IIHUK
Idiopathic Intracranial Hypertension

Shunts and IIH

What is Idiopathic Intracranial Hypertension?

Idiopathic Intracranial Hypertension (IIH) is a condition where the cerebrospinal fluid (CSF) builds up around the brain.

IIH has been known by other names such as Benign Intracranial Hypertension or Pseudotumour Cerebri. It is a condition with an unknown cause or causes.

When the brain pressure is high, the majority of people will have eye (optic) nerve swelling called papilloedema. There is a rare type of IIH where there is no papilloedema called Idiopathic Intracranial Hypertension without papilloedema (IIHWOP). See the IIHWOP information leaflet.

A surgical treatment called shunt surgery may be recommended by your doctors. This happens to less than one in ten people with IIH. This leaflet will give you information about shunts.

What is a shunt?

A shunt is a thin tube (or catheter) that runs from one part of your body, for example the brain (ventricular shunt) or from around the spinal cord near the bottom of yourback (lumbar shunt). The end of the tube is placed in another part of the body where the brain fluid (CSF) will be absorbed, most commonly the abdomen.

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Why are shunts used in IIH?

Shunts are currently the most popular emergency surgery for those with IIH who have sight threatening/blinding disease. A shunt immediately reduces the brain pressure.

Is there an alternative to shunts in eyesight threatening IIH?

Yes, in some centers, optic nerve sheath fenestration is used to prevent further blindness from IIH. For further information, see the optic nerve sheath fenestrationand IIH leaflet.

Will my eyesight improve following the shunt surgery?

The shunt is to protect the eyesight from getting worse in IIH. For some the eyesight does improve and for others it stays the same. For a few people the eyesight may continue to get worse after the surgery. If this is happening, immediately contact your doctor to be assessed by an eye doctor (Ophthalmologist).

Are all shunts the same?

There are a number of different types of shunt. The most common shunts in IIH areventriculoperitoneal and lumboperitoneal shunts or VP shunt and LP shunts for short. The leaflet will give you more information about these.

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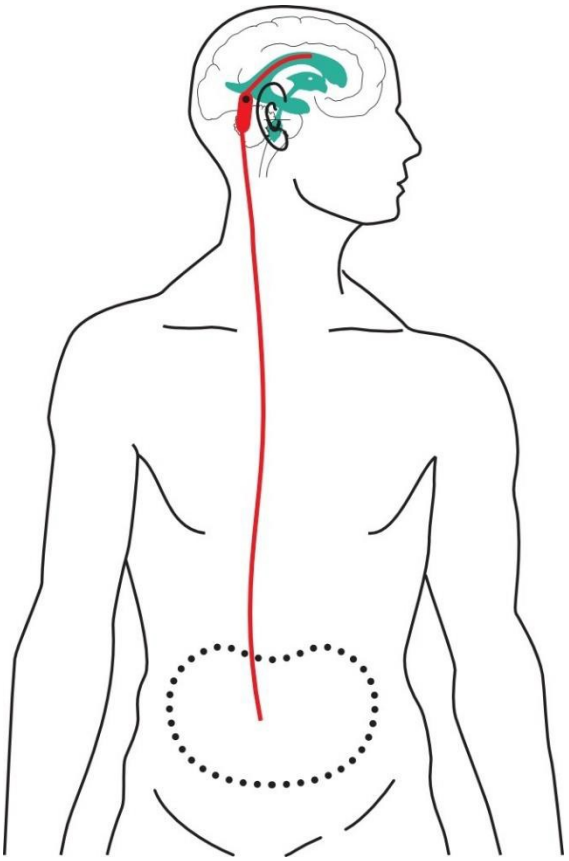
What is a ventriculoperitoneal or VP shunt?

A VP shunt is a device that is made up of tubing and a valve. The valve opens when extra pressure builds up in the brain. The excess fluid is safely drained through the tube into the peritoneal cavity or abdomen. This is the commonest shunt performed in the United Kingdom.



In some cases, instead of the abdomen, the tube is placed in the space around the lungs called pleura (Ventriculo-pleural shunt) or in a chamber of the heart called atrium (Ventriculo-Atrial or VAshunt).

What types of valves are there?

The valve controls the flow of fluid from the brain. There are several types of valve,which they fall in two broad categories.

1. **Fixed- pressure valves** - The valve has a fixed pressure setting and it opens when the fluid pressure exceeds the setting.
2. **Adjustable (programmable) valves** - The valve has several pressure settings that can be adjusted after surgery, remotely throughthe skin.

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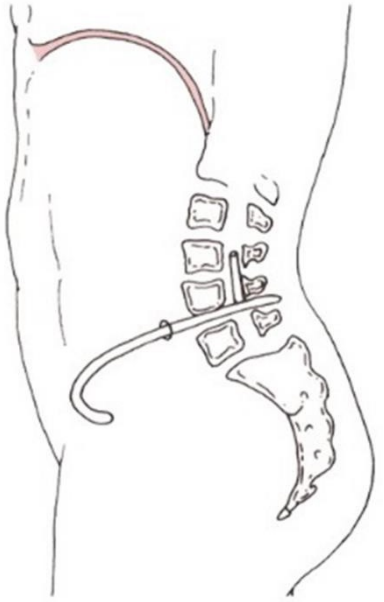
How is a VP shunt put in?

A small cut is made in the scalp and a small hole is drilled into the skull beneath the cut. A small tube (catheter) is placed into the brain to drain the fluid. It is connected to the valve and a second catheter is then connected to the other end of the valve and tunneled under the skin, from behind the ear, down the neck and chest, and ends in the abdomen. Another cut is made in the abdomen to check the placement of the end of the catheter. The cuts will be closed with sutures (stiches)or staples.

What is a lumboperitoneal or LP shunt?

An LP shunt is a device that is made up of tubing and a valve. The excess fluid is safely drained from the back area around the bottom of your spine through the tube into the abdomen area. In general VP shunts are preferred to LP shunts in IIH. Sometimes an LP shunt will not have a valve.



How is an LP shunt put in?

A small cut is made in the lower spine area and a small tube (catheter) is placed between the back bones into an area around the spinal cord called the subarachnoid cavity to drain the fluid. It is connected to the valve (if used) and a second catheter is then connected to the other end of the valve and tunneled underthe skin around the waist. Another cut is made in the abdomen to check the placement of the end of the catheter. The cuts will be closed with sutures (stiches)or staples.

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What do I need to do before the surgery?

You will have a preoperative assessment and a chance to talk to the surgical team to discuss the risks and benefits of the surgery. Please let the surgical team know all the tablets you are on. It helps to bring a list. Do let them know any allergies you have.

Your surgical team will tell you when to stop eating and drinking before your surgery.

Will I have an anaesthetic for the surgery?

Yes, all shunt surgery is performed in an operating room using sterile instruments under general anaesthetic. An anaesthetic is medicine that stops or greatly decreases pain and other sensations you may feel when undergoing surgery.

Can other people see the VP shunt?

No. The valve can be felt underneath the skin, often behind the ear, as a bump, but it is not often visible due to hair over it. You may be able to feel your shunt under the skin.

What are the complications?

As with any surgery there are risks and complications. The risks here have been taken from many medical articles and are for all types of shunts (VP and LP shunts). There are other specific complications if the shunt end is placed in the pleura or heart. Please ask your surgeon about these.

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Common risks and complications

- The shunt may block, become disconnected or not work properly.This may require further revision surgery.
- Infection, requiring antibiotics and further treatment.
- Minor pain, bruising and/or infection from Intravenous cannula site. This may require treatment with antibiotics.
- Bleeding can occur and may require a return to the operating room. Bleeding is more common if you have been taking blood thinning drugs such as Warfarin, Aspirin, Clopidogrel, Dipyridamole or Apixaban.

Uncommon risks and complications

- The shunt may not be placed in the correct position. This mayrequire further surgery to re-position the shunt.
- The shunt may become infected requiring antibiotics and for some removal.
- Abnormal sensations such as pins and needles, numbness or pain may occur from the wound after the operation. This may be temporary or permanent.
- Fluid leakage from around the brain or spine may occur through the wound after the operation. This may require furthersurgery.
- Small areas of the lung may collapse, increasing the risk of chest infection. This may need antibiotics and physiotherapy.

- Increase risk in obese people of wound infection, chest infection, heart and lung complications, and thrombosis.
- Blood clot in the leg (Deep Vein Thrombus (DVT)) causing painand swelling. In rare cases part of the clot may break off and go to the lungs.

Rare risks and complications

- Heart attack due to the strain on the heart.
- Stroke or stroke like complications may occur causing neurological deficits such as weakness in the face, arms and legs. This could be temporary or permanent.
- Epilepsy which may require medication. This condition may be temporary or permanent.
- Injury to the liver, bowel, lung or heart due to the surgical tunneling process. This may require further surgery and increase your time in hospital.
- Death as a result of this procedure is very rare.

How long do I have to stay in hospital when I have a shunt put it?

Normally for shunt surgery 1-3 days in hospital is normal. However, if this is when the diagnosis of IIH is made and as an emergency to preserve eyesight then peopleare usually in hospital longer (about 8-9 days on the NHS).

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How will I feel as I recover?

You may feel tired and anxious when you first go home. This is normal. Rest during the day should help. It is normal to experience headaches. You will have been prescribed short-term painkillers to take at home.

Increase the amount of physical activity gradually when you feel able to.

Are there any warning symptoms that may mean the shunt is notworking or has a problem?

- New headache
- Vomiting
- Being drowsy or unsteady
- New double or blurred vision
- New sensitivity to light (photophobia), increased temperature (fever), and/or swelling or redness along the shunt tract could indicate a shunt infection.
- New tummy/abdominal swelling or pain, difficulty breathing, or fluid leak from the abdominal wound may be related to the bottom(peritoneal) end of the shunt.

What should I do if I think I have a shunt infection or shunt blockage?

After your surgery, the surgeon will have given you advice on this problem and youmay have been given a card to carry in your wallet/purse.

Often there is an advice line or specialist nurse to contact in routine hours. Outside normal hours, attending accident and emergency and letting the health care team know you have a shunt on arrival.

How long do I need to take off work after having a shunt put in?

Everyone is different. It is usual to have between two to four weeks off work torecover from shunt surgery. This will depend on the type of job you do and yourcircumstances. Discuss with your medical team to work out the best time for you.

Will a shunt affect my job/work?

The shunt is underneath the skin and it is difficult for others to see. It should not affect your concentration, performance or memory.

There are a few professions that exclude people with shunts, such as the UK armedforces, due to the demands and unpredictability of the job.

Does a shunt last forever?

A shunt may not last forever. It may block or become infected at any time requiring further surgery. Over time the plastic tube can break down, or occasionally the valve or tubing may block. If your IIH is in remission you may not need another shunt putting in.

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What happens if I have a head injury after a shunt?

It would be important to let the medical team know you have a shunt if you have a head injury. This will help them assess and treat you. We would recommend normal post-head injury procedures.

Can I drive after having a shunt operation?

If you drive in the United Kingdom you will have to notify the DVLA(https://www.gov.uk/government/organisations/driver-and-vehicle-licensing-agency) of your operation if it is a VP shunt. UK guidance states that patients mustnot drive for six months after an operation involving the ventricular (head) end ofthe shunt.

If your VP shunt needs revising, there are no driving restrictions if only the abdominal part of the shunt is revised.

Can I fly after a shunt surgery?

Yes. There are no reports of problems with flying after shunt surgery.

Can I have sex after my shunt surgery?

Yes, there are no restrictions on having sex after a shunt surgery. If the lower end of the shunt has been placed in the abdominal cavity it may be more comfortable to wait a few weeks until the small wounds have healed.

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Can I get pregnant after having a shunt?

Yes, there are no restrictions on becoming pregnant after a shunt surgery. There is evidence that the majority of people with shunts (for various reasons) can have normal deliveries. There is no increased risk of fetal abnormalities with having a shunt.

Should I avoid any sports if I have a shunt?

Generally, no but we would recommend against sports that are associated with repeated injury to the head like boxing.

Some concern around scuba diving has previously been discussed, but there are no reports of any complications following this sport. Speak to your doctor if you wishto do these sports for further advice.

Write notes for your appointment here:

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Where can I get more information?

IIH UK

website

www.iih.org.uk

Life with a cerebrospinal fluid shunt https://www.bmj.com/content/355/bmj.i5209

UK Driver and Vehicle Licensing Agency (DVLA) https://www.gov.uk/government/organisations/driver-and-vehicle-licensing-agency

Society of British Neurological Surgeonswww.sbns.org.uk

A team of people contributed to this booklet. It was drafted by S. Mollan. Critically reviewed by G. Tsermoulas. It was assessed in the draft stage by the ophthalmology nursing team at University Hospitals Birmingham (UHB). It was reviewed by a group of patients who have IIH and assessed by friends and family that attended the Joint Idiopathic Intracranial Hypertension clinic at UHB. It was reviewed by the trustees of IIHUK. S. Mollan is responsiblefor the final version. The views expressed in this booklet are of the authors and not their employers or other organisations.

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