

Lumbar Puncture: Patient Information

What is a lumbar puncture?

Lumbar puncture (spinal tap) is performed in your lower back, in the lumbar region, usually around where your belt or waistband would sit.

During lumbar puncture, a fine needle is inserted under local anaesthetic, between two lumbar bones (vertebrae) to remove a sample of cerebrospinal fluid — the fluid that surrounds your brain and spinal cord.

Why has a lumbar puncture been ordered?

In haematology, a lumbar puncture is used to can help diagnose:

- Involvement of the brain and spinal cord by blood disorders such as leukaemia or lymphoma
- Serious infections such as meningitis or encephalitis

Haematologists also use lumbar punctures to administer chemotherapy into the cerebrospinal fluid, to either treat brain and spinal cord disease, or to prevent it from occurring. This is called “intrathecal chemotherapy”.

What are the risks of lumbar punctures?

Lumbar punctures are generally performed by experienced radiologists under X-ray guidance. Though lumbar puncture is generally recognized as safe, it does carry some risks. These include:

Post-lumbar puncture headache. About 40 percent of people who have undergone a lumbar puncture develop a headache afterward. This is due to a leak of the cerebrospinal fluid into nearby tissues. Typically, the headache starts several hours up to two days after the procedure and may be accompanied by nausea, vomiting and dizziness. Post-lumbar puncture headaches can last from a few hours to a week or more. The headache is often worse on standing or sitting up, and better when lying down. It is treated with pain relief, fluids (either by mouth or supplemented by intravenous fluids), and occasionally a procedure known as a “blood patch” is performed. A blood patch is when the radiologist takes a sample of your own blood and injects it near where the lumbar puncture was performed. The blood then forms a plug over the hole in your ligaments and membranes, and stops the leak.

Back discomfort or pain. You may feel pain or tenderness in your lower back during or after the procedure. The pain might radiate down the back of your legs.

Bleeding. Bleeding may occur near the puncture site or, rarely, into the epidural space.

Brainstem herniation. Increased pressure within the skull (intracranial), due to a brain tumor or other space-occupying lesion, can lead to compression of the brainstem after a sample of cerebrospinal fluid is removed. A computerized tomography (CT) scan or MRI prior to a lumbar puncture can be obtained to determine if there is evidence of increased intracranial pressure, this is commonly done when lumbar puncture is being performed for diagnostic purposes. This complication is uncommon.

Do I have to fast for my lumbar puncture?

It is best to fast for 4 hours before your lumbar puncture. Speak to the staff organising your test to determine whether this applies in your case.

What do I need to do to prepare for my lumbar puncture?

Your doctor asks questions about your medical history, does a physical exam, and orders blood tests to check if you have any bleeding or clotting disorders. Your doctor may also recommend a CT scan to determine if you have any abnormal swelling in or around your brain.

You must tell your doctor if you're taking blood-thinning or other anticoagulant medications. Examples include warfarin (Coumadin, Marevan), rivaroxaban (Xarelto) or dabigatran (Pradaxa) clopidogrel (Plavix), and some over-the-counter pain relievers such as aspirin, ibuprofen (Advil, Brufen, others) or naproxen (Aleve, Naprosyn, Naprogesic).

Also, tell your doctor if you're allergic to any medications, such as numbing medications (local anesthetics).

What happens during the test?

Lumbar puncture is usually done in our radiology (Xray) department. You will be asked to change into a hospital gown. Then, you lie either on your side with your knees drawn up to your chest or sit, leaning forward on a stable surface, or lie face down on a trolley. Your back is washed with antiseptic soap or iodine and covered with a sterile sheet.

If the doctor is using X-ray guidance, an image will be taken of the spine at the level required, and the doctor will select the position of the needle.

During the procedure

- A local anesthetic is then injected into your lower back to numb the puncture site before the needle is inserted. The local anesthetic will sting briefly as it's injected.
- A thin, hollow needle is inserted between the two lower vertebrae (lumbar region), through the spinal membrane (dura) and into the spinal canal. You may feel pressure in your back during this part of the procedure.
- Once the needle is in place, you may be asked to change your position slightly.
- The cerebrospinal fluid pressure is measured; a small amount of fluid is withdrawn. If needed, a drug or substance is injected.
- The needle is removed and the puncture site is covered with a bandage.

The procedure usually lasts about 45 minutes. You will be required to lie down for 4 hours after the procedure, often in the recovery bay of the radiology department.

After the procedure

Plan to rest. Avoid strenuous activities the day of your procedure. You may return to work if your job doesn't require you to be physically active. Discuss your activities with your doctor if you have questions.

Take a pain medication. A nonprescription, pain-relieving medication that contains paracetamol can help reduce headache or back pain.