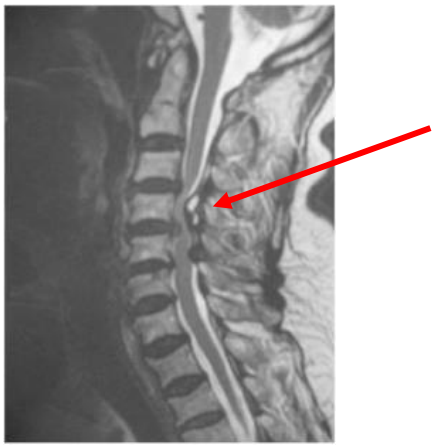
Cervical Laminoplasty

Mesfin A. Lemma, MD
Minimally Invasive Spine Surgery, Scoliosis Surgery, Baltimore, MD

Overview



- Cervical laminoplasty is performed through the posterior, or back, aspect of the neck area.
- The primary indication for the procedure is pressure on the spinal cord (figure on right) resulting in a condition known as cervical myelopathy.
- The objective of this procedure is to preserve spinal cord function by relieving the pressure on the spinal cord.

Who performs the procedure?

- Cervical laminoplasty is best performed by a **fellowship-trained spine surgeon**. Ask your surgeon about their training, especially if your case is complex or you have had previous spinal surgery.

What to expect before the procedure:

- In the weeks prior to your surgery, **pre-operative testing** will be conducted either by your primary care physician or the pre-admission testing department of the hospital.
- One week prior to surgery, you will need to **stop taking aspirin, NSAIDs** or other medications that thin your blood and may increase bleeding.
- If you smoke, it is important you stop well before surgery and **avoid smoking** for a period of at least 6 months afterwards, as this will impede proper healing.
- You will be given instructions and supplies to **cleanse** the back of your neck, the day prior to your procedure.
- You are to have **nothing to eat or drink after midnight** on the night before.

What to expect during the procedure:

- Just before the procedure begins you will have an intravenous (IV) line started so you can receive fluids and medications to make you relaxed and sleepy. The procedure is performed under **general anesthesia** (you are asleep). Medications will be given through the IV to put you to sleep and a tube is inserted in your throat to supplement your breathing. **IV antibiotics** are administered and monitors are placed to check your heart, blood pressure, and oxygen level. Once you are asleep, a Foley catheter is inserted into your bladder.
- The procedure typically lasts **about 2 hours,** depending on the specifics of the case. This is what to expect once the procedure begins:

1. Surgical approach

- You are positioned face down (prone) on a specialized, cushioned operating table.
- The area of your neck where the incision will be made is cleansed with a special solution to kill the germs on the skin.
- An incision is made in the midline, overlying the affected area.
- The spinal muscles are then gently elevated off the spine.

2. Decompression

- The section of bone that covers the back of the spinal cord, called the lamina, is elevated to relieve the compression. One side of the lamina is cut through completely and the other is cut partially, enabling it to swing open in a manner similar to a door, therefore increasing the amount of room for the spinal cord and decreasing compression on the nerves.
- It is then held open with titanium spacers or bone graft and plates.

3. Closure

- A drain is placed and the incision is closed. Skin staples are used to close the skin.
- A small dressing is applied over the incision, and a neck brace is applied on your neck. You will then be taken to the recovery area.

What to expect after the procedure:

- Patients are typically admitted to the hospital for a **2 night stay**.
- In the recovery area, you will be observed until you recover from the anesthesia, then transferred to the floor.
- You will be encouraged to get out of bed and move around as soon as you are able to.
- Pain pills on an empty stomach may result in nausea, so initially IV pain medications are self-administered through a PCA, or **patient-controlled analgesia**.
- IV fluids will be continued until you can drink fluids well by mouth.
- Once you are able to drink normally, your diet will be advanced to your **normal diet** and you will be switched to pain pills.
- **Physical therapy and occupational therapy** will see you prior to your discharge from the hospital to make sure you are comfortable walking, escalating stairs and performing other activities of daily living.
- For most cases, a **soft neck brace for a period of 2 weeks is all that is needed**. Some patients, however, may require a hard cervical collar for 6 weeks.

Recovery and rehabilitation at home:

- Keep in mind, everybody is different, and therefore the amount of time it takes to return to normal activities is different for each individual.
- Discomfort should decrease a little each day, like a dimmer switch as opposed to an on-off switch. Most patients are able to return to most activities by **4 - 6 weeks**, although complete recovery may take between 6 and 12 weeks. You will not be able to drive a car for about 2 weeks following the procedure.

- **Refrain for smoking**, as nicotine is a direct toxin to bone healing.
- **Do not take any NSAIDs or aspirin** as these, too, are detrimental to the healing process.
- Neck range of motion exercises are initiated at 2 weeks.
- Signs of infection such as **swelling, redness, draining, or fever > 101.5°F** should be brought to your surgeon's attention immediately.
- It is important to keep your incision **dry** for a period of 2 weeks to give your incision time to seal. You may sponge bath during this period.
- You will be seen in the office at **2 weeks**, then at regular intervals thereafter.

What are the expected outcomes following cervical laminoplasty?

In general, most patients can expect the following:

- **Surgery reliably halts the progression** of cervical myelopathy. The amount of recovery of neurologic function such as weakness, balance, coordination, or bowel/bladder incontinence depends on the amount and duration of compression, as well as the presence of any permanent damage to the spinal cord.
- Surgery is very effective in reducing the pain in the arms and shoulders caused by nerve compression. However, some neck pain may persist.

What are the possible risks?

In skilled hands, a cervical laminoplasty is a very safe procedure. However, no surgery is without possible risks. These risks can be minimized by choosing an experienced surgeon to perform your procedure, and by adhering to your surgeon's instructions before and after your procedure. General complications of any surgery include bleeding (minimal), infection (**1%**), blood clots, and reactions to anesthesia. Specific complications related to cervical laminoplasty may include but are not limited to:

- **Persistent neck pain.** This may be associated with a change in alignment of the cervical bones. In some cases, fusion may be recommended.
- **Nerve injury**. Although the risk is very low, particularly in the hands of an experienced surgeon, any spine surgery comes with risk of injury to the nerves or spinal cord. Damage may cause numbness, weakness or even paralysis.

  To help manage this risk, spinal cord function is monitored during the procedure by use of **intra-operative neuromonitoring**. By measuring electrical signals in the brain and extremities, the surgeon receives real-time feedback on spinal cord function, thus enabling moment by moment adjustments to the surgery and anesthesia as necessary.

  It is important to note that a common cause of persistent symptoms is spinal cord damage from compression itself, not the surgery. Compression may permanently damage the spinal cord and nerve roots making it unresponsive to surgery. **Like heavy furniture on the carpet, the compressed nerves do not spring back**.