

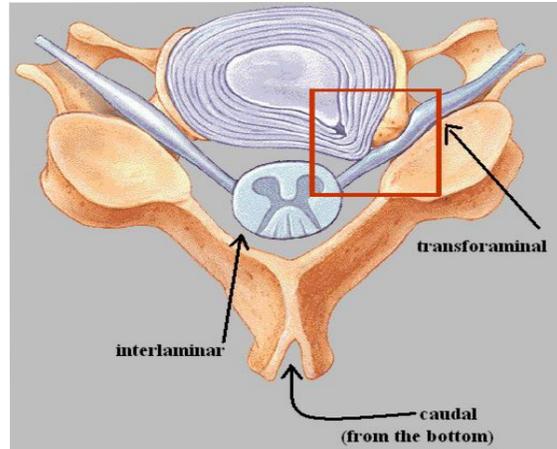


## Epidurals

Spine injection procedures have been employed in the management of patients with cervical, lumbar, and radicular pain syndromes for almost a century. The first report of epidural steroid injection was in 1951.

**Corticosteroids** are known to have strong anti-inflammatory properties. **Epidural steroid injection** is a term applying to a variety of techniques performed to deliver a corticosteroid preparation into the epidural and perineural spaces of the spine. Three routes may be used in the lumbosacral spine: **caudal, interlaminar, and transforaminal** epidural injections.

The **interlaminar** injection offers a potential advantage of delivering solutions directly into the epidural space and therefore closer to the source of pain. However, the medication is placed away from the disk, without any guarantees that it will flow to the front epidural space where the disc-nerve root pathology is occurring. The **transforaminal** technique is favored by some because of the precision with which solutions can be delivered to a specific nerve root and the front location of the needle in the epidural space. The **caudal** route for the lower back is preferable if there is difficult access because of anatomy. All three approaches should be done with **x-ray guidance, or fluoroscopy** to avoid important structures like the spinal cord and nerve, and make sure the medication is delivered to the desired location(s). Several different steroid preparations may be used, with or without local anesthetic or normal saline, to increase the volume and ensure spread of medication to all areas causing pain.



The primary indication for an epidural steroid injection is the relief of pain due to inflammation of the nerve elements in the epidural spaces of the spine. However, the question of when an epidural steroid injection should be administered has not been thoroughly studied. The decision on how often an epidural steroid injection should be administered is also unknown.

There are few **contraindications** to performing epidural steroid injections: **bleeding disorder, anticoagulation, and allergy to medications**. **Diabetes** and **congestive heart failure** requires caution. The current use of **aspirin** or **nonsteroidal anti-inflammatory** drugs is not an absolute contraindication but most physicians ask patients to stop **5 days** before the injection.

**Complications** are uncommon and usually temporary and serious complications are rare. **Infections** may be introduced by injection techniques. **Bleeding** is usually easily controlled. Inadvertent **dural puncture**, which occurs in about 5% of interlaminar and 0.6% of caudal injections, may occur. This can cause a positional headache, which usually goes away after some time. We use **x-ray guidance (fluoroscopy)** to minimize the risk of injuring structures like the spinal cord, nerves, and blood vessels. The contrast dye allows us to see where we are and where the medication will go. Lastly, the injection procedure may not improve a patient's pain.

The whole point of using an injection is to place the medication as close to the pathologic process as possible in order to gain the best possible therapeutic benefit. The treatment is used to achieve a significant reduction in pain without the need for surgery. More than a single injection may be required in any given patient.