PROCEDURE

Spinal and epidural anesthesia

Spinal and epidural anesthesia numb part of your body by placing medicine near nerves in your lower back.

PURPOSE
Numb the lower body or provide strong pain relief

PROCEDURE TYPE
Therapeutic, minimally invasive needle or catheter procedure

WHERE IT IS DONE
Operating theatre, procedure room, or labour ward bedside

ANAESTHESIA
Local skin anaesthetic; sedation may be added

HOW LONG IT TAKES
About 10 to 30 minutes

PREPARATION
Follow fasting and blood-thinner instructions; arrange transport if required

RECOVERY
Same day or overnight; driving restricted after anaesthesia or sedation

MAIN RISKS
Low blood pressure, headache, bleeding, infection, or nerve injury

RESULTS
Numbness and pain relief assessed within minutes

Overview

Spinal and epidural anesthesia are types of regional anesthesia. They use medicine placed near nerves in your lower back to block pain from a larger area of your body.

With spinal anesthesia, a clinician gives a single injection into the fluid surrounding the spinal nerves. It usually works quickly and lasts long enough for a planned operation.

With epidural anesthesia, medicine is placed just outside the fluid-filled sac around the spinal nerves. A thin, flexible tube called a catheter may stay in place so that more medicine can be given. Epidurals are commonly used during labour and for pain relief during or after surgery.

A combined spinal-epidural uses both methods. The spinal injection provides rapid pain relief, while the epidural catheter allows treatment to continue.

You are usually awake, although sedation may make you relaxed or sleepy. These procedures are different from general anesthesia, which makes you unconscious.

Why the procedure is performed

Spinal or epidural anesthesia may be offered for:

The choice between spinal and epidural anesthesia is based on the operation, how quickly pain relief is needed, how long it must last, your health, and your preferences.

A spinal injection may suit a shorter operation because it is given as one dose. An epidural may be more useful when pain relief needs to be adjusted or continued for several hours or days.

- Childbirth, including labour pain relief and caesarean birth
- Operations on the hips, legs, pelvis, lower abdomen, bladder, or genitals
- Pain control during and after some major operations
- Situations where avoiding general anesthesia may be helpful

Who should and should not have it

Spinal and epidural anesthesia are options, not requirements. You should have an opportunity to discuss why one is being recommended and whether another approach would meet your needs.

The procedure may be avoided or delayed if you:

Previous back surgery, scoliosis, or chronic back pain does not always rule it out. However, placement may be more difficult, and the effect may be less predictable.

Urgent surgery may leave too little time for a spinal or epidural to work safely. General anesthesia may then be recommended. Occasionally, a spinal or epidural does not create a sufficient block, so additional anesthesia is needed.

- Do not want it after discussing the choices
- Have an infection where the needle would enter
- Have a serious untreated infection affecting your whole body
- Have a bleeding disorder or unsafe blood-thinner level
- Have very low blood pressure or severe fluid loss

- Are allergic to a medicine that would need to be used
- Have certain brain, spinal, nerve, or heart conditions

How to prepare

Follow the treating facility's own instructions first, because they are tailored to your procedure and medicines.

For planned surgery, you may need to stop eating and drinking for a set time. Fasting rules may be different for an epidural during labour.

Tell the anesthesia team about all medicines and supplements you take. Blood thinners like warfarin or apixaban are especially important because they can increase the risk of bleeding around the spinal nerves. Do not stop a prescribed blood thinner unless the team responsible for your care tells you when and how to do so.

Tell the team about allergies, bleeding problems, infections, previous back surgery, nerve conditions, and past problems with anesthesia. Blood tests may be needed if there is concern about clotting or platelet levels.

If you are going home the same day, arrange transport and help at home as instructed. You will not be allowed to drive while the anesthesia, sedation, or strong pain medicine could still affect you.

What happens during the procedure

You may have an intravenous line placed in your hand or arm. Your blood pressure, heart rate, and oxygen level are monitored.

You will usually sit leaning forward or lie curled on your side. This opens the spaces between the bones in your back. The skin is cleaned, and sterile covers are placed around the area.

A small injection numbs the skin. This may sting briefly.

For spinal anesthesia, a fine needle passes between the lower back bones. Medicine is injected into the fluid around the spinal nerves, and the needle is removed.

For an epidural, a needle enters the epidural space just outside the fluid-filled sac. A flexible catheter is passed through the needle, and the needle is removed. The catheter is taped securely to your back.

You may feel pressure, but you should tell the clinician immediately if you feel a sharp pain or an electric-shock feeling down a leg.

Your legs or lower body may become warm, heavy, weak, and numb. The team checks the block before surgery begins. You may still notice movement, pulling, or pressure without feeling sharp pain.

Recovery and what to expect afterward

Pain at the needle site is usually mild and short-lived. As the block wears off, pain from the operation or childbirth may increase. Ask when to begin other pain medicine so there is time for it to work.

You can usually drink and eat when the team confirms it is safe. The timing may be affected by nausea or by the operation itself.

Your strength and feeling return gradually. Stay in bed until staff confirm that it is safe to stand. Your first walk may need supervision because your legs can remain weak and your blood pressure may fall when you get up. Some people temporarily have difficulty passing urine and need a bladder catheter.

Do not drive home. Follow the facility's stated driving restriction. Do not drive until normal strength and feeling have returned and you are no longer affected by sedation or strong pain medicine.

When you can return to work is usually determined by the operation or childbirth rather than the injection itself. Desk work may be possible sooner than lifting, driving, or physically demanding work.

Risks and possible complications

Temporary effects can include low blood pressure, itching, nausea, shivering, difficulty passing urine, or an incomplete block. Medicine and fluids can often manage these effects.

A headache can occur if the membrane containing spinal fluid is punctured. This is called a post-dural puncture headache. It is often worse when sitting or standing and improves when lying down. Some headaches need a procedure called an epidural blood patch, which uses a small amount of your blood to seal the leak.

Less common but important complications include:

Temporary numbness or weakness can also come from the operation, body position, childbirth, or pressure on a nerve. The anesthesia team assesses the likely cause if recovery does not follow the expected pattern.

- Bleeding that presses on spinal nerves
- Infection around the injection site or spinal tissues
- Lasting nerve injury
- A block that spreads too high and affects breathing
- A reaction to the anesthetic medicine
- Medicine entering a blood vessel during an epidural

Results and follow up

The result is known quickly. The team tests temperature, touch, movement, or pain to confirm that the anesthesia is working.

An epidural can often be adjusted if relief is uneven or insufficient. A spinal cannot be topped up through the original needle, although other pain medicine or general anesthesia can be provided if needed.

An epidural catheter is removed when it is no longer required. Removal is usually quick. Routine follow-up focuses on return of strength, feeling, bladder control, and blood pressure.

Contact the healthcare team if numbness, weakness, headache, back pain, or bladder problems continue beyond the time stated in your discharge instructions.

Alternatives

General anesthesia makes you unconscious and may be better for some urgent, lengthy, or complex operations. It requires airway support and may cause more drowsiness, nausea, or throat discomfort afterward.

Local anesthesia numbs only a small area. It avoids a spinal or epidural but cannot cover many major operations.

A peripheral nerve block places anesthetic near a particular nerve or group of nerves. It may provide longer, more targeted pain relief, but it may not numb enough of the body for the planned procedure.

For labour, intravenous or injected opioid pain medicine avoids a back procedure and is easier to start. It usually provides less complete pain relief and may cause sleepiness or nausea. Some medicines can also affect the baby's alertness or breathing around birth.

Nitrous oxide, sometimes called gas and air, is another labour option. You control when you

breathe it, and it wears off quickly, but pain relief is usually less complete than with an epidural.

In some non-urgent situations, postponing the operation or choosing non-surgical treatment may be possible. This trades faster treatment for avoiding anesthesia and surgery.

When to call your healthcare team

For routine advice, contact your healthcare team if you have a headache that is worse upright, persistent tenderness at the needle site, trouble passing urine, or numbness that is improving more slowly than expected.

Seek urgent medical assessment for:

Call emergency services for trouble breathing, collapse, severe confusion, or rapidly progressing weakness. These are not routine recovery symptoms.

- New or worsening leg weakness or numbness
- Loss of bladder or bowel control
- Severe or increasing back pain
- Fever with redness, swelling, or drainage at the injection site
- A severe headache that does not improve with the advised measures

Common questions

Will I be asleep?

Usually not. You may remain fully awake or receive sedation that makes you relaxed and sleepy. General anesthesia can be used if needed.

Can I drive home?

No. Arrange for someone to take you home if you are discharged the same day. Resume driving only after the facility's restriction has passed and your strength, feeling, and alertness are normal.

How painful is a spinal or epidural?

The skin-numbing injection may sting. After that, most people feel pressure rather than sharp pain. Tell the clinician immediately about sharp or shooting pain.

When will I know if it worked?

A spinal usually begins working within minutes. An epidural may take longer and can be

adjusted through the catheter. The team tests the block before proceeding.

What is the difference between a spinal and an epidural?

A spinal is a single injection into spinal fluid. An epidural usually leaves a catheter outside that fluid-filled space so medicine can continue.

Will it cause long-term back pain?

Temporary soreness at the insertion site can occur. Persistent back pain is not an expected result and should be assessed, especially if it occurs with fever, weakness, numbness, or bladder problems.

Sources

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