Anterior cervical discectomy for nerve root compression / radiculopathy

Information for patients
Neurosurgery
What is a compression of nerve root?

The bones in our back are called vertebrae and each one is separated by an inter-vertebral disc. Behind the vertebral bones/disc joints is the spinal canal containing the spinal cord. At each disc joint level, on both left and right sides, a spinal nerve (also known as nerve root) exits through a small keyhole. The front wall of each keyhole is made of the disc joint. The back wall of each keyhole is made up by another joint called the facet joint. If there is expansion of the spinal joints at a particular disc level, there will be narrowing of the exiting keyholes, with the possibility of nerve root compression.

What has made this happen?

- The usual cause of nerve root compression is wear and tear/degenerative changes (also known as spondylosis). This causes an expansion of the spinal joints because of bulging of the disc, overgrowth of adjacent bone edges (osteophyte formation), and thickening of adjacent ligaments.
- Occasionally, a disc prolapse (also known as a disc herniation or ‘slipped disc’) can cause compression of an exiting nerve root. This is where some of the central soft material of the disc joint has pushed backwards through a weak area or tear in the outside part of the disc.

What are the symptoms of nerve root compression in the neck?

The usual symptoms are pins and needles or sharp shooting pain radiating to a specific part of the hand. Occasionally, there may be associated arm weakness or numbness.
How is the diagnosis made?

The diagnosis of a disc bulge / osteophyte causing nerve root compression is confirmed by doing an MRI scan of the spine. Occasionally, if an individual cannot have an MRI scan (for example if they have a pacemaker), another type of scan called a CT myelogram will be done instead. You will also likely have neck X-rays, where you bend your head forward and back, looking for any abnormal movement (instability).

What is the operation?

The operation usually takes just over one and half hours and is done whilst you are asleep. This is called a general anaesthetic. The surgery is usually done through a cut about 5cm in length on the right side of the neck. An X-ray is used to mark the appropriate disc level. The disc joint and the bone overgrowth (the 'osteophytes') are completely removed. This part of the surgery is done with the assistance of the operating microscope.

Once the relevant nerve root(s) has (have) been decompressed, the gap between the vertebral bones left by removal of the disc joint is filled with a hollow synthetic cage containing bone material. Your surgeon may either use bone material obtained from you during the operation or may use artificial material. Feel free to discuss this with your surgeon beforehand.

This cage then fuses with the adjacent vertebral bones in due course. Occasionally, if the surgeon has concerns about stability, a small titanium metal plate, fixed with screws into the adjacent vertebral bones, may be placed across the fusion.

The surgeon may leave a plastic drain in overnight following surgery that is removed by the ward nurse the next morning. A blood transfusion is almost never needed.
What is an MRI scan?

This is a simple and safe test, with the scans being produced using a technique known as magnetic resonance imaging. There is no radiation involved. There is no need for admission to hospital. The length of time spent in the scanner is usually about 10 minutes. Specific arrangements may have to be made for patients with claustrophobia, for example sedation or using an 'open' scanner.

Why should I have an anterior cervical discectomy operation?

The main reason for offering surgery is to relieve severe radiating arm pain or pins and needles. It is not a 'compulsory operation'. The aim of the surgery is to immediately improve your quality of life by taking away the severe radiating arm symptoms.

When should I not have the surgery?

- If your arm symptoms are significantly improving, you should consider postponing surgery. You should not have surgery if your arm symptoms are minimal or have resolved.
- Arm symptoms in a significant proportion of patients can settle over a number of months without any surgery. If your symptoms have settled before having the operation, you need to let us know so that we can cancel your operation.
- Surgery does not benefit neck pain. Surgery only takes the pressure off the compressed nerve root. The wear and tear / degenerative changes affecting your spinal joints are not reversed with surgery.

You should not have an anterior cervical discectomy if your main problem is neck pain.
Are there any alternatives?

The alternatives to surgery are symptom management. These can include:

- Medications that can help neck / low back pain:
  - Anti-inflammatories, e.g. diclofenac.
  - Amitriptyline 25mg to be taken around 5.00pm - 6.00pm.

- Medications that can help radiating arm or leg pain:
  - Gabapentin

- Therapies based on the 'gate theory for pain'.
  Current understanding is that the strength of the pain message entering the spinal cord to go up to the brain can be reduced by confusing the spinal cord nerve cells with other types of sensation messages, i.e. shutting the 'gate' to some extent on the pain message.
  - Acupuncture
  - Massage
  - Heat treatment
  - Trans-cutaneous electrical nerve stimulator or TENS machine (a TENS machine can be bought from most pharmacies for about £20-30). It can be effective in taking the edge off low back pain in about half of patients.

- If your symptoms prove particularly challenging, your GP may consider it appropriate for you to be referred to a Pain Clinic for consideration of e.g. facet joint injection, nerve root injection, or other procedures.
What can I expect following the surgery?

• The aim of surgery is to relieve the arm symptoms that you have been experiencing.

• However, about 10% of patients who choose to have an operation to benefit their arm pain do not have significant long-term benefit after their surgery. Reasons for this include:
  – scar tissue,
  – technical difficulties in achieving an adequate decompression, and
  – impaction of the inserted synthetic cage into the vertebral bone below, resulting in further exit keyhole narrowing.

In such circumstances, your surgeon will discuss with you the options available.

• Surgery is unlikely to improve numbness (reduced sensation). There is a 50:50 chance of improvement in any muscle weakness.
What are the risks?

The risks are:

- A clot in the leg (deep venous thrombosis) and/or clot in the lung (pulmonary embolus) can occur (1 in 100)
- Dural tear / cerebrospinal fluid leakage can occur. The dura is the thin canvas sleeve that covers the spinal nerves (1 in 100)
- Nerve root injury; this could cause permanent numbness or weakness affecting the area (1 in 100)
- Wound infection (1 in 500)
- Spinal cord injury / limb paralysis (1 in 1000) for example from a blood clot or displacement of the synthetic cage.
- Recurrent laryngeal nerve injury / hoarseness (1 in 100)
- In patients over 70-years-old, there is a risk of stroke due to the movement of the main neck blood vessels during the operation (1 in 100)
- Development, persistence or recurrence of radiating arm pain in about 10% of patients, particularly in the context of any synthetic cage impaction to the vertebral body below. This can occur in the weeks that follow the operation
- There may be some additional risks either because of a specific medical problem that you otherwise suffer from, for example diabetes, or because of your age.

Serious complications are uncommon. There are many steps that we take to try and stop complications happening and to reduce the impact of such complications when they do happen.
Preparation for surgery

At the pre-operative assessment clinic, the nurse will assess your state of health and will organise all the necessary tests. This may include blood tests, urine tests, an ECG (heart tracings) and x-rays.

Our aim is to start discharge planning at this appointment. We will ask you questions about your home situation. It is important for you to ask for any extra help that you feel you may need when you go home, so that plans can be set in place as soon as possible. This will help to avoid any unnecessary delays in you going home.

Consent

We must seek your consent for any procedure or treatment beforehand. Staff will explain the risks, benefits and alternatives where relevant before they ask for your consent. If you are unsure about any aspect of the procedure or treatment proposed, please do not hesitate to ask for more information.

How long will I be in hospital?

You would normally be expected to go home the day after the surgery.

What can I expect after the operation?

There will be some pain in the area of the skin wound itself and also in your neck. Although we prefer you to stay in bed the night after surgery, you can get up to go to the toilet. You will have a neck X-ray the morning after your operation to ensure that the synthetic cage is in a satisfactory position. You will be seen by the physiotherapist on the morning after surgery who will ensure that movements such as getting out of bed are done correctly. The physiotherapist may also fit you for a neck collar if requested by the surgeon. There is usually no need for physiotherapy following discharge.
What about when I get home?

You will likely have to attend your local GP practice for the removal of skin wound clips or sutures at about seven to ten days following surgery. The ward nurse will give you further details.

Driving is generally considered inadvisable in the early weeks.

Any neck collars should be discarded after a 6 week period.

If you are overweight, you should consider losing weight as this will reduce the chances of future problems related to spine wear and tear.

When can I go back to work?

If you work, you will require 6 weeks off work. A sick note for work should be obtained from the ward nursing staff before you go home from hospital.

You will also receive a letter asking you to phone the hospital to make an appointment for a follow-up clinic appointment for about 6-8 weeks following your surgery. At this appointment you will either see the Consultant, Registrar or Nurse Practitioner.
Is there anything to look out for when I go home?

- Painful, swollen calf
- Red and swollen wound
- Leakage from the wound
- Weakness in arms and/or legs
- Worsening swallowing and breathing problems

Who should I contact if I have any concerns?

For the above symptoms, please contact the ward you were discharged from, the consultant’s secretary, or the neurosurgical nurse practitioner.

Ward N2

- 0114 271 2896

If you develop severe shortness of breath, coughing, and chest pain, you may have developed a clot in the lung. You should call 999 or go to your nearest Accident and Emergency Department.