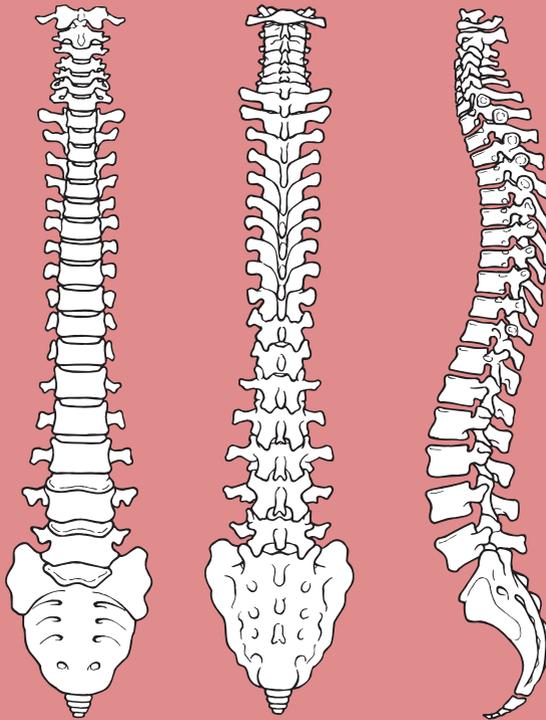




**BASS**  
British Association of Spine Surgeons

# Posterior Lumbar Decompression for Spinal Stenosis



Review date: February 2019

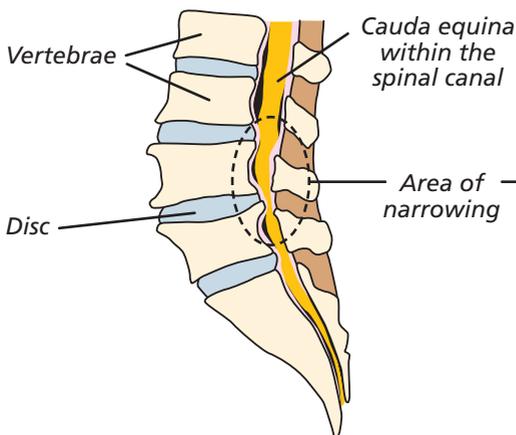
Following your recent MRI scan and consultation with your spinal surgeon you have been diagnosed with a narrowing of your lumbar spinal canal (stenosis). This is usually related to the wear and tear of the spine.

The normal spinal column has a central canal (or passage) through which the spinal cord passes down. To each side of the canal, spinal nerve roots branch out at every level. The spinal cord stops at the top of the lumbar spine (low back) and below that tiny nerve rootlets splay out like a horse's tail (cauda equina). The spinal cord, nerve roots and cauda equina are protected by a tough outer membrane, or covering, called the dura mater.

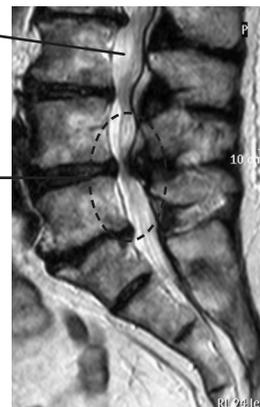
In spinal stenosis, the spinal nerve roots and/or cauda equina become trapped or compressed by the bony spurs (osteophytes) on enlarged facet joints and the 'buckling' of a ligament (the ligamentum flavum which protects the dura mater). These changes consequently narrow the spinal canal.

### **Narrowing of the spinal canal as a result of spinal stenosis as seen in diagram 1 and MRI scan**

**Diagram 1**



**MRI scan**



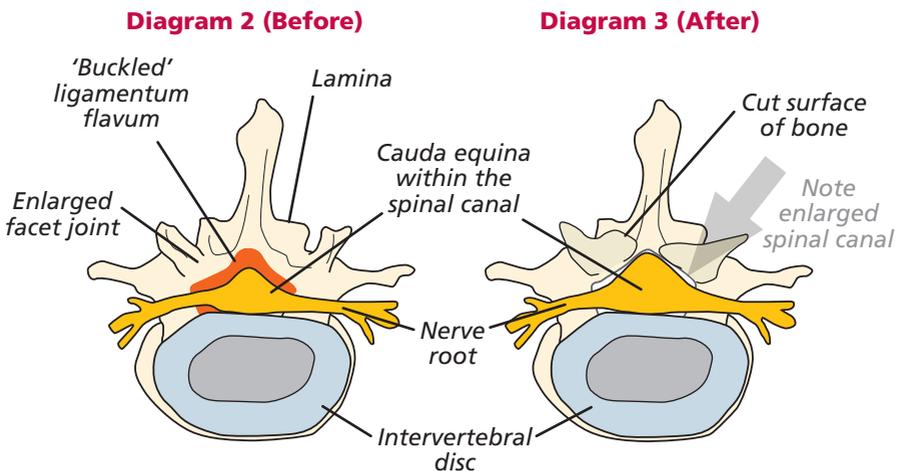
When nerves are compressed they can produce symptoms of pain, numbness and tingling in the legs. In rare cases they can produce severe pain and even weakness. Most cases will produce pain in the legs when walking but the pain will be relieved by sitting.

Symptoms may not progress for years and then difficulties with coordination may suddenly increase. Most patients first visit their doctor with symptoms of spinal stenosis at about the age of 60.

Unfortunately most conservative treatments (manipulation, physiotherapy, medication or injections) are unlikely to be of much benefit and the symptoms rarely improve without surgery to take the pressure off the nerves (decompression).

The objective of surgery is to remove the enlarged bone and 'thickened' ligament from the back of the spinal canal to give the spinal nerves more room.

Below is a cross-sectional (axial) view of the disc, cauda equina, nerve roots and facet joints of the spine. Note the size of the spinal canal after surgical decompression (diagram 3).



## The procedure

The operation is performed under general anaesthetic (so you are fully asleep).

First, the skin incision is made in the midline of the back and the muscles are lifted off the bony arch (lamina). A high-speed burr (like a dentist's drill) is used to gain entry through the bone into the spinal canal. Then a small amount of lamina bone and ligament is clipped away. The facet joints, which are directly over the nerve roots, may be undercut (trimmed), to relieve the pressure on the nerves.

The results of the surgery can be variable since some people have more extensive disease than others. In general though, the improvement after laminectomy surgery is favourable. After surgery the majority of patients can expect to regain significant improvement in their ability to perform normal daily activities and markedly reduced levels of leg pain and discomfort.

The results are not nearly as reliable for the relief of lower back pain. It is the facet joints becoming arthritic that causes lumbar spinal stenosis, so much of the back pain experienced comes from the arthritis. Therefore, surgery to remove some of the lamina and facet joint cannot eliminate this.

## Risks and complications

As with any form of surgery, there are risks and complications associated with this procedure. These include:

- damage to the nerve root and the outer lining or covering which surrounds the nerve roots (dura). This is reported in < 5% of cases (fewer than 5 out of 100 people). It may occur as a result of the bone being very stuck to the lining and tearing it as the bone is lifted off. Often the hole or

tear in the dura is repaired with stitches or a patch. This could result in back or leg pain, weakness or numbness, leaking from the wound, headaches or, very rarely, meningitis;

- recurrent leg pain, as a result of scarring;
- problems with positioning during the operation which might include pressure problems, skin and nerve injuries and eye complications including, very rarely, blindness. A special gel mattress and protection is used to minimise this;
- infection. Superficial wound infections may occur in 2–4% of cases (up to 4 out of 100 people). These are often easily treated with a course of antibiotics. Deep wound infections may occur in < 1% of cases (fewer than 1 out of 100 people). These can be more difficult to treat with antibiotics alone and sometimes patients require more surgery to clean out the infected tissue. This risk may increase for people who have diabetes, reduced immune systems or are taking steroids;
- blood clots (thromboses) in the deep veins of the legs (DVT) or lungs (PE). This occurs when the blood in the large veins of the leg forms blood clots and may cause the leg to swell and become painful and warm to the touch. Although rare, if not treated this could be a fatal condition if the blood clot travels from the leg to the lungs, cutting off the blood supply to a portion of the lung. It is reported as happening in fewer than 1 out of 700 cases. There are many ways to reduce the risk of blood clots forming. The most effective is to get moving as soon as possible after your operation. Walk regularly as soon as you are able to, both in hospital and when you return home. Perform the leg exercises illustrated in the 'Preventing Blood Clots' leaflet and keep well hydrated by drinking plenty of water. Ladies are also advised

to stop taking any contraceptive which contains the hormone oestrogen four weeks before surgery, as taking these during spinal surgery can increase the chances of developing a blood clot;

- bleeding. You must inform your consultant if you are taking tablets used to thin the blood, such as warfarin, aspirin or clopidogrel. It is likely you will need to stop taking them before your operation as they increase the risk of bleeding;
- rarely, the surgery may make your symptoms worse than before; and
- there are also very rare but serious complications that in extreme circumstances might include damage to the cauda equina and paralysis (the loss of use of the legs, loss of sensation and loss of control of the bladder and bowel). This can occur through bleeding into the spinal canal after surgery (a haematoma). If an event of this nature was to occur, every effort would be made to reverse the situation by returning to theatre to wash out the haematoma. Sometimes, however, paralysis can occur as a result of damage or reduction of the blood supply of the nerves or spinal cord and this is unfortunately not reversible; and a stroke, heart attack or other medical or anaesthetic problems, including death, which is reported as happening in 1 out of 250,000 cases under general anaesthetic.

## **What to expect after surgery**

Immediately after the operation you will be taken on your bed to the recovery ward where nurses will regularly monitor your blood pressure and pulse.

Oxygen will be given to you through a facemask for a period of time to help you to recover from the anaesthetic. You will have an intravenous drip for about 24 hours or until you

are able to drink adequately again after the anaesthetic. A drain (tube) may come out of your wound if there has been significant bleeding during the operation; this prevents any excess blood or fluid collecting under there. The drain will be removed when the drainage has stopped – usually 24 hours later. You will have some discomfort or pain after surgery but the nursing and medical staff will help you to control this with appropriate medication.

Usually, on the first day after your operation, the physiotherapist will help you out of bed. They will also show you the correct way to move safely.

## **Going home**

You will normally be allowed to leave hospital when you and your physiotherapist are happy with your mobility. This tends to be 2–4 days after your operation.

Please arrange for a friend or relative to collect you, as driving yourself or taking public transport is not advised in the early stages of recovery. If you are likely to require a hospital car please inform one of the nurses as soon as possible.

## **Wound care**

Your wound will most likely be closed with clips. You may shower if you are careful when you get home but bathing should be avoided for two weeks, until the wound is completely dry. Please do not remove your wound dressing, unless it accidentally gets wet, until your clips are removed. If a new dressing is required then a simple dry dressing from the pharmacist (chemist) is sufficient.

**Please contact your GP to report any of the following:**

- redness around the wound;
- wound leakage; and
- high body temperature.

The ward will inform you whether a district nurse has been arranged to come to your home to remove the clips, or ask you to arrange an appointment with the GP practice nurse for the clip removal. This will usually be 10 days after surgery.

Date of clip removal: ..... / ..... / .....

## **Recreational activities**

Walking is the best activity to do following your surgery. A gradual return to any strenuous activity is then advisable.

## **Driving**

Sitting for prolonged periods is not advisable after surgery and this includes driving a car. If you have no altered sensation or weakness in your legs then you may resume driving following surgery if you feel safe to do so but it is advisable not to travel for long distances without taking a break to 'stretch your legs'. Please discuss driving with your surgeon before leaving hospital.

## **Lifting and carrying**

Please refer to the physiotherapy advice sheet and advice from your physiotherapist. Heavy lifting and carrying should be avoided for the first few weeks.

## **Follow-up**

We will send you an appointment to attend the clinic 8–12 weeks after your operation. If you have any queries before your follow-up date please do contact the nurse specialist for your consultant's team.

**If you have any questions regarding the information in this booklet please discuss them with either the ward nurses or a member of your consultant's team.**

Produced, researched and revised by spinal nurse specialist Helen Vernau at The Ipswich Hospital NHS Trust, in association with and on behalf of the BASS Consent and Patient Information Committee.

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DPS ref: 01623-16(RP)