PROCEDURE

Laminectomy

Laminectomy is surgery that removes part of a vertebra to relieve pressure on spinal nerves or the spinal cord.

PURPOSE
Relieve pressure on spinal nerves or spinal cord

PROCEDURE TYPE
Therapeutic surgery, using open or minimally invasive techniques

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General anaesthesia

HOW LONG IT TAKES
About one to three hours; longer with fusion

PREPARATION
Fasting, medicine review, and arranging transport home

RECOVERY
Same day or overnight; no driving while impaired

MAIN RISKS
Infection, bleeding, nerve injury, spinal fluid leak

RESULTS
Surgical findings immediately; improvement over days to months

Overview

A laminectomy is an operation that creates more room around the spinal cord or spinal nerves. The surgeon removes some or all of the lamina, the bony plate at the back of a vertebra. Vertebrae are the bones that form your spine.

Removing the lamina is a type of spinal decompression. It may be performed in the neck, upper back, or lower back. A lower-back operation is called a lumbar laminectomy; a neck operation is called a cervical laminectomy.

The surgeon may also widen the openings where nerves leave the spine, remove part of a damaged disc, or remove thickened tissue. If removing bone could make the spine unstable, the operation may include spinal fusion. Fusion joins two or more vertebrae using bone grafts and often screws and rods.

Laminectomy can reduce pressure on nerves, but it cannot always reverse nerve damage that has already occurred.

Why the procedure is performed

Laminectomy is most often used to treat spinal stenosis, meaning narrowing of the space around the spinal cord or nerves. Narrowing can result from age-related changes, enlarged joints, thickened ligaments, bone spurs, or a damaged disc.

Pressure on nerves in the lower back may cause leg pain, numbness, weakness, or difficulty walking. Pressure on the spinal cord in the neck can affect balance, hand coordination, strength, or bladder and bowel control.

The procedure may be offered when:

Surgery may be needed more quickly for severe or worsening weakness or loss of bladder or bowel control.

- Symptoms interfere with walking, sleep, work, or daily activities
- Medicines, physical therapy, or injections have not helped enough
- Examination and imaging show pressure that matches your symptoms
- Weakness or spinal cord problems are developing

Who should and should not have it

Laminectomy may be reasonable when nerve or spinal cord compression is causing important symptoms and there is a clear target for surgery. Your likely benefit depends on the location of the pressure, your symptoms, how long they have been present, and whether permanent nerve damage has developed.

It may not be the right choice when imaging findings do not explain your symptoms. Spinal narrowing is common on scans, including in people who have no symptoms.

The operation may be avoided or delayed if symptoms remain manageable with nonsurgical care. It may also be delayed for an active infection, an uncontrolled medical condition, or medicines that create an unsafe bleeding risk. These issues may need treatment or a specific plan first.

Laminectomy alone may not be suitable if the spine is already unstable or likely to become unstable after decompression. Fusion or a different operation may then be discussed. Fusion

can improve stability but usually means a longer operation and recovery.

How to prepare

Your treating facility's own instructions take priority because preparation differs with the spinal level, surgical approach, and whether fusion is planned.

Tell the surgical team about all prescription medicines, over-the-counter products, vitamins, supplements, allergies, and previous reactions to anaesthesia. Blood thinners and some other medicines may need a temporary change. Do not stop them unless the clinician responsible for your care gives you a plan.

You will receive instructions about when to stop eating and drinking. Ask what to do with your usual medicines on the morning of surgery.

Before the procedure:

Smoking can interfere with wound and bone healing, especially if fusion is planned. Your team can discuss support for stopping.

- Arrange for someone to take you home and stay nearby initially
- Prepare easy meals and place everyday items within reach
- Follow instructions about bathing and skin products
- Tell the team if you develop a fever, infection, or new illness

What happens during the procedure

You will usually receive general anaesthesia, so you are unconscious and do not feel the operation. Monitoring equipment tracks your breathing, heart rate, blood pressure, and oxygen level.

You are positioned to give the surgeon access to the affected part of your spine. The surgeon makes an incision and moves the muscles aside to reach the vertebrae.

Part or all of the lamina is removed. The surgeon may also remove bone spurs, thickened ligament, or part of a disc pressing on a nerve. A smaller opening in the lamina is sometimes called a laminotomy.

If fusion is needed, bone graft material is placed between vertebrae. Screws, rods, or other implants may hold the spine still while the bones join.

The incision is closed with stitches, staples, or skin adhesive. Some people have a temporary

drain near the wound.

Recovery and what to expect afterward

Pain and muscle soreness around the incision are expected. You may receive pain medicine, and the team will ask whether it is controlling your pain. Leg or arm pain may improve soon, but numbness, weakness, or altered sensation can take longer. Some symptoms may remain.

You can usually drink and eat when you are awake and not nauseated. Anaesthesia and opioid pain medicines can cause constipation, so fluids, movement, and the bowel plan provided by your team may help.

Staff will encourage safe movement, often on the day of surgery. Follow instructions about walking, stairs, lifting, bending, twisting, wound care, and bathing. Recovery is usually longer when several levels are treated or fusion is added.

Do not drive home. Avoid driving while taking medicines that make you sleepy or while pain and stiffness prevent you from braking, turning, or checking traffic safely. Resume driving only when your surgical team says it is safe.

A return to desk work may be possible within several weeks. Work involving lifting, climbing, driving, or heavy physical activity usually requires more time. Your surgeon will base restrictions on the operation and your recovery.

Risks and possible complications

The surgical team should explain your personal risks before you consent. Possible complications include:

A spinal fluid leak may require extra bed rest, a drain, or another procedure. Nerve injury can cause changes in feeling, strength, or bladder and bowel function, although these problems can also come from the condition being treated.

- Bleeding, infection, or a reaction to anaesthesia
- A tear in the covering of the spinal cord, causing a spinal fluid leak
- Injury to a nerve or, less commonly, the spinal cord
- Blood clots in the legs or lungs
- Persistent or recurring pain, numbness, or weakness
- New spinal instability or the need for later surgery

- Failure of the bones to join after fusion
- Implant movement or breakage after fusion

Results and follow up

Your surgeon can explain what was found and done shortly after the operation. There is usually no pathology result unless tissue was removed for laboratory examination.

Relief of pain caused by nerve pressure may begin quickly or develop over weeks. Walking and function may improve gradually. Numbness and weakness often recover more slowly, and longstanding nerve damage may not fully improve.

Routine follow-up checks the incision, movement, strength, and symptom progress. Stitches or staples may need removal. If you had fusion, later imaging may be used to assess alignment and bone healing. Physical therapy may be recommended to rebuild mobility and strength.

Alternatives

The best alternative depends on whether pressure affects a nerve, the spinal cord, or both.

Observation may be reasonable for mild, stable symptoms. It avoids surgery but does not directly create more space around compressed nerves.

Physical therapy and activity changes can improve strength, movement, and confidence. They cannot remove bone or thickened tissue that is physically narrowing the spinal canal.

Pain medicines may reduce discomfort but do not correct compression. Side effects and other medical conditions can limit which medicines are suitable.

Spinal injections may provide temporary relief for some nerve-related pain. They are less invasive than surgery but do not reliably correct severe narrowing or spinal cord compression.

Another decompression procedure, such as laminotomy, foraminotomy, or discectomy, may remove less bone or target a specific area. The trade-off is that a smaller operation may not provide enough space when narrowing is extensive.

Fusion may be performed instead of, or with, laminectomy when instability is important. It adds stability but usually involves more surgery, reduced movement at the fused level, and a longer recovery.

When to call your healthcare team

Attend routine follow-up even if recovery is going well. Contact your surgical team promptly for increasing redness, warmth, swelling, wound drainage, fever, worsening pain, a severe headache that changes with position, or new trouble passing urine.

Seek urgent medical assessment for new or worsening weakness, numbness around the groin, or loss of bladder or bowel control.

Call emergency services for difficulty breathing, chest pain, fainting, or sudden severe weakness. A painful, swollen leg also needs urgent assessment because it can be a sign of a blood clot.

Common questions

Will I be asleep for a laminectomy?

Usually, yes. Most laminectomies are performed under general anaesthesia. Your anaesthesia team will explain the plan before surgery.

Can I drive home after surgery?

No. Arrange for another adult to take you home. Do not drive while using sedating pain medicine or until you can move and react safely.

How painful is a laminectomy?

Incision and muscle pain are common at first. Pain medicine and gradual movement usually help. Pain from nerve compression may improve quickly, but nerve symptoms can take longer.

How long will I stay in hospital?

Some people leave the same day, while others stay overnight or longer. A multilevel operation, fusion, other health conditions, or slower mobility may extend the stay.

When will I know whether it worked?

Your surgeon can describe the decompression immediately. Symptom improvement may be noticeable within days, but strength, walking, and sensation can continue changing over several months.

Will the lamina grow back?

The removed bone does not usually grow back in its original form. Other age-related spinal changes can still develop and may cause future symptoms.

Sources

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