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Craniosynostosis repair

Craniosynostosis repair is surgery to correct a problem that causes the bones of a child's skull to grow together (fuse) too early.

Description

This surgery is done in the operating room under general anesthesia. This means your child will be asleep and will not feel pain. Some or all of the hair will be shaved.

The standard surgery is called open repair. It includes these steps:

- The most common place for a surgical cut to be made is over the top of the head, from just above one ear to just above the other ear. The cut is usually wavy. Where the cut is made depends on the specific problem.
- A flap of skin, tissue, and muscle below the skin, and the tissue covering the bone are loosened and raised up so the surgeon can see the bone.
- A strip of bone is usually removed where two sutures are fused. This is called a strip craniectomy. Sometimes, wider pieces of bone must also be removed. This is called synostectomy. Parts of these bones may be changed or reshaped when they are removed. Then, they may be put back in place. Other times, they are not.
- Sometimes, bones that are left in place need to be shifted or moved.
- Sometimes, the bones around the eyes are cut and reshaped.
- Bones are fastened using small plates with screws that go into the skull. The plates and screws can be metal or a resorbable material (disappears over time). The plates may expand as the skull grows.

Surgery usually takes 3 to 7 hours. Your child might need (36 to 70%) to have a blood transfusion during or after surgery to replace blood that is lost during the surgery.

A newer kind of surgery is used for some children. This type is usually done for children younger than 3 to 6 months old.

- The surgeon makes one or two small cuts in the scalp. Most times, these cuts are each just 1 inch (2.5 centimeters) long. These cuts are made above the area where the bone needs to be removed.
- A tube (endoscope) is passed through the small cuts. The scope allows the surgeon to view the area being operated on. Special medical devices and a camera are passed through the endoscope. Using these devices, the surgeon removes portions of bones through the cuts.
- This surgery usually takes about 1 to 2 hours. There is much less blood loss and a faster recovery with this kind of surgery.

- Most children need to wear a special helmet to protect their head for a period of time after surgery.

Children do best when they have this surgery when they are 3 months old. The surgery should be done before the child is 6 months old.

Why the Procedure is Performed

A baby's head, or skull, is made up of eight different bones. The connections between these bones are called sutures. When a baby is born, it is normal for these sutures to be open a little. As long as the sutures are open, the baby's skull and brain can grow.

Craniosynostosis is a condition that causes one or more of the baby's sutures to close too early. The suture becomes bone. This can cause the shape of your baby's head to be different than normal. It can sometimes limit how much the brain can grow.

An x-ray, CT scan, or MRI can be used to diagnose craniosynostosis. Surgery is usually needed to correct it.

Surgery separates the sutures that are fused. It also reshapes the brow, eye sockets, and skull as needed. The goals of surgery are:

- To relieve pressure on the child's brain
- To make sure there is enough room in the skull to allow the brain to properly grow
- To improve the appearance of the child's head
- To prevent long-term neurocognitive issues

Risks

Risks for any surgery are:

- Breathing problems
- Infection, including in the lungs and urinary tract
- Blood loss (children having an open repair may need one or more transfusions)
- Reaction to medicines

Risks for this surgery are:

- Superficial infections
- Deep infections in the brain
- Bones connect together again, and more surgery is needed
- Brain swelling, bleeding, stroke, and seizures
- Damage to brain tissue
- Cardiac events

Before the Procedure

If the surgery is planned, you will need to take the following steps:

During the days before the surgery:

- Tell your surgeon what medicines, vitamins, or herbs you are giving your child. This includes anything you bought without a prescription. You may be asked to stop giving your child some of these medicines in the days before the surgery.
- Ask the surgeon which medicines your child should still take on the day of the surgery.

On the day of the surgery:

- Give your child a small sip of water with any medicines your surgeon told you to give your child.
- Your child's surgeon will tell you when to arrive for the surgery.

Ask your surgeon if your child can eat or drink before surgery. In general:

- Older children should not eat any food or drink any milk after midnight before the operation. They can have clear juice, water, and breast milk up to 4 hours before surgery.
- Infants younger than 12 months can usually eat formula, cereal, or baby food until about 6 hours before surgery. They may have clear fluids and breast milk until 4 hours before surgery.

Your surgeon may ask you to wash your child with a special soap on the morning of the surgery. Rinse your child well.

After the Procedure

After open (non-endoscopic) surgery, your child will be taken to an intensive care unit (ICU). Your child will be moved to a regular hospital room after a day or two. Your child will stay in the hospital for 3 to 7 days.

- Your child will have a large bandage wrapped around the head. There will also be a tube going into a vein. This is called an IV.
- The nurses will watch your child closely.
- Tests will be done to see if your child lost too much blood during surgery. A blood transfusion will be given, if needed.
- Your child will have swelling and bruising around the eyes and face. Sometimes, the eyes may be swollen shut. This often gets worse in the first 3 days after surgery. It should be better by day 7.
- Your child should stay in bed for the first few days. The head of your child's bed will be raised. This helps keep the swelling down.

Talking, singing, playing music, and telling stories may help soothe your child. Acetaminophen (Tylenol) is used for pain. Your surgeon can prescribe other pain medicines if your child needs them.

Most children who have endoscopic surgery can go home after staying in the hospital one night.

Follow the instructions given to you on caring for your child at home.

Outlook (Prognosis)

Most of the time, the outcome from craniosynostosis repair is good.

Alternative Names

Cranectomy - child; Synostectomy; Strip craniectomy; Endoscopy-assisted craniectomy; Sagittal craniectomy; Frontal-orbital advancement; FOA

References

Bruckman KC, Syed HR, Lin KY, John JA, Persing JA. Nonsyndromic craniosynostosis: introduction and single-suture synostosis. In: Winn HR, ed. *Youmans and Winn Neurological Surgery*. 8th ed. Philadelphia, PA: Elsevier; 2023:chap 219.

Demke JC, Tatum SA. Craniofacial surgery for congenital and acquired deformities. In: Flint PW, Francis HW, Haughey BH, et al, eds. *Cummings Otolaryngology: Head and Neck Surgery*. 7th ed. Philadelphia, PA: Elsevier; 2021:chap 187.

Gabrick KS, Wu RT, Singh A, Persing JA, Alperovich M. Radiographic severity of metopic craniosynostosis correlates with long-term neurocognitive outcomes. *Plast Reconstr Surg*. 2020;145(5):1241-1248. PMID: 32332546 pubmed.ncbi.nlm.nih.gov/32332546/ [https://pubmed.ncbi.nlm.nih.gov/32332546/].

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