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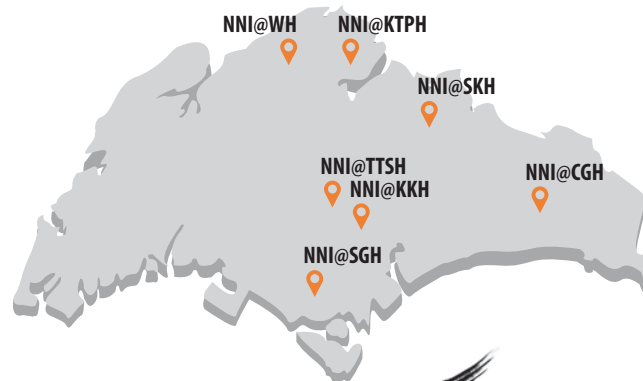
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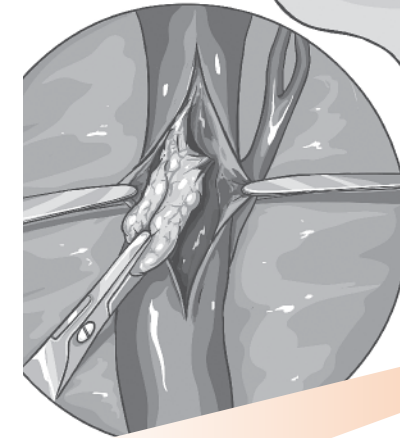


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**National Neuroscience Institute (NNI)**  
operates out of seven hospitals in Singapore:  
CGH, KKH, KTPH, SKH, SGH, TTSH, WH



## Neurosurgery Department



# Carotid Endarterectomy

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

Updated March 2024



## Understanding Carotid Endarterectomy (CEA)

A carotid endarterectomy (CEA) is a surgical procedure to reduce the risk of ischaemic stroke.

An ischaemic stroke or “brain attack” may occur when major arteries in the neck (carotid arteries) are narrowed by fatty deposits (plaques).

The narrowing of the carotid arteries can damage the brain when blood flow is reduced or when fatty deposits break off and block arteries in the brain or eye.

CEA is recommended if there is severe narrowing in the carotid artery with or without the following symptoms:

- Sudden numbness, weakness or paralysis of the face, arm or leg on one side of the body
- Sudden transient blindness and blurring of vision for one eye (amaurosis fugax)
- Sudden difficulty in talking or understanding speech

Tests to confirm the degree of blockage of the major arteries in the neck will be ordered.

## Frequently Asked Questions

### How should I prepare for the procedure?

- You will be assessed by an anaesthetist to see if you are fit to undergo surgery. Routine blood, radiological investigations and an electrocardiography (ECG) used to measure heart activity, will be done.
- You can continue your blood thinning medication. Your doctor will advise when you should stop taking the medication.
- Do not smoke before surgery to reduce the risks of blood clotting and chest infection.

### What to expect during the procedure?

- The procedure is usually performed under general anesthesia.
- An incision is made at the side of the neck to reach the affected artery.
- The artery is clamped to temporarily stop blood flow.
- An incision is made on the narrowed blood vessel, and the plaque is removed. The clamps are removed to restore blood flow to the brain.
- The vessel is sewed back. A shunt may be inserted to maintain blood flow to the brain during the process.
- The wound will be closed with absorbable stitches. Medical tape will be placed above the stitches to promote healing.
- The surgery usually lasts 3 to 4 hours.

### What happens after the procedure?

- The drain inserted during the surgery will be removed a day after.
- Patients will be monitored overnight in a high dependency unit and discharged within 3 to 5 days following surgery. No removal of suture is generally expected.
- Some pain may be expected near the wound at the neck; some may face difficulty swallowing during the first few days after surgery.
- Engaging in light activities may help speed up recovery and prevent complications.
- You will be asked to move your arms and legs and be examined by the medical team to make sure that no new stroke symptoms develop.

### What are the benefits, risks and limitations?

#### Benefits

- For suitable patients, CEA is more effective than medical management in reducing risk of stroke.

#### Risks

- Stroke occurs in 2-3% of patients with no pre-procedure symptoms; in 5-7% of patients with pre-procedure symptoms such as a mini-stroke.
- A heart attack may occur during the procedure; a detailed pre-surgery heart evaluation is required.
- Blood clot at the wound.
- Wound infection.
- Nerve impairment, affecting voice and tongue control.

#### Limitations

- Does not improve the outcome of a severe stroke if it is pre-existing.
- Post surgery, the fatty deposits (plaque) can return if the same conditions that caused it are present. Lifestyle and diet changes like keeping one's blood pressure and cholesterol under control are important.
- If surgery is not suitable or extremely high risks are involved, other options like carotid angioplasty and stenting (insertion of a metal mesh tube into the vessels to prevent narrowing) may be considered.