American Association of Neurological Surgeons

Artificial Cervical Disc

Patient Information

This resource, developed by neurosurgeons, provides patients and their families trustworthy information on neurosurgical conditions and treatments.

For more patient resources from the American Association of Neurological Surgeons (AANS), visit www.aans.org/Patients.

Currently, the most common form of surgery for treating cervical degenerative disc disease is an anterior cervical discectomy and fusion (ACDF). More than 200,000 cervical procedures are performed each year to relieve compression on the spinal cord or nerve roots. Spinal fusion surgery creates a solid union between two or more vertebrae to help strengthen the spine and alleviate chronic neck pain. There are several types of spinal fusion surgery, as well as varied instrumentation used to secure the fusion.

The goals of **artificial cervical disc surgery** are to:

- Remove the diseased disc
- Restore normal disc height
- Decrease discogenic neck pain and associated arm pain/weakness
- Preserve motion in the affected vertebral segment and
- Improve patient function

In comparison to spinal fusion surgery, potential benefits of artificial disc technology may include more spine mobility after surgery and less stress on adjacent discs. While cervical artificial discs have been shown to preserve motion at the operated segment in most patients, their effectiveness in reducing the rate symptomatic adjacent disc problems has not been established.

To be considered a candidate for **artificial cervical disc**, you must meet the following specific criteria:

- Disc degeneration in only one disc in the cervical spine
- A minimum of six months of conservative treatment, such as physical therapy, pain medication or neck bracing, without showing improvement
- Overall good health with no signs of infection, osteoporosis, arthritis or osteomalacia
- No known allergies to stainless steel

If you have degeneration affecting more than one disc, segmental instability or any type of metabolic or hereditary/acquired bone disease, you are not a candidate for this surgery. This surgery is not recommended in patients who have undergone prior spinal fusion/surgical procedures at the same or adjacent cervical levels.

During surgery, the patient is under general anesthesia and a small incision is made in the front of the neck. Through this opening, the affected disc is removed and replaced. The average hospital stay, postoperatively, is one to two days. Although a similar artificial cervical disc has been used in Europe since 2004, there is very little information available on the number of surgeries performed to date.

Potential complications

- Need for additional surgery
- Allergic reaction to the implant materials
- Altered mental state
- Bleeding; may require a blood transfusion
- Blood vessel problems other than bleeding
- Death
- Development or progression of disease at other cervical levels
- Implants that bend, break, loosen or move
- Incision problems
- Infection
- Loss of motion at the treated cervical level
- Numbness of tingling in the extremities
- Pain or discomfort
- Paralysis
- Side effects from anesthesia
- Spinal cord or nerve damage
- Spinal fluid leakage
- Tears of the dura (a layer of tissue covering the spinal cord)

Outcome

Some of the potential risks of artificial disc surgery are common to many other types of surgery, in particular spine surgeries. Although some patients who have undergone spinal fusion surgeries need revision surgeries, they are generally less problematic than those after artificial disc surgery. There is much debate among the medical community about the efficacy of artificial cervical disc surgery.

Implanted metal alloys release metallic ions into the body (especially those devices with metal-on-metal articulating surfaces). The long-term effect of these ions on the spine is currently unknown. Long-term patient monitoring is essential to properly assess how effective and safe artificial disc surgery is in comparison to spinal fusion surgery. While the artificial disc is groundbreaking, new technologies are in development that may have the potential to improve upon this surgical technique.

The AANS does not endorse any treatments, procedures, products or physicians referenced in these patient fact sheets. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific neurosurgical advice or assistance should consult his or her neurosurgeon, or locate one in your area through the AANS' "Find a Board-certified Neurosurgeon" online tool.