

Lumbar Interlaminar Epidural Steroid Injections

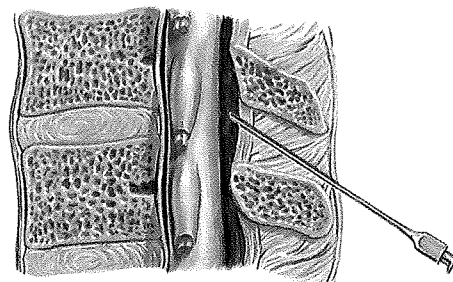
Kenneth P. Botwin, MD

Historically, the first description of epidural injections being placed spinally was in 1885 by Corning¹. In 1901, the French neurologist Cathelin² described anesthesia via the sacral route; this was again described by Sicard, also in 1901 for pain relief.³ In 1921, Pages⁴ confirmed needle placement in the epidural space was based upon obstruction of free flow of spinal fluid from the needle and lack of resistance to injection of local anesthetic. The earliest use of an epidural injection for lower back pain and sciatica was described by Viner in 1925.⁵ In 1933 Dogliotti⁶ introduced the loss of resistance technique. Dogliotti's technique described a sudden loss resistance to injection when the needle bevel was passed from the ligamentum flavum into epidural space.

Later in that same year Gutierrez⁷ described a technique that utilized the negative pressure of the epidural space in order to identify its location, and subsequently described the "hanging-drop" technique. This technique was described as placing a drop of local anesthetic into the open hub of a needle, which was then advanced towards the epidural space. The fluid would subsequently be pushed into the epidural space due to the negative pressure within, thus sucking the anesthetic through the needle and into the space.

In 1952 Robecchi and Capra⁸ were the first to utilize epidural steroid injections in the treatment of radicular pain syndromes via the first sacral nerve root. This was followed in 1953 by Lievre et al,⁹ who reported using hydrocortisone in the treatment of lower back pain also via a similar injection into the first sacral nerve root. The first case series of interlaminar epidurals performed using loss of resistance technique was reported in 1966 by Harley et al.¹⁰

The injections in these studies were performed "blind" (without fluoroscopic guidance), using an interlaminar "loss of resistance technique." In experienced hands, improper localization in the epidural space using the blind technique has occurred in 13%-30% of attempted injections.¹¹⁻¹⁵ The use of fluoroscopy allows proper localization within the epidural space and assures placement of corticosteroid and anesthetic to the target areas.¹¹⁻¹⁵



Indications

- ◆ Corticosteroid injections have become an integral part of pain management for patients with lumbar pain syndromes.
 - The placement of corticosteroids as close as possible to an inflamed nerve root should help lead to relief of pain in patients with sciatic symptoms related to inflammation from disc herniation, spinal stenosis, or chemical sensitivity.⁸⁻²⁰
- ◆ Epidural corticosteroids in the lumbar spine are indicated for acute pain, chronic benign pain, and cancer related pain.
 - Specific indications include lumbosacral radiculopathy, lower back pain syndrome, spinal stenosis, post laminectomy syndrome, phantom limb pain, vertebral compression fractures, diabetic polyneuropathy, chemotherapy-related peripheral neuropathy, post herpetic neuralgia, complex regional pain syndrome, or orchalgia, proctalgia, and pelvic pain syndrome.⁸⁻²⁰
- ◆ Studies have shown epidural steroids are useful in the palliation of cancer related lower abdominal, groin, back, pelvic, perineal, and rectal pain; and in the treatment of acute herpes zoster.
- ◆ Contraindications can be divided into both absolute and relative contraindications.
 - Absolute contraindications include the patient being unwilling to consent to the procedure, pregnancy (under fluoroscopy), known true anaphylactic reaction and/or allergy to any constituents of the epidural injection (steroid, anesthetic or contrast agent), cauda equina syndrome, anticoagulation, coagulopathy, and suspected local or systemic infection.
 - Hypovolemia along with diabetes mellitus and glaucoma are relative contraindications.