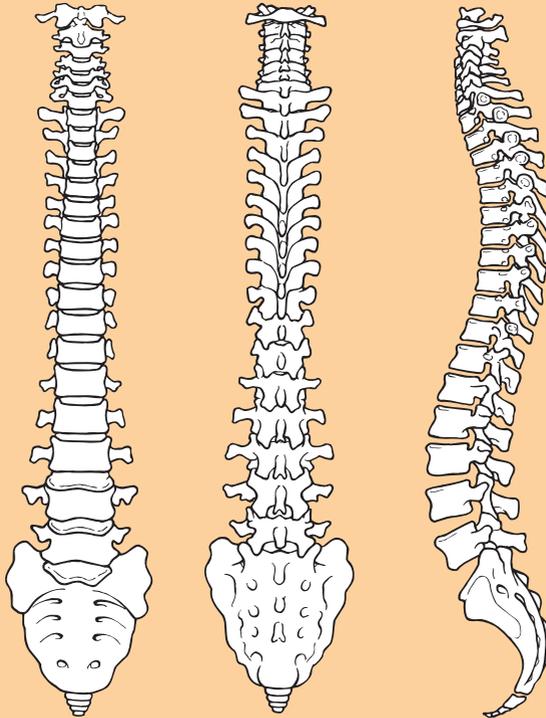




B A S S
British Association of Spine Surgeons

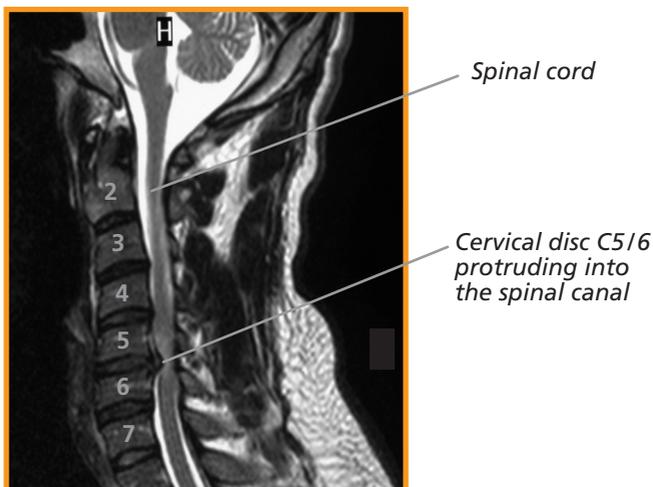
Anterior Cervical Discectomy



Issue 5: March 2016
Review date: February 2019

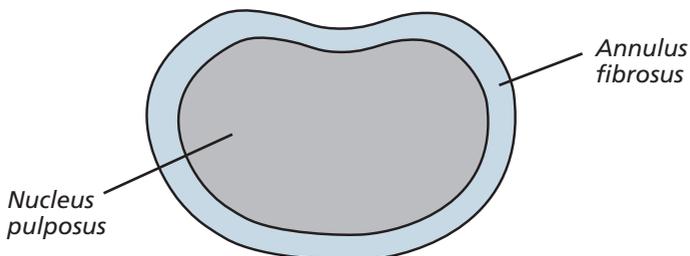
Following your recent MRI scan and consultation with your spinal surgeon, you have been diagnosed with having a cervical disc protrusion, resulting in nerve root compression (trapped nerve) and arm pain. Occasionally, the disc protrusion can also cause spinal cord compression resulting in weakness in your legs.

This is an example as shown on an MRI scan



The intervertebral disc is the structure that is between vertebrae (bones of the spine). It acts as both a spacer and a shock absorber. The disc is composed of two parts: a soft gel-like middle (nucleus pulposus) surrounded by a tougher fibrous wall (annulus fibrosus).

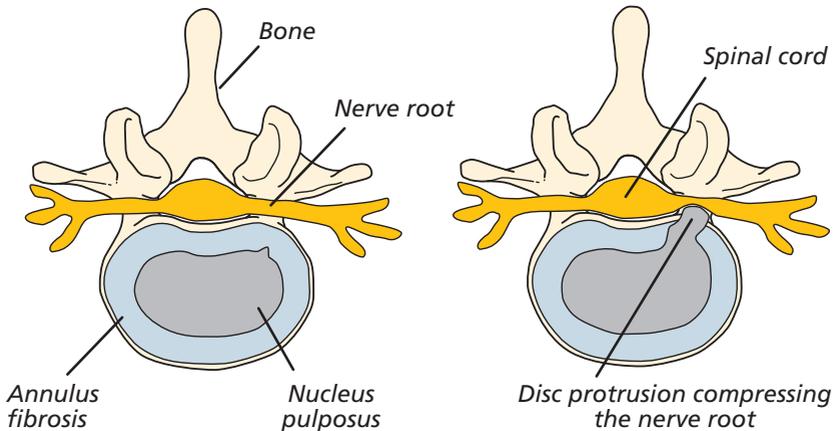
Overhead view of an intervertebral disc (simplified)



Nerve root pain is felt in the area of the body that the nerve, as it leaves the spine, supplies. Symptoms may include pain, numbness, increased sensitivity or weakness of muscles. Nerve pain in the arm (brachial neuralgia) is very similar to sciatica but comes from the nerves in the neck.

Sometimes symptoms can come from pressure on the spinal cord itself. This can result in more widespread symptoms, which might involve your legs and balance. One possible cause of these symptoms is that of a cervical disc protrusion. As the intervertebral discs lose their flexibility, elasticity and shock absorbing characteristics, the tough fibrous wall of the disc may weaken and may no longer be able to contain the gel-like substance in the centre. This material may bulge or push out through a tear in the disc wall (herniation), causing pain when it touches a nerve.

Overhead view of an intervertebral disc



Very few people who have a spinal problem need surgery. In general, if a patient's arm pain due to a cervical disc protrusion is going to get better then it will do so in about 6–12 weeks. However, if the symptoms have not resolved following conservative measures (manipulation, physiotherapy, medication or injections) surgery may be necessary.

About the operation

The surgery called cervical discectomy is performed to remove the problem disc. The exposure is usually made through the front of the neck as it gives good access to the spine through a relatively uncomplicated pathway.

The operation is performed under general anaesthetic (so you are fully asleep). First, the skin incision is made, which is usually on the right hand side of the neck and then one small muscle is cut. Access can then be gained right through to the spine. After the disc space has been identified on X-ray, the disc is then removed. Cervical fusion is then commonly carried out at the same time as cervical discectomy. To achieve a spinal fusion, a bone graft is used to connect two bones together. The patient's own bone will then grow into the bone graft and join the graft bone as its own.

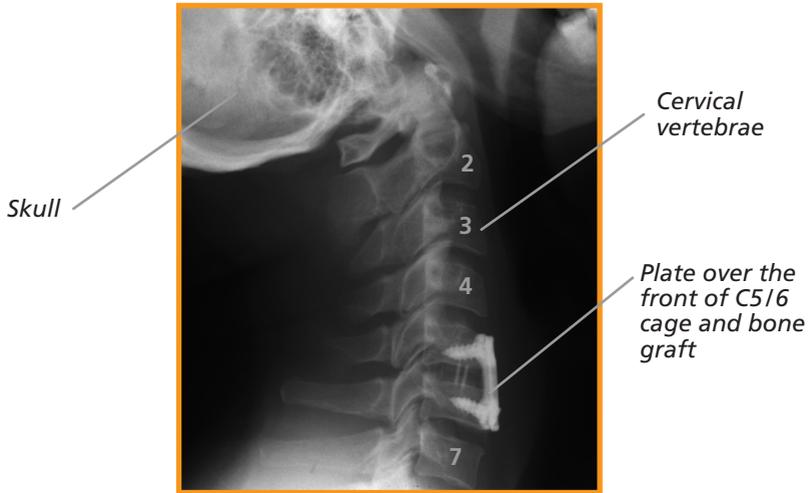
There are several techniques to get the bone graft needed for spinal fusion:

- **patient's own bone (autograft bone):** This is usually taken through an incision over the pelvis (ileac crest);
- **donor bone (allograft bone):** This eliminates the need to use patient's own bone. The donor bone graft acts as a calcium scaffolding which the patient's own bone grows into and eventually replaces; and
- **artificial bone (bone substitutes).**

In the past, the patient's own bone was commonly used. This can result in complications including chronic pain from the bone graft site, infection and pelvic fractures so, for the most part, artificial bone is now used.

These techniques may be used in conjunction with a cage to contain the graft and/or a small plate that can be applied to the front of the spine to add stability and prevent graft dislodgment.

X-ray showing the bone graft and plate in position



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 neck or arm pain, weakness or numbness, leaking from the wound, headaches or, very rarely, meningitis;
- recurrent arm 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 in the wound and swelling in the windpipe (laryngeal oedema), which could result in difficulty breathing or swallowing. 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;
- bone graft non-union or lack of solid fusion (pseudoarthrosis). This can occur in up to 5% of cases (5 out of 100 people). See below for factors which can affect fusion;
- graft/cage movement can occur in up to 2 out of 100 cases, with 1 out of 100 requiring re-operation. In extremely rare cases, cage movement can cause severe damage and paralysis;
- damage to the trachea (windpipe) or oesophagus (food pipe). This is reported in less than 1% of cases (fewer than 1 in 100 people);

- possible complications associated with taking out bone graft include graft site pain and damage to a sensory nerve that supplies sensation to the front of the thigh (the lateral femoral cutaneous nerve);
- also, the small nerve that supplies vocal cords sometimes does not function after surgery because of retraction during the procedure. This could cause temporary or rarely some permanent hoarseness of the voice. Retraction of the oesophagus can produce temporary difficulty with swallowing;
- in the long term, or in years to come, pain can develop from problems at the other disc levels in the neck; and
- there are also very rare but serious complications that in extreme circumstances might include damage to the spinal cord 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.

Factors which may affect spinal fusion and your recovery

There are a number of factors that can negatively impact on a solid fusion following surgery, including:

- smoking;
- diabetes or chronic illness;
- obesity;
- malnutrition;
- osteoporosis;

- post-surgery activities (see note of recreational activities); and
- long-term (chronic) steroid use.

Of all these factors, the one that can compromise fusion rate the most is smoking. Nicotine has been shown to be a bone toxin and it inhibits the ability of the bone-growing cells in the body (osteoblasts) to grow bone. Patients should make a concerted effort to allow their body the best change for their bone to heal by not smoking.

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 via 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 again after the surgery.

A small drain (tube) will come out of your neck wound, this prevents any excess blood or fluid from collecting there. This will be removed when the drainage has stopped, usually 24 hours later. You will have some discomfort or pain in your neck and also at the site where the bone graft was taken. The nursing and medical staff will help you to control this with appropriate medication. A sore throat is also common for a few days after surgery.

On the first day after your operation, your 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 1–2 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 patient transport please inform one of the nurses as soon as possible.

Wound care

Your wound will probably be closed with clips. You must not get the dressing wet so care is required when washing. 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 chemist is sufficient. When shaving, care should be taken to avoid the area until it is fully healed.

Please contact your GP if you have any of the following:

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

The ward will inform you whether a community (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 7–10 days after surgery.

Date of clip removal: / /

Driving

When to resume driving after surgery does depend on the procedure carried out. You must feel safe and confident to drive and be able to turn your head easily and have full power and sensation in your arms and legs. If in doubt please discuss driving with your surgeon before leaving hospital.

Recreational activities

Walking is the best activity to do following your surgery. Any other sports should be avoided until you can discuss them with your consultant in your follow-up appointment (see next page).

Work

You will need to be off work for at least four weeks. This may be longer depending on the type of procedure undertaken and also your type of work. Please discuss this with your surgeon before leaving hospital. The hospital can give you a certificate or you can ask your GP.

Lifting

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

Follow-up

You will be sent an appointment to return to clinic 8–12 weeks after your surgery. If you have any queries before your appointment date please contact the nurse specialist for your consultant's team.

If you have any questions about your procedure, 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.

© The Ipswich Hospital NHS Trust/BASS, 2007-2016. All rights reserved.

DPS ref: 01563-16(RP)