CONDITION

Arachnitis

Learn about arachnitis, an older term for arachnoiditis, including symptoms, causes, diagnosis, treatment, complications, and when to seek urgent care.

WHAT IT IS
Inflammation and scarring of the arachnoid

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Long-lasting pain, abnormal sensations, weakness, bladder or bowel problems

WHAT CAUSES IT
Infection, surgery, injury, irritation or unknown

HOW IT IS DIAGNOSED
History, neurologic examination and MRI

MAIN TREATMENT
Symptom control, rehabilitation and treating underlying causes

CAN IT BE CURED?
No, chronic scar tissue persists

IS IT AN EMERGENCY?
Sometimes, rapidly worsening leg weakness

LONG-TERM OUTLOOK
Variable from stable symptoms to increasing neurologic impairment

Overview

Arachnitis is an uncommon term for inflammation of the arachnoid, one of the thin membranes that surround the brain, spinal cord, and spinal nerve roots. Health professionals usually call this condition arachnoiditis . The term adhesive arachnoiditis describes a chronic form in which inflammation leads to scar tissue that makes spinal nerve roots stick together.

Arachnoiditis most often affects the lower spine. Scarring may irritate or compress nerve roots and interfere with the normal movement of cerebrospinal fluid, the clear fluid around the brain and spinal cord. The resulting symptoms can include long-lasting pain, abnormal sensations, weakness, and problems with bladder or bowel control.

The condition is not the same as an arachnoid cyst , which is a fluid-filled sac. It also differs from meningitis, although an infection involving the membranes around the brain and spinal

cord can sometimes lead to arachnoiditis.

Symptoms and MRI findings do not always match closely. Some people have visible nerve-root changes with limited symptoms, while others have substantial symptoms. Because back and nerve symptoms have many possible causes, an imaging finding alone does not establish that arachnoiditis is responsible.

Chronic adhesive arachnoiditis can be difficult to treat. Care generally focuses on identifying any active underlying cause, reducing symptoms, preserving movement and independence, and monitoring for new neurologic problems.

Symptoms

Symptoms depend on which nerve roots are involved and how much inflammation, scarring, or disruption of cerebrospinal fluid flow is present. They may begin gradually or follow an infection, injury, operation, or other spinal event.

Possible symptoms include:

Symptoms can fluctuate. Pain and fatigue may worsen after activity, while reduced activity can lead to stiffness and loss of strength. A clinician can help plan a safe balance between movement and rest.

Seek emergency care for new loss of bladder or bowel control, inability to urinate, numbness around the genitals or inner thighs, or rapidly increasing leg weakness. These can be signs of serious compression of the nerves at the bottom of the spinal canal, known as cauda equina syndrome. They require prompt assessment whether or not arachnoiditis is already suspected.

Prompt medical attention is also appropriate for severe back pain accompanied by fever, confusion, a severe headache, neck stiffness, or new neurologic symptoms, particularly after a spinal procedure or during an infection.

- Persistent burning, aching, or electric-shock-like pain in the lower back, buttocks, or legs
- Tingling, numbness, crawling sensations, or unusual sensitivity to touch
- Muscle cramps, spasms, stiffness, or twitching
- Weakness, poor balance, or difficulty walking
- Pain that becomes worse with certain movements or prolonged activity
- Changes in bladder, bowel, or sexual function
- In severe cases, partial loss of movement in one or both legs

Causes and risk factors

Arachnoiditis develops when inflammation affects the arachnoid and nearby nerve roots. Healing may produce fibrous scar tissue. In some people, no definite cause can be identified.

Possible causes and contributing events include:

The U.S. Food and Drug Administration has warned that epidural corticosteroid injections can rarely be followed by serious neurologic events. Corticosteroids like prednisone or hydrocortisone are not approved by the FDA specifically for injection into the epidural space. This warning does not mean that every symptom after an injection is arachnoiditis, but new weakness, numbness, vision changes, severe headache, or loss of bladder or bowel control after a procedure needs urgent evaluation.

- Infection: Tuberculosis, fungal infections, and bacterial or viral infections involving the membranes around the brain and spinal cord may cause inflammation and later scarring.
- Spinal surgery: Operations can expose the arachnoid to blood, tissue irritation, infection, or repeated manipulation. Risk may be greater after multiple procedures, although most people who have spinal surgery do not develop arachnoiditis.
- Bleeding or injury: Blood within the spinal canal, spinal trauma, or damage to the protective covering around the spinal cord may trigger inflammation.
- Chemical irritation: Certain substances placed within the spinal canal can irritate the arachnoid. Historically, some oil-based contrast materials used for myelograms were associated with arachnoiditis. These older agents are no longer used for routine modern imaging.
- Spinal injections or procedures: Cases have been reported after epidural or intrathecal procedures. "Epidural" means outside the membrane containing spinal fluid, while "intrathecal" means inside that space. A direct cause can be difficult to prove because people receiving these procedures may already have spinal disease, previous surgery, or other risk factors.
- Long-standing pressure or inflammation: Severe narrowing of the spinal canal, a tumor, or another process that disrupts nerve roots or cerebrospinal fluid flow may contribute in some cases.

Diagnosis

There is no single symptom or laboratory test that confirms arachnoiditis. Diagnosis usually combines the medical history, a neurologic examination, and imaging findings.

The clinician may ask about previous spinal operations, infections, injuries, injections, bleeding, and older myelogram procedures. The examination may assess muscle strength, sensation, reflexes, walking, balance, and bladder or bowel symptoms.

Magnetic resonance imaging , or MRI, is usually the main imaging test. It can show nerve roots that are clumped together, displaced toward the wall of the spinal canal, or surrounded by scar tissue. Contrast material may be used in some situations to evaluate inflammation, infection, tumors, or prior surgical changes.

A CT myelogram combines computed tomography with contrast material placed in the fluid around the spinal cord. It may be considered when MRI cannot be performed or does not answer the clinical question. Because it requires a lumbar puncture and intrathecal contrast, its benefits and risks should be reviewed carefully.

Other tests may be used to look for conditions that can cause similar symptoms. These include a herniated disc, spinal stenosis, a tumor, infection, multiple sclerosis, peripheral neuropathy, or cauda equina compression. Electromyography and nerve-conduction studies can assess how well nerves and muscles are functioning, but they do not diagnose arachnoiditis by themselves.

A lumbar puncture is not a routine stand-alone test for chronic adhesive arachnoiditis. It may be needed if an active infection, bleeding, or another inflammatory condition is suspected.

Treatment and management

Treatment depends on the suspected cause, the person's symptoms, and whether there is ongoing infection, pressure on the nerves, or impaired cerebrospinal fluid flow. Chronic scar tissue usually cannot be removed with medicine alone, so management often focuses on function and symptom control.

If an active infection or another treatable inflammatory condition is present, clinicians address that condition directly. Treatment should be guided by the identified cause rather than by arachnoiditis symptoms alone.

Pain management may involve non-opioid pain medicines or medicines commonly used for nerve pain. Some patients may also be offered treatment for muscle spasms. The benefits and adverse effects of each option should be reviewed with a clinician, especially when medicines cause sleepiness, dizziness, constipation, or an increased risk of falls. Long-term opioid treatment has important limitations and requires careful, ongoing assessment.

Physical or occupational therapy may help maintain strength, flexibility, balance, and the ability to perform daily tasks. Therapy generally works best when it is paced according to symptoms. Repeatedly forcing movement through a major increase in pain may be counterproductive.

Walking aids, braces, seating changes, or home modifications may improve safety and independence.

Other parts of care may include:

Surgery is not a routine cure for chronic adhesive arachnoiditis. Removing scar tissue can be technically difficult, and scarring may return. Surgery may be considered in selected cases when there is a correctable blockage of cerebrospinal fluid, a cyst, tethering, or another structural problem causing progressive neurologic loss. Expected benefits, uncertainty, and the possibility of further scarring should be discussed with an experienced specialist.

- Strategies for sleep, pacing, and managing activity-related symptom flares
- Psychological support for coping with chronic pain and changes in function
- A bladder or bowel program when nerve function is affected
- Evaluation by a multidisciplinary pain, rehabilitation, neurology, or spine team
- Selected procedures, such as spinal cord stimulation, after specialist review

Complications

The course varies. Some people have stable symptoms, while others develop increasing pain or neurologic impairment.

Possible complications include chronic nerve pain, reduced mobility, muscle weakness, falls, and loss of independence. Bladder dysfunction can cause difficulty emptying the bladder, leakage, or repeated urinary infections. Bowel and sexual function may also be affected.

Scar tissue can sometimes interfere with cerebrospinal fluid circulation. Depending on its location, this may contribute to a fluid-filled cavity within the spinal cord, called syringomyelia , or to pressure-related problems elsewhere in the nervous system.

Persistent pain can disrupt sleep, work, relationships, and mood. Anxiety or depression in this setting is not a sign that the physical symptoms are imaginary. Addressing emotional health is an important part of chronic pain care.

Follow up

Routine follow-up may involve a primary care clinician and one or more specialists, such as a neurologist, rehabilitation physician, pain specialist, urologist, or spine surgeon. Visits may review pain, strength, walking, falls, bladder and bowel function, medication effects, sleep, and

the ability to manage daily activities.

Repeat MRI is not automatically needed at every visit. It is more likely to be considered when symptoms change, neurologic function declines, or a clinician is evaluating a possible complication or surgical option.

Contact the treating clinician promptly for steadily increasing pain, new numbness, worsening balance, repeated falls, new urinary difficulty, or a clear decline in strength. These concerns are different from a stable symptom flare and may need a new examination.

Seek emergency care for:

- Sudden or rapidly worsening leg weakness
- New loss of bladder or bowel control
- Inability to urinate
- New numbness in the saddle area around the genitals or inner thighs
- Severe back pain with fever, confusion, severe headache, or neck stiffness
- Major new neurologic symptoms after a spinal procedure

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