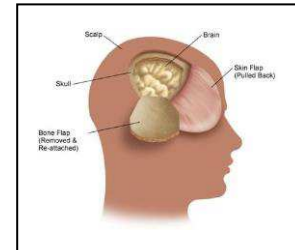


CRANIOTOMY

INDICATION FOR SURGERY

A craniotomy may be done to remove brain tumours, clip or repair an aneurysm, remove blood or blood clots from a leaking blood vessel, remove an arteriovenous malformation (AVM), drain a brain abscess, repair skull fractures, repair a tear in the membrane lining the brain (dura mater), relieve pressure within the brain (intracranial pressure) by removing damaged or swollen areas of the brain that may be caused by traumatic injury or stroke, treat epilepsy, implant stimulator devices to treat movement disorders such as Parkinson's disease or dystonia etc.



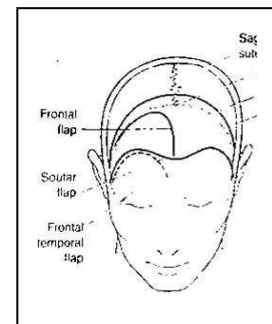
SURGICAL PROCEDURE

The procedure is essentially the removal of bone from the skull to expose the brain. Specialized tools are used to remove the section of bone called the bone flap. The bone flap is temporarily removed, then replaced after the brain surgery has been done.

Some craniotomy procedures may use the guidance of computers and imaging (magnetic resonance imaging [MRI] or computerized tomography [CT] scans) to reach the precise location within the brain that is to be treated. This technique requires the use of a frame placed onto the skull or a frameless system using superficially placed markers or landmarks on the scalp. When either of these imaging procedures is used along with the craniotomy procedure, it is called stereotactic craniotomy.

Prior to the surgery, the patient will be asked to remove any clothing, jewelry, or other objects that may interfere with the procedure. An intravenous (IV) line will be inserted in the patient's arm or hand, and a urinary catheter will be inserted to drain urine. The patient may also be given special medications to help with the surgery e.g. medications, anti-epileptic medications. The procedure will be performed under anesthesia and the patient will be positioned on the operating table in a manner that provides the best access to the side of the brain to be operated on. The patient's head will be held in place by a device which will be removed at the end of the surgery. The head will be shaved and the skin over the surgical site will be cleansed with an antiseptic solution. The bone flap will be removed and saved.

The dura mater (the thick outer covering of the brain directly underneath the bone) will be separated from the bone and carefully cut open to expose the brain. Excess fluid will be allowed to flow out of the brain, if needed. Microsurgical instruments, such as a surgical microscope to magnify the area being treated, may be used. This can enable the surgeon a better view of the brain structures and distinguish between abnormal tissue and healthy tissue. Tissue samples may be sent to the lab for testing. A device, such as a drain or a special type of monitor, may be placed in the brain tissue to measure the pressure inside the skull, or intracranial pressure (ICP). ICP is pressure created by the brain tissue, cerebral spinal fluid (CSF), and blood supply inside the closed skull.



Once the surgery is completed, the surgeon will suture (sew) the layers of tissue together. The bone flap will be reattached using plates and screws. The skin incision (scalp) will be closed with sutures or surgical staples. Occasionally the bone is left out to allow for brain swelling. If this is the case, the bone will be stored and replaced later.

RISKS

As with any surgical procedure, complications may occur. Brain surgery risk is tied to the specific location in the brain that the operation will affect, for example, memory problems, speech difficulty, paralysis, abnormal balance or coordination and coma. Some more general complications include, but are not limited to, infection, bleeding, blood clots, pneumonia (infection of the lungs), heart attack, unstable blood pressure, seizures, muscle weakness, brain swelling, leakage of spinal fluid (the fluid that surrounds and cushions the brain), risks associated with the use of general anaesthesia, death.

DISCHARGE AND HOME CARE

Patients will usually remain in hospital for about 5-7 days following surgery. During this time, the patient will be monitored and assessed with regards to the timing of discharge. Medications that may have been commenced for surgery (e.g. steroids) will gradually be reduced.

The patient MUST only take medication, including any painkillers as prescribed by the surgeon. Aspirin, ibuprofen, and some other medicines available from the pharmacy may cause bleeding. The patient should follow the diet as recommended by the surgeon.

It will take some time to feel normal. Activity should be increased gradually. The patient should take care when walking and use hand railings on stairways. The patient must NOT lift more than 10 kg for the first 2 months and refrain from bending at the waist as it puts pressure on the head. Do not drive or return to having sex until cleared by the physician/surgeon. The patient should get enough rest - sleep more at night, and take naps and rest periods during the day.

The patient must NOT drive without explicit permission from the surgeon. This can take from 6 weeks to six months.

WOUND CARE

The wound on the head will be closed with stitches/staples which will need to be removed after one week. This may be done in hospital or by the GP upon discharge. At home, the head/hair can be washed with mild shampoo and gently patted to dry. Swelling around the incision is normal. DO NOT put any creams or lotions on or around the incision. DO NOT use hair products with harsh chemicals (coloring, bleach, perms, or straighteners) for 3 to 4 weeks.

The patient should report any bloody, or clear, water-like drainage or separation of the wound edges to us as soon as noticed.

If there is any redness, tenderness, swelling or discharge of the wounds, see the GP immediately.

FOLLOW UP

Dr. Shanu Gambhir would like to see the patient six weeks after the surgery, unless otherwise discussed, for a post-operative review.