

## Anterior Cervical Discectomy and Fusion

A cervical discectomy may be performed when a herniated disc pinches a nerve in the cervical spine and non-surgical treatment has not resulted in sufficient relief. The primary symptoms of a cervical disc herniation are usually numbness, weakness and/or pain in the arm, and/or neck pain. The goal of the cervical discectomy is to remove the disc that is pinching the nerve, eliminating the cause of the pain, numbness and/or weakness.

The discectomy is frequently done in conjunction with an anterior cervical fusion, which involves placing bone graft/intervertebral spacer into the disc space between the vertebrae. The bone graft helps the vertebrae above and below it to grow into a single unit. This 'fusion' prevents local deformity (kyphosis), and helps prevent collapse of the disc space, thereby providing adequate room for the nerve roots and spinal cord.

Most fusion surgeries involve only one or two vertebral segments. For example, if two vertebral segments need to be fused to stop the motion, a C5-C6 fusion would be a one level fusion. Multilevel fusions may be necessary in cases of severe instability or multilevel spinal stenosis (narrowing) but most cases require only a one or two level fusion.

### Indications for anterior cervical discectomy

Surgery is generally considered for patients who have not responded to six to twelve weeks of non-surgical treatment (such as medications, physical therapy), or acutely in those patients with severe arm pain or weakness. Pain and weakness are a result of pinching of the nerve or spinal cord. Significant spinal cord stenosis (narrowing) with instability may also be an indication for a cervical discectomy and fusion.

### Success Rate

Overall, reports reveal a significant improvement of symptoms for most patients who undergo an anterior cervical decompression and fusion. Patients will often report relief of neck and arm pain quickly after surgery however; it may take weeks to months for symptoms to significantly diminish. The limited amount of muscle dissection helps limit postoperative pain. There is little chance of the disc herniation recurring following this surgery because most of the disc is removed during the operation. The addition of titanium instrumentation significantly improves the fusion rate.

## Anterior Cervical Discectomy and Fusion Procedure

### Cervical Discectomy

- The skin incision is 1-2 inches, horizontal and can be made on the left or right hand side of the front of the neck to establish a path to the disc. The incision is often placed in a natural fold of the neck to minimize scarring.
- The disc causing the pain is then identified by doing an x-ray to confirm that the surgeon is at the correct level of the spine.
- The disc is removed by first cutting the outer annulus fibrosis (fibrous ring around the disc) then removing the nucleus pulposus (soft inner core of the disc).
- The nerve root and the spinal cord are then decompressed directly by removing any disc material or bone spurs.

### Fusion

Using the same incision, bone graft or an intervertebral spacer is then inserted into the space between the vertebral bodies where the disc used to be. Over the course of several months (3-18 months), the patient's own bone will grow into and around the bone graft/intervertebral body spacer and incorporate the graft as its own. This process creates one continuous bone surface between the two vertebrae. The addition of titanium instrumentation in form of small screws and/or plates significantly improves the fusion rate.

### There are several bone graft options for the fusion:

- **Autograft bone.** The bone is taken from the patient's hip, but the extra incision required can cause postoperative pain and increase surgical complications. This technique has become very uncommon in recent years.
- **Allograft bone.** Cadaver bone is implanted with this procedure. No additional incision is required, but fusions are generally slower to develop than with autograft bone.
- **Bone graft substitutes and support instrumentation.** Although synthetic bone products are not FDA-approved specifically for an anterior cervical interbody fusion, they are products that mimic the structure of bone. This synthetic material is placed in the disc space along with an interbody spacer to replace the disc that was removed.

### Potential risks and complications

- Temporary difficulty in swallowing (common but usually not severe)
- Temporary or permanent hoarseness (very rare)
- Bleeding or infection
- Damage to the trachea, esophagus (extremely rare)
- Continued pain
- Nerve root damage (about 1 in 10,000 chance)

### Post-operative care

After fusion surgery, it can take three to six months (and sometimes up to 18 months) for the fusion to successfully occur. Periodic x-rays and CT scans will be done to monitor the progress of the fusion. During the first weeks to months, patients' activities may be restricted to allow the bone graft to set. During this period, you will not be able to do heavy lifting, pushing or pulling over ten pounds. You will begin physical therapy for your neck three months after surgery. Until that time, it

is advisable that you discuss limitations with your doctor or nurse practitioner. If you have a history of diabetes, smoking or you are scheduled to have a multi-level fusion, you will need to wear a bone stimulator for at least twelve weeks after surgery. It is noninvasive and will assist by stimulating bone growth at the fusion site. You will also need to wear a cervical collar for at least six weeks if you have a cervical fusion greater than two levels or if you have medical risk factors such as a history of smoking or you are a diabetic.

