CONDITION

Epidural abscess

An epidural abscess is a collection of infected material around the spinal cord or brain that can press on nearby nerves.

WHAT IT IS
Pus collection around the brain or spinal cord

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Severe back pain, fever, weakness, bladder or bowel changes

WHAT CAUSES IT
Bacterial infection, usually spreading through blood

HOW IT IS DIAGNOSED
Contrast MRI, blood cultures, and abscess culture

MAIN TREATMENT
Hospital antibiotics, often surgical drainage and pressure relief

CAN IT BE CURED?
Yes - treatment can clear the infection

IS IT AN EMERGENCY?
Yes - suspected cases need urgent hospital assessment

LONG-TERM OUTLOOK
Best with early treatment before major nerve damage

Overview

An epidural abscess is a collection of pus in the epidural space. This is the narrow area between the bones of the spine or skull and the protective covering around the spinal cord or brain.

Most epidural abscesses occur in the spine. This is called a spinal epidural abscess. An abscess inside the skull, called an intracranial epidural abscess, is less common.

The infection matters because the epidural space has little room to expand. As an abscess grows, it can press on the spinal cord, nerves, or brain. Infection and swelling can also reduce their blood supply. Without prompt treatment, this may cause lasting nerve damage.

A spinal epidural abscess can begin with back or neck pain before weakness or other nerve symptoms appear. Fever is common but is not always present. You do not need to have every

typical symptom for the condition to be considered.

An epidural abscess needs urgent hospital assessment. Early diagnosis and treatment improve the chance of clearing the infection before serious nerve damage develops.

Symptoms

Symptoms differ according to where the abscess is and how much pressure it causes.

A spinal epidural abscess often causes severe pain in one area of the back or neck. The area may be tender. The pain can worsen over hours or days and may spread along a nerve into an arm, leg, chest, or abdomen.

Other possible symptoms include:

Not everyone has fever, back pain, and weakness together. Waiting for all three can delay diagnosis.

An abscess inside the skull may cause a severe or worsening headache, fever, vomiting, drowsiness, confusion, seizures, or weakness on one side. It may develop near an infection of the ear, sinuses, skull, or scalp.

- Fever, chills, sweating, or feeling generally unwell
- Numbness, tingling, or unusual sensations
- Weakness in an arm or leg
- Difficulty standing or walking
- Loss of bladder or bowel control
- Trouble starting urination or being unable to pass urine
- Numbness around the buttocks, inner thighs, or genitals

Causes and risk factors

An epidural abscess is usually caused by bacteria. Staphylococcus aureus , including antibiotic-resistant strains, is a common cause. Other bacteria and, less often, fungi can also be responsible.

The infection may reach the epidural space through the bloodstream from another part of the body. Possible starting points include the skin, urinary tract, lungs, heart valves, or an intravenous line. Infection in a spinal bone or disc can also spread directly into the epidural space.

Less commonly, infection enters after spinal surgery, an injection near the spine, trauma, or placement of an epidural catheter. These procedures do not usually cause an abscess, but infection is a recognized rare complication.

Factors that may increase risk include:

An epidural abscess can still occur in someone without an obvious risk factor. It is not caused by ordinary muscle strain or poor posture.

- A recent bloodstream or serious bacterial infection
- Diabetes
- Injection drug use
- A weakened immune system
- Long-term intravenous access or haemodialysis
- Recent spinal surgery or a procedure near the spine
- Infection of a spinal bone or disc
- A skin infection near the spine
- Previous epidural abscess

Diagnosis

Diagnosis starts with a medical history and examination. The examination checks strength, sensation, reflexes, walking, and bladder or bowel function. These findings help identify whether the spinal cord or nerves are being affected.

MRI with injected contrast is the main imaging test. Contrast is a substance given into a vein that makes infected tissue easier to see. MRI can show the abscess, its size, and whether nearby bones or discs are infected.

If MRI cannot be performed, specialists may use other imaging, such as CT. The best alternative depends on the reason MRI is unsuitable and the part of the body being examined.

Blood tests look for inflammation and signs of infection. Blood cultures are samples used to identify bacteria growing in the bloodstream. When possible, pus or infected tissue is collected during drainage or with an image-guided needle. Testing the organism helps the team select an effective antibiotic like amoxicillin or doxycycline .

Normal early blood results or the absence of fever do not fully rule out an epidural abscess. Imaging should not be delayed when symptoms and risk factors raise serious concern.

Treatment and management

Treatment takes place in hospital. It aims to clear the infection, relieve pressure, and protect the spinal cord, nerves, or brain.

Antibiotics are usually started through a vein. Initial treatment often covers the bacteria most likely to cause the infection. The antibiotic can then be changed when blood or abscess cultures identify the organism. Treatment commonly continues for several weeks, but the route and length are based on the organism, response to treatment, and any infection in nearby bone or discs.

Many people need surgery. The procedure drains infected material and removes tissue or bone that is pressing on the spinal cord or nerves. Surgery is especially likely when there is weakness, worsening nerve function, marked compression, spinal instability, an abscess that is enlarging, or infection that is not responding to antibiotics.

Antibiotics without immediate surgery may be considered in selected cases. This may include someone who has no neurological loss, has a known organism, or has a high surgical risk. It requires close hospital specialist supervision, repeated neurological examinations, and sometimes follow-up imaging. Surgery may still become necessary if symptoms worsen.

Pain relief, treatment of the original source of infection, and management of conditions such as diabetes are also important. Physiotherapy or rehabilitation may help after the infection is controlled, particularly if weakness has affected walking or daily activities.

Do not stop prescribed antibiotics early unless the treating team changes the plan. Missing treatment can allow infection to persist or return.

Complications

Pressure and reduced blood flow can permanently injure the spinal cord or nerves. Possible effects include persistent weakness, paralysis, numbness, chronic pain, and loss of bladder, bowel, or sexual function.

The infection may also spread into the blood and cause sepsis, a dangerous whole-body response to infection. Nearby spinal bones or discs may become infected or damaged. An intracranial abscess may lead to seizures, brain infection, or pressure on the brain.

Even after the infection clears, nerve recovery may be incomplete. The risk of lasting disability is greater when major weakness or paralysis is already present before treatment.

Prevention

Not every epidural abscess can be prevented. The infection sometimes develops without a clear source.

Treating skin, urinary, dental, or other bacterial infections as advised may reduce the chance of infection spreading. Seek medical advice if an infection is worsening instead of improving, especially if you have a weakened immune system or an intravenous device.

If you inject drugs, using new sterile equipment each time and not sharing equipment lowers the risk of bloodstream infection. Drug treatment and harm-reduction services can provide confidential support.

Follow instructions for caring for surgical wounds, intravenous lines, and dialysis access. Report increasing redness, swelling, drainage, pain, or fever promptly.

Preventive antibiotics are not routinely taken by individuals to avoid an epidural abscess. Whether antibiotics are needed around a specific procedure is a decision for the clinical team.

Living with it and what to expect

Recovery is different for each person. The most important influences include how quickly treatment begins, the location and size of the abscess, the organism involved, and whether nerve problems were present before treatment.

Hospital care may include repeated strength and sensation checks, blood tests, and specialist reviews. Inflammation blood tests often fall as treatment works. Repeat MRI may be needed if symptoms worsen or recovery is not progressing as expected. Imaging changes can sometimes remain after symptoms improve, so scans are interpreted alongside the examination and blood results.

Antibiotic treatment and follow-up usually continue after the immediate emergency has passed. You may need support to complete intravenous treatment or a change to oral antibiotics when appropriate.

Weakness and altered sensation may improve slowly over months. Rehabilitation can focus on walking, balance, bladder or bowel management, and returning to daily activities. Some people recover with little lasting effect, while others need mobility aids or ongoing personal support.

Persistent nerve damage does not necessarily mean the infection is still active. New or worsening pain, fever, weakness, or bladder symptoms after treatment, however, need prompt reassessment because infection can recur.

Routine follow-up is used to review recovery, antibiotic effects, blood tests, wound healing,

and rehabilitation needs. Keep these appointments even if you feel better.

When to get medical help

Go to an emergency department now if you develop new or rapidly worsening:

Severe back or neck pain with fever also needs urgent same-day assessment, particularly after a recent bloodstream infection, spinal procedure, surgery, or injection near the spine. The same applies if you have diabetes, reduced immunity, use injected drugs, or receive haemodialysis.

If you are already being treated for an epidural abscess, seek urgent help for returning fever, worsening pain, new numbness, or reduced strength. Do not wait for a routine appointment.

Contact your treating service during routine hours about medication side effects, difficulties completing treatment, wound concerns without severe symptoms, or rehabilitation and return-to-work planning.

- Arm or leg weakness
- Difficulty walking or standing
- Numbness around the genitals, buttocks, or inner thighs
- Loss of bladder or bowel control
- Inability to pass urine
- Confusion, seizure, fainting, or unusual drowsiness

Common questions

Can an epidural abscess be cured?

Yes. Antibiotics and, when needed, drainage can clear the infection. However, nerve damage that developed before treatment may not fully recover. Prompt treatment offers the best chance of avoiding lasting problems.

How quickly does a spinal epidural abscess develop?

Symptoms may progress over days, but some cases develop more gradually. Back pain can appear before weakness or bladder problems. A sudden change in strength, walking, or bladder control is an emergency.

Can an epidural injection cause an abscess?

Infection after an epidural injection or catheter is possible but rare. Increasing pain, fever, weakness, or drainage from the injection area needs prompt assessment. Most soreness immediately after a procedure is not caused by an abscess.

Is an epidural abscess contagious?

The abscess itself is not passed from person to person. Some bacteria that cause infections can spread between people, but ordinary contact with someone who has an epidural abscess does not usually create the condition.

Can an epidural abscess come back?

It can recur, particularly if the original source of infection remains, treatment is incomplete, or there are ongoing bloodstream infection risks. Follow-up helps confirm that treatment is working and addresses the source.

Does severe back pain mean I have an epidural abscess?

Most back pain is not caused by an epidural abscess. Concern is greater when severe or worsening pain occurs with fever, a recent infection or spinal procedure, injection drug use, reduced immunity, weakness, numbness, or bladder and bowel changes.

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