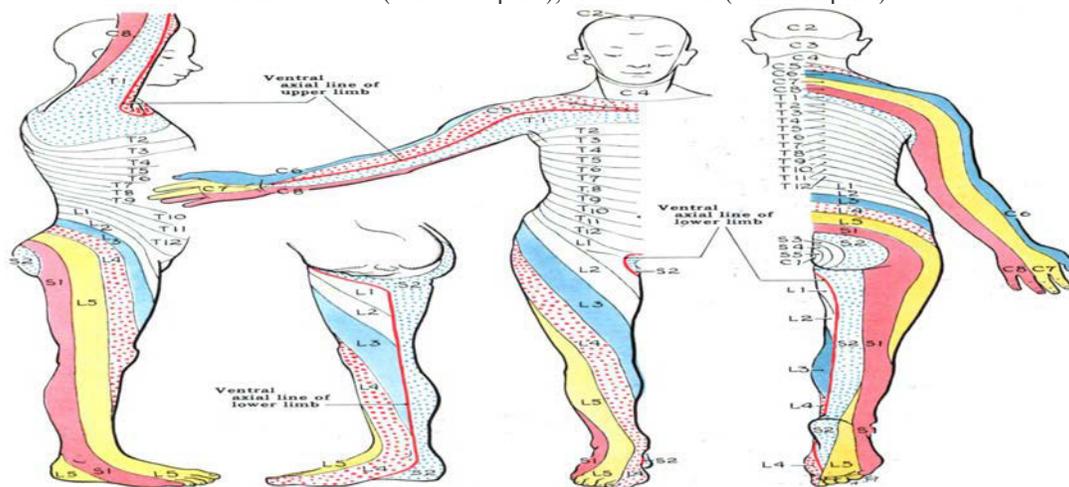


Epidural Steroid Injections

Neck and back pain that comes from the spine can sometimes radiate down the arm or the leg this is called radicular pain. When the pain is due to irritation of a spinal nerve in the low back it can travel down one or both legs this is called lumbar radiculopathy. When the pain starts in the neck and travels down the arms it is called cervical radiculopathy. Epidural injections are one of the options available to treat nerve irritation in the neck (cervical spine), and low back (lumbar spine).

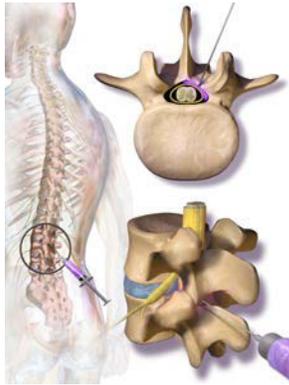


Conditions commonly treated with ESI:

- Degenerative disc disease (Botwin 2007)
- Spinal stenosis
- Herniated discs (Lin 2006)
- Spondylolysis
- Sciatica
- Radiculitis
- Radiculopathy

A study done at the Florida Spine Institute in 2007 confirmed that epidural steroid injections help reduce bilateral radicular pain and improve standing and walking in patients with degenerative lumbar spinal stenosis (Botwin 2007).

Procedure – Epidural Steroid Injection



The procedure involves injecting a medication into the epidural space, where irritated nerve roots are located. This injection includes both a long-lasting steroid and a local anesthetic (lidocaine, bupivacaine). The steroid reduces the inflammation and irritation, and the anesthetic works to interrupt the pain-spasm cycle and nociceptor (pain signal) transmission (Boswell 2007). The injected medicine spreads to other portions of the spine, reducing inflammation and irritation. The entire procedure usually takes less than 15 minutes.

The most important and greatest success achieved with the use of epidural steroid injections (ESI) is the rapid relief of symptoms that allows patients to experience enough relief to become active again. With this help, patients regain the ability to resume their normal daily activities.

There are several types of epidural steroid injections, and the specific type you receive depends on the cause of your pain syndrome. The trained pain specialist will decide which procedure is more beneficial to you after reviewing your history, performing a physical exam, and determining the cause of your pain. The main difference in the types of ESIs is the position where the needle is inserted as well as the amount of nerve roots treated.

Types of Epidural Steroid Injections

Interlaminar Injection: Your skin is cleaned off with a sterilizing solution and a numbing medication is put in the skin where the epidural needle will go. After your skin is anesthetized, the epidural needle is placed in the middle of your back or neck in the area where the nerve roots are irritated. The needle enters between two of the vertebrae (back bones) and stops right before the dura. The medication is injected into the epidural space and spreads to the nerve roots on both sides of the spine. The evidence for interlaminar epidural steroid injections is strong for short-term relief and limited for long-term relief in managing radiculopathy.

Transforaminal Injection: After your skin is anesthetized, the needle enters through the side of the vertebra above the opening where the irritated nerve is located. This approach treats one side at a time and is thought to be more specific. Pain specialists who are treating patients who have undergone previous spine surgery and have foreign bodies (surgical pins, surgical rods, or screws) as well as previous scarring prefer this method because they are able to avoid these structures. There is powerful evidence suggesting that transforaminal epidurals are effective for short-term and moderate for long-term improvement in managing lumbar back pain (Manchikanti 2007).

Caudal Injection: After your skin is anesthetized, a needle enters the epidural space by your tailbone. This technique allows for a catheter to be placed (Racz catheter) and larger volumes of steroid and anesthetic to be delivered. The additional medication can be used to affect more nerve roots by

spreading to the inflamed area at the same time. Often caudal epidurals are combined with another procedure called lysis of adhesions or the Racz Procedure, which is used to treat epidural scarring. The evidence for caudal epidurals is similar to that of the transforaminal epidurals.

Benefits of Epidural Steroid Injections

Epidural steroid injections are considered routine and relatively painless. Approximately 72% of patients experienced immediate pain relief in a 2007 research trial to evaluate the usefulness of a cervical interlaminar epidural steroid injection in patients with neck pain and cervical radiculopathy (Kwon 2007). If pain relief is only moderately achieved with the first injection, then another injection can be given in two weeks that may provide additional relief.

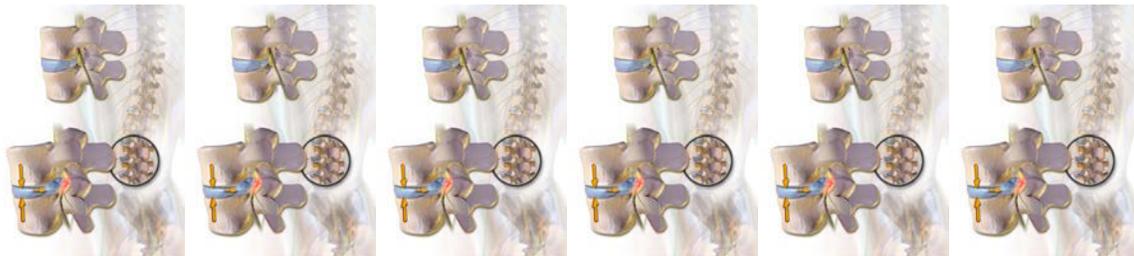
The most important and greatest success achieved with the use of ESIs is the rapid relief of symptoms that allows patients to experience enough relief to become active again. With treatment, patients are often able to resume their normal daily activities.

Risks of Epidural Steroid Injection

Epidural steroid injections (ESIs) are considered an appropriate non-surgical treatment for many patients who suffer from back and neck pain. Although ESIs are considered safe and are one of the most commonly performed procedures in the world, there are risks associated with the procedure. The major risks associated with this procedure involve bleeding, infection, post-dural puncture headache, and nerve damage.

Steroids have never been approved by the FDA for epidural use, so placement in the epidural space is considered an **off label use**. Recent literature suggests that the use of steroids with particles (little pieces) in may increase the risk of blocking an artery and causing paralysis and death, especially in the cervical spine. As a result particulate steroids are no longer used in cervical injections and some other types of injections. Steroids with particles may be used in lumbar epidurals if there is a failure to achieve pain relief with non-particulate steroids.

The other risks of epidural steroid injections may be directly related to the medications injected. Some of the potential side effects of corticosteroids include elevated blood sugar, weight gain, arthritis, stomach ulcers, and transient decrease in immune system function. All patients before receiving an epidural steroid injection should be assessed by their provider for risks specific to them. Patients with an allergy to any anesthetic, are on blood thinning medications, have an active infection, or are pregnant should consult with their pain provider before receiving the procedure.



Outcomes of Epidural Steroid Injection

The amount and duration of pain relief vary from person to person and is dependent on many other factors, including underlying pathology and activity level. Some can have relief that lasts for years while others have short-term relief. It is important to discuss with your provider your response to epidural steroids in order to plan future treatment options.



The Department of Rehabilitation Medicine at the University of Washington conducted a study that compared the risks and efficacy between surgical alternatives versus lumbar epidural steroid injections (ESIs). In their conclusion, “when weighing the surgical alternatives and associated risk, cost, and outcomes, lumbar epidural steroid injections are a reasonable non-surgical option in select patients” (Young 2007).

References

Arizona Pain Specialists: <http://arizonapain.com/>

Epidural Local Anesthetic Plus Corticosteroid for the Treatment of Cervical Brachial Radicular Pain: Single Injection Versus Continuous Infusion. Pasqualucci A, Varrassi G, Braschi A, Peduto VA, Brunelli A, Marinangeli F, Gori F, Colò F, Paladini A, Mojoli F. PMID: 17710003

Fluoroscopically guided caudal epidural steroid injections in degenerative lumbar spine stenosis. Botwin K, Brown LA, Fishman M, Rao S. PMID: 17660853 [PubMed – in process]

The use of lumbar epidural/transforaminal steroids for managing spinal disease. Young IA, Hyman GS, Packia-Raj LN, Cole AJ. PMID: 17426294 [PubMed – indexed for MEDLINE]

The use of lumbar epidural/transforaminal steroids for managing spinal disease. *J Am Acad Orthop Surg.* 2007 Apr;15(4):228-38 Young IA, Hyman GS, Packia-Raj LN, Cole AJ

Cervical epidural steroid injections for symptomatic disc herniations. *J Spinal Disord Tech.* 2006 May;19(3):183-6. Lin EL, Lieu V, Halevi L, Shamie AN, Wang JC

Cervical interlaminar epidural steroid injection for neck pain and cervical radiculopathy: effect and prognostic factors. *Skeletal Radiol.* 2007 May;36(5):431-6. Epub 2007 Mar 6 Kwon JW, Lee JW, Kim SH, Choi JY, Yeom JS, Kim HJ, Kwack KS, Moon SG, Jun WS, Kang HS
Epidural steroids in the management of chronic spinal pain: a systematic review. *Pain Physician.* 2007 Jan;10(1):185-212. Abdi S, Datta S, Trescot AM, Schultz DM, Adlaka R, Atluri SL, Smith HS, Manchikanti L.