

### **Epidural steroid injection**

The word 'epidural' simply refers to a layer of supporting tissue outside the spinal cord. In an epidural a solution of long acting local anaesthetic, long acting anti-inflammatory steroid, and sometimes other pain modifying drugs is injected into the epidural space in the spine.

### **Transforaminal epidural injection**

This is an important adjunct to epidural steroid injection and the two are normally done together. If you have lumbar radiculopathy or cervical radiculopathy, you will probably also have one or more transforaminal epidural injections.

### **Sacroiliac joint steroid injection**

In the first instance a solution of long-acting local anaesthetic, long acting antiinflammatory steroid, and sometimes other pain modifying drugs is injected into one or both joints. If this is successful the joint can then be denervated in a similar way to facet joint denervation.

### **Facet joint injections**

Facet joint injections are performed for facet joint pain. Facet joints can be injected with long acting local anaesthetic and anti-inflammatory steroids, which can alleviate facet joint pain for long periods.

### **Facet joint denervation**

This is a straightforward procedure that is normally carried out if you have had a successful result from facet joint injections. Special needles are carefully placed under continuous fluoroscopy so that their tips lie exactly on the nerves that carry pain signals from the facet joints. Radiofrequency energy is then passed through the needles so that that tissue at the tip is heated to about 80 degrees C for about a minute. This coagulates and inactivates the nerves.

### **Pulsed radiofrequency treatment**

Passing alternating radiofrequency energy through tissues without significantly heating it can selectively inactivate pain-carrying nerve fibres, which tend to be smaller in diameter than the fibres that control muscles and allow normal sensation. Conventional radiofrequency treatment results in the coagulation of all tissues at the tip of the needle, including all nerve tissue. In most situations this does not matter, but in some situations it is important to maintain as much normal nerve function as possible.

### **Discography**

Discography involves the insertion of a thin needle into one or more discs. Then either saline is injected into the disc to see if it is painful, or radio-opaque contrast dye is injected and x-rays will be taken to show the internal structure of the disc.

### **Selective nerve root block (SNRB) for diagnosis and back pain management**

Another common injection, a selective nerve root block (SNRB), is primarily used to diagnose the specific source of nerve root pain and, secondarily, for therapeutic relief of low back pain and/or leg pain.

### **Lumbar sympathetic block**

Injection needles will be positioned and then there are three main ways to produce the block: injection of a long acting local anaesthetic to produce a diagnostic block to safely see if your pain can be treated this way; injection of a neurolytic substance such as phenol or alcohol to destroy the lumbar sympathetic nerves; and the use of radiofrequency energy to similarly destroy the nerves in a highly controlled way.

### **Stellate ganglion block**

The stellate ganglion is a collection of autonomic sympathetic nerves, which lies in front of the spine at the level of your larynx. It can be a site where pain signals from the face, heart, or arm are processed. It can therefore sometimes be useful to block it.

### **Dekompressor discectomy**

The Stryker Dekompressor is a relatively new technique for the decompression of contained lumbar herniated discs. A special device the size of a needle is inserted into the affected disc. This then rotates like a drill removing some of the nucleus of the damaged disc, thus decompressing it and allowing the bulge to reduce. This in turn reduces the pain from both the disc and the nerve root.

### **Vertebroplasty**

It involves the injection of bone cement into the crushed vertebral body, which stabilises it and reduces pain by reducing movement at the fracture site. It is well established and straightforward to perform, usually as a day-case procedure. A newer alternative treatment is Kyphoplasty.

### **Kyphoplasty**

It involves the insertion of needles into the damaged vertebral body, through which balloons are passed. These are inflated under high pressure, which expands the VCF and corrects the deformity. Once corrected, liquid bone cement is injected into the vertebra to permanently fix the restored shape.

### **Spinal cord stimulation**

Spinal cord stimulation can be very effective at treating nerve pain (neuropathic pain) and dysfunction from a number of different conditions. It has been shown to be particularly effective at relieving resistant nerve pain such as lumbar radiculopathy following spinal surgery. It involves the implantation of a wire and a device the size of a matchbox.

### **Sacral nerve root stimulation**

This is a new and effective treatment for a number of loosely related bladder and bowel control problems. The other main treatment alternative is spinal cord stimulation. The main risk is infection, which can occur in up to 5% of patients.

### **Intrathecal pump implant**

Intrathecal drug delivery devices are advanced pain management systems for patients whose pain cannot be adequately be controlled by conventional oral or systemic analgesics. Delivery of strong painkillers such as morphine directly into the cerebrospinal fluid can avoid many of the unpleasant side effects of conventional drug delivery.