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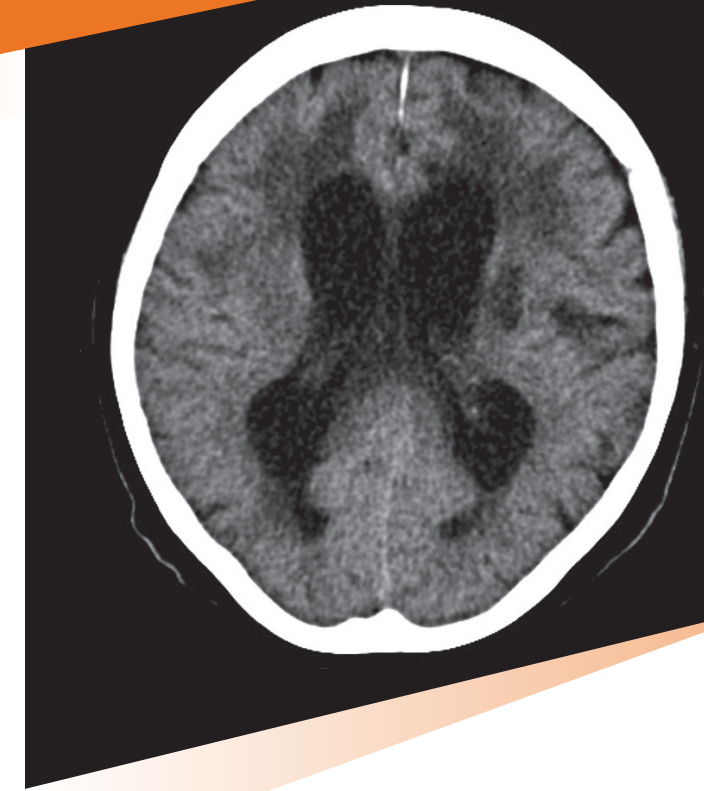


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**National Neuroscience Institute (NNI)**  
operates out of seven hospitals in Singapore:  
CGH, KKH, KTPH, SKH, SGH, TTSH, WH



## Neurosurgery Department



# Adult Hydrocephalus

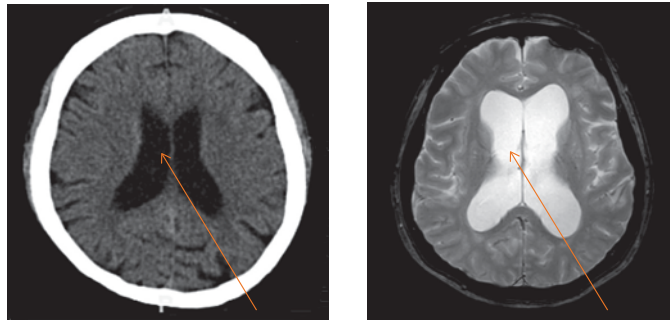
Brochure content serves as a guide only  
Speak to your doctor for more details

Updated March 2024

## Understanding Adult Hydrocephalus

Cerebrospinal fluid (CSF) is produced by and flows through the brain and spinal cord. It protects and provides nutrients to the brain and spinal cord. CSF is absorbed into the bloodstream.

Hydrocephalus is a condition where there is excessive CSF in the brain. When the production and absorption of CSF are affected, the cavities (ventricles) of the brain enlarge, increasing brain pressure (Figure 1).



Normal ventricles

Enlarged ventricles

Figure 1  
Comparison between normal ventricles and enlarged ventricles

The cause of hydrocephalus is usually unknown but could develop due to:

- Injury or trauma to the head or brain
- Infection
- Bleeding
- Tumour

## Signs & Symptoms of Hydrocephalus

- Headache
- Blurred/double vision
- Nausea and/or vomiting
- Drowsiness
- Problems with thinking and memory
- Balancing and/or walking issues
- Inability to control bladder

## Diagnosing Hydrocephalus

An examination and a Computed Tomography (CT) or Magnetic Resonance Imaging (MRI) scan are needed to confirm the diagnosis.

## Treating Hydrocephalus

Treatment depends mostly on the type of hydrocephalus and the patient's condition.

### 1. External Ventricular Drain (EVD)

A drain is temporarily inserted to remove excess CSF and reduce brain pressure.

### 2. Shunt

A permanent tube (shunt) may be inserted to direct CSF from the brain to other parts of the body like the abdomen for absorption (Figure 2).

Though uncommon, shunt complications include:

- Infection
- Bleeding
- Stroke
- Shunt malfunction
- Flow obstruction
- Over or under-draining of CSF

Generally, patients are on long-term monitoring but can go about their daily activities.

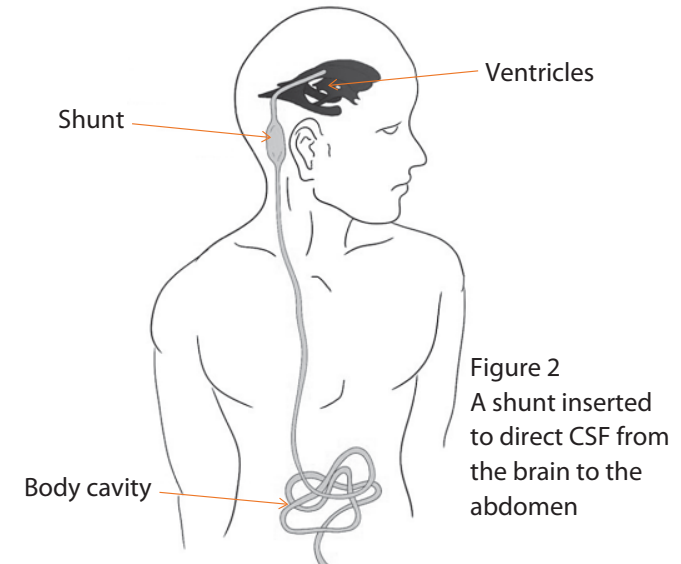


Figure 2  
A shunt inserted to direct CSF from the brain to the abdomen

### 3. Endoscopic Third Ventriculostomy (ETV)

Procedure to open a path in the brain cavities for CSF to flow.

## Understanding Normal Pressure Hydrocephalus

Normal Pressure Hydrocephalus (NPH) is seen in older adults and occurs when CSF builds up slowly in the brain cavities. Brain enlargement takes place over time and common signs and symptoms include:

- Difficulty walking, resulting in falls and head injuries
- Memory issues
- Inability to control bladder

Not all symptoms are present at the same time. Sometimes, only one or two show up.

Patients with NPH may respond to shunt treatment. Speak to your doctor for details on how to manage NPH.