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A Patients Guide To: EPIDURAL INJECTIONS

Epidural Injections

Nearly everyone experiences an episode of low back pain at one time or another during his or her lifetime. Often low back pain results from nerve compression. Typically, the patient's complaint includes a low backache or sharp pain traveling down one or both legs. Common causes of pinched nerves include disc protrusions into the nerve space, arthritic facet joints with resultant narrowing of the spinal canal, and bone spurs. Less often, scar tissue that has formed from a previous surgery can cause nerve impingement and pain. Nerves exit the spinal cord through the epidural space. Often, this space is utilized to deliver medicine in close proximity to the spinal nerves. The most effective medications include local anesthetics (numbing/deadens pain) and anti-inflammatory steroids, which help reduce swelling and inflammation that can lead to pinched nerves.

What is the epidural space and why is a selective epidural helpful?

The membrane that covers the spinal cord and nerve roots in the spine is called the dura membrane. The space surrounding the dura is the epidural space. Nerves travel through the epidural space before they form the nerves that travel down the arms, along the ribs and into the legs. The nerves leave the spine from small bony openings called foramen ("neuroforamen", see Figure 1 below). Inflammation of these nerve roots may cause pain in the arms, chest or legs. A selective epidural injection places anti-inflammatory medicine over the root and into the epidural space to decrease inflammation of the nerve roots, therefore reducing the pain. It may provide permanent relief or provide a period of pain relief for several months while the injury/cause of pain is healing.

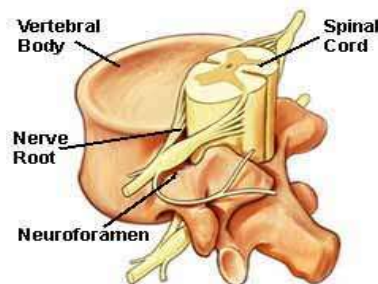
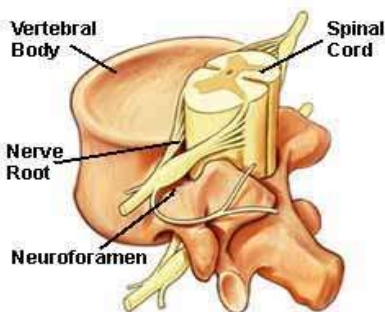


Figure 1.

The epidural space is often accessed using a special type of injection. First, a sterile solution is applied to the target site. Next the site is numbed with a small injection of a local anesthetic. A special type of needle is used to identify the epidural space. Specialists in pain management can offer techniques to overcome the deficiencies of this technique. Unfortunately, many patients do not experience complete relief of their pain. When complete pain relief is not achieved, the pain management specialist may carefully question the patient, utilize directed exam techniques, and radiographic studies to help guide more specific injections. During an ESI, medications are injected into the "epidural space". The epidural space is the area between the spinal sac and spinal canal, which runs the length of the canal. As the medicine is injected into the epidural space it coats the nerve roots and outside lining of the facet joints.



Low back pain is an extremely common complaint and a major cause of work disability worldwide. As the spinal nerves emerge from the spinal cord, they travel laterally 1-2 cms before they exit the spine. It is at this exit (Intervertebral foramen) that these nerves are most likely compressed or "pinched" by either a herniated disc, bone spurs, narrowing of the exit secondary to calcification and decreased spacing between vertebrae (bones forming the spine). This pressure on the spinal nerves causes inflammation and pain. The pain could affect the back alone or can irradiate to the legs, which is known as sciatica. Conservative treatments for these conditions includes analgesics, anti-inflammatories, physical therapy and epidural steroid injections. Other therapies used are heat, acupuncture, massage and stress control.

Spinal Injections

With most spinal injections, a local anesthetic called Lidocaine (also known as Xylocaine®) is used to numb the injection site. A steroid medication called a corticosteroid is also commonly injected along with the anesthetic in order to reduce inflammation in the affected areas.

Epidural Steroid Injection (ESI)

What happens during the procedure?

An IV may be started. The patient is placed on the x-ray table and positioned in such a way that the physician can best visualize the bony openings in the spine where the nerve roots exit the spine using x-ray guidance. The skin on the back is scrubbed using 2 types of sterile scrub (soap). Next, the physician numbs a small area of skin on the low back with numbing medicine. This medicine stings for several seconds. After the numbing medicine has been given time to be effective, the physician directs a very small needle, using x-ray guidance above the nerve root as it leaves the foramen. A small amount of contrast (dye) is injected to insure the needle is properly positioned in the epidural space.

A small amount of contrast (dye) is injected to insure the medicine is properly spread both around the nerve and into the epidural space. Then, a small mixture of numbing medicine (anesthetic) and anti-inflammatory (cortisone/steroid) is injected.



Epidural Injection Needle Guidance

A technique utilizing fluoroscopy is often used to guide the needle. The practitioner is able to watch the needle as it moves through tissues to its destination. Fluoroscopy makes it possible to place the medicine close to the exact lesion location (pinched nerve). In addition, modifications, such as a flexible guided catheter can be maneuvered into the proper position to deliver medication. Other modifications include injecting into the foramen, the spinal windows where the nerves exit. Epidural steroids injections are most effective in the presence of nerve root compression. Scientific studies often demonstrate inflammation of the spinal nerves following prolonged compression, which leads to irritation and swelling. This irritation occurs at the level of the root of the lumbar nerves. The injection of steroids, which are potent anti-inflammatories, is made into the epidural space, close to the affected nerve roots. These injections are given by pain management specialists who are well trained in this technique. Improvement of the symptoms appears to correlate well with the resolution of the nerve root inflammation. These injections are most effective when given in the first weeks of the onset of pain. Usually, two to three injections one to two weeks apart are required. Only a single injection is given if complete pain relief is achieved. Side effects are minimal and consist mainly of mild tenderness in the area of injection which disappears in 1-2 days. Success is dependant on the cause of the pain and how long the pain has existed. The sooner the treatment is instituted, the better are the chances of getting well. This treatment, along with analgesics and physical therapy has brought relief to thousands of patients, avoiding, in the majority of cases, the need for surgery.

What happens after the procedure?

Patients are then returned to the recovery area where they are monitored for 15 minutes. Patients are then asked to record the relief they experience during the next week. ("pain "diary"). A follow-up appointment will be made for a repeat block if indicated. These injections are usually done in a series of three (3), about two (2) weeks apart. The chest wall or legs may feel weak or numb for a few hours. This is to be expected, however it does not always happen.

General Pre/Post Instructions

Patients can eat a light meal within a few hours before the procedure. If a patient is an insulin dependent diabetic, they must not change their normal eating pattern prior to the procedure. Patients may take their routine medications. (i.e. high blood pressure and diabetic medications). Patients should not take pain medications or anti-inflammatory medications the day of their procedure. Patients have to be hurting prior to this procedure. They may not take medications that may give pain relief or lessen their usual pain.

These medicines can be restarted after the procedure if they are needed. If a patient is on Coumadin (blood thinner) or Glucophage (a diabetic medicine) they must notify the office so the timing of these medications can be explained.

Lumbar Epidural Injection

This is an epidural injection in the lumbar spine (low back) that places steroids (anti-inflammatory) medicine into the epidural space around spinal nerve roots to your low back to decrease inflammation and swelling of the nerve roots, reducing the pain in the low back and legs caused by irritated disc or spinal nerves. The area where the epidural needle will be inserted is numbed with a local anesthetic (numbing medicine). An x-ray will be used to help the Physician guide the needle into the epidural space. You may feel some pressure. X-ray is important in this procedure to help ensure the correct placement of the needle and of medication. A combination of (anesthetic) numbing medicine and (steroid) anti-inflammatory medication is then injected.

Cervical Epidural Injection

An epidural injection places steroids (anti-inflammatory) medication into the epidural space around spinal nerve roots in your neck to decrease, inflammation and swelling, reducing pain in the neck, shoulders and arms caused by irritated disc or spinal nerves. The area where the epidural needle will be inserted is numbed with a local anesthetic. An x-ray will be used to help the Physician guide the needle into the epidural space. You may feel some pressure. X-ray is important in this procedure to help ensure the correct placement of the needle and of the medication. A combination of anesthetic and steroid (anti-inflammatory) medication is then injected.

Thoracic Epidural Injection

Is an epidural injection in the thoracic spine (mid-back) that places steroids (anti-inflammatory) medicine into the epidural space around the spinal nerve roots to the mid-back to decrease inflammation and swelling of the nerve roots, reducing the pain in the mid-back or around the ribcage caused by irritated disc or spinal nerves. The area where the epidural needle will be inserted is numbed with a local anesthetic. An x-ray will be used to help the Physician guide the needle into the epidural space. You may feel some pressure. X-ray is important in this procedure to help ensure the correct placement of the needle and of the medication. A combination of anesthetic and steroid (anti-inflammatory) medication is then injected.

PLEASE NOTIFY THE PHYSICIAN IMMEDIATELY IF YOU HAVE A HISTORY OF A BLEEDING DISORDER OR IF YOU TAKE BLOOD THINNERS (COUMADIN, ASPIRIN, NSAIDS)

PLEASE NOTIFY THE PHYSICIAN IMMEDIATELY IF YOU HAVE AN ALLERGY TO IV DYE

Risks Of Procedure

- -Overall complications are extremely rare
- -Increased discomfort for approximately 2-3 days following the test
- -Nerve damage
- -Seizure
- -Infection
- -Spinal headache
- -Adrenal suppression
- -Bleeding
- -Discitis
- -Abscess
- -Hemorrhage
- -Allergy to medication
- -Nerve damage
- -No improvement
- -Paralysis
- -Death
- -Worsening of condition
- -Hoarseness
- -Pneumothorax
- -Equipment failure
- -Soreness lasting 5-7 days
- -Elevated blood sugar
- -Abnormal menstruation in females
- -Bruising at or around injection site

THESE RISKS ARE INTENDED TO BE A COMMUNICATION OF THE MOST REASONABLE EXPECTED COMPLICATIONS OF THE PROCEDURE AND DO NOT INCLUDE ALL CONCEIVABLE CONSEQUENCES OF THE PROCEDURE

Discharge Care

- The area injected may be tender or bruised after the injection. Apply ice on and off every 4 hours for 24 hours
- You may not drive for the remainder of the day after the procedure. An adult must be present to drive you home. This is for your safety
- No restrictions on your diet
- Continue routine medications as prescribed. You may take your usual pain medication the day of the procedure
- Notify the Physician on any signs of infection at injection site and if fever develops
- No restrictions on bathing but be careful
- Diabetics may experience elevated blood glucose levels if steroids are given

- Keep a record of any significant changes in your pain and activity level. This information is valuable to the Physician in evaluating your treatment plan
- You should be able to return to work the next day unless there are complications
- Notify the Physician of any new respiratory difficulties
- You may have temporary numbness, heaviness or weakness at the injection site down into the thighs/arms
- Keep dressings clean and dry
- If you experience a spinal headache you need to increase your overall fluid intake especially beverages that contain caffeine (coffee, tea, mountain dew, etc.)
- Try not to go upstairs for the remainder of the day
- Be careful getting in and out of a car
- No driving, alcoholic beverages with sedatives and narcotics
- Do not make any critical decisions or sign important papers for 24 hours
- If an emergency arises and you feel the situation requires immediate attention, go to the nearest emergency room. Make sure the Dr. is informed.