection, but existing symptoms may remain or change over time. A person can also acquire syphilis again after a new exposure. Follow-up testing helps distinguish treatment response from possible reinfection or continuing infection.

Sources

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