Cervical Fusion
Pre-op and Procedure

The neck is the upper portion of your spine (backbone). The 7 bones in your neck are referred to as the cervical spine. The spine is made up of building blocks that stand on top of each other, called *vertebrae*. Cushions, called *intervertebral discs*, separate the vertebrae. This is often what is damaged when someone says they have slipped or herniated a disc. The discs have soft, gelatin-like centers, and serve as shock absorbing pads in your neck, preventing the vertebrae from rubbing together. Because they are soft and spongy, they also provide the flexibility of the spine that allows you to move your head.

On the back of each vertebral body is a bony arch that provides an open space for the spinal cord to pass through. The bony arch also protects the spinal cord. Muscles and ligaments in the neck support the bones. The *spinal cord* is the large bundle of nerves in your back that carries messages from your brain to the nerves that supply your body. It is like the electrical circuit in a house. The spinal cord and nerves carry messages that tell your muscles what to do. These messages enable you to walk and talk, and do all of the things you can now do with your body. They also allow you to feel sensation. For example, you can tell if something hurts, or if it is hot or cold. The spinal cord itself is bathed in *cerebrospinal fluid* (also called CSF, it is fluid that circulates through your spine and brain), and is covered by protective membranes. This, along with the bony arch, help protect your spinal cord. Between each building block of bone, a pair of spinal nerves exit, one to the left and one to the right, off the spinal cord through a small opening called a *foramen*. The foramen are the hole-like spaces between the bony arches. Nerves that exit through the cervical spine affect the neck, shoulder, arms, and hands.

UNDERSTANDING THE PROBLEM

Some of the bone disorders of your neck require surgery. As we grow older, one of the reasons for this is a drying out *(dehydration)* of the disks. This means the soft gelatin-like centers dry and flatten out. With this degeneration, the vertebrae get closer together and cause pressure against the nerves. This often comes from a portion of the disc rupturing (breaking), or when the canals through which the nerves exit become smaller, pinching the nerves. This causes pain. Details on these conditions follow.

- **Herniated Disk:** Herniated cervical disk is a common neck pain diagnosis. This is also known as a slipped or ruptured disc. In this condition, the center of the disc bulges through the *annulus* (ring around the outside of the disc). This can cause pressure on a nerve and produce neck or arm pain, or weakness in the arm. Herniated cervical disks commonly occur from injuries or other sudden movements. They also often happen at night while sleeping.
- **Bone Spurs & Spinal Stenosis:** As we age there are often bony growths that develop. These growths are bone spurs, also known as *osteophytes*. The collection of calcium that turns into the bone spur is a type of natural *fusion* (coming together of parts). However, as they grow and extend, the vertebral openings become narrow. Either the spinal canal and/or the *foramen* (the opening for nerve passageways) become smaller. This narrowing *(stenosis)* may cause a pinching *(compression)* of the spinal cord or the spinal nerve root. This can cause pain, weakness, numbness and loss of coordination in the neck or upper extremities.

ANTERIOR CERVICAL FUSION TREATMENT

Pinching of the nerves is a common cause of long standing pain. When this happens, a procedure is performed to relieve the pressure on the pinched nerve roots, or spinal cord. The procedure is done to stop the movement of your spine pressing on the nerves which in turn relieves the pain. The procedure to stop the spine from moving is called a *fusion*.

An **anterior cervical fusion** means that the operation is done through the front *(anterior)* part of your neck. The

incision (cut by the surgeon) is usually within a skin fold line under the chin. After pushing aside the neck muscles, the neurosurgeon uses an operating microscope and removes the affected intervertebral disk, taking the pressure off the nerves or spinal cord. This is called *decompression*. The area where the disc was removed is then filled with a bone graft that will fuse the vertebrae together over time. This means it causes the vertebral bodies to grow together.

In some cases, the surgeon may use hardware in the neck to help stabilize it. This means that metal plates or pins may be used to provide extra support to the neck, and help the bones to grow together more easily.

A cervical fusion procedure takes a couple hours to several hours, depending on what needs to be done. Your caregiver will be able to answer your questions for you.

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