

The skull

Holds and protects our brain.

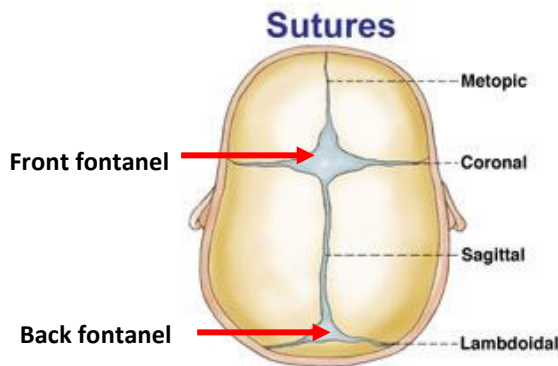
The skull is made up of several different bones held together by loose connections called *sutures*.

- Sutures form gaps between the bones.
- Larger gaps are called soft spots or fontanelles.

Sutures allow the skull to grow as the brain grows. Your baby's brain grows quickly during the first 2 years of life, so it is important that the skull bones stay open.

Fontanelles close at different times:

- **Back:** Not always present. Closes in 2 to 4 months.
- **Front:** May stay open into the second year of life.



Craniosynostosis

Cranio = Skull
Synostosis = Fusion of 2 bones

Sometimes a suture will close too early. When this happens, the skull cannot grow in that direction. The skull continues to grow in the other directions.

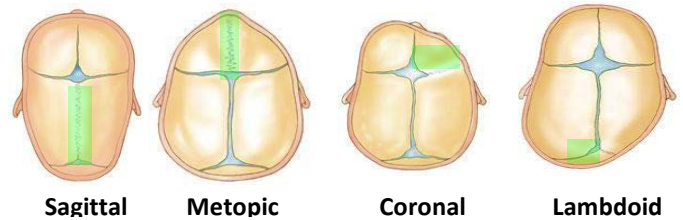
We call this **craniosynostosis**. Craniosynostosis changes the shape of the head and face.

If more than 1 suture closes: The skull will not expand to allow for normal brain growth.

- This can increase the pressure inside the skull. We call this *increased intracranial pressure*.
- If left untreated, brain damage can result.

Some forms of craniosynostosis can affect your baby's brain growth and development. The best possible outcome for craniosynostosis depends on early diagnosis and treatment. There are four types of craniosynostosis.

Fused Suture	Description
Sagittal	Boat-shaped skull
Metopic	Triangle-shaped forehead
Coronal (Can be 1 or both sides)	Unequal front of skull Short skull
Lambdoid	Unequal back side of skull



Open Vault Reconstruction

Goals of Surgery

- To prevent increased intracranial pressure.
- To reshape skull and upper face in the infant.
- To release the fused sutures.
- To allow for normal growth of the brain.

Open Vault Reconstruction and Surgical Team:

Anesthesiologist, Craniofacial Surgeon, Neurosurgeon

Surgery involves opening the closed sutures and then reshaping the skull. We make a *wavy or zig-zag* type of incision across the top of head from ear to ear.

- This lets the hair fall over the scar and hide it as much as possible.
- At times we may trim a small amount of hair around the incision but will not shave your baby's head.

After surgery, your doctors will meet with you in the waiting room and discuss your child's surgery.

After Surgery: PICU and Nursing Unit

Pediatric Intensive Care Unit

Each child heals and recovers in a unique fashion. Generally we expect one night in the PICU and a few days on the regular hospital floor.

PICU: We closely monitor your baby's vital signs, breathing, and neurological status. Both parents can spend the night.

Nursing Unit: We usually remove the bladder catheter and some of the special monitoring lines. We will take the IV out just before discharge home.

Blood transfusion

The scalp has many blood vessels.

Your doctor will give special medicine during surgery to minimize blood loss.

We closely check your baby's blood count after surgery. It is common to give a blood transfusion, but we only give it if necessary.

Absorbable Stitches, Plates, Screws

Stitches: Usually dissolve in a few months and do not need to be removed.

- Sometimes the stitches stick up through the skin.
- Can be trimmed, but should never be pulled.

Staples: Rarely used.

- Removed 2 weeks after surgery.
- Always make sure that your child does not touch the stitches or staples.

Plates and screws: Dissolved by body over one year.

- Not unusual to feel edges of the plates and screws as the skull reforms and heals.
- The head shape will slowly change shape.
- Areas will smooth out with time as the bone heals.

Dressing: A turban-type of dressing may be used. It is usually removed the next day.

Swelling

Lots of swelling around forehead and eyes.

At first this may look frightening, but it is normal for this stage of healing.

- Scalp, head, and eyes continue to swell the first 24 to 48 hours. We keep your baby's head elevated to help decrease swelling.
- Eyes may swell shut for up to 3 to 4 days. Hearing your voice and feeling your touch is very soothing. You may hold your child at this time.
- Swelling tends to peak by day 3 after surgery and then rapidly decreases.

Pain

It is normal to become irritable after surgery.

After surgery there is actually little pain associated with this type of operation.

- We will give you baby IV pain medicine as needed.
- When tolerating fluids, we give pain medicine by mouth.

A few days after surgery, Acetaminophen or Ibuprofen are often all your baby will need for pain.

Feedings

We usually begin feedings shortly after surgery.

We start slowly with clear liquids and advance to your baby's usual feedings.

- May be several days before your child's appetite returns. This is normal.
- IV will provide all the necessary fluids during this time.

Bathing and Shampoos

Can have a bath and shampoo 3 days after surgery.

There may be some drainage from incision site. It is important to keep the incision free from scabbing and crusting with gentle washing. Do not scrub the incision.

- Squeeze a wet, soapy washcloth over the incision.
- Follow with a cup of warm water to rinse area.

Do not soak or let the incision get under water for at least one month after surgery. No swimming or underwater activities until your doctor approves.

Activity

Activity restrictions are minimal, but keep in mind that the skull has just been operated on and is healing underneath the scalp.

A fall or significant bump to the head, may disrupt the repair and shift the skull bone fragments, possibly requiring another surgery.

For at least 2 months: No strenuous activity, rough play, or any activity that can hit or hurt the head. This includes sibling play.

- If your baby is starting to walk, you must be extremely careful to prevent stumbling or falls-
- It is very important to always watch your baby when they are playing. Daycare staff will need specific directions as well.

Fever

Your baby may run a fever a few days after surgery. This is usually a normal reaction of the body after a major surgery. This fever is rarely caused by infection.

Call your doctor or nurse if you see the following:

- Redness around the area of the incision.
- Yellow discharge from the incision.
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Craniosynostosis and Open Vault Reconstruction

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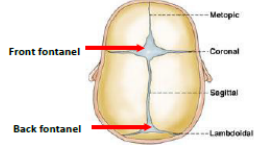
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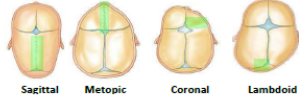
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These instructions are only general guidelines. Your doctors may give you special instructions. If you have any questions or concerns, please call your doctor. Page 2 of 2

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Above information reviewed using Teachback.

Staff Initials _____

1. I have a copy of these instructions.

2. I know what I need to do.

3. I know why doing this is important.

Patient/Parent or Legally Authorized Representative

Date

Time

Healthcare Provider Signature

If interpreter used:

Name or ID: _____

Date/Time: _____

