

Lumbar drains



Information for patients

Neurosurgery



In hospital and in the community

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Why do I need drainage of my cerebrospinal fluid (CSF)?

The brain and spinal cord are bathed in clear fluid like a baby in the womb. This cerebrospinal fluid (CSF) helps protect and cushion the brain and spinal cord. The fluid is under a positive pressure, i.e. there is a tendency to leak fluid out when there has been a breach in the dura (canvas) covering the brain/spinal cord. This means that in some neurosurgery operations which involve opening the dura, your surgeon may want to drain CSF for a period of time. Draining the CSF helps the surgical wound to heal and reduces pressure on the wound site.

How is the CSF drained?

The usual method for CSF drainage is to insert a lumbar drain into the CSF compartment at the base of your back. The lumbar drain is a small flexible tube that is connected to drainage bag through a drainage system at the bedside.



Lumbar drain bag

How long is a lumbar drain kept in for?

A lumbar drain is usually kept in for about five days but can be kept in as long as 10 days.

Can I go home with a lumbar drain in?

No. The lumbar drain needs particular care so it is important that you are monitored carefully by ward staff whilst the lumbar drain is in place.

How is the lumbar drain inserted?

The lumbar drain may be inserted while you are asleep/under general anaesthetic in the operating theatre. Sometimes it may be inserted with you awake on the ward, depending on the circumstances. When done on the ward, the procedure is as follows:

- You will be asked to sit in a special chair or lie down on one side of the bed.
- The area where the spinal needle is inserted will be marked with a marking pen.
- Your lower back will be cleaned with an antiseptic solution.
- Your back will then be covered by a sterile drape.
- A local anaesthetic will be injected in the skin. This may cause some discomfort for a few minutes.
- The spinal needle will then be inserted in the area marked and directed towards the spinal canal. If there is arthritis of the spine, the needle may have to be re-directed until the right space is reached.
- You will feel dull pressure as the needle is advanced. If you feel a sharp pain, you should let the doctor know so that more local anaesthetic can be given.
- Once the needle is in the right space, the small flexible lumbar drain catheter is inserted through the needle.

- The needle is then withdrawn. The catheter usually has a fine wire within its cavity (which gives it some firmness which helps with the insertion of the catheter). This wire is then withdrawn.
- The catheter is held to the lower back with a sterile adhesive dressing. Before the sterile adhesive bandage is applied, the doctor may use a stitch and some glue to ensure the drain stays in place.

What happens when the lumbar drain is removed?

The lumbar drain is easily removed once the sticky adhesive dressing is removed. After a lumbar drain is pulled out, CSF can continue to leak from the small hole in the skin left by the tube, a simple stitch is placed in the skin to close the wound under local anaesthetic. This stitch can be removed after a week.

Are there any precautions I should take when the lumbar drain is in?

It is important to maintain good hand hygiene whilst you have a lumbar drain. This is to prevent contamination of the drain tubing.

You should take particular care when going to the toilet to avoid the drain tubing from accidentally dropping into the toilet bowl. You should also make sure that the tubing doesn't get splashed with toilet contents as this could cause a serious drain infection leading to meningitis.

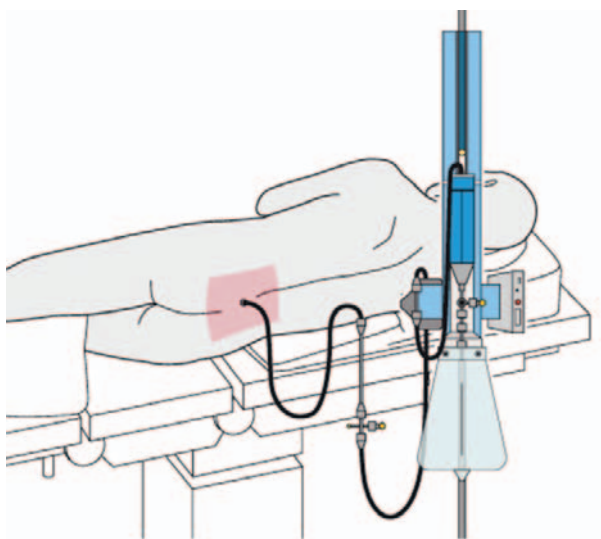
What is the lumbar drain connected to and how does it drain?

There are three methods by which the lumbar drain can be used to drain CSF.

- The usual and simplest method is directly into a drainage bag where the bag is pinned to your shoulder. This simple method

means that you can get in and out of bed and walk around without having to worry about calling a nurse or being connected to a system on a stand. However, the difficulty with this method is that overdrainage can easily occur. In particular the drainage bag can fill up and become heavier, and in turn, slide down from your shoulder. The best way to set this up is to have the top of the drainage bag pinned using a safety pin to a firm bra strap for women or to the firm collar of a traditional (old) shirt. The nurse can do this for you.

- If you are struggling to tolerate the simple drainage method described above, due to problems with overdraining and headaches, then the lumbar drain can be connected to a more complicated manometer system instead. The disadvantage of this method however is that to change your position, for instance, from lying to standing, or to go to the toilet, you will need to call the nurse first, so that the drain can be turned off.



Lumbar drain connected to a manometer

- A third method that can sometimes be used involves connecting the lumbar drain to a pump system where a small amount of CSF fluid is drained every hour. The drain is then kept on a stand. There are usually no worries about having to turn on or off the drain. This method is known as 'volume-dependent drainage' as compared to the other two methods which are known as 'pressure dependent drainage'.

What are the possible lumbar drain side effects and risks?

Infection: There is a 3% to 4% risk of infection with this procedure, despite all safety measures. The infection, meningitis, can be serious, but is usually treatable with a course of intravenous antibiotics. The doctor or nurse practitioner will take a CSF sample on a regular basis to have the CSF tested to ensure that meningitis is not starting to develop.

Leg or back pain: Occasionally, the spinal needle or catheter can touch a nerve root in the lumbar space, in particular when the drain is being inserted. This may cause a brief shooting pain down the back or leg. Moving the body to a different position usually alleviates the pain. This does not usually cause any lasting damage to the nerve root.

Low pressure headache: If the lumbar drain overdrains, i.e. too much CSF is drained, you may develop a headache, this will get worse when sitting or standing. Sometimes this may be associated with dizziness, light-headedness, or vertigo. Options for the ward staff include checking the drain is ideally set up (i.e. right position on your shoulder and bag isn't full); turning the drain off for a period; changing to a manometer-based system and increasing the pressure setting of the drain.

Blood clot inside the head 'subdural haematoma': Very rarely, the extent of CSF overdrainage may be sufficient to result in a blood clot inside the head that may or may not require surgical drainage.

Spinal fluid leak: Rarely, spinal fluid may leak around the catheter and its dressing. If it leaks onto a non-sterile area, the ward staff may decide to remove the catheter. Depending on whether your consultant thinks that further CSF drainage is required or not you may require a further drain insertion. Spinal fluid leakage may also occur within one to two days of removal of the drain, even when a stitch has been placed at the exit site. Spinal fluid leakage is important because it can increase the risk of infection/meningitis.

Retained piece of lumbar drain: Rarely, a small piece of the lumbar drain can be broken off during insertion. If this happens, a CT scan of your lumbar spine would be performed. If there were to be any concerns about infection in the CSF at any point, the retained piece would need to be removed from your back surgically.

When do I alert the doctor or nurse?

You should let the doctor or nurse know immediately if you:

- Develop a fever, severe headache, nausea or vomiting
- Feel headachy, dizzy or light-headed when you sit or stand
- Notice the lumbar drain tube or system gets disconnected
- Notice the presence of fluid in the bed, on your sheets or a leak from your lower back



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