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A Patient's Guide to
Cervical Laminectomy



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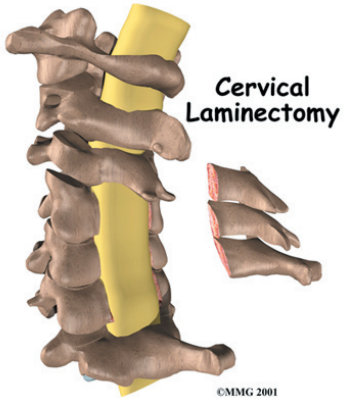
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Introduction

A *laminectomy* is a surgical procedure to relieve pressure on the spinal cord due to *spinal stenosis*. In spinal stenosis, bone spurs press against the spinal cord, leading to a condition called *myelopathy*. Myelopathy can produce problems with the bowels and bladder, disruptions in the way you walk, and impairments with fine motor skills in the hands. In a laminectomy, a small section of bone covering the back of the spinal cord is removed. *Lamina* refers to the roof of bone over the back of the spinal cord, and *ectomy* means the medical procedure for removing a section of the bony roof to take pressure off the spinal cord.

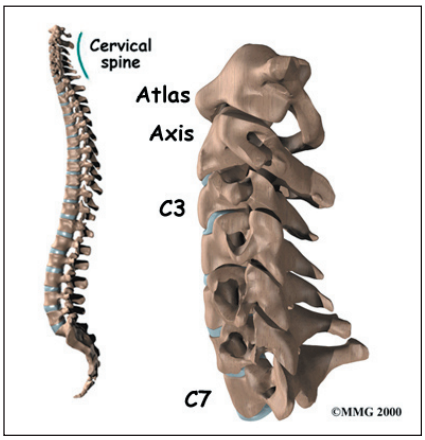
This guide will help you understand

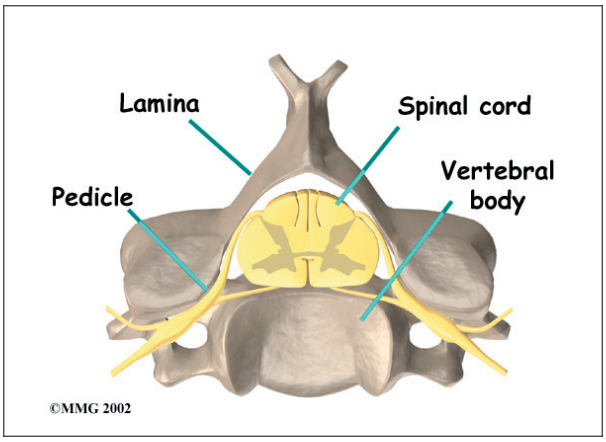
- **why the procedure becomes necessary**
- **what surgeons hope to achieve**
- **what to expect during your recovery**

Anatomy

What parts of the neck are involved?

Surgeons perform this procedure through the back of the neck. This is known as the *posterior* neck region. It includes the parts that make up the bony ring around the spinal cord (the ***pedicles*** **and** ***laminae***).

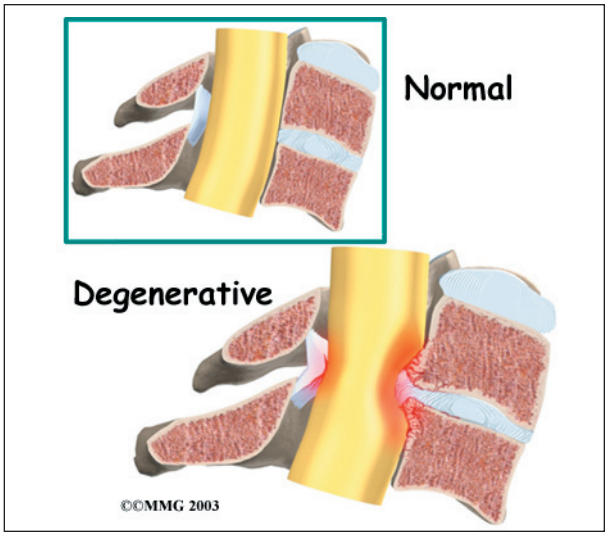




Rationale

What do surgeons hope to achieve?

A laminectomy can alleviate the symptoms of spinal stenosis, a condition that causes the spinal cord to become compressed inside the spinal canal. Wear and tear on the spine from aging and from repeated stresses and strains can cause a spinal disc to begin to **collapse**. This is the first stage of spinal stenosis. As the space between the vertebrae narrows, the *posterior longitudinal ligament* that attaches behind the vertebral body may buckle and push against the spinal cord. The degenerative process can also cause bone spurs to develop.



When these spurs point into the spinal canal, they squeeze the spinal cord. In a laminectomy, the surgeon removes a section of the lamina bone, the buckled parts of the posterior longitudinal ligament, and the bone spurs, taking pressure off the spinal cord.

Preparation

How will I prepare for surgery?

The decision to proceed with surgery must be made jointly by you and your surgeon. You should understand as much about the procedure as possible. If you have concerns or questions, you should talk to your surgeon.

Once you decide on surgery, your surgeon may suggest a complete physical examination by your regular doctor. This exam helps ensure that you are in the best possible condition to undergo the operation.

On the day of your surgery, you will probably be admitted to the hospital early in the morning. You shouldn't eat or drink anything after midnight the night before.

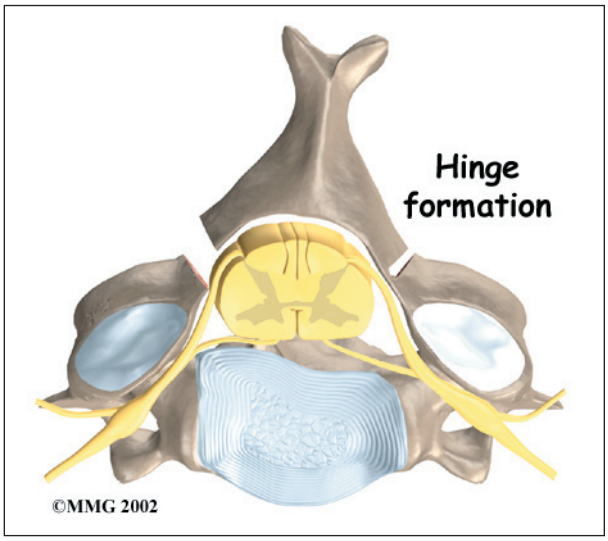
Surgical Procedure

What happens during the operation?

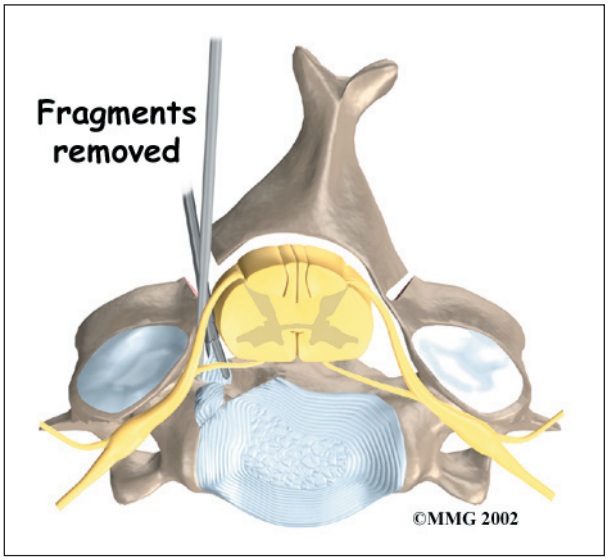
Patients are given a general anesthesia to put them to sleep during most spine surgeries. As you sleep, your breathing may be assisted with a *ventilator*. A ventilator is a device that controls and monitors the flow of air to the lungs.

This surgery is usually done with the patient lying face down on the operating table. The surgeon makes an incision down the middle of the back of the neck. The skin and soft tissues are separated to expose the bones along the back of the spine. Some surgeons use a surgical microscope during the procedure to magnify the area they'll be working on.

Surgeons have found that complete removal of the laminae loosens the *facet joints* that connect the back of the spine. This can cause the spine to tilt forward. To avoid this, a hinge can be formed by only cutting partially through the lamina on one side. A second cut is made all the way through the other lamina. This edge is then lifted away from the spinal cord, and the other edge acts like a hinge. The hinged side forms a bone union, which holds the opposite side open and keeps pressure off the spinal cord.



Small cutting instruments may be used to carefully remove soft tissues near the spinal cord. Then the surgeon takes out any small disc fragments and scrapes off nearby bone spurs. In this way, additional tension and pressure are taken off the spinal cord.



The muscles and soft tissues are put back in place, and the skin is stitched together. Patients are usually placed in a neck brace after surgery to keep the neck positioned comfortably.

Complications

What might go wrong?

As with all major surgical procedures, complications can occur. Some of the most common complications following laminectomy include

- problems with anesthesia
- thrombophlebitis
- infection
- nerve damage
- segmental instability
- ongoing pain

This is not intended to be a complete list of the possible complications, but these are the most common.

Problems with Anesthesia

Problems can arise when the anesthesia given during surgery causes a reaction with other drugs. Patients can also have problems with the anesthesia itself. In addition, anesthesia can affect lung function because the lungs don't expand as well while a person is under anesthesia. Be sure to discuss the risks and your concerns with your anesthesiologist.

Thrombophlebitis (Blood Clots)

Thrombophlebitis, sometimes called *deep venous thrombosis* (DVT), can occur after any operation. It occurs when the blood in the large veins of the leg forms blood clots. This may cause the leg to swell and become warm to the touch and painful. If the blood clots in the veins break apart, they can travel to the lung, where they lodge in the capillaries and cut off the blood supply to a portion of the lung. This is called a *pulmonary embolism*. (*Pulmonary* means lung, and *embolism* refers to a fragment of something traveling through the vascular system.) Most surgeons take preventing DVT very seriously. There are many ways to reduce the risk of DVT, but probably the most effective is getting you moving as soon as possible. Two other commonly used preventative measures include

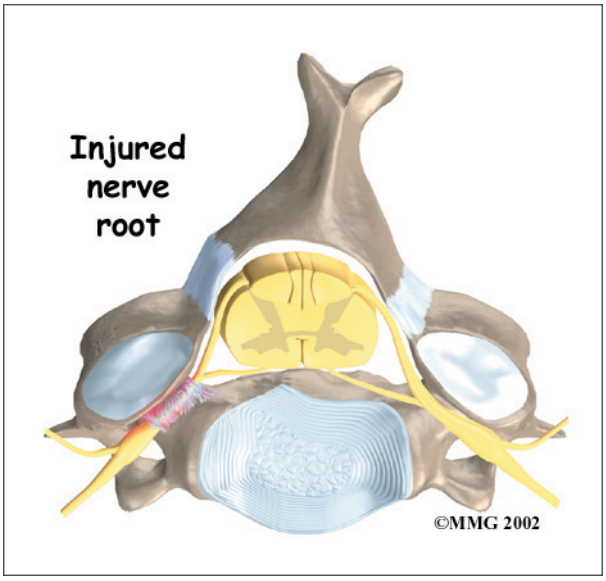
- pressure stockings to keep the blood in the legs moving
- medications that thin the blood and prevent blood clots from forming

Infection

Infection following spine surgery is rare but can be a very serious complication. Some infections may show up early, even before you leave the hospital. Infections on the skin's surface usually go away with antibiotics. Deeper infections that spread into the bones and soft tissues of the spine are harder to treat and may require additional surgery to treat the infected portion of the spine.

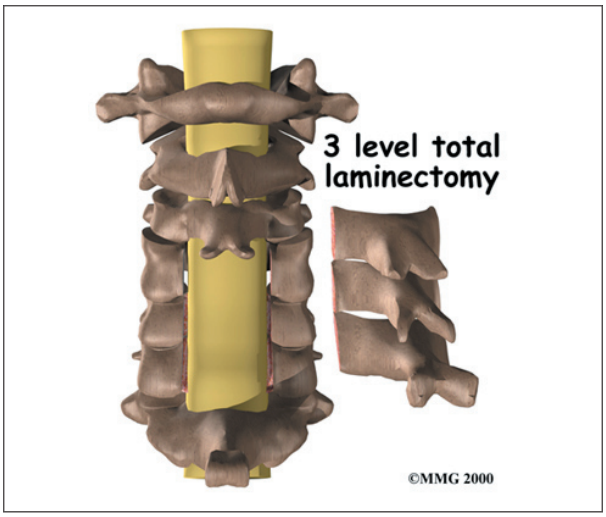
Nerve Damage

Any surgery that is done near the spinal canal can potentially cause **injury to the spinal cord or spinal nerves**. Injury can occur from bumping or cutting the nerve tissue with a surgical instrument, from swelling around the nerve, or from the formation of scar tissue. An injury to these structures can cause muscle weakness and a loss of sensation to the areas supplied by the nerve.



Segmental Instability

Laminectomy surgery can cause the spinal segment to loosen, making it unstable. The facet joints that connect the back of the spine normally give enough stability, even when the lamina is taken off. This is why surgeons prefer to leave the facet joints in place whenever possible. But these joints may have to be removed if they are enlarged with arthritis. During **total laminectomy**, the facet joints are removed. This procedure creates extra space around the nerves but often leads to segmental instability. Fusion surgery is generally needed to fix the loose segment.



Ongoing Pain

Many patients get nearly complete relief of symptoms from the laminectomy procedure. As with any surgery, however, you should expect some pain afterward. If the pain continues or becomes unbearable, talk to your surgeon about treatments that can help control your pain.

After Surgery

What happens after surgery?

Patients are usually able to get out of bed within an hour or two after surgery. Your surgeon may have you wear a soft neck collar. If not, you will be instructed to move your neck only carefully and comfortably.

Most patients leave the hospital the day after surgery and are safe to drive within a week or two. People generally get back to light work by four weeks and can do heavier work and sports within two to three months.

Outpatient physical therapy is usually prescribed when patients have extra pain or show significant muscle weakness and deconditioning.

Rehabilitation

What should I expect as I recover?

Rehabilitation after laminectomy surgery is generally only needed for a short period of time. If you require outpatient physical therapy, you will probably need to attend therapy sessions for two to four weeks. You should expect full recovery to take up to three months.

Many surgeons prescribe outpatient physical therapy within four weeks after surgery. At first, treatments are used to help control pain and inflammation. Ice and electrical stimulation treatments are commonly used to help with these goals. Your therapist may also use massage and other hands-on treatments to ease muscle spasm and pain.



Active treatments are added slowly. These include exercises for improving heart and lung function. Walking, stationary cycling, and arm cycling are ideal cardiovascular exercises. Therapists also teach specific exercises to help tone and control the muscles that stabilize the neck and upper back.



Your therapist works with you on how to move and do activities. This form of treatment, called *body mechanics*, is used to help you develop new movement habits. This training helps you keep your neck in safe positions as you go about your work and daily activities. At first, this may be as simple as helping you learn how to move safely and easily in and out of bed, how to get dressed and undressed, and how to do some of your routine activities. Then you'll learn how to keep your neck safe while you lift and carry items and as you begin to do other heavier activities.

As your condition improves, your therapist will begin tailoring your program to help prepare you to go back to work. Some patients are not able to go back to a previous job that requires heavy and strenuous tasks. Your therapist may suggest changes in job tasks that enable you to go back to your previous job. Your therapist can also provide ideas for alternate forms of work. You'll learn to do your tasks in ways that keep your neck safe and free of extra strain.

Before your therapy sessions end, your therapist will teach you a number of ways to avoid future problems.

Notes