

Epidurals:

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What is an epidural?

When you have an *epidural*, a needle is inserted into the space surrounding your spine, and local anesthetic or analgesic agents are injected. An epidural is often used to provide anesthesia for surgery, to control labour pain, or to provide analgesics (painkillers) before, during, or after surgery. It gives the anesthesiologist the ability to precisely target and customize the delivery of local anesthetic medications and analgesics such as morphine. Depending on the site of the operation and the patient's health, the epidural may be used by itself, with sedation, or with a general anesthetic.

Your spine, which includes the spinal cord and nerves as well as spinal fluid, is contained within a sac called the *dura*. The layer outside the dura is called the *epidural space*, which is where the procedure gets its name. The epidural space is surrounded by dense ligaments and other tissue.

When is an epidural used?

Epidurals are frequently used to control labour pain, and they can also be used to administer the primary anesthetic for a caesarean section.

In addition, they are now frequently recommended for major surgical procedures, often combined with a general anesthetic. The epidural is then continued after the operation to improve pain management.

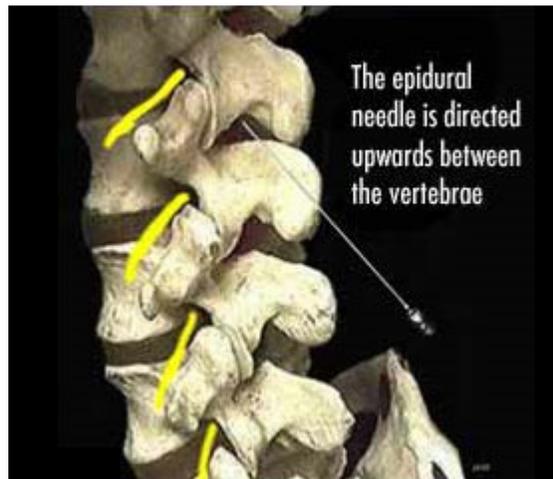


Figure 1

Epidural placement

Epidurals are most beneficial for major surgery on the lungs, upper abdomen, kidneys, and some types of joint-replacement surgery in the lower limbs. The use of an epidural is even more important when a patient has a condition that could complicate their recovery from surgery, such as obesity, angina, or peripheral vascular disease, or lung disease such as emphysema. Good pain management in such patients allows them to breathe deeply and move around much earlier, decreasing the chances of developing pneumonia or blood clots.

How is an epidural done?

A specially designed needle is used to reach the epidural space (see Figure 1). The medications can be injected directly through the needle or, more frequently, through a tiny catheter (tube). The catheter is inserted through the needle, and the needle is then removed, leaving the catheter in place. A catheter allows for the continuous delivery of medications, usually using a special pump. This pump gives precise control of the medications, and it can allow the patient the ability to partially adjust the medication delivery until the desired pain relief is obtained (called *patient-controlled epidural analgesia*).

An epidural is usually done with the patient awake or slightly sedated so that they can cooperate and provide verbal feedback. The patient will either sit up or lie on their side. The skin on the back is cleaned with an antiseptic. The anesthesiologist will feel the spine to identify landmarks, and then anesthetic "freezing" is injected into the skin, which stings for a short while. Anesthetic is then injected deeper down into the ligaments and, at the same time, branches of the nerves supplying the thick back muscles and the lining of the bony vertebrae are frozen.

The epidural needle is then directed towards the ligament overlying the epidural space. The needle is relatively blunt and is slowly pushed forward through the tissues.

It should not be uncomfortable, but you may feel firm pressure and pushing as the anesthesiologist advances the needle. The epidural space is reached when the tip of the needle passes through the ligament. The anesthesiologist knows this space has been reached by feeling a decrease in resistance to the needle.

At this stage the catheter is passed through the needle into the epidural space. As the catheter enters the space, it may come into contact with a nerve root - this would cause a local, sharp sensation that should disappear rapidly. The needle is removed over the catheter.

A test dose of local anesthetic is sent through the catheter to confirm that the catheter tip is in the right place, and a dressing is placed over the catheter insertion site to hold the catheter in place.

How well do epidurals control pain?

Local anesthetics injected through the catheter will block all types of nerve messages. By changing the type, concentration, and amount of medication injected, the anesthesiologist can "freeze" a large area of the body, or can freeze only the nerves that would conduct pain sensations from the surgical site. This allows the surgical site itself to be numb, while giving the patient the ability to move their muscles spontaneously, so they can move around after surgery.

Opioid pain killers are often injected into the epidural space, either alone or combined with the local anesthetic agents. The spinal cord has natural opioid receptors. By delivering an opioid so close to these receptors, only very small amounts of the medication are needed to achieve excellent pain control. Using such small quantities may reduce some of the side effects of opioids that can happen at higher doses.

Also, using a combination of different medications in the epidural space allows the dose of any single medication to be reduced, which cuts down on the side effects of each medication while maintaining good pain control.

What should you ask about before getting an epidural?

When considering epidural or spinal anesthesia, the following questions will help you communicate with your anesthesiologist before your surgery:

Ask if an epidural or spinal would benefit you .

Ask about any concerns that you may have regarding an epidural or spinal anesthesia.

Tell about your fears. It's normal to have some concerns if you're about to have surgery, and these are best discussed the day before the surgery, if possible.

Tell if you are taking any *anticoagulants* - often called *blood thinners* - whether prescribed or natural.

Tell about all your medications used for any reason.

Tell about any previous experiences with anesthesia, good and bad.

Tell of any drug allergies or side effects you have previously experienced.