
Craniotomy

Summary

- A craniotomy is an operation to open the skull (cranium) in order to access the brain for surgical repair.
 - There are many different types of brain surgery, but the recovery process following craniotomy is much the same.
 - Recovery depends on many factors, including the type and severity of brain injury, the type of surgery and whether or not there were neurological deficits before surgery.
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Like any other part of the body, the brain is susceptible to bleeding, infection, trauma and other forms of damage. This damage or alteration in brain function sometimes requires brain surgery to diagnose or treat these problems. A craniotomy is an operation to open the skull (cranium) in order to access the brain for surgical repair. There are many different types of brain surgery, but the recovery process following craniotomy is much the same in most cases.

Conditions requiring a craniotomy

Some of the conditions that require craniotomy and surgical repair include:

- Brain cancers
- Infections
- Abscesses
- Cerebral oedema (swelling of the brain)
- Bleeding within the skull.

Medical issues to consider

If left untreated, any condition requiring brain surgery can cause further damage to the brain. Pressure on the brain can be harmful as it forces the brain against the skull, causing damage as well as hampering the brain's ability to function properly. This drop in function can lead to long-lasting brain damage or even death.

Procedure for a craniotomy

The general procedure for craniotomy includes the following steps.

- The hair on your scalp is shaved.
 - You are given a general anaesthetic.
 - Your head is placed on a round or horseshoe-shaped headrest so that the area where the brain injury is thought to lie is easily accessible. If head movement must be minimised, your head is clamped into place with a head pin fixing device.
 - Through preoperative imaging, the neurosurgeon determines the most appropriate site for the craniotomy. The procedure begins by first cutting through the scalp.
 - Small holes (burr holes) are drilled into the exposed skull with an instrument called a perforator.
 - An instrument called a craniotome is used to cut from one burr hole to the next, creating a removable bone flap.
 - The membrane covering the brain is opened, usually as a flap.
 - The brain injury or disease is operated on – for example, ruptured blood vessels are repaired, or the blood clot or tumour is removed.
 - After the operation is finished, the piece of excised bone is replaced, the muscle and skin are stitched up and a drain is placed inside the brain to remove any excess blood left from the surgery.
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- A craniotomy can take about two and a half hours.

Immediately after a craniotomy

After the operation, you can expect the following.

- You are monitored closely by hospital staff, probably in intensive care.
- The breathing tube will remain in place until you have fully recovered from the anaesthetic.
- Your head is elevated to about 30 degrees to reduce the risk of intracranial (inside the skull) pressure.
- The wound is covered with a soft dressing.
- You are given pain medication as prescribed.
- The neurosurgeon tests regularly for any signs of brain damage – for example, they may examine your pupils with a flashlight or ask you simple questions.
- Your eyes may be swollen and bruised.
- Depending on the type of brain surgery you had, you will need to take medications. Steroid medication (to control swelling) and anticonvulsant medication (to prevent seizures) are commonly prescribed following craniotomy.
- You can expect to stay in hospital for between five days and two weeks. The length of stay depends on many factors, such as the type of surgery you had and whether or not you experienced complications or required further operations.
- Stitches (or staples) are usually removed about one week after surgery.

Complications from a craniotomy

Some of the possible complications of surgery can include:

- Allergic reaction to the anaesthetic
- Injury from the head pin fixing device
- Injury to facial muscle
- Injury to the sinuses
- Infection of the bone flap
- Seizures
- Bleeding
- Brain damage
- Brain swelling
- Stroke.

Taking care of yourself at home

Be guided by your doctor, but general suggestions include:

- If your doctor has prescribed medicines, make sure you take them strictly as directed.
- Alcohol could interact with your medications, so check with your doctor.
- There may be a depression in your skull where the bone flap was removed.
- Your wound may ache for a few days after the operation. You may experience itching as the skin heals.
- You may experience headaches for about two weeks.
- Your wound may have a small pocket of fluid beneath it for a while. This is normal and should disappear with time.
- The skin on one side of your wound may feel numb for some months.
- Expect to feel unusually tired – afternoon naps may help.
- You may return to work (for light duties only) after about six weeks. Keep in mind that you may have to wait about three months before you can drive your car again.
- Walking is a recommended form of exercise. You should wait at least three months before you return to gentle, non-contact sporting activities.

- Contact sports should be avoided for at least one year.
- Physiotherapy, occupational therapy and speech therapy can help you manage any neurological problems like clumsiness and speech problems. Usually, therapy is only needed if there were neurological problems before surgery.
- See your doctor immediately if you experience any signs of wound infection (such as redness or discharge), or if you have any other unusual symptoms such as severe headache, seizures, vomiting, confusion or chest pain.

Long-term outlook

Your recovery depends on various factors, including:

- The kind of brain injury you had
- How severe the injury was
- Complications of the injury
- The presence or absence of neurological problems
- The type of surgery you had
- Complications of the surgery
- Side effects or complications of postoperative treatments, such as radiotherapy
- Your age and general health, including other medical conditions you may have.

Other forms of treatment

Brain surgery is generally the first line of treatment for brain injuries and conditions. However, other forms of treatment may include, for example, radiation therapy and chemotherapy in the case of brain cancer.

Where to get help

- Your doctor
- Neurologist
- Neurosurgeon
- In an emergency, always call triple zero (000)

Things to remember

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- Recovery depends on many factors, including the type and severity of brain injury, the type of surgery and whether or not there were neurological deficits before surgery.

This page has been produced in consultation with and approved by:

Austin & Repatriation Medical Centre - Department of Neurosurgery

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