

Cranioplasty

What is a Cranioplasty?

A cranioplasty is a procedure to repair the defect in the skull, following a craniectomy. Craniectomy procedures are most commonly performed after a traumatic injury and is done to relieve the increased pressure in the brain. The bone covering will come from either your abdomen (Figure 1), where it was placed at the time of your craniectomy or a synthetic bone will be manufactured based on a high resolution CT scan of your brain to precisely fit the defect (Figure 2).

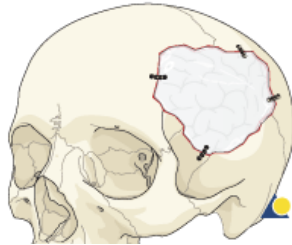


Figure 1

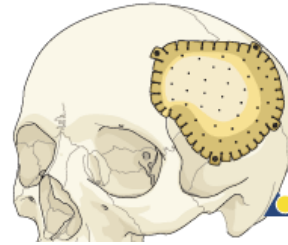


Figure 2

What happens during the procedure?

After you are put to sleep with general anesthesia, you are positioned on the operating room table with the side of the defect facing up. The incision is then marked, shaved, and cleaned. Using a scalpel, the previous incision is re-opened and the scalp is dissected away from the outer covering (dura) of the brain. If your bone flap is in your abdomen, that incision will then be reopened, the bone will be taken out, and incision will be closed. The bone is then replaced at the defect site and clipped back in place. Two drains will most likely be placed, one on top of the dura and one underneath the scalp to drain excess fluid and monitor the pressure in your brain. You will be taken out to recovery and then to the ICU overnight to be monitored. Once you are transferred out of the ICU, you will be encouraged to walk and will be evaluated by a physical therapist. Once you have been cleared, you will be able to go home. Your stitches or staples will be removed in 10-14 days.

How is the bone flap attached to the skull?

Typically the bone flap is reattached to the skull using titanium clamps (Figure 3 and 4). The number of clamps depends on the size of the bone flap. These clamps provide optimum stability and reliable fixation of the bone to the skull. It is MRI compatible and typically will not set metal detectors off. Sometimes the bone flap can shrink, if the space between the skull and the bone flap is wide, the area is filled in with a bone cement for a better cosmetic result. The bone cement is made of calcium phosphate and is gradually resorbed and replaced with bone during the healing process.



Figure 3

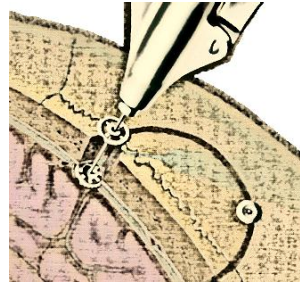


Figure 4

What are some of the risks related to the surgery?

The risks of the procedure include but are not limited to: medical complications including heart attack, stroke, blood clots, any operation close to the brain carries a small chance of a seizure occurring, especially during the first few days after surgery. There is a small risk of hemorrhage, implant loosening or breakage, failure of instrumentation, and wound breakdown. On occasion, this means that a patient has to be taken back to the operating room. There is a risk of infection which may occasionally require removal of the new implant to treat it.

How long is the hospital stay?

The hospital stay is generally about 2-3 nights.

What about rehabilitation or therapy?

Depending on the extent of your neurologic deficit you may need inpatient rehabilitation or home therapy. During your hospital stay you will be evaluated by physical therapy, they will make a decision based on your performance. If inpatient rehabilitation or home therapy is required, social work will arrange this during the discharge planning process.

When do my stitches/staples get removed?

Your staples should be removed about 10-14 days after surgery.

When can I wash my hair?

You can wash your hair 2 days following the surgery with a baby shampoo. Be sure to pat dry the incision. Do not use a blow dryer near the incision. It is okay to have your hair colored 4 weeks after surgery.

What can I expect after surgery?

- **Lethargy:** All patients are tired when they return home and need frequent rest during the day. Even simple activities of daily living such as showers may make you feel more tired. Though we do not want you to lie in bed all day, it is okay to rest numerous times throughout the day. It is important to walk as much as you can tolerate, remember one of the risks after surgery is clots to the legs. Staying in one spot for too long will increase this risk. Walking should start slowly at a comfortable distance and then gradually increase as tolerated. Remember to try not to overdo it, this will only set you back. Due to the overall tiredness, you may find yourself a little more irritated or aggravated with things than usual, this is normal and will get better.
- **Headaches:** It is normal to have headaches after surgery. These headaches should decrease over the next couple of weeks following the surgery. The headaches should respond to the pain medicine you received on discharge. Some patients find the headaches are worse towards the end of the day this is common and may be associated with increasing tiredness. You may also notice increased headaches with loud noises or stressful situations. In addition to the pain medicine, increasing your fluid intake will also help the headaches.
- **Soreness/Numbness:** It is normal for the incision to be sore for a few weeks after the surgery. The incision will start to itch shortly following surgery, this is a sign of healing. It is also normal to have some areas of

numbness around the incision because there are some sensory nerves that are cut with the incision. The numbness will sometimes take several months to improve. It is also normal for the numbness to increase during the first few weeks following surgery. As the nerves regenerate, some people may experience occasional shooting pain, dripping sensation, or tingling near the incision.

- **Swelling:** You may also notice some swelling or feeling of some fluid near the incision that seems to be worse in the morning and better throughout the day. This is normal and will gradually disappear over the next several weeks following surgery as you heal. If the swelling is substantial in the morning, it is recommended to add a few pillows at bedtime so you are sleeping at least at a 30 degree angle. It is normal to feel fluid move around the brain during the first few weeks. This occurs as the brain heals from surgery and is not something to worry about. You may also notice some swelling or bruising around your eyes, this will improve as you heal.
- **Memory/Concentration difficulties:** It is common to find that your memory is not normal and have difficulty concentrating on one specific thing for a long period of time. It is normal to have trouble reading for a length of time. This will improve as you heal.
- **Jaw pain:** If your incision is near the front your ear and above your jaw you may have some difficulty opening your mouth all the way. This will improve as you heal. You may also benefit by slowly stretching your mouth open and closed for 5 minutes periodically throughout the day.

When can I return to work?

The range of patient's being out of work is anywhere from 6-12 weeks. A lot of this will depend the type of job you have and how you are recovering. Some patients are able to return early on light duty with reduced hours. Remember, everyone heals differently. We will discuss the plan for return to work at your first postoperative visit.

What are some of my restrictions?

You will be given detailed discharge instructions outlining the dos and don'ts after surgery. A few of the main things are:

- **No Driving-** You are restricted from driving during the first month following surgery. If you are still taking seizure medication, you are restricted from driving until you are completely off.
- **No Lifting-** Lifting should be limited to less than 5lbs, this is about a gallon of milk.
- **No Alcohol-** We recommend avoiding alcohol during the early part of your recovery. Alcohol can affect how the seizure medications break down in your body and place you at a higher risk of seizures.
- **No Flying-** In most cases, it is okay to fly 6 weeks **after** your surgery.