## Introduction

Spinal injections are performed daily at the Epworth Hospital Radiology Department in Richmond (Symbion Imaging).

They are performed to provide temporary relief from pain; some are performed as a diagnostic test to determine if a patient's pain originates from a particular nerve or structure.

Most injections are performed under CT guidance.

We have performed thousands of spinal injections over many years and have accumulated a lot of experience.

## How Is a Spinal Injection Performed?

In our hands, a spinal injection is performed with minimal pain and discomfort and takes a few minutes.

The patient lies prone (on the stomach) on a CT scan table. A limited, low dose preliminary scan is done to confirm the level and to plan the trajectory.

The skin is marked with a pen and cleansed with a red coloured antiseptic.

Local anaesthetic is then injected along the intended path. This produces a "prick and sting" for a few seconds.

A thin needle is then advanced to the precise spot required for the injection. Sometimes several minor adjustments of the needle position are made before the radiologist is happy to inject the medication.

The medication injected is generally a mixture of cortisone steroid and long-acting local anaesthetic.

The medication acts locally, at the point of injection.

Whilst the local anaesthetic is effective immediately, it wears off after several hours (up to 8 hours).

The cortisone steroid medication becomes effective after about 48 hours.

## Types of Spinal Injections

*Nerve Block* (also called Foraminal Block, Foraminal Injection, Exit Foraminal Block or Injection).

Most commonly performed in the lumbar spine and cervical spine (neck).

A needle is advanced into the canal through which one of the spinal nerve emerges.

The needle sometimes contacts the nerve and produces a sharp pain for an instant.

This indicates the needle is in a satisfactory position, but the needle may also be well placed without such a sensation being felt.

Relief from pain may be immediate or may take more than 48 hours to become apparent.

It is not uncommon to feel numbness or "pins and needles" in the leg or arm for a few hours afterwards. These effects will disappear as the local anaesthetic wears off.

Nerve blocks are performed when pain arises from a nerve, which is squeezed, irritated or inflamed in the bony canal (foramen) as it exits the spine. Most commonly this is caused by disc prolapse or by degenerative bony narrowing of the canal (foraminal stenosis).

*Epidural Injection*

Epidural injections are performed for relief of pain from lumbar nerve root irritation and to alleviate the symptoms of spinal canal stenosis.

The needle tip is placed in the millimetre-thick, fat-filled epidural space, through which the nerve roots pass as they exit the spine.

The needle tip lies just outside the thecal sac (fibrous sheath containing the spinal nerves).

Occasionally the thecal sac is inadvertently punctured. In such a case, the procedure is cancelled and re-booked for another occasion, allowing a few days for the tiny hole in the sac to heal. This is done to avoid injecting the steroid into the sac, which may produce delayed complications.

Some patients may experience a mild headache after inadvertent puncture of the thecal sac. This usually is mild and settles spontaneously.

Some patients may experience a mild headache after a spinal injection even if the thecal sac has not been punctured.

*Facet Joint Injection.*

The small facet joints between the vertebrae of the spine may become painful. Such pain may be temporarily relieved by an injection of steroid and local anaesthetic into the joint.

Access to the joint may be very restricted if the joint is arthritic, and CT guidance is essential for precise needle placement.

We usually do not inject more than 2 facet joints at the same time.

*Other Injections*

Sometimes an arthritic facet joint is complicated by a cyst, which presses on a nerve. The cyst and the facet joint can be injected at the same time.

Sometimes the small nerves, which supply the facet joint are injected (Medial Branch Block) or treated by radiofrequency ablation.

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## Before the Spinal Injection

You must bring with you all recent CT or MRI scans of the spine so that we can review them and confirm the correct level before an injection is performed.

If you take anti-coagulants (blood thinning medication), you must tell us beforehand. Spinal injections may result in internal bruising or bleeding in anticoagulated patients and may worsen the original symptoms.

Some anticoagulants need to be stopped several days before a spinal injection. Mini-dose aspirin (eg Cartia) is not a contra-indication to spinal injections.

It is important that you have someone drive you home and assist you in getting into and out of the car and house, as there may be residual leg or arm weakness or numbness for a few hours after the injection.

Pimples or boils in the skin at the injection site may prevent us doing an injection.
Spinal injections are not appropriate if the pain is caused by spinal infection (discitis, osteomyelitis), fracture or malignancy. Such conditions must be excluded by your doctor before he/she refers you to us for an injection.

## Complications

Generally, spinal injections are free of serious complications.
Leg or arm numbness, weakness or "pins and needles" usually subside within 1 hour, but occasionally after a few hours.
Occasionally the injection may make the pain worse for a short period of time (hours), before it improves.
Permanent damage to a nerve has been reported in the literature, but we have not had such a complication.
A mild, transient headache may follow some spinal injections. No special treatment is required, apart from rest, fluids and paracetamol (Panadol).
Facial redness may occur for a few days after a steroid containing injection.
The steroid injection may aggravate diabetes for a short period and close monitoring of blood glucose levels is recommended in diabetic patients
Injections in the cervical spine have the potential to injure the large arteries which supply the brain, and may very rarely cause a stroke. We have never had such a complication.
Very rarely, when performing procedures in the cervical spine, local anaesthetic may be inadvertantly injected into the spinal sac and may result in transient breathing difficulties or in a cardiorespiratory arrest, requiring urgent treatment.

## How Effective is the Injection?

About 75% of patients report an improvement in pain, 25% are the same and <1% are slightly worse.
The benefit can last anywhere from a few days to several months or even a year or two.
It is impossible to predict how effective an injection will be in an individual case.
Sometimes a second or third injection is more effective than the first.

## How Often Can I Have a Spinal Injection?

We recommend that one should allow at least 1 month between injections and that no more than 3 injections be performed in a year.

## What Type of Spinal Injection Should I Have?

The type of injection most appropriate for you is determined by your referring doctor and the radiologist, taking into account both the clinical picture and the scan findings.

## Any Questions?

Contact the Radiology Department,
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