

Lumbar puncture

A lumbar puncture is a procedure that involves having a thin needle put into your lower back. This can be used to take a sample of the fluid that surrounds your brain and spinal cord (your central nervous system or CNS) to check for lymphoma cells. A lumbar puncture can also be used to give medication, such as chemotherapy, directly to the CNS.

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What is a lumbar puncture?

A lumbar puncture is a procedure that involves having a thin needle put into your lower back. A lumbar puncture can be used:

- as a diagnostic test. This involves taking a sample of the fluid that cushions your brain and spinal cord. This fluid is called the cerebrospinal fluid (CSF). A specialist doctor called a pathologist examines the CSF sample under a microscope to see if it contains any lymphoma cells or any infection. They might also run specialised tests on the sample.

- to deliver medication. This involves injecting medicines, such as chemotherapy, into the fluid around your brain and spinal cord.
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Who might need a lumbar puncture?

You might need a lumbar puncture if your specialist suspects that you have lymphoma in your brain or spinal cord. This is called **central nervous system (CNS) lymphoma**. The lymphoma might begin in your central nervous system (primary CNS lymphoma) or it might spread there from elsewhere in your body (secondary CNS lymphoma). This happens occasionally with some types of high-grade **non-Hodgkin lymphoma**, such as:

- **Burkitt lymphoma**
- **diffuse large B-cell lymphoma (DLBCL)**
- **mantle cell lymphoma**
- **T-cell lymphoma.**

Most people with these types of lymphoma do **not** develop lymphoma in their central nervous system and not everyone with these types of lymphoma needs a lumbar puncture. Your medical team decides what tests you need based on your individual circumstances.

You might also need a lumbar puncture if your medical team thinks you would benefit from having chemotherapy injected directly into the fluid around your brain and spinal cord (**intrathecal chemotherapy**). This might be the case if you have CNS lymphoma, or if your medical team think you are at high risk of your lymphoma spreading to your CNS (**CNS prophylaxis**).

Having a lumbar puncture

Most people who need a lumbar puncture have the procedure as an outpatient and do not have to stay in hospital overnight.

Before the procedure

You should be given information about the procedure and how to prepare for it. You can eat and drink as normal before the procedure. Tell your **medical team** about any medicines, vitamins and other supplements you are taking.

You might have **blood tests** beforehand to check that your blood clots normally. If you take blood-thinning medication, you might need to stop taking it for a few days before the biopsy. Your medical team should give you information about this.

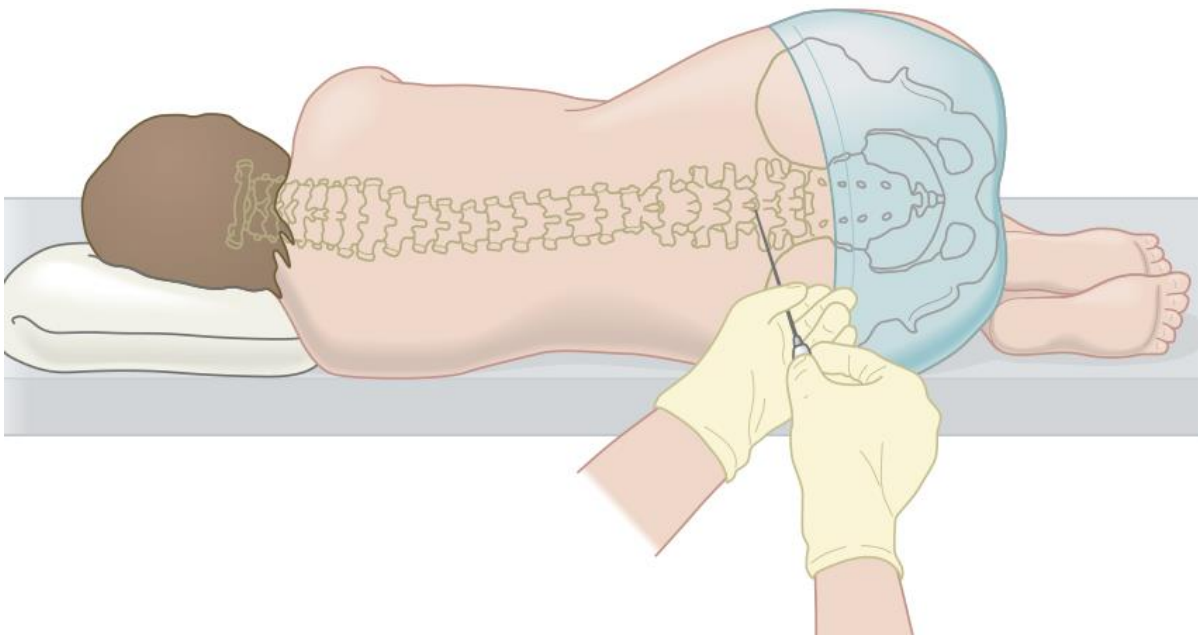
During the procedure

On the day of your lumbar puncture, the person performing it should explain again why you need one, and what it involves. They should make sure that you are still happy to go ahead and ask you to give your consent.

- First, the doctor or nurse helps you get into the right position to have your lumbar puncture.
 - Sometimes it is best to be curled up lying on your side, with your knees pulled up towards your chest. Sometimes it is best to sit up instead. In this case, you are asked to sit leaning forwards onto a pillow that is resting on a table in front of you.
 - Very rarely, a lumbar puncture might be difficult to carry out (for example, if you have curvature of the spine, or if you are obese). In this case, your doctor might recommend an 'X-ray guided' lumbar puncture. For this, you lie on your front or side on an X-ray table. An X-ray specialist (a radiologist) uses real-time X-rays of your spine, displayed on a computer monitor, to help them find the best place to perform the lumbar puncture.
 - Make sure you are comfortable – you need to keep as still as possible during the procedure.
- The doctor cleans your lower back with antiseptic and places a sterile cover over your body. The doctor then injects local anaesthetic into the skin of your lower back. This might sting briefly.
- When the area is numb, the doctor inserts a thin needle into the gap between two bones in your lower spine. You might experience a feeling of pressure in your back. If you feel any pain or a tingling sensation in your legs, inform the doctor straight away.
- The needle enters the spinal canal. The doctor inserts the needle at a level that is much lower than your spinal cord so your spinal cord can't be damaged.
- When the needle is in the right place, cerebrospinal fluid (CSF) starts to drip out. The doctor collects a small amount (usually no more than one teaspoonful or 5 ml) in sterile tubes.

- If you are having intrathecal chemotherapy, the doctor injects drugs into your spinal canal through the lumbar puncture needle.
- The doctor then removes the needle and puts a plaster or dressing on your skin. You can take this off the next day.

The whole process takes about 20–30 minutes. It isn't usually painful but it might be uncomfortable.



Lumbar puncture needle going into the lower spine

After the procedure

Some haematology centres recommend that you lie flat for around half an hour after a lumbar puncture. This is to try to reduce the risk of developing a severe headache, although there is no clear evidence at present to prove that this is of benefit.

Most people go home the same day. You need someone else to drive you. You should not drive or operate machinery for at least 24 hours.

You can usually return to your normal activities once you feel well enough but avoid anything too strenuous for at least a week.

Side effects of having a lumbar puncture

Lumbar punctures are generally very safe. The main side effects are a headache, feeling sick, swelling, bruising or discomfort in your lower back. These usually get better on their own. Contact your medical team if problems persist or are severe.

It is very common to develop a headache after a lumbar puncture. This typically starts within 24 hours of having the procedure. It usually feels worse when you sit or stand up and feels better when you lie down.

If you develop a headache after having a lumbar puncture:

- lie down until it eases.
- take pain killers. Your medical team can advise you on the best pain relief to use. They might also prescribe anti-sickness medication.
- drink plenty of fluids. Some people find that caffeinated drinks like tea, coffee and cola, help.

Headaches after a lumbar puncture usually get better within a few days. Contact your medical team if you have a headache that doesn't get better, or if it gets suddenly worse.

Serious complications after a lumbar puncture are very rare but could include infection or bleeding.

Contact your medical team if you have any of the following:

- a severe headache that doesn't go away
- fever (temperature above 38°C or 100°F)
- sensitivity to bright lights
- vomiting (being sick)
- blood or fluid leaking from the area you had the injection
- severe back pain
- tingling or numbness in your legs.

Your medical team should give you more information on what to look for and when to seek advice.

Getting the results of a diagnostic lumbar puncture

It can take anywhere from a couple of days to a couple of weeks to get the results of your lumbar puncture, depending what tests are done on the sample. **Waiting for test results** can be an anxious time but it is important for your medical team to collect all the information they need so they can plan the most appropriate treatment for you.

If you're feeling anxious, you might find it helpful to **contact our helpline team** to talk about how you're feeling.

References

The full list of references for this page is available on our website. Alternatively, email publications@lymphoma-action.org.uk or call 01296 619409 if you would like a copy.

Acknowledgements

- With thanks to Dr Joel Cunningham, Consultant Haematologist, Norfolk and Norwich University Hospital, for reviewing this information.
Dr Cunningham has received lecture honorarium from Janssen and scientific conference registration from AbbVie.
- With thanks to Chrissie Kirby, Haematology Clinical Nurse Specialist, for reviewing this information.
- We would like to thank the members of our Reader Panel who gave their time to review this information.

Content last reviewed: November 2023

Next planned review: November 2026

LYMweb0028LumbPunct2023v5



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