

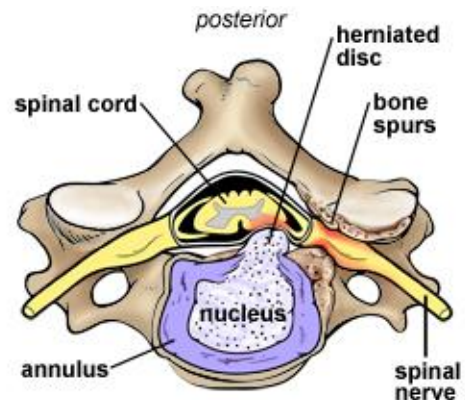
Provider: Conor Regan, MD

Anterior Cervical Discectomy and Fusion

Anterior Cervical Discectomy and Fusion (ACDF) is a surgery to relieve arm and sometimes neck pain. In the neck, there are vertebrae (the bones) and discs which act as shock absorbers between the vertebrae. Sometimes a piece of one of the discs comes out through a tear in the lining of the disc. This is called a “disc herniation”. Usually, it occurs without an injury but can happen in situations like car accidents or other injuries. Those herniations then cause pressure on the nerve roots or spinal cord in the neck, which then cause pain radiating down the arm (this pain is called “radiculopathy”).

Herniations are one cause of pain radiating down the arm, but sometimes instead of a herniation, a disc simply wears out. This is the same process as arthritis in other joints and generally occurs in the late 40s to 60s. As the disc wears out, the body responds by forming bone spurs (called osteophytes). Those bone spurs can put pressure on the nerve roots or the spinal cord, just like with a disc herniation.

Most commonly (about 80% of the time), disc herniations and pain radiating down the arm will go away with time. This usually takes about 6-12 weeks. During the initial period we try steroids, anti-inflammatories, and pain medications to relieve the pain. We may also try physical therapy, traction, or chiropractic treatment depending on your level of pain and wishes. If the pain goes away, then no further treatment is needed. A recurrent disc herniation is fortunately rare, but pain from bone spurs may come back again as the bone spurs do not go away.

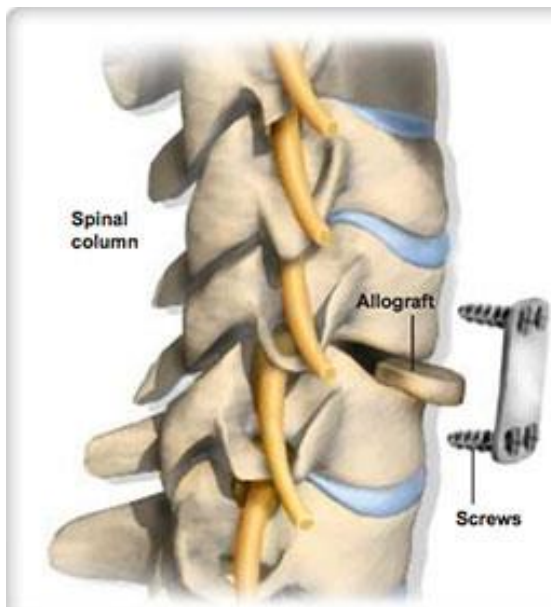


If the pain does not go away, or if your arm is very weak from the nerve signals not getting to the muscles in the arm, I may recommend an operation to relieve the pressure on the nerves and spinal cord. This procedure is called an anterior cervical discectomy and fusion (ACDF).

An ACDF is a common operation during which I make a small incision over the left side of the front of the neck to access the spine. I approach the spine from the front of the neck because I can get to the spine without having to cut any muscles.

After gaining access to the spine, I remove the problematic disc or discs using a series of instruments. After removing the discs, I remove all the bone spurs or disc herniation to take the pressure off the nerves and spinal cord.

Because removing the disc could destabilize the spine, I must reconstruct the disc. I do this by placing a bone graft or titanium cage into the space where the disc used to be. There are no cells in the graft or cage and no chance of rejection. It is simply a scaffold for your bone to grow into. To stabilize the surgery while it heals, I place a small titanium plate and screws on the bones around the disc space in the front of the spine. I then close the incision on the front of the neck with stitches that dissolve and do not need to be removed. Almost all patients can be sent home on the same day as the surgery.



Complete healing of an ACDF takes about 9-12 months. This is because the bones have to fuse together. As your vertebrae grow into the cage or graft, the two vertebrae on either side of the disc space fuse together and become one bone.

There is no noticeable loss of motion with a 1-level ACDF (one disc removed and fused). In fact, studies have shown clearly that range of motion in the spine increases slightly, probably because the injured or problematic disc has been removed. You will lose about 5 degrees of motion with a 2-level ACDF and about 10 degrees or so with a 3-level ACDF. Neither of these losses will greatly affect your ability to move your neck for most activities.

The major risk of the operation is obviously a spinal cord injury. This is very rare and occurs in far less than 1 in 1000 patients. The most common complications are

a nonunion where the fusion doesn't completely heal, swallowing problems, hoarseness, and problems at discs above or below the fusion.

If the fusion doesn't heal correctly, sometimes a second operation is needed to fuse the bones together from the back of the neck. This occurs in about 1-2% of 1-level ACDFs and up to 8-9% of 2-level ACDFs. The incomplete fusion can either be asymptomatic (no pain at all) in some patients or can cause neck pain. If there is no pain, no further treatment is needed. If there is, a fusion from the back of the neck usually resolves the issue.

The most common problem with the ACDF surgery is that sometimes the disc above or below the fusion can later cause the same problems (arm pain, neck pain, etc.) that you have now. This is called Adjacent Segment Disease (ASD). This occurs in about 25% of patients who have a 1-level fusion and about 15% of 2-level fusions. It most likely happens because the levels above and below the fusion do not stop aging, rather than because of the surgery itself. About half of patients who get ASD require another ACDF at another level while the symptoms resolve on their own in the other half.