
Epidural Injections

This procedure is reviewed by a physician with expertise in the area presented and is further reviewed by committees from the American College of Radiology (ACR) and the Radiological Society of North America (RSNA), comprising physicians with expertise in several radiologic areas.

What is an Epidural Injection?

An epidural injection is delivered into the epidural space of the spine to provide temporary or prolonged relief from pain or inflammation. The epidural space is located outside the dural membrane. Steroids, anesthetics and anti-inflammatory medications are typically delivered in an epidural injection. The injection may reduce pain and swelling in and around the spinal nerve roots, as well as around damaged nerves which in time may heal.

Imaging guidance, such as fluoroscopy or computed tomography (CT or “CAT” scan), may be used to help the doctor place the needle in exactly the right location so the patient can receive maximum benefit from the injection.

What are some common uses of the procedure?

An epidural injection is one of many methods doctors use to relieve pain, along with physical therapy, nerve blocks, oral medications and surgery.

An epidural injection may be performed to alleviate pain caused by:

- A herniated or bulging disk
- Spinal stenosis
- Other injuries to spinal nerves, vertebrae and surrounding tissues

How should I prepare?

You will receive specific instructions on how to prepare, including any changes that need to be made to your regular medication schedule.

You may be instructed not to eat or drink anything for several hours before your procedure to prevent you from having an upset stomach following the injection.

You may be asked to wear a gown during the procedure.

You will probably be asked to use the restroom before the procedure.

You will then be positioned on your stomach or side on a special fluoroscopic or CT table that will give the doctor easy access to the injection site(s). The nurse will help to make you as comfortable as possible, both during and after the procedure.

You should plan to have a relative or friend drive you home after the procedure.

What does the equipment look like?

The injection itself will be administered with a syringe much like one that would be used for a routine vaccination. The doctor will fill the syringe from a small vial of medication. The type of medication used depends on individual patient needs.

The imaging guidance used, such as fluoroscopy or CT, will require additional equipment around the table. Both types of imaging are painless and involve the use of x-rays to obtain essential images that allow the physician to place the needle in exactly the right location for the injection.

The equipment typically used for this examination consists of a radiographic table, an x-ray tube and a television-like monitor that is located in the examining room or in a nearby room. When used for viewing images in real time (called fluoroscopy), the image intensifier (which converts x-rays into a video image) is suspended over a table on which the patient lies. When used for taking still pictures, a drawer under the table

holds the x-ray film or image recording plate that captures the images.

The CT scanner is typically a large machine with a hole, or tunnel, in the center. You will lie on a table which slides into and out of this tunnel. The x-ray tube and electronic x-ray detectors rotate around you. They are opposite each other in a ring, called a gantry. The computer workstation that processes the imaging information is located in a separate room.

How does the procedure work?

The different types of medications injected into the epidural space create different effects. Corticosteroids act like an anti-inflammatory agent, reducing swelling and nerve irritation to allow the nerve time to heal itself, thereby preventing further discomfort. By delivering an epidural injection directly into the epidural space, the medication moves throughout the epidural space, coating the nerve roots. Therefore, a lumbar injection could affect the lower back and the nerves traveling to the lower limbs, such as the sciatic nerves. Similarly, if an epidural injection is performed in the neck, it should spread throughout the cervical epidural space and provide relief to nerve roots in the neck. Unfortunately, oftentimes the results of the epidural injection may not be long lasting. A patient may experience relief for a matter of days up to several months, however, the pain may eventually return, requiring either another injection or an alternative treatment.

How is the procedure performed?

This procedure is often done on an outpatient basis.

An epidural injection usually takes only minutes to administer.

When you arrive at the office, hospital or surgical center, the nurse may place an intravenous (IV) line in your arm to deliver a relaxation medication during the procedure; this is seldom needed but will be available if required. You will be situated on your stomach or on your side, on a table in the fluoroscopic room or in computed tomography room and made to feel as comfortable as possible.

The doctor will identify where the injection should be given and will sterilize the skin with an antiseptic solution. He or she will then inject a local anesthetic to help numb the area before administering the epidural injection.

Once the area is numb, the doctor will most likely use imaging guidance to help guide the epidural needle to exactly the right position. When the needle is in place, a contrast material will be injected so the doctor can ensure the distribution of the medication given. Then, your doctor will slowly inject the medication, which is typically a combination of anesthetic and anti-inflammatory drugs (cortisone/steroids).

When finished, you will be moved into a chair or bed and allowed to rest for a few minutes to an hour. The nurse will make sure you do not have any unfavorable reactions to the medication before you are allowed to leave.

What will I experience during the procedure?

You may have no sensation whatsoever, however you may feel tingling or pressure when the injection is administered. Depending on the amount of swelling in the area, you may experience a burning sensation or some mild discomfort as the medication enters the epidural space. When the injection is finished, however, any discomfort usually disappears. It is possible to feel “pins and needles” in your arms and legs, depending on the injection site. If you feel any sharp pains, however, tell your doctor immediately.

Due to the numbness and any discomfort you may experience after the procedure, you may have some difficulty walking on your own and getting in and out of the car. This is normal and should subside in a matter of hours. You should take it easy for the rest of the day, though, and may resume normal activities the next day.

The epidural may not take effect immediately—it is common for improvement in the pain to occur progressively over the first 48 hours. The effects may last for a matter of days, weeks, and occasionally months.

Who interprets the results and how do I get them?

A radiologist or anesthesiologist will most likely perform the epidural injection, however, a neurosurgeon, orthopedic surgeon, or neurologist may also administer it.

The doctor who delivers the injection will follow up with you to see how you are doing and determine if further action is required. Any imaging that is performed during the procedure itself will conclude with the procedure, and no follow-up image interpretation is necessary.

What are the benefits vs. risks?

Benefits:

- Temporary or prolonged pain relief.
- Temporary or prolonged reduction of inflammation in the region of the spine causing pain.
- Better ability to function in daily life without the restrictions previously caused by pain.

Risks:

- Temporary increase in pain, although this is extremely rare.
- Headache is also extremely rare, but possible.
- Reaction to the medications, such as hot flashes or rash.
- Infection at the injection site.
- Bleeding if a blood vessel is inadvertently damaged.
- Injury to the nerves at the injection site.
- Temporary paralysis of the nerves leading to the bladder and bowel, causing temporary bladder or bowel dysfunction.
- When fluoroscopy or CT is used, there will be minimal low-level radiation.
- Women should always inform their physician or x-ray technologist if there is any possibility that they are pregnant. Many imaging tests are not performed during pregnancy because radiation can be harmful to the fetus. If an x-ray is necessary, precautions will be taken to minimize radiation exposure to the baby.

If the epidural injection is given in the neck, more serious complications, such as spinal cord injury, stroke, or death, are possible if the needle is placed incorrectly.

Your doctor will use imaging guidance, however, to minimize these risks.

What are the limitations of Epidural Injection?

Typically, the effects of an epidural injection may be temporary and may offer little to no long-term relief. Each individual is different; however, sometimes the injection may be repeated after a number of weeks or months to receive maximum benefit from the medication. If the epidural injections do not help alleviate your pain, your doctor will most likely recommend a different therapeutic approach.

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