

Malignant Spinal Cord Compression

Tumor squeezing the cord — give steroids fast, then radiation or surgery to take the pressure off before permanent damage sets in.

THE ONE-LINE TRUTH

A tumor presses on the spinal cord and cuts off its signals.

The chain — how it unfolds

1. Cancer cells land in the spine bone — why: Cancer from the lung, breast, prostate, or bone marrow (multiple myeloma) spreads through the blood and settles in the vertebrae (spine bones), where the rich blood supply feeds the tumor and lets it grow.
2. Tumor grows and presses on the cord — why: The tumor eats into the bone or grows in the epidural space (the cushion layer just outside the cord), taking up room inside the tight bony tunnel and squeezing the spinal cord like a hand around a garden hose.
3. Back pain starts, worse at night — why: The growing tumor stretches the bone and presses on nearby nerves, causing deep, aching pain. It feels worse at night because lying flat shifts fluid into the already crowded space and increases pressure.
4. Legs feel weak and clumsy — why: The squeezed cord cannot carry the brain's movement signals down to the leg muscles anymore, so the legs don't obey commands and feel heavy or wobbly.
5. Feeling fades below the squeeze — why: The sensory signals traveling up the cord — touch, pain, temperature — get blocked by the pressure, so the area below the tumor goes numb or tingly.
6. Bladder and bowel stop working — why: The sacral nerves (the nerves near the bottom of the cord that control the bladder and bowel) lose their connection to the brain, so you can't feel the urge to go or control when you empty.
7. Permanent paralysis if pressure stays — why: If the cord stays crushed for more than a day or two, the nerve cells run out of oxygen and die. Once they die, they don't grow back, and the loss of movement and feeling becomes permanent.

8. Lifting the pressure early can reverse the damage — why: Giving high-dose steroids (dexamethasone) shrinks swelling around the tumor and buys time. Radiation or surgery removes the tumor and takes the squeeze off the cord, letting blood flow return and nerve signals restart — but only if you act fast, before the cells die.

Spot it — what you see, and why

- Back pain that gets worse when lying down or at night: The tumor presses on the bones of the spine or the spinal cord itself, and when you lie flat, the pressure shifts in a way that makes the pain sharper. Normal back pain usually feels better when you rest, but cancer pain does the opposite.
- Weakness in the legs: The tumor squeezes the spinal cord, blocking the nerve signals that tell your leg muscles to move. The spinal cord is like a bundle of electrical wires running down your back; when it gets crushed, the messages from your brain can't get through to your legs.
- Numbness or tingling below the level of the tumor: The compressed spinal cord can't carry feeling signals back up to your brain, so the skin below that spot starts to feel numb or tingly, like when your foot falls asleep but it doesn't go away.
- Trouble controlling your bladder or bowels: The nerves that control your bladder and bowel run through the lowest part of the spinal cord. When the tumor presses on those nerves, you may leak urine, be unable to pee, or lose control of your bowels because the signals between your brain and those muscles are cut off.
- A band of pain around your chest or belly: Nerves branch off the spinal cord and wrap around your body like belts. When the tumor irritates a nerve root at a certain level, you feel a sharp or burning stripe of pain in that band, even though the problem is in your spine.
- Trouble walking or a clumsy, unsteady gait: Your legs feel weak and your brain isn't getting clear feedback about where your feet are in space, because the spinal cord is being squeezed. This makes your steps wobbly and you may stumble or drag your feet.

Red flags — act now

- New or worsening back pain in anyone with a history of cancer
- Any leg weakness, numbness, or trouble walking that comes on quickly
- Loss of bladder or bowel control (this is a true emergency — permanent damage can happen in hours)
- Back pain that is worse at night or when lying flat, especially if pain medicine doesn't help

Treat it — in this order

1. Dexamethasone 10 mg IV bolus immediately, then 4 mg IV or by mouth every 6 hours → Dexamethasone is a powerful steroid that shrinks swelling around the tumor and inside the spinal cord itself. This gives the cord a little more breathing room, slows nerve damage, and buys time (hours to days) for radiation or surgery to work. Start it the moment you suspect cord compression—do not wait for the MRI.
2. Emergency MRI of the entire spine with gadolinium within 24 hours (ideally within hours) → Shows exactly where the tumor is, how badly it is squeezing the cord, and how many levels of spine are involved. This image decides whether the patient needs surgery, radiation, or both—and it maps the target for the neurosurgeon or radiation oncologist.
3. Radiation therapy to the tumor site, started within 24 hours if the patient can still walk or move legs → High-energy beams kill tumor cells and shrink the mass pressing on the cord over days to weeks. Radiation is the standard first treatment if the patient still has some leg function and the spine bone is stable (not crumbling). Typical course is 10 fractions (doses) over 2 weeks or a single 8-Gy dose in emergencies.
4. Emergency decompression surgery (laminectomy or vertebrectomy) if the patient is paralyzed, rapidly worsening, or the spine bone is unstable → Surgeon removes the back of the vertebra (laminectomy) or the entire tumor-filled vertebra (vertebrectomy) to lift pressure off the cord instantly. Metal rods and screws stabilize the spine if bone is destroyed. Surgery offers the best chance to save walking if done within 48 hours of leg weakness starting.
5. Systemic cancer treatment—chemotherapy, hormone therapy, or immunotherapy—chosen based on the type of cancer → Treats the cancer itself throughout the body, stops new tumors from seeding in other spine bones, and shrinks existing tumors over weeks to months. For example, hormone therapy (e.g., enzalutamide for prostate cancer, letrozole for breast cancer) starves hormone-driven cancers; chemotherapy kills fast-dividing cells.

Your top priorities at the bedside

1. Complete a full neurologic exam every 2 hours, checking motor strength in all four limbs using a 0-to-5 scale, sensory level by testing where the patient can feel a light touch or pinprick moving up from the feet, and reflexes in knees and ankles — why: The spinal cord can be crushed further within hours as the tumor grows or swelling increases around the compression site. A motor score (muscle strength rating) dropping from 4 out of 5 to 3 out of 5 or the sensory level (the line where feeling stops) moving higher up the body means cord damage is progressing. Catching these changes early triggers emergency escalation to surgery before permanent paralysis occurs. Once complete paralysis happens, fewer than 10 percent of patients ever walk again.

2. Keep the patient on strict bed rest with log-rolling technique for any position changes, using at least three staff members to turn the patient as one solid unit without twisting the spine — why: An unstable spinal tumor can cause vertebrae (spine bones) to collapse or shift suddenly if the patient bends or twists. Log-rolling keeps the head, shoulders, and hips aligned in one straight plane, preventing spinal movement that could crush the cord completely. Even small movements can cause a partially compressed cord to become completely severed if the bone around it breaks.
3. Administer dexamethasone (a powerful steroid medicine) exactly on time every 6 hours via IV, and monitor blood glucose levels every 6 hours — why: Dexamethasone shrinks the swelling around the compressed spinal cord within hours, creating more space inside the tight spinal canal (the bony tunnel where the cord runs). The medication reduces inflammation (the body's swelling response) that makes compression worse even after the tumor stops growing. Steroids raise blood sugar to dangerous levels, so glucose must be monitored and treated with insulin if it goes above 180 milligrams per deciliter to prevent diabetic complications.