Patient Education Series: Craniosynostosis

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Craniosynostosis

- Cranio = skull
- Synostosis = fusion of open areas (sutures) of skull
- Fusion of sutures, depending on type lead to characteristic head deformities
How is Craniosynostosis Diagnosed?

- The skull deformity is easily recognized
- A CT scan confirms the diagnosis
- A Craniofacial and Pediatric Neurosurgeon make the final diagnosis
- A geneticist is consulted in unusual cases
What are my Child’s Treatment Options?

• In mild cases, your child can be followed closely
• In most cases, because the deformity is progressive, surgical treatment is recommended
What are the Surgical Options?

• At our institution, several options are available
• One, is an open approach
• Another, is an endoscopic or minimally invasive approach
Reasons for Treatment

• Increased intracranial pressure
• Globe protection
• Airway protection
• Disfigurement
Open Approach

• The incision is hidden in the hair and goes from ear to ear
• This is the traditional approach and involves a team of Craniofacial and Pediatric Neurosurgeon
• The abnormal suture is opened and the bones are surgically repositioned and held in place with resorbable devices
Right Coronal Synostosis - 4 months
Right Coronal Synostosis - 4 months
Unicoronal Synostosis - 4 years
Unicoronal Synostosis, A.R.
Pre-Op
Compensatory Growth in Unicoronal Synostosis
Unicoronal Synostosis, A.R.
Pre-Op
Unicoronal Synostosis, A.R.
Intra-Op
Unicoronal Synostosis, A.R.
Intra-Op
Unicoronal Synostosis, A.R.

Pre-Op

1 yr. Post-op
Postoperative Unicoronal Synostosis with Elevated ICP
Skull Vault Expansion with Correction of ICP
Endoscopic, Minimally Invasive Approach

• Small incisions will be made in the scalp within the hair and sometimes along the crease of the upper eyelids
• Using a small lighted endoscope, the operation will be projected onto a T.V. screen
• Resorbable devices may be used for bone stabilization
Endoscopic, Minimally Invasive Approach

- Post-operative helmet or band will be prescribed in many cases to “fine tune” the shape of the skull
- The helmet may be needed up to 3 months
- Your child will be fitted with a helmet 10 to 14 days after the operation
Parietal plates outfractured

Wedge osteotomies to skull base

Radial osteotomies of frontal and occipital bones
S.W.- 2 month old girl with Sagittal Synostosis- Before and 3 months after Endoscopic Correction
S.W.- 2 month old girl with Sagittal Synostosis- Before and 3 months after Endoscopic Correction
Endoscopic Assisted Correction of Metopic Craniosynostosis With Immediate Reconstruction
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Endoscopic Assisted Correction of Metopic Synostosis, 7 m.o., D.D.
Endoscopic Assisted Correction of Metopic Synostosis, 7 m.o., D.D.

Pre-Op

Post-Op
Endoscopic Assisted Metopic Cranietomy with Immediate Fronto-Orbital Reconstruction Using MacroPore Resorbable Plates
Endoscopic Correction of Unicoronal Synostosis
Outfracture of Right Fronto-orbital Segment and Stabilization
Mesh Design
3 Month Old with Right Coronal Synostosis
3 Month Old with Right Coronal Synostosis
3 Month Old with Right Coronal Synostosis
Upper Eyelid Incision and Exposure
Subgaleal Exposure
Rongeur to Start Coronal Strip Craniectomy, Completed with Scissors
Before and 6 Weeks Postop
Before and 6 Weeks Postop
Post-operative Recovery

- Surgery takes from 2-4 hours
- After surgery, your child will first go to the recovery room, where the breathing tube is removed
- Then, your child will be transferred to the floor, to an Intermediate Care Unit (IMU) or to Intensive Care (ICU)
- Your child will have a head dressing
Post-operative Recovery

• On the floor, your child will be placed on a monitor overnight
• Through a small tube in your child’s vein, salt and sugar water will be given until your child is feeding normally
• They will also receive antibiotics and pain medication
Post-operative Recovery

• Your child’s head and face will swell and the eyes may swell shut for several days
• The swelling is worst at 48 hours
• Swelling is normal and does not hurt your child
• Soon it will go away and by 2 weeks your child will appear normal
Discharge

- Once your child’s eyes start to open and your child is eating and taking oral pain medications, they will be discharged home.
Discharge

• Your child will be given oral pain medications and antibiotics and you will be allowed to wash their hair

• A return appointment will be made with the Pediatric Neurosurgeon and the Craniofacial surgeon one to two weeks after discharge
Discharge Directions

• Schedule a follow-up appointment with your doctors 1-2 weeks after discharge

• Call your doctor’s office (Craniofacial Surgery= 858-576-1700 Ext. 4255 or 858-292-1097 [24 hour line]; Neurosurgery= 858-576-1700 [24 hour line]) with questions or problems
Long Term Followup

- Long term problems with the shape of the head and face and more rarely, neurologic and visual disorders can occur.
- Your child will be followed every 6 months until 2 years of age, then yearly until around 8 or 9 years old.
- In more complex cases, your child will be seen at the Children’s Hospital Craniofacial Team on a yearly basis.
Thank You