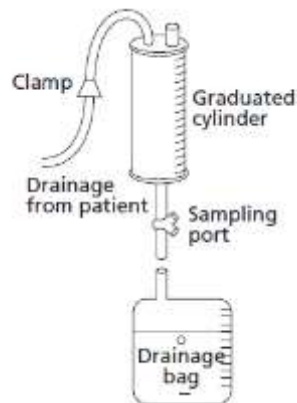


External ventricular drainage: information for families

External ventricular drainage (EVD) is a temporary method of draining cerebrospinal fluid (CSF) from the ventricles in the brain. The brain and spinal cord are surrounded by CSF, which helps to protect them. The areas in the brain that contain this fluid are called ventricles. This information sheet from Great Ormond Street Hospital (GOSH) explains external ventricular drainage and tells you what to expect when your child has this procedure. If you have any questions, please telephone Koala Ward on 020 7829 8826 or the Neurosurgical Nurse Practitioners on 020 7405 9200 ext 1612.

The external ventricular drainage (EVD) system uses a catheter (a thin, plastic tube), which is placed in the ventricle of the brain. This is connected to a drainage system outside the body.



The drainage system works by using gravity. This means the amount of CSF that can drain away depends on the position of the drip chamber or cylinder beneath the ventricles.

A lumbar drain works in exactly the same way and is used particularly after spinal surgery. It diverts fluid away from the operation site, which allows the wound to heal without the risk of CSF leaking out.

Why does my child need it?

There are many reasons for using external ventricular drainage (EVD). These include:

- reducing the pressure inside the brain caused by a build-up of CSF. This can result from a

temporary blockage or abnormal flow of CSF within the brain

- diverting infected CSF from the brain and giving antibiotics directly into the CSF to treat the infection
- draining excess fluid and/or blood if a child has had brain surgery or has experienced a bleed into their brain

How is the drain inserted?

The drain will be inserted in an operation under general anaesthetic, lasting between one and two hours. The surgeon will feed the drainage tube under your child's skin to the exit site. This can be on your child's head, neck or tummy. Where possible, the surgeon will discuss the exit site with you before the operation.

Before the operation, the surgeon will visit you to explain the operation in more detail, discuss any worries you may have and ask you to sign a consent form giving permission for your child to have the operation. If your child has any medical problems, like allergies, please tell the doctors about these.

What are the risks?

Healthy children usually cope well with the anaesthetic, but the risk increases if your child has other problems. There is a risk of infection with EVD but this will be minimised by using gloves and sterile equipment whenever a nurse or doctor has to open the system.

What happens afterwards?

Your child will return to the ward to recover from the anaesthetic. They will have a light dressing where the catheter was inserted, and another light dressing on the exit site. The nurses will set up the drainage system and explain in detail how it works. Please do not try to set it up yourself.

While your child is having EVD, the nurses will be monitoring them closely. They will need to take regular measurements of the amount of CSF draining away and record this in your child's medical record. If too much CSF drains away, your child will become pale and clammy, may vomit and could become sleepy.

If your child starts to cry, this can increase pressure in the head and you must clamp the tube immediately to prevent too much CSF draining away. You should also clamp the tube immediately if your child changes position, for instance, if they sit or stand up or lie down. Once you have clamped the tube, please call the nurse so that they can reposition the drain. Do not unclamp the tube yourself.

The tubing can easily become disconnected, which would allow the CSF to drain away at too fast a rate. This is less likely to happen if the tube and drainage system are out of your child's reach at all times. If the tubing becomes disconnected, please call a nurse immediately.

If the doctors suspect that your child has an infection, they may ask for samples of CSF to send for testing in the laboratories. Samples are taken through the port on the tubing. They will also use

the port to give your child medications into the CSF.

The nurses on the ward will encourage you to look after your child as much as you feel able. This can be daunting, especially while they are connected to the drainage system, but it will become easier with time. If you are worried, please talk to the nurses.

How long will the EVD last?

This varies from child to child, depending on the reason why EVD was needed in the first place. However, it is a temporary method of draining CSF and is rarely used for more than 14 days. Your child will need to stay in hospital until the drainage system is removed.

If your child needs ventricular drainage for a longer period of time, another method may be suggested. The doctors will explain this in more detail if it is likely.

How is the EVD removed?

The catheter in the ventricle is removed in an operation under general anaesthetic, lasting half an hour to an hour. In some situations, it is removed on the ward without an operation. The drainage bag and long tube are clamped and removed on the ward before the operation. Both the operation site and the exit site will be covered in a light dressing for the first few days after the operation.

Are there any long-term effects of having EVD?

There are no long-term effects of having EVD, other than a small scar where the catheter was inserted and another small scar at the exit site. These will fade in time. Depending on the reason for the EVD, your child may need a permanent system called a shunt. The nurses and doctors caring for your child will explain this to you if this is likely.