

CERVICAL DISCECTOMY

A guide for patients

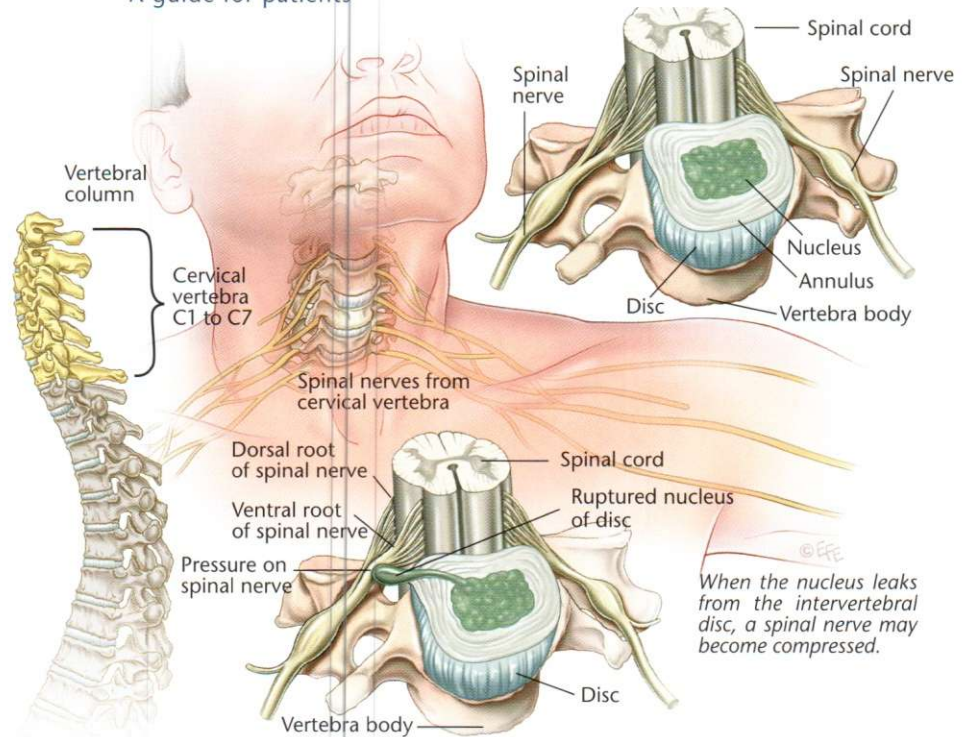
Cervical discectomy is one of the surgical procedures used to treat symptoms related to a damaged intervertebral disc that may be pressing on spinal nerve roots or the spinal cord in the neck. Symptoms of nerve root compression can present as pain, numbness, tingling, weakness and clumsiness in the upper limbs. Pressure on the spinal cord may cause altered sensation of the torso, difficulty walking, bowel/bladder dysfunction, and impotence in males. These symptoms may be associated with a combination of neck pain, shoulder pain, pain between the shoulder blades, and headaches.

Surgery can relieve pressure on nerve roots and the spinal cord by removal of part of a damaged intervertebral disc. The surgeon removes the bulging or damaged part of the disc to create more space around the nerve roots or spinal cord. This may reduce the inflammation and irritation associated with compression. A cervical discectomy is also called an anterior decompression.

Discs are soft but strong cushions of connective tissue that sit between each vertebra, as shown in the illustration. Each disc is composed of a strong outer wall called the annulus. In the middle is a softer gel-like core called the nucleus.

Discs act as shock absorbers for the spine during lifting, bending, and running. They maintain the correct spacing between vertebrae and allow bending and rotation between the vertebrae.

Discs are resilient to forces placed on them, but they can be weakened, damaged and thinned due to age, disease or acute trauma. Disc herniation is an



abnormal protrusion of the soft nucleus through or into the annulus, which can impact on the spinal nerves and spinal cord. Disc herniation can occur in four ways:

- 1 degeneration: the disc becomes weak and thin, and may shrink, but the nucleus does not break through the annulus
- 2 prolapse: the disc has a bulge
- 3 extrusion: nucleus ruptures through the annulus but remains in one piece
- 4 sequestration: the nucleus ruptures through the annulus, and fragments separate from the disc.

Ask your surgeon which type has occurred in your case.

The most common levels for disc

problems are C5-C6 (C6 nerve root) in about two patients in 10, and C6-C7 (C7 nerve root) in about seven patients in 10. Uncommonly, some patients have two or more disc herniations that need surgery. Compression of the spinal cord can require urgent surgery to relieve pressure.

Talk to your Neurosurgeon

This pamphlet provides general information. It is not a substitute for advice and explanations from your neurosurgeon. Although patients should be as informed as possible about surgery, every aspect cannot be covered in this pamphlet. Every case is different. Read this pamphlet carefully, and save it for reference. Some terms may need further explanation by your neurosurgeon. Write down questions you want to ask. Your neurosurgeon will be pleased to discuss:

- the diagnosis and treatment plan
- non-surgical options
- risks, benefits and limitations of surgery
- the chances of success and failure.

Use this pamphlet only in consultation with your neurosurgeon.

Consent form: If you decide to have treatment, your neurosurgeon will ask you to sign a consent form. Read it carefully. If you have questions, ask your neurosurgeon.

Your Neurosurgeon

IMPORTANT: FILL IN ALL DETAILS ON THE STICKER BELOW

DEAR SURGEON: When you discuss this pamphlet with your patient, remove this sticker and put it on the patient's medical history or card. This will remind you and your patient that this pamphlet has been provided. Some surgeons ask their patients to sign the sticker to confirm receipt of the pamphlet.

PEEL HERE

The Surgical Procedure of Cervical Discectomy

The aim of discectomy is to remove the portion of the herniated disc that is causing symptoms. Cervical discectomy can be performed from the front of the neck (anterior approach) or the back of the neck (posterior approach).

ANTERIOR CERVICAL DISCECTOMY

The anterior approach is preferred because the disc can be removed through a small incision at the front of the neck.

The anterior approach allows ready access to the cervical spine from C2 to C7.

It usually results in less postoperative pain and need for pain relief due to less cutting of muscle and surrounding tissues.

It may help to maintain the normal alignment and curvature of the operated vertebrae.

A skin incision of about two to three centimetres is made at the front of the neck at the necessary level. Muscle tissue is moved aside so the surgeon can see the vertebrae. A small needle is inserted into the disc space, and an X-ray film is taken to check the level

is correct. A microscope is used to provide a magnified view.

When the surgeon locates the herniated disc, small instruments are used to remove all the disc to decompress the affected spinal nerves and spinal cord. Loose disc fragments are also removed.

Decompression of the spinal canal may be needed. The posterior longitudinal ligament may be removed to relieve pressure on the spinal cord. Bone spurs may be removed if impinging on the spinal cord or nerves. There is little or no manipulation of the spinal nerves or spinal cord in the anterior approach.

A spinal fusion is nearly always done (as shown in the illustration) to stabilise the vertebrae and prevent their collapse into the disc space. A small amount of bone is grafted into the disc space. A synthetic spacer may be used.

Titanium plates may be attached to the vertebrae and greatly assist stability and healing. In some cases, a cervical disc prosthesis

may be used instead of a fusion device.

The neck incision is closed with dissolvable sutures (stitches). The procedure normally takes two to three hours.

POSTERIOR CERVICAL DISCECTOMY

Some conditions are best treated with a posterior approach or, uncommonly, a combined anterior-posterior approach.

A skin incision of about three to five centimetres is made in the midline of the back of the neck. Muscle tissue is moved aside at the necessary level so the surgeon can see the vertebrae.

An operating microscope is used, and an X-ray film is taken to check the level is correct.

After some of the bone is removed, spinal nerves and the disc can be seen, and the disc herniation can be removed with manipulation of the spinal nerves and spinal cord.

The skin incision is closed with staples or sutures. The procedure usually takes two to three hours.

DIAGNOSIS

You will be asked about pain, numbness, weakness, previous similar or related symptoms, and any bowel or urinary problems. Your surgeon will examine you to determine muscle strength, reflexes, ability to feel pain, and ability to move.

Diagnostic imaging can provide pictures of spinal structures and abnormalities. Magnetic resonance imaging (MRI), computer tomography (CT), and X-ray examinations can often reveal the location and degree of abnormalities. One or more of these tests may be necessary for diagnosis and treatment planning.

TREATMENT OPTIONS

■ "Wait and see": damaged or inflamed tissues may heal with time and symptoms can subside. Patients with mild symptoms often do well without surgery. Most patients with neuralgic (nerve root) pain do not require surgery and can improve spontaneously over four to eight weeks.

■ Physical therapy and mild exercise can be helpful if symptoms are not severe.

■ Other conservative therapies such as activity modification, rest in a soft or semi-rigid collar, bed rest and weight loss may help.

■ Oral pain-relievers (paracetamol, codeine, tramadol, oxycodone) can help in the short term. NSAIDs (such as ibuprofen) and corticosteroids can reduce

inflammation and provide pain relief. Muscle relaxants such as diazepam may relieve neck muscle spasm. Anticonvulsant medication (Tegretol, Epilim, Neurontin, Lyrica) and some antidepressive medication may treat nerve pain.

■ A nerve-sheath injection (foraminal block) is administration of local anaesthetic and cortisone to the area of the compressed spinal nerve. This can provide significant medium-term temporary relief. This may be long enough for symptoms to subside.

■ If symptoms persist longer than six to 12 weeks despite conservative treatments, or if the pain and disability are severe, discectomy may be an option.

■ Surgery is a first option in patients with severe or suddenly worsening nerve compression symptoms. Surgery does not always relieve symptoms such as neck pain or headache.

CANDIDATES FOR DISCECTOMY

When you decide if surgery is an appropriate option for you, your general health and the severity of symptoms are the most important factors to consider.

Signs of spinal cord compression (myelopathy), including difficulty walking or standing and/or bladder and bowel control problems, need urgent surgical decompression. Surgery is an option if you have a compressed spinal nerve with:

- weakness/numbness of arms or hands.
- severe, persistent arm, shoulder or shoulder blade pain that significantly limits normal daily activities
- other related, chronic symptoms not relieved by drugs or non-surgical treatments.

Surgery is typically not an option when:

- symptoms are improving
- pain and discomfort are not severe
- symptoms are not due to a compressed spinal nerve
- reasonable doses of medication are sufficiently relieving pain
- physical therapy or exercise reduces pain and discomfort
- another medical condition is likely to complicate surgery.

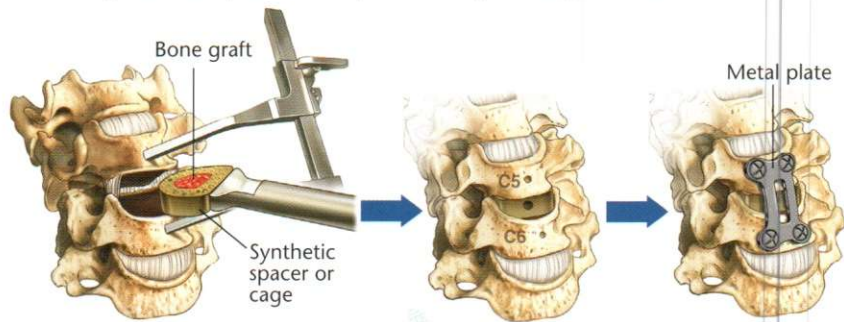
YOUR MEDICAL HISTORY

Your surgeon needs to know your complete medical history to plan the best treatment. Some health problems may interfere with surgery, anaesthesia, recovery or pain relief. Before surgery, tell your surgeon if you have had:

- an allergy or reaction to antibiotics, anaesthetic drugs or other medicines, surgical tapes or dressings
- prolonged bleeding or excessive bruising when injured, or
- a family history of excessive bleeding, recent or long-term illness, and any

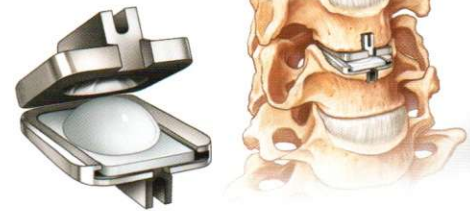


The surgeon relieves pressure on a spinal nerve by removing the herniated disc.



After removing the herniated disc, if your surgeon goes on to perform a fusion, a synthetic spacer, artificial disc or bone graft can be inserted into the gap left by the removed disc. A metal plate is often used to help stabilise the spine.

Total disc replacement



Your surgeon may use a cervical disc prosthesis to replace the removed disc. The prosthesis permits motion and support for the upper and lower vertebrae, and avoids the need for spinal fusion. Disc prostheses have various designs, benefits and risks, which your surgeon can explain.

CERVICAL VERTEBRECTOMY

When a larger area has to be decompressed, a vertebrectomy (or corpectomy) may be needed. The approach is the same as for anterior cervical discectomy. To relieve pressure on the spinal cord and spinal nerves at the troublesome level, the whole vertebral body and both discs are removed. The gap is filled with a synthetic spacer or bone graft, and stabilised with a metal plate and screws. This procedure is more complex, and risks are greater.

previous surgery.

Give your surgeon a list of ALL medicines you take and have recently taken. Include prescription medicines and those bought without a prescription. Include long-term treatments such as blood thinners (warfarin and clopidogrel, among others), aspirin, anti-inflammatory drugs (ibuprofen among others), arthritis medication and insulin. Some medications like fish oil or krill oil may cause bleeding after surgery. You may need to stop taking some medicines for a week or more before surgery, or you may be given a different dose. Discuss this carefully with your surgeon.

Smoking: After surgery, smokers have

increased risks of infections, heart and lung complications, deep vein thrombosis (DVT) and poor healing. It is best to quit.

A DECISION TO HAVE SURGERY

Your neurosurgeon cannot guarantee that surgery will meet all your expectations or that surgery has no risk. While the risk of a major complication is low, complications are possible (see page four). If you are uncertain, you may wish to seek the opinion of another neurosurgeon.

As you decide whether to have surgery, make sure you understand the risks, benefits and limitations of discectomy. There can be risks if you do not have surgery to relieve compression because further damage to a spinal nerve or the

spinal cord may occur. In some patients, the consequences can include further pain, numbness, paralysis, loss of bladder or bowel control, and male impotence.

ANAESTHESIA

Cervical discectomy is performed under general anaesthesia. Modern anaesthesia is safe but does have risks, although the complication rates are low. Your anaesthetist can provide more information.

Give the anaesthetist a list of the medications you are taking. Make known any problems that you or a blood relative may have had with any anaesthetic. Inform your anaesthetist about any recent or long-term illness, and any previous surgery.

RECOVERY AFTER SURGERY

In the recovery area, nursing staff check your blood pressure, pulse, limb strength and general well-being. You will be given medication to relieve pain.

With assistance, walk as soon and as often as possible. Walking helps to improve recovery and reduce the risk of deep-vein clots in the legs.

Some people may require a neck brace. This is usually temporary and can be removed for showering.

You are discharged home when you:

- have stable vital signs

- can walk on your own
- can eat and drink without nausea
- have normal control over your bladder
- have recovered from the anaesthetic.

Discomfort in your arms and neck may remain for a few days due to swelling of the operated site.

As aspirin and anti-inflammatory pain relievers may increase the risk of bleeding in the operated site during healing, take these only on the advice of your surgeon.

RECOVERY AT HOME

Minimise bending and twisting. Perform tasks with a neutral straight neck. Do not

lift or carry anything heavy (more than two to five kilograms). Dress in a loose collar top to minimise irritation of the healing incision.

Ask your surgeon which neck and shoulder exercises you can perform and when to start. Daily walks and light exercise help to reduce pain and improve recovery. Increase slightly the distance walked daily. Don't do too much.

Heat packs may reduce muscle pain. For at least one or two weeks after surgery, get assistance at home.

Get adequate rest. Your return to

work, driving, and regular exercise depend on how quickly your neck and arm symptoms are resolving, your general recovery, and your occupation. A specific rehabilitation program may be recommended.

PROGNOSIS

Recovery from cervical discectomy typically takes four to six weeks. A spinal fusion does not reach full stability for 18 months.

Most patients have relief of shoulder and arm pain, but fewer have relief of neck pain. Some patients have immediate pain relief, but pain resolution in others may occur slowly over weeks or months. Muscle strength usually improves but may not be fully restored. Numbness often takes many months to improve.

Improvement of pain, numbness, weakness and other symptoms usually depends on how long the patient had

symptoms prior to surgery, and whether or not one or more spinal nerves have been damaged. The likelihood of benefits from surgery depends on many factors. Your neurosurgeon can provide an assessment of the chances of success in your case.

If spinal nerve compression is due to ageing, symptoms may recur after surgery because the degenerative process of the discs continues. The patient may need to have discectomy again.

Possible Complications of Cervical Discectomy

All surgical procedures are associated with some risk. Despite the highest standards of surgical practice, complications are possible. It is not unusual for a surgeon to dwell at length on every possible side effect or rare, but serious, complications of any surgical procedure. However, it is important that you have enough information to weigh up the benefits, risks and limitations of surgery. Most patients will not have complications, but if you have concerns about possible side effects, discuss them with your surgeon.

The following list of possible complications is intended to inform you, not to alarm you. There may be others that are not listed.

General risks of surgery

- Infection of the operated site that requires treatment with antibiotics.
- Excessive bleeding; rarely, a blood transfusion may be needed.
- A blood clot that develops in a leg (deep vein thrombosis, DVT) may travel to the lungs, causing pulmonary embolism. This complication is not common but can be life threatening. Prompt treatment is necessary.
- Unforeseen complications such as pneumonia, stroke or heart attack, may or may not be directly related to the anaesthesia or surgery but could result in death, although this is rare.

Specific risks of cervical discectomy

Although the discectomy may be a surgical success, your surgeon cannot predict with certainty how the spinal nerves and other tissue will heal after surgery. Pain,

numbness, tingling, muscle weakness or other symptoms may not improve with surgery or may improve only slightly.

- A tear in the thick tissue covering the spinal nerve roots ("dural tear") is a common risk. A tear allows cerebrospinal fluid (CSF) to leak. This may occur in about one of every 20 patients. While a leak usually heals quickly after surgical repair done at the time of the operation, further surgery may be needed to treat a CSF leak.

- Despite the surgeon's expertise, further damage to the spinal cord or a nerve may occur. If a spinal nerve is affected before surgery, surgery could increase the injury, causing pain, numbness and weakness in the arms. In the worst case, damage to the spinal cord could cause loss of bowel, bladder and sexual function, and paralysis in the arms and legs. Damage to the spinal cord may occur in about one patient in every 10,000 procedures.

- Itchy and reddened scars from the skin incision (keloid or hypertrophic scars) can be annoying but are not a threat to health.

- People who have had previous spinal surgery in the same area (revision surgery) have greater risks of complications primarily due to the formation of scar tissue around the spinal nerves and nerve roots.

- A blood clot in the operated site may require drainage and a return to theatre.

- Failure of the bone graft to fuse adequately. Further surgery may be needed.

- Decreased stability of the cervical spine.

- Uncommonly, neck pain from the surgery may persist for six to nine months. It usually resolves.

Specific risks of anterior approach

- Retraction of the oesophagus during surgery often affects swallowing for two to five days. In a few patients, recovery of comfortable swallowing may take weeks or months. Rarely, swallowing difficulties may be permanent.

- Retraction of the recurrent laryngeal nerve during surgery may cause temporary hoarseness for weeks or months. Rarely, this can be permanent.

- Damage to the trachea (windpipe).

- Other nerves in the neck can be damaged. Uncommonly, a nerve may take weeks or months to recover. Rarely, nerve damage may be permanent.

REPORT TO YOUR SURGEON

If you have any of these signs or symptoms during recovery, contact your surgeon at once:

- fever greater than 38°C or chills
- redness or increasing pain at the incision
- persistent drainage or ooze from the incision
- stitches or staples come out
- pain, swelling or redness in one of your legs, suggesting DVT
- increasing pain or numbness in your arms or hands
- the bandage becomes soaked with blood
- a severe headache.

Go immediately to the nearest hospital emergency department if you:

- have sudden shortness of breath, which may or may not be accompanied by chest pain (this could be a sign of a blood clot in the lungs, pneumonia or other heart and lung problem)
- lose control of your bowel or bladder, or if you are unable to urinate
- are unable to move your legs (this is a serious sign of spinal compression).

If you have any questions or concerns, talk to your surgeon.

COSTS OF TREATMENT

Your surgeon can advise you about coverage by public health insurance, private health insurance and out-of-pocket costs. You may want to ask for an estimate that lists the likely costs. This includes costs for tests, examinations, hospital fees, medications and other matters related to diagnosis and treatments. Ask which costs can be claimed on health insurance. As the cost of actual treatment may differ from the proposed treatment, the final account may vary from the estimate. It is better to discuss costs with your surgeon before treatment rather than afterwards.