

Lumbar puncture (LP)

What is a lumbar puncture (LP)?

An LP is a common and routine procedure, also known as a spinal tap, where a very small needle is inserted through the base of the spine to collect a sample of the fluid surrounding the brain and spinal cord. This fluid is called cerebrospinal fluid (CSF).

Why do we need to do this?

LP is the only way to confirm a case of meningitis (swelling of the lining of the brain caused by an infection in the CSF).

National guidelines strongly recommended that an LP is done alongside other routine investigations, such as blood and urine tests, to look for signs of infection if meningitis is suspected. This is a routine and very important investigation.

Getting a sample of CSF will help Drs to find out if your child has meningitis and if what is causing it so that they can treat your child in the best way.

If your child needs to access support in the future because of problems which arise as a result of meningitis, a confirmed diagnosis often improves access to support and after care.

Who will perform this test?

A doctor trained in performing this procedure will do the LP. A trained children's nurse will hold your infant in the appropriate position (which is lying on their side curled up in a tight ball). Another team member may also be present to help.

Can you be present during the LP?

Yes, you can tell the team that you would like to be present. However, many parents find it distressing to see any procedures being done on their baby and would rather not be present. This is perfectly understandable. Please let the team know and they will usually agree to whatever works best for you but be aware that it is best to be quiet so the doctor can concentrate on the procedure.

Is it a painful procedure?

An LP is an uncomfortable procedure similar to a blood test or drip being inserted. Some children simply do not like being held in position to have the LP even though this part is not painful. Sucrose might be offered to your infant undergoing LP if you agree. Giving sucrose has been shown to have a calming effect and is safe, effective and easy to administer.

How much fluid needs to be taken?

Four to five drops of the CSF is collected into three to four different sterile tubes.

What happens to the samples taken?

The samples are sent to the laboratory urgently for immediate tests to find out whether cells which fight infection or bacteria can be seen under the microscope. Glucose and protein levels in the sample are also measured because they can provide clues as to what type of infection is present.

The laboratory will try and grow any bacteria which might be contained in the sample. This can take 24-48 hours.

Often it is not possible to grow bacteria from a sample. Additional tests such as a 'PCR test' may be done to try and identify what bug might be present. A PCR test works by detecting small amounts of genetic material from a virus or bacteria within the sample.

When will you get the result?

The cell count and protein and glucose test results should be available within a couple of hours and in general will indicate whether an infection is present. Further tests such as culture (where laboratory staff try to grow bacteria from a sample) or PCR testing will take from 2 days to 2 weeks depending on the infection.

What happens next?

If your child is not already on antibiotics, an antibiotic will likely be given to them immediately following an LP. This antibiotic is to cover the usual causes of bacterial meningitis. Sometimes, when a severe viral infection called herpes simplex is suspected, an antiviral medicine called acyclovir is also given until all the test results are back.

Can there be complications or side effects following LP?

Complications following LP are extremely rare in infants and children. The brain constantly produces CSF and the small amount removed during a lumbar puncture is quickly replaced. There may be pain at the site of the needle insertion in the lower back. Usually this settles with simple pain killers and time. Older children and adults can experience a post LP headache and for this, the treatment is bed rest and analgesia.

There is no evidence that doing a LP can cause infection, although your Doctor would not perform a LP if there was infection in the overlying skin. Other reasons for not doing a LP would include an obvious bleeding tendency in your child and if there was evidence of excessive pressure in the brain; in this situation your Doctor would delay performing the LP until the pressure had settled.

Can you as a parent or carer refuse this procedure?

As a parent you have a right to refuse this test, but this will not be in your child's best interests as it can affect your child's care both now and in the future.

Please note:

- An LP is the only way to confirm a case of meningitis
- If meningitis is present, but no LP has been done, your Doctor will not have the complete information needed to guide both the antibiotics to be used and the duration of antibiotics needed to successfully treat the meningitis.
- If meningitis is never confirmed by LP it can sometimes be more difficult to access the appropriate follow up care for your child.

Please consider this information carefully and discuss it with your medical team.