

# Endoscopic Third Ventriculostomy

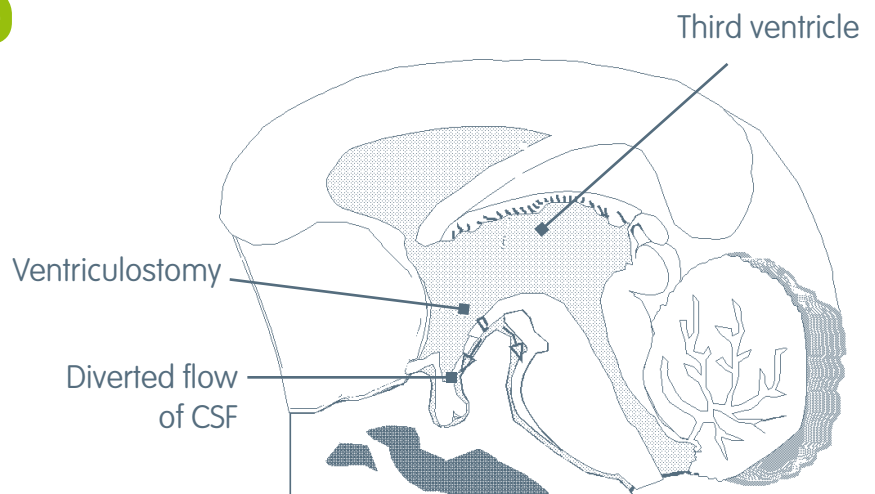
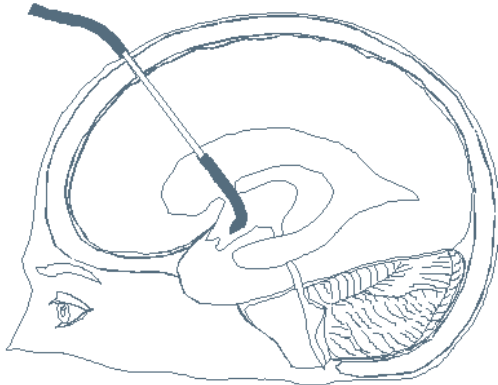
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**Endoscopic third ventriculostomy (ETV) is a procedure used to treat hydrocephalus, as an alternative to a shunt.**

with special thanks to:- **Conor Mallucci, Consultant Neurosurgeon** for his help in creating this information sheet.

## Third ventriculostomy procedure

Endoscope



The procedure was attempted years ago, before shunts were invented. A man called Dandy performed it as an open operation in the early twentieth century. But basic endoscopic attempts with primitive endoscopes even preceded this. It was always a logical way to try and treat hydrocephalus. Modern equipment to carry out ETV didn't exist until about twenty years ago, so it is only now that surgeons are able to review the procedure, and look at success rates and possible complications.

Hydrocephalus is a group of conditions with different causes, and the treatment should naturally select itself depending on the cause.

Traditionally surgeons have used shunts to drain the cerebral spinal fluid (CSF) from the ventricles in the brain to another part of the body, and this is still the main method of treatment.

Third ventriculostomy, on the other hand, does the

opposite to a shunt. Instead of draining the CSF away, it keeps it within the brain and spinal cord.

The neurosurgeon makes a hole in the thin membrane at the base of the third ventricle, which allows the fluid into the area that lines the brain and the spinal cord called the sub arachnoid space. Once the fluid has drained into this space it can be absorbed.

The ETV technique is performed via a hole similar to that of a shunt, usually at the front of the head, just behind the hairline, using an endoscope of between 2 and 5mm in diameter.

This is a beautiful technique, which drains the CSF more naturally, but unfortunately this is only a solution for less than a quarter of all patients.

The patients for whom ETV is going to work well are people who have pure obstructions within the brain such as aqueduct stenosis, or patients who have tumours.

A second set of people who respond well are those who have had shunts for many years and have developed an obstructive form of hydrocephalus. An MRI scan will show if the patient has a blockage of the CSF pathway in their brain.

The success of ETV procedures depends on the experience of the surgeon and most importantly, the patient who is selected.

If patients are carefully chosen, the success rate for pure obstructive hydrocephalus in new patients is around 70 per cent. The failure rate is highest in the first 2 to 3 months, and if it doesn't work then a shunt can be inserted.

If the ETV has worked beyond those initial few months, then it is more likely to stay working. But it is important that patients are aware that **the procedure isn't a cure for hydrocephalus, it is an alternative treatment. If a child or adult shows signs of raised pressure i.e similar symptoms to shunt malfunction, the possibility of a failed ETV must be considered even if it is some years since the original procedure and families must not delay in seeking medical help.**

There is currently an international study looking at the success rates of third ventriculostomy in the under ones, because it is felt that in these children, despite the anatomy being suitable, the success rate isn't as high as later on.

This is possibly because the child's brain and skull is not fully formed, and the pressures generated within the brain aren't high enough to keep the third ventriculostomy open.

Many neurosurgeons tend to offer third ventriculostomy in any child who has purely obstructive hydrocephalus, but make the parents aware that success rates are probably lower in newborn children than they are later on in life.

If patients are suitable for a third ventriculostomy, then there are several advantages to the procedure over shunts. Firstly the infection rate, at two per cent, is very low. The other main advantage is that there are not over-drainage problems, which can lead to headaches, because it is a natural way of draining the CSF.

So while shunts still remain the mainstay of hydrocephalus treatment, third ventriculostomy is a complementary procedure suitable for a group of patients, and remains a useful adjunct for patients who have shunt problems or blockages later in life."

## Further information

For further information on Endoscopic Third Ventriculostomy please contact the Helpline on 0845 450 7755.

## Link magazine

The essential magazine for people with hydrocephalus and spina bifida.

Link is published quarterly (Winter, Spring, Summer and Autumn) and is packed with the latest news, events and issues for individuals, carers and people living with hydrocephalus and spina bifida. To subscribe contact **ASBAH's Helpline 0845 450 7755** email: [helpline@asbah.org](mailto:helpline@asbah.org) or visit our web site: [www.asbah.org](http://www.asbah.org) and click on the publications page.



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This information has been produced by ASBAH's health advisers and approved by ASBAH's Medical Advisory Committee of senior medical professionals.