



Posterior Cervical Laminectomy and Fusion (PCLF)

Preoperative Patient Education Guide

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Purpose of This Document

This document explains your upcoming **posterior cervical laminectomy and fusion (PCLF)**, sometimes called a posterior cervical decompression and instrumented fusion. Please read it carefully, bring it to your preoperative visit, and have it with you on the day of surgery.

Anatomy of the Cervical Spine

The cervical spine consists of seven vertebrae (C1–C7). The **spinal cord** runs through a bony tunnel called the **spinal canal**, formed in part by a structure at the back of each vertebra called the **lamina**. **Nerve roots** branch off the spinal cord at each level and exit through small openings called **neural foramina**, traveling to the shoulders, arms, and hands.

When the spinal canal becomes narrowed (**cervical stenosis**) — from thickened ligaments, bone spurs, disc bulges, or congenital narrowness — the spinal cord becomes compressed. This can cause **cervical myelopathy**, with symptoms such as hand clumsiness, gait imbalance, hyperreflexia, falls, and bowel/bladder changes. Severe radiculopathy (arm symptoms) can also be present from foraminal narrowing.

Why a Posterior Approach?

The **posterior (back of the neck) approach** is preferred when:

- Multiple levels need decompression (3 or more)
- Compression is **predominantly from behind** (thickened ligamentum flavum, lamina, or OPLL — ossification of the posterior longitudinal ligament)
- Cervical alignment is **lordotic or neutral** (the cord can drift backward when the lamina is removed)
- Severe foraminal stenosis requires direct posterior decompression

- Prior anterior surgery makes a repeat anterior approach risky

The Procedure: Posterior Cervical Laminectomy and Fusion

PCLF is performed under general anesthesia and typically takes 3–5 hours, depending on the number of levels. Steps include:

1. **Positioning** — You are positioned face-down (prone) on a specialized table with the head fixed in a Mayfield head holder (pin fixation) to protect the cervical spine.
2. **Incision** — A vertical incision is made on the back of the neck. Its length depends on the number of levels (typically 3–6 inches).
3. **Exposure** — The muscles are dissected off the back of the spine, exposing the lamina and lateral masses (the bone on either side of the lamina).
4. **Lateral mass screw placement** — Screws are placed into the lateral masses on each side at each level being fused, using live X-ray and anatomic landmarks. (For C2 and C7, pedicle screws may be used.) Neuromonitoring is used throughout to protect the spinal cord and nerve roots.
5. **Laminectomy** — The lamina is removed at each compressed level, completely decompressing the spinal cord. Foraminotomies (opening of the nerve root tunnels) are performed where needed.
6. **Rod placement** — Titanium rods are connected to the screws on each side, locking the spine into the desired alignment.
7. **Bone graft** — Bone graft (your own bone from the laminectomy, plus possibly allograft and/or bone-promoting material) is packed along the sides to promote fusion.
8. **Closure** — A drain may be placed. The muscles, fascia, and skin are closed in layers.

Goals of Surgery

- **Decompress** the spinal cord and nerve roots
- **Stabilize** the cervical spine
- **Prevent progression** of myelopathy (this is often the most important goal)
- **Fuse** the affected segments into a solid bone unit over 3–6 months

Enhanced Recovery After Surgery (ERAS)

Our PCLF ERAS pathway emphasizes:

- **Multimodal pain control** (this surgery has more pain than anterior cervical surgery)
- **Wound management** to minimize infection risk
- **Early mobilization** — most patients walk the day after surgery
- **Nutritional optimization** for fusion and wound healing
- **Avoidance of NSAIDs** for 3 months to support bone fusion

Preoperative Medication Instructions

CRITICAL — REVIEW WITH YOUR SURGEON

Some medications and supplements can cause **dangerous bleeding** during or after surgery. Review every medication, vitamin, and supplement (including over-the-counter items) with our office at least **2 weeks before surgery**. If you take blood thinners, you must have specific clearance instructions.

Medications to STOP Before Surgery

Medication Class	When to Stop
Aspirin (81 mg or 325 mg)	7 days before surgery
Clopidogrel (Plavix), ticagrelor (Brilinta), prasugrel (Effient)	5-7 days before surgery
Warfarin (Coumadin)	5 days before surgery — bridging may be required
Apixaban (Eliquis), rivaroxaban (Xarelto), dabigatran (Pradaxa), edoxaban (Savaysa)	72 hours before surgery (per cardiology)
NSAIDs (ibuprofen, naproxen, meloxicam, celecoxib, diclofenac)	7 days before surgery
SGLT2 Inhibitors (Jardiance, Farxiga, Invokana)	Hold 3-4 days prior to surgery (check with the anesthesia team)
Fish oil, vitamin E, ginkgo, garlic, ginseng, turmeric, CBD	7 days before surgery
GLP-1 agonists (Ozempic, Wegovy, Mounjaro, Zepbound)	1 week before surgery (anesthesia aspiration risk)
Hormone replacement, oral contraceptives	Discuss with surgeon — increases DVT risk
Recreational marijuana, nicotine products	Stop completely; nicotine impairs bone and wound healing

Medications to CONTINUE

Medication Class	Instructions
Blood pressure medications	Take with a sip of water the morning of surgery
Antiseizure medications	Continue without interruption
Thyroid medications	Continue without interruption
Reflux medications	Continue
Psychiatric medications	Continue (notify us about MAOIs or lithium)
Inhalers	Bring with you and use as normal

Special Considerations

- **Diabetes:** Hold metformin the morning of surgery. Take half your usual dose of long-acting insulin. Hold SGLT2 inhibitors 3 days before.
- **Chronic opioids:** Continue and inform anesthesia.
- **Steroids:** Stress-dose coverage may be needed.
- **Immunosuppressants and biologics:** Coordinate with your prescribing physician.

Preoperative Optimization Pathway

Getting Ready for Surgery — Simple Steps for Less Pain & a Faster Recovery

Patients who follow these steps tend to have **less pain, need less medication, heal faster, and return home sooner**. Please start as early as you can — ideally **4 weeks before** your surgery date.

1. Eat Well & Hit Your Protein Target

- **Eat more protein.** Include eggs, fish, chicken, dairy, beans, or a protein shake at every meal. Protein is what your body uses to heal wounds, knit bone, and keep muscle strong.

Daily protein goal: about 1.5 grams per kilogram of body weight.

Quick guide: a **150 lb person** should aim for roughly **100 g of protein per day**, spread across meals (about **25–35 g each**). Your care team can tailor this for you.

Note: patients with significant kidney disease (advanced CKD) should discuss protein targets with their nephrologist before increasing intake.

- **Choose healing foods.** Vegetables, fruit, and whole grains lower inflammation. Cut back on sugar, processed food, and alcohol.

- **Drink plenty of water** in the days before surgery. Clear liquids are usually allowed up to 2 hours before you arrive.
- **Carbohydrate drink.** Unless you are diabetic, a clear carbohydrate drink (such as ClearFast or unconcentrated Gatorade) **2-3 hours before** surgery reduces stress and nausea. Your team will advise on the specifics.

2. Plan for Comfort & Pain Control

- **We use several mild medicines together** so we can keep you comfortable while using as little opioid medication as possible.
- **Bring a full list of your medicines.** Some blood thinners, anti-inflammatories, supplements, and diabetes/weight medicines (including GLP-1 agonists such as Ozempic, Wegovy, and Mounjaro) may need to be paused.
- **Tell us if you take pain medication regularly.** A simple plan helps us keep you comfortable afterward and prevents withdrawal symptoms.

3. Helpful Supplements (but Not Necessary)

- **Protein shake or powder** — the easiest way to reach your protein goal if appetite is low. Whey or plant blend with ~20-30 g per serving.
- **Vitamin D3** — low vitamin D is linked to slower bone healing and more pain after spine surgery. We may check your level and suggest a dose (often **1,000-2,000 IU daily**).
- **Iron** — only if you are anemic or low on iron. Correcting it before surgery lowers transfusion risk. We will test first.
- **Vitamin C and zinc** — support wound healing. A daily multivitamin usually covers both.
- **Calcium** — 1,000-1,200 mg daily, with vitamin D, supports bone fusion. Use dietary sources first (dairy, fortified plant milks, leafy greens) and supplement only as needed.

STOP these supplements about 1 week before surgery

Fish oil, vitamin E, high-dose garlic, ginkgo, turmeric (high-dose), and CBD — these can increase bleeding. Review every supplement with your surgeon before starting or stopping anything.

4. Keep Moving & Prepare Your Home

- **Walk every day.** A 20-30 minute walk builds strength and stamina. More active patients recover noticeably faster.
- **Practice the basics.** Rehearse getting in and out of bed, using a walker if needed, and slow deep breathing exercises with an incentive spirometer.
- **Set up your home.** Clear walkways, keep items within easy reach, and arrange a ride and a helper for the first day or two.

5. Other Important Steps

- **Stop smoking and nicotine.** This is the single most powerful change you can make. Quitting even 4 weeks before surgery greatly improves healing and lowers complications. Nicotine in any form (cigarettes, vapes, chewing tobacco, patches, gum) substantially impairs bone fusion and **must be stopped before and for at least 3 months after surgery.**
- **Control blood sugar.** If you have diabetes, work with your doctor to keep it well managed before surgery. Target HbA1c < 7.5% for elective cases.
- **Rest and relax.** Aim for 7-8 hours of sleep nightly. Worry can make pain feel worse — gentle breathing exercises (4-7-8 breathing), guided imagery, and mindfulness apps.
- **Prevent infection.** You will be asked to wash with chlorhexidine (Hibiclens) antiseptic soap the night before and morning of surgery. **Please do not shave the surgical area** — this can cause micro-abrasions that increase infection risk.

6. What to Bring on Surgery Day

- **Photo ID and insurance card.** Plus a list of all your medicines and doses.
- **Loose, comfortable clothing** and flat, non-slip shoes that are easy to put on.
- **Your CPAP machine** if you use one for sleep apnea, and any braces or walking aids.
- **A responsible adult** to drive you home and stay with you for the first 24 hours.
- **Leave valuables and jewelry at home.** Remove nail polish and contact lenses before arrival.

Preoperative Physical Therapy ("Prehab")

We strongly recommend a **preoperative physical therapy evaluation and prehabilitation course** before surgery. Multiple randomized studies demonstrate that prehab improves postoperative pain scores, accelerates functional recovery, and reduces length of stay.

Goals of preoperative physical therapy include:

- **Cervical postural retraining** — chin tucks, scapular retractions, deep neck flexor activation
- **Shoulder girdle conditioning** — to support the cervicothoracic junction during recovery
- **Body mechanics education** — how to move, sit, and sleep safely in the postoperative period
- **Walking endurance baseline** — establishes a functional benchmark for postoperative comparison

Our office will coordinate this referral. If you have a preferred physical therapist, please let us know.

Sessions completed before surgery do not count against postoperative PT benefits under most insurance plans, but we will verify this for your specific coverage.

Day Before & Day of Surgery

Day Before Surgery

- **Nothing to eat after midnight.** Clear liquids (water, black coffee, apple juice) are allowed up to **2 hours before** arrival unless told otherwise.
- **Chlorhexidine (Hibiclens) shower** the night before — focus on the planned surgical area.
- Sleep in clean sheets and clean clothing.

- Pack your bag: ID, insurance card, complete medication list, CPAP if applicable, loose-fitting clothing for going home, slip-on shoes.
- **Do not shave** the planned surgical site at home.

Day of Surgery

- Arrive at the time given (usually 2 hours before surgery).
- **Repeat the chlorhexidine shower** the morning of surgery.
- Brush teeth but do not swallow water.
- Do **not** wear makeup, lotions, perfumes, nail polish, or jewelry.
- Wear loose, comfortable clothing.
- Bring this packet and your medication list.
- Have a responsible adult drive you home and stay with you for the first 24 hours.

Your Countdown to Surgery

Keep this page handy — it shows what to do as your surgery date gets closer.

4-2 Weeks Before — BUILD STRENGTH	1 Week Before — GET READY	1-2 Days Before — FINAL STEPS
✓ Stop smoking & nicotine	✓ Confirm medicines to pause	✓ Antiseptic (chlorhexidine) soap wash
✓ Eat more protein (~1.5 g/kg/day)	✓ Arrange ride & helper	✓ Clear carbohydrate drink (non-diabetics)
✓ Walk 20-30 min daily	✓ Practice breathing exercises	✓ Clear liquids up to 2 hours prior
✓ Manage blood sugar & BP	✓ Keep eating protein	✓ Take pre-op medicines as instructed
✓ Correct any anemia	✓ Avoid alcohol	✓ Rest & arrive on time

Questions?

Call your care team at **301.718.9611**. Always follow the specific instructions from your surgeon and anesthesiologist — those instructions come first. This guide is for patient education and does not replace advice from your doctor.

Risks of Surgery

PCLF is a major operation with real risks. Many of these risks are higher than for anterior cervical surgery because of the longer incision, more muscle dissection, and the magnitude of bony work.

General Surgical Risks

- **Bleeding** — More than anterior surgery; transfusion is occasionally needed.
- **Wound infection** — 2-5% (higher than ACDF). Risk factors: diabetes, smoking, obesity, prior radiation, immunosuppression.
- **Anesthesia complications.**

- **Blood clots (DVT/PE)** — Mitigated by sequential compression devices, early ambulation, and sometimes chemical prophylaxis.
- **Pneumonia** — From general anesthesia and reduced mobility; mitigated by incentive spirometry and early walking.
- **Urinary tract infection / urinary retention.**

Procedure-Specific Risks

- **C5 palsy** — Weakness of the deltoid and biceps (shoulder/upper arm) that can develop 1–14 days after surgery in 5% of patients. Cause is poorly understood but related to nerve root drift after decompression. Most cases resolve over weeks to months.
- **Spinal cord injury** — Very rare (<0.5%) but potentially catastrophic. Neuromonitoring reduces this risk.
- **Nerve root injury** — Can cause weakness, numbness, or pain in a specific arm distribution.
- **Dural tear / CSF leak** — Occurs in 3–5% and is usually repaired at surgery; rarely requires reoperation.
- **Vertebral artery injury** — Very rare (<0.1%) but potentially serious.
- **Hardware failure or malposition** — Screws or rods can loosen, break, or migrate; occasionally requires revision.
- **Pseudarthrosis (failed fusion)** — 5–15% for multi-level constructs.
- **Adjacent segment disease** — Levels above or below the fusion can wear out faster (~2–3% per year).
- **Persistent neck pain or stiffness** — A real possibility, especially after multi-level fusions.
- **Persistent neurologic symptoms** — Myelopathy that has been present a long time may not fully reverse; the goal is often to **prevent progression** rather than restore lost function.

Risks Higher If You Smoke

Smoking dramatically increases the risk of pseudarthrosis, infection, and wound problems. Smokers can have 2–4× higher pseudarthrosis rates. **We strongly recommend complete nicotine cessation before and for the duration of fusion healing.**

Reason for Surgery

PCLF is recommended when imaging and examination show:

Indications

- **Multilevel cervical stenosis with myelopathy** — gait instability, hand clumsiness, hyperreflexia, balance problems, falls
- **Cervical myelopathy with preserved or lordotic alignment** (so the cord can drift backward after decompression)
- **OPLL (ossification of the posterior longitudinal ligament)** when anterior approaches are too risky
- **Severe multilevel foraminal stenosis** with radiculopathy
- **Cervical instability** from rheumatoid arthritis, trauma, tumor, or prior surgery
- **Failed prior anterior cervical surgery** requiring revision/extension

Why Surgery Now?

Myelopathy tends to progress over time. **Early surgery generally provides better outcomes** than delayed surgery in patients with progressive symptoms. While conservative care (physical therapy, pain management) can help with symptoms in some cases, it does not stop the progression of cord compression. Patients with significant neurologic findings on examination, MRI evidence of cord compression with myelomalacia (signal change in the cord), or worsening symptoms should generally proceed with surgery.

Goals

The primary goal of PCLF for myelopathy is to **prevent further neurologic decline**. Many patients also experience improvement in symptoms — particularly hand dexterity, balance, and arm pain — though long-standing deficits may not fully reverse.

Hospital Stay and Discharge Planning

Most PCLF patients stay **2–4 nights** in the hospital. Multi-level cases and older patients may stay longer. Some patients benefit from a short stay at an inpatient rehabilitation facility. Before discharge:

- Pain controlled with oral medication
- Tolerating a regular diet
- Walking safely (with or without a walker)
- Urinating independently
- Wound looks healthy with no signs of infection
- Home support arranged — most patients need help for at least 1–2 weeks

Contact Information

Provider: Lekhaj Daggubati, MD

Practice: Washington Brain & Spine Institute

Main Phone (All Locations): 301.718.9611 — business hours

After-Hours / Urgent Concerns: 301.718.9611 — answering service will contact the on-call provider

Clinical Office Locations

Rockville: 3202 Tower Oaks Boulevard, Suite 100, Rockville, MD 20852

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Frederick: 198 Thomas Johnson Drive, Suite 17, Frederick, MD 21704

White Oak: 11886 Healing Way, Suite 401, Silver Spring, MD 20904

Emergency: Call **911** or proceed to the nearest emergency department for life-threatening symptoms — severe difficulty breathing, sudden weakness or paralysis, loss of consciousness, seizure, severe sudden headache, chest pain, or stroke-like symptoms.