



Original Article:

Transverse myelitis

Introduction

Transverse myelitis is a condition resulting from inflammation of your spinal cord. Specifically, the word "myelitis" refers to an inflammation of the fatty insulating material that covers nerve cell fibers (myelin), while "transverse" describes the location of the inflammation — across the width of your spinal cord. If myelin is damaged, communications relayed between your spine and the rest of your body may be disrupted, causing a variety of problems.

Transverse myelitis often develops following a viral infection or occurs along with a disorder in which your immune system attacks your own tissues. In some people, transverse myelitis may be an indication of a relapsing illness. While transverse myelitis isn't typically fatal, complications are common.

Medication combined with rehabilitative therapy helps people with transverse myelitis achieve the best quality of life possible.

Signs and symptoms

Signs and symptoms of transverse myelitis may develop rapidly over hours to several days or more slowly over one to two weeks. Typical signs and symptoms include:

- **Pain.** Pain associated with transverse myelitis often begins suddenly in your neck or back. Sharp, shooting sensations may also radiate down your legs or arms or around your abdomen.
- **Abnormal sensations.** Some people with transverse myelitis report sensations of numbness, tingling, coldness or burning below the affected area of the spinal cord. You might notice that you're especially sensitive to the light touch of clothing or to extreme heat or cold.
- **Weakness in your arms or legs.** Some people with mild weakness notice that they're stumbling, dragging one foot or

that their legs feel heavy as they move. Others may develop severe paralysis.

- **Bladder and bowel problems.** These problems include an increased urinary urge, difficulty urinating and constipation.

Other signs and symptoms may include:

- Muscle spasms, especially in your legs
- Headache
- Fever
- Loss of appetite

Causes

Researchers believe that transverse myelitis often occurs when your body's immune system mistakenly attacks its own tissues, resulting in inflammation and injury to the myelin within your spinal cord. Diseases of the central nervous system frequently cause transverse myelitis. These include:

- **Multiple sclerosis.** Multiple sclerosis occurs when your immune system mistakenly attacks the myelin sheath surrounding nerves in your spinal cord and brain, resulting in areas of scarring (scleroses). Mild attacks of transverse myelitis may be the first sign or represent a relapse of multiple sclerosis. Transverse myelitis occurring as a sign or symptom of multiple sclerosis usually manifests on one side of your body only.
- **Neuromyelitis optica.** This refers to a condition in which inflammation and injury occur both in your spinal cord and in the nerve in your eye (optic nerve) that transmits information to your brain. Transverse myelitis occurring as a symptom of neuromyelitis optica usually affects both sides of your body.

In instances of transverse myelitis following an infection, the inflammation within the spinal cord may arise as a result of your body's immune reaction to the virus or bacteria. Or, some viruses may directly invade the spinal cord and produce symptoms of transverse myelitis. Such viruses include:

- **Varicella zoster.** This virus causes chickenpox and shingles, a reactivation of the virus years after chickenpox.
- **Herpes simplex.** Herpes viruses are associated with cold sores that develop on your face (herpes simplex type 1) as well as genital lesions (herpes simplex type 2).

Transverse myelitis occasionally develops in people who have other autoimmune diseases. These include:

- **Lupus.** Lupus is an inflammatory disease that may cause swollen, painful joints, a skin rash and other symptoms.
- **Sjogren's syndrome.** This autoimmune disease often causes dry eyes and a dry mouth.

Rarely, transverse myelitis may develop following certain vaccinations, although it's unclear how transverse myelitis and vaccinations are related.

Other conditions that alter normal patterns of blood flow in your spine may cause signs and symptoms similar to those of transverse myelitis. These include blood vessel abnormalities, hardening of the arteries (atherosclerosis), and tumors that develop in your spinal cord or radiation therapy used to treat such tumors. Doctors rule out such disorders before arriving at a diagnosis of transverse myelitis.

When to seek medical advice

Call your health care provider if you experience any signs or symptoms such as weakness in your arms or legs, pain, changes in sensation or problems with bowel or bladder function. Disorders of the spinal cord can be serious, so be sure to have your condition checked out promptly.

Having transverse myelitis can significantly impact your ability to perform activities you enjoy or even daily tasks, which may cause you to become depressed. If you suspect that you may be experiencing depression, talk to your doctor about pursuing counseling with a mental health professional. Depression is treatable.

Screening and diagnosis

Your doctor may suspect transverse myelitis if you report weakness in your arms or legs, pain, changes in sensation and problems with bowel or bladder function. Your doctor will ask about your medical history, including any recent illnesses or vaccinations. Reaching a diagnosis of transverse myelitis also requires evidence of inflammation within the spinal cord. This may be determined with several tests:

- **Magnetic resonance imaging (MRI) scan.** An MRI scan is a test that uses a magnetic field and pulses of radio wave energy to make pictures of your body. If you have transverse myelitis, an MRI of your brain and spinal cord may show inflammation.
- **Lumbar puncture.** This test, also called a spinal tap, is used

to collect a small amount of the fluid that surrounds your spinal cord and brain. During this test, your doctor injects a numbing medicine into your lower spine and then inserts a needle into your spinal canal to measure the fluid pressure and collect a sample. Some people with transverse myelitis may have abnormally high numbers of white blood cells or protein in the fluid, suggesting an infection or an inflammation. Spinal fluid can also be tested for viruses, the possibility of multiple sclerosis or the presence of certain cancers.

- **Blood test.** A new blood test called an NMO-IgG test checks for antibodies for neuromyelitis optica, a condition in which inflammation occurs both in your spinal cord and in the nerve in your eye. People with a positive test for NMO-IgG are at an increased risk of experiencing multiple attacks of transverse myelitis.

In addition, your doctor may order blood tests to rule out other disorders that cause similar signs and symptoms.

Complications

Usually, people with transverse myelitis experience only one acute episode. However, complications often linger. Chronic pain is one of the most debilitating long-term complications. Others may include:

- **Spasticity.** This refers to stiffness, tightness or painful spasms in your muscles, especially in your buttocks and legs. The majority of people with lingering effects of transverse myelitis experience some degree of spasticity.
- **Partial or total paralysis.** The weakness associated with transverse myelitis may result in partial or total paralysis of your arms, legs or both. In severe cases, use of a wheelchair may be necessary.
- **Osteoporosis.** People with transverse myelitis are at an increased risk of developing thinning of the bones, because they might not be able to engage in weight-bearing activities or because they're taking steroid medications for an extended period of time.
- **Sexual dysfunction.** Sexual dysfunction is a common complication arising from transverse myelitis. Men may experience difficulty achieving an erection or reaching an orgasm. Women also may have difficulty reaching an orgasm.
- **Depression.** The complications associated with transverse myelitis change your lifestyle, which can make you feel depressed. Depression may also hinder recovery because

people who are depressed don't always feel up to participating in a physical therapy regimen.

Treatment

Several therapies target the acute signs and symptoms of transverse myelitis:

- **Intravenous steroids.** After your diagnosis, you'll likely receive steroids through a vein in your arm over the course of several days. Steroids help reduce the inflammation in your spinal column.
- **Plasma exchange therapy.** People who don't respond to intravenous steroids may undergo plasma exchange therapy. This therapy involves removing the straw-colored fluid in which blood cells are suspended (plasma) and replacing the plasma loss with special fluids. It's not certain how this therapy helps people with transverse myelitis, but it may be that plasma exchange removes antibodies that are involved in inflammation.
- **Pain medication.** Chronic pain is a common complication of transverse myelitis. Nonsteroidal anti-inflammatory drugs — such as aspirin, ibuprofen (Advil, Motrin, others) and naproxen (Aleve, Naprosyn, others) — can help reduce inflammation and relieve pain.

Other therapies focus on long-term recovery and care:

- **Physical therapy.** Physical therapy helps you increase strength and improve coordination. Your physical therapist will likely teach you how to use assistive devices, such as a wheelchair, canes or braces, if needed.
- **Occupational therapy.** This type of therapy helps people with transverse myelitis learn new ways of performing day-to-day activities, such as bathing, preparing a meal and housecleaning.
- **Other medications.** Your doctor may make suggestions for long-term treatment depending on any complications that you may be experiencing. For example, if you're plagued by painful muscle spasms, your doctor may recommend anti-spasticity drugs. Or if you think you may be depressed, taking antidepressant medication may help. Treatment can be tailored to fit your needs.

Prognosis

Recovery, should it occur, may take up to two years. About one-third

of people with transverse myelitis fall into each of three categories after an episode of transverse myelitis:

- **No or slight disability.** These people experience only minimal residual symptoms.
- **Moderate disability.** These people are mobile, but may have difficulty walking, numbness or tingling, and bladder and bowel problems.
- **Severe disability.** Some people may remain wheelchair-bound and dependent on others for help with daily tasks.

It's difficult to predict the course of transverse myelitis. Generally, people who experience a rapid onset of signs and symptoms have a worse prognosis than those with relatively slower onset.

Self-care

Whether your symptoms of transverse myelitis have subsided or you're experiencing chronic complications, it's likely that you'll choose to make several changes to improve your quality of life. Here are a few suggestions:

- **Prevent bowel problems.** If you have bowel problems caused by transverse myelitis, make sure you pack enough fiber in your diet by eating fiber-rich foods or taking a supplement. Drinking plenty of fluids, especially water, will help you feel more comfortable.
- **Maintain strong bones.** People with transverse myelitis are at an increased risk of developing osteoporosis because of limited activity, so help build your bones by taking calcium and vitamin D supplements and engaging in weight-bearing exercise, if possible.
- **Stretch and strengthen.** Stiff or tight muscles, also referred to as spasticity, are a common complication of transverse myelitis and may limit your ability to get around easily. Try to increase your flexibility by sticking to a stretching routine suggested by your physical therapist. A strengthening program targeting your weaker muscles will also help you maintain good muscle balance.

By Mayo Clinic Staff

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