Patient Education Series: Craniosynostosis

Steven R. Cohen M.D.

Ralph E. Holmes M.D.

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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

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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

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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

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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

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Reasons for Treatment

- Increased intracranial pressure
- Globe protection
- Airway protection
- Disfigurement

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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

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Right Coronal Synostosis- 4 months

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Right Coronal Synostosis- 4 months

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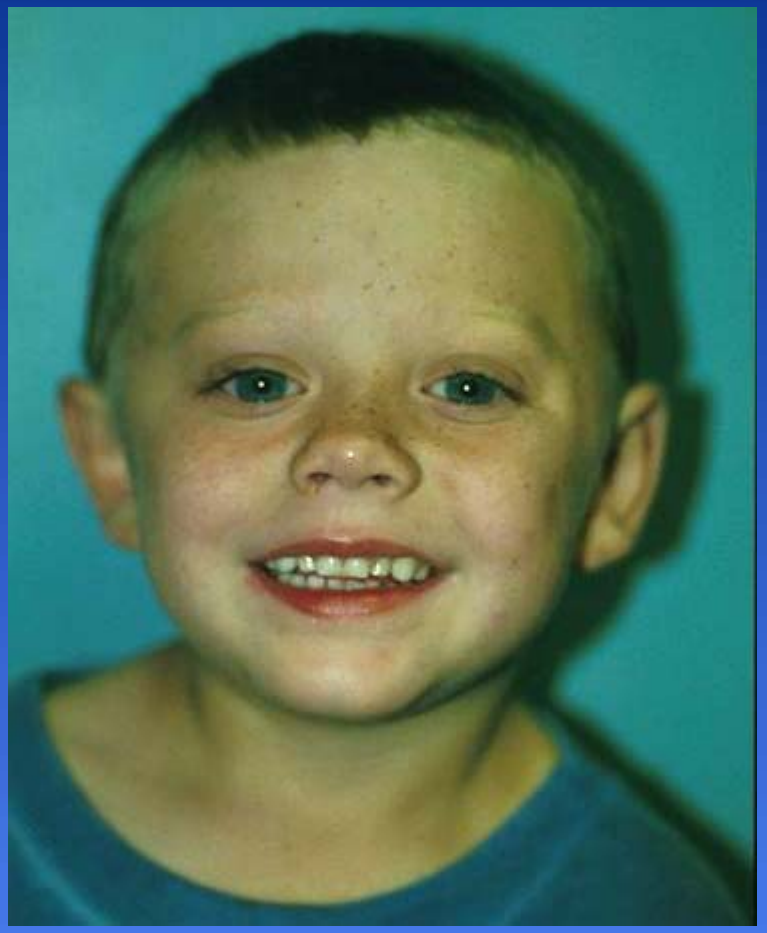
Unicoronal Synostosis- 4 years



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Unicoronal Synostosis, A.R. Pre-Op

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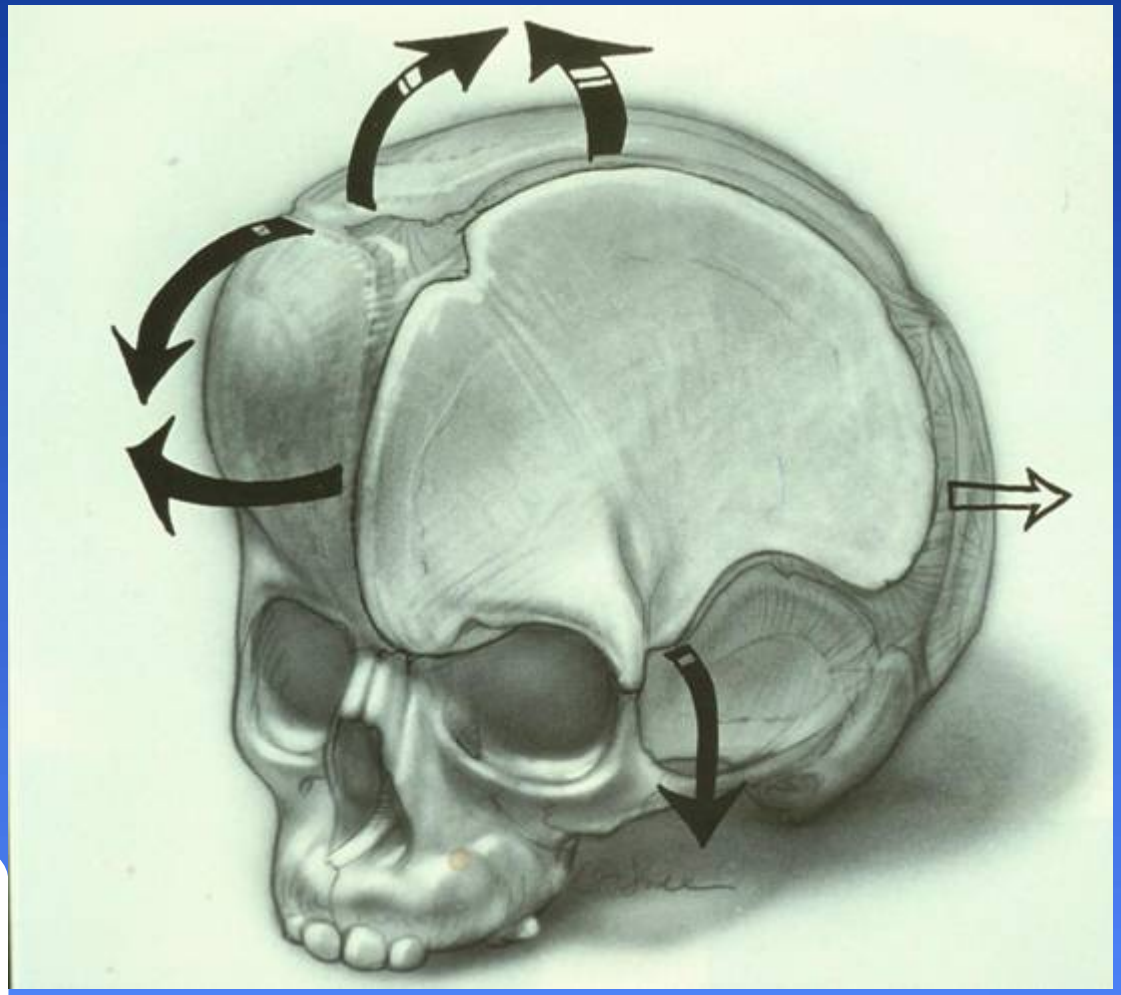
Compensatory Growth in Unicoronal Synostosis



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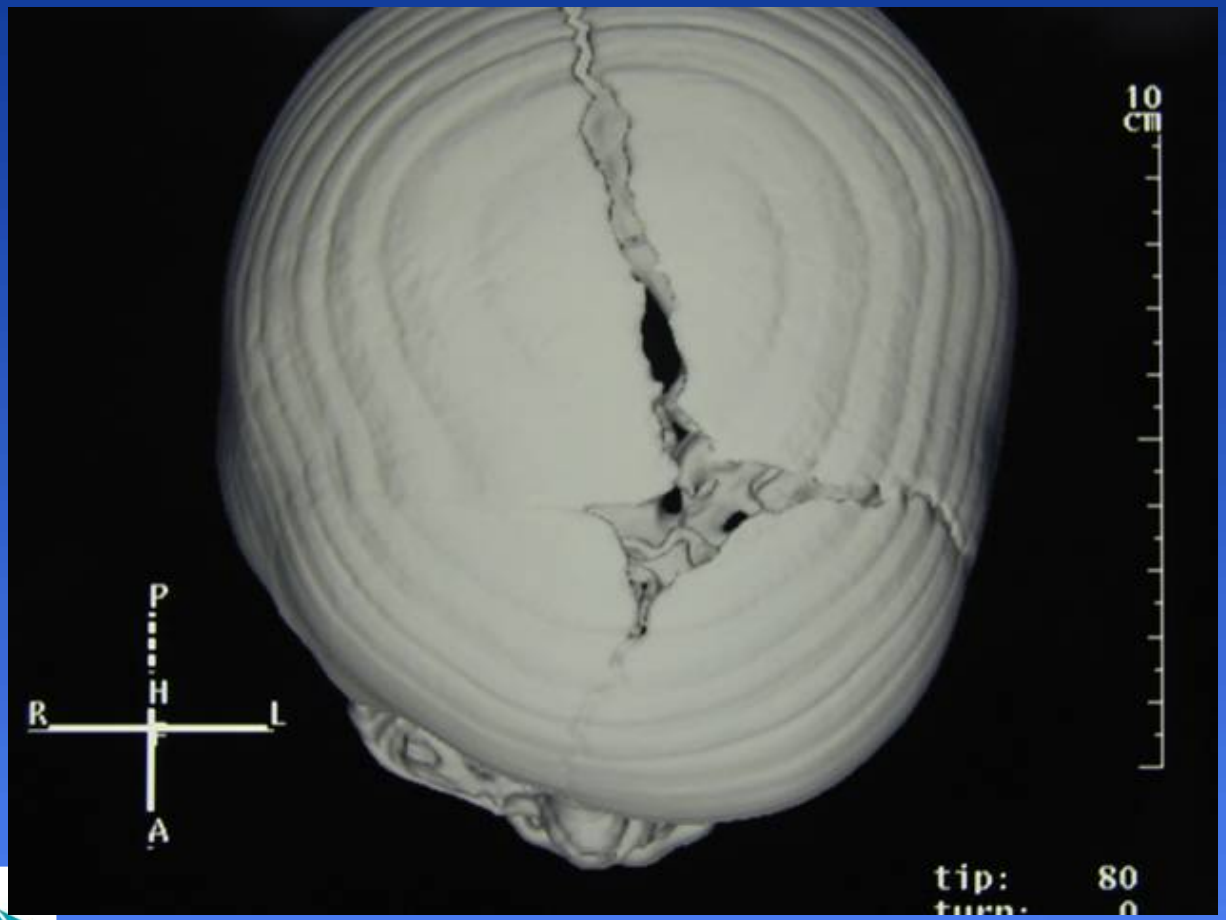

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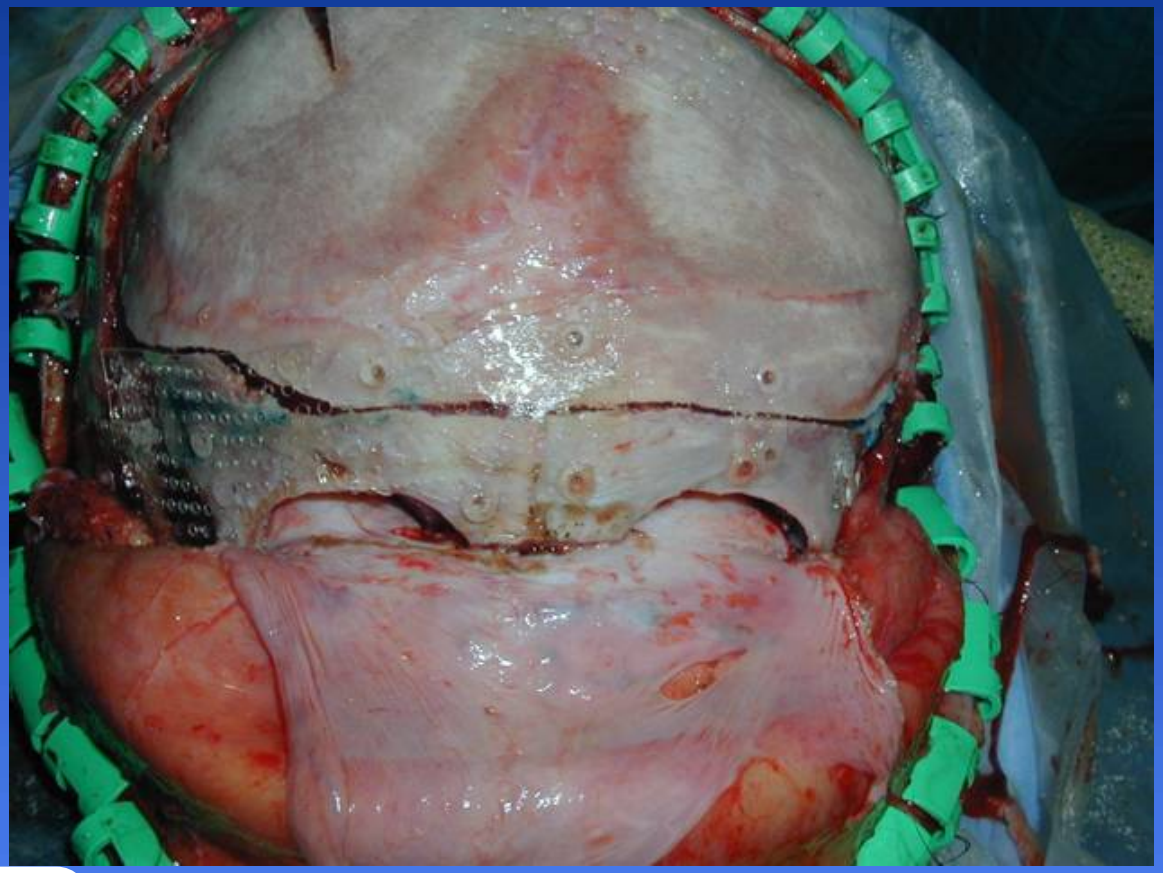
Unicoronal Synostosis, A.R. Intra-Op



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Unicoronal Synostosis, A.R. Intra-Op

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Unicoronal Synostosis, A.R.

Pre-Op

1 yr. Post-op

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Postoperative Unicoronal Synostosis with Elevated ICP

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Skull Vault Expansion with Correction of ICP

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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

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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

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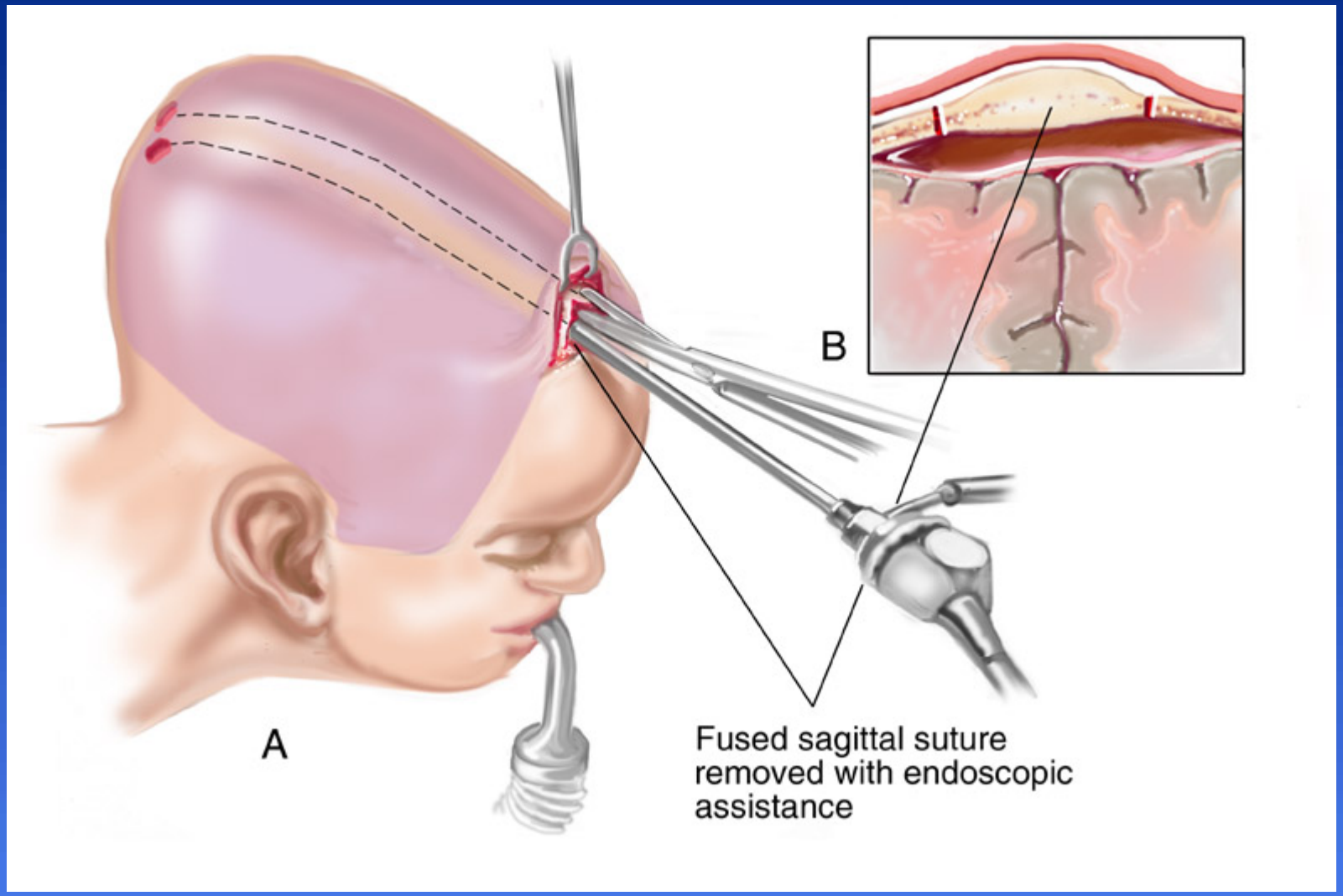

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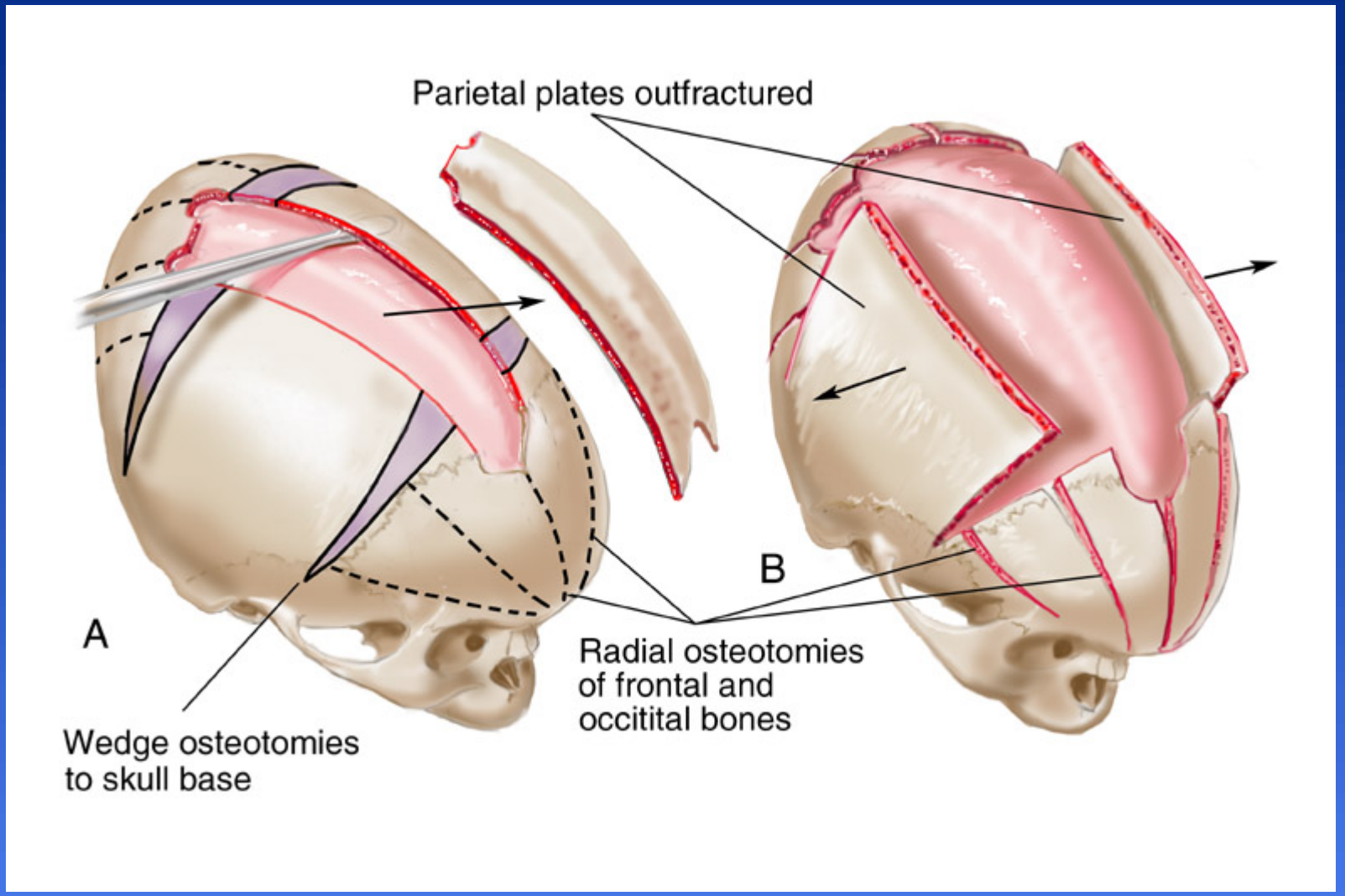

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S.W.- 2 month old girl with Sagittal Synostosis- Before and 3 months after Endoscopic Correction

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S.W.- 2 month old girl with Sagittal Synostosis- Before and 3 months after Endoscopic Correction

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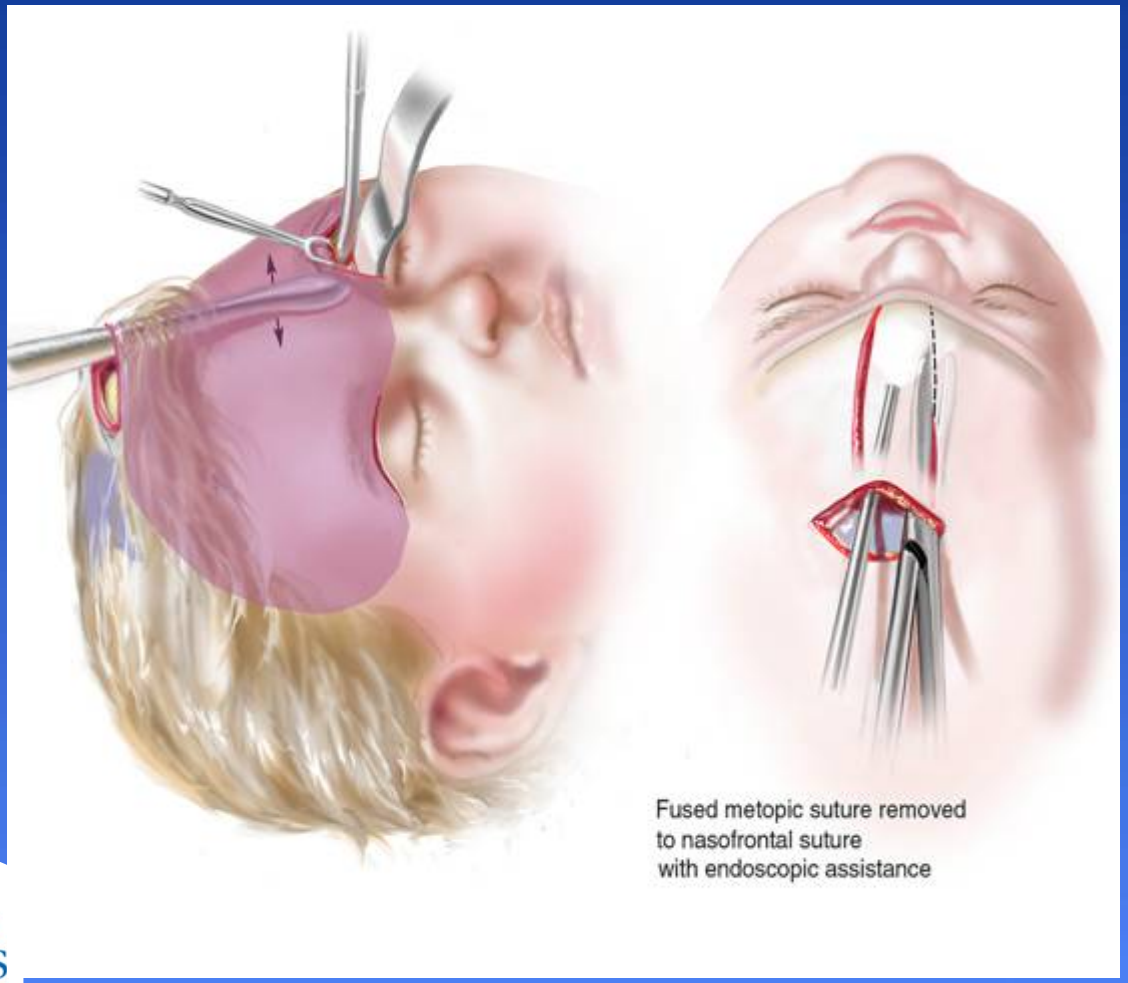
Endoscopic Assisted Correction of Metopic Craniosynostosis With Immediate Reconstruction



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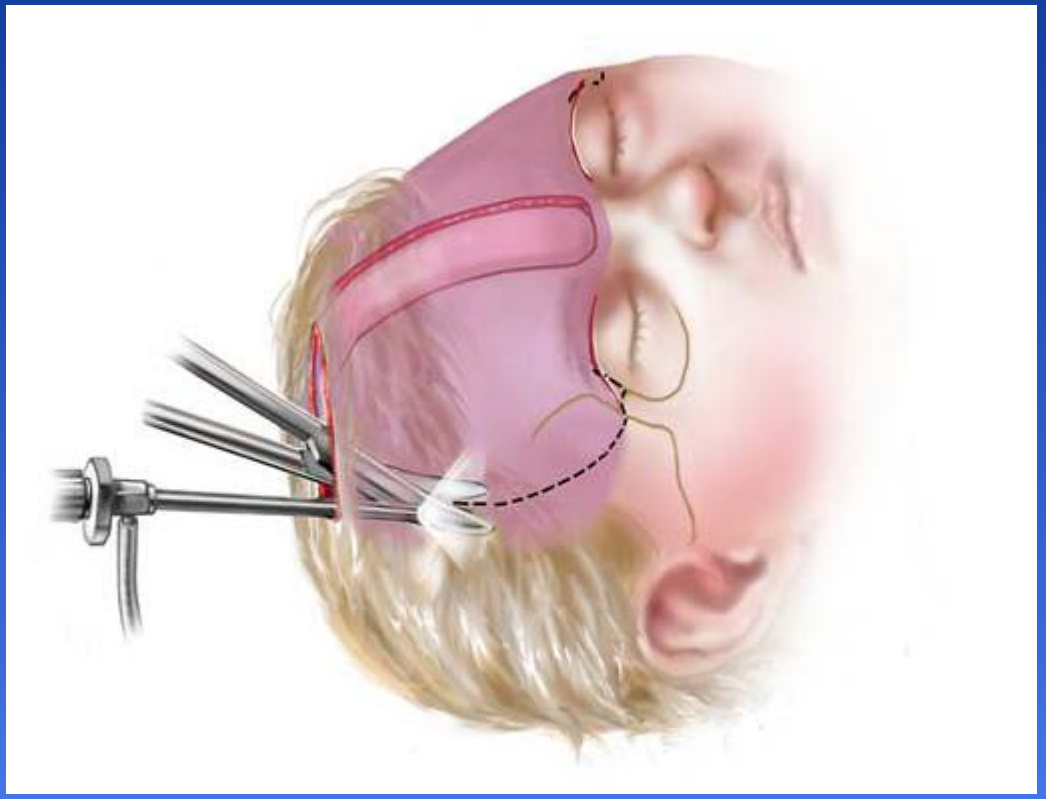

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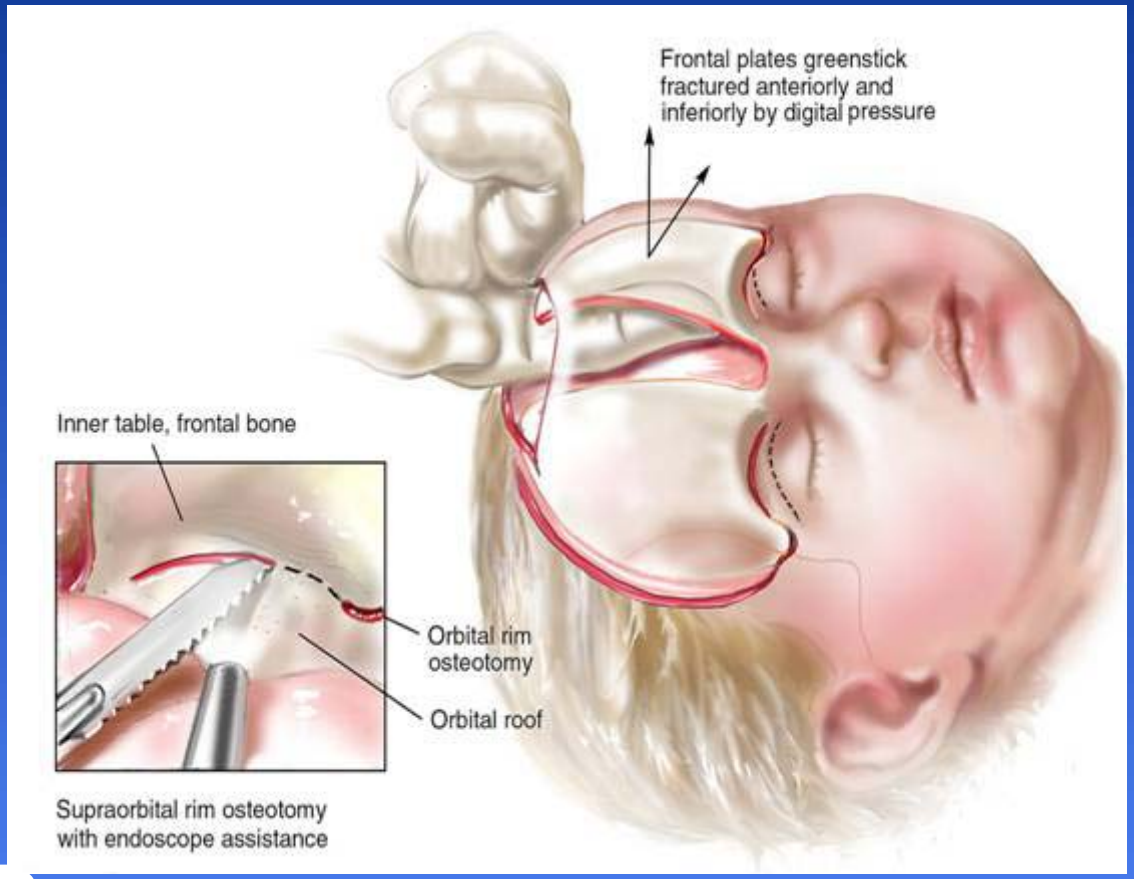

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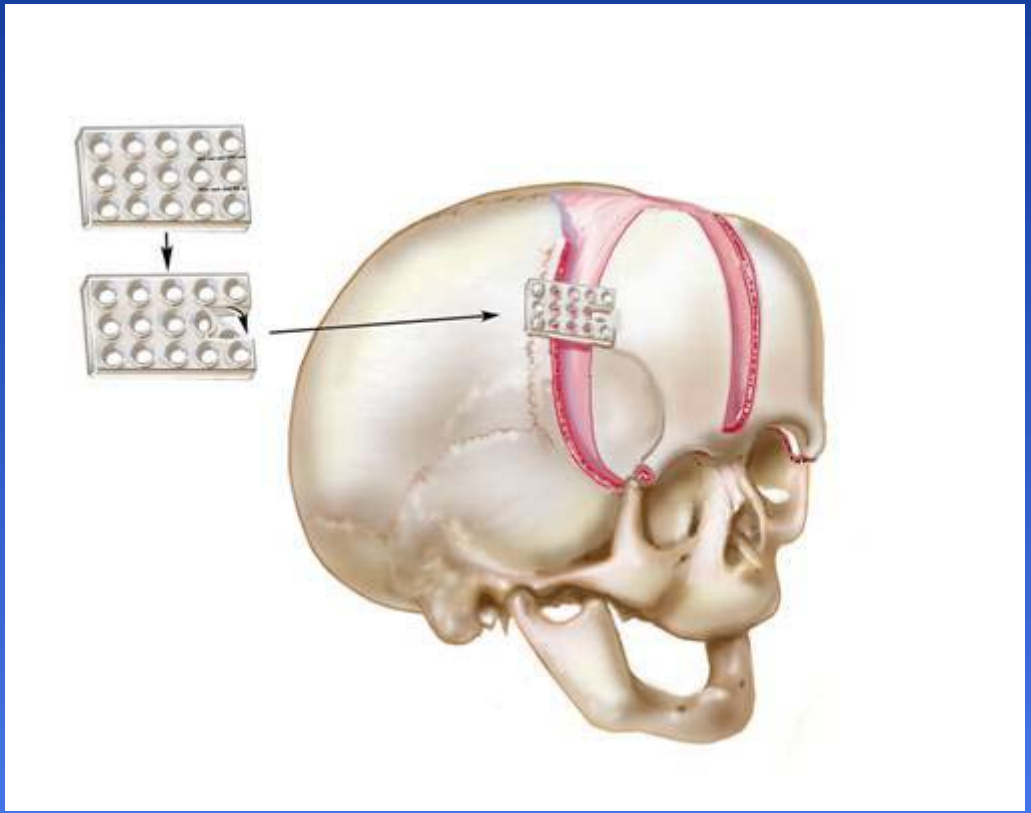

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Endoscopic Assisted Correction of Metopic Synostosis, 7 m.o., D.D.

Pre-Op

Post-Op

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Endoscopic Assisted Correction of Metopic Synostosis, 7 m.o., D.D.

Pre-Op

Post-Op

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Endoscopic Assisted Metopic Craniectomy with Immediate Fronto-Orbital Reconstruction Using MacroPore Resorbable Plates

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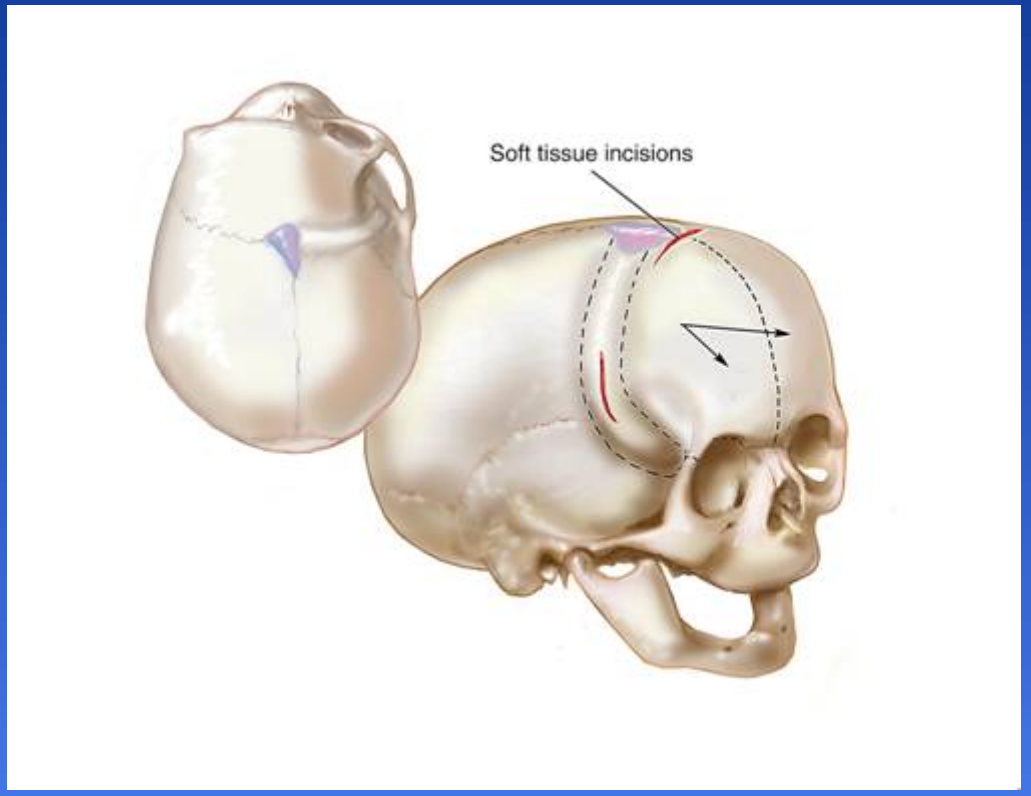
Endoscopic Correction of Unicoronal Synostosis



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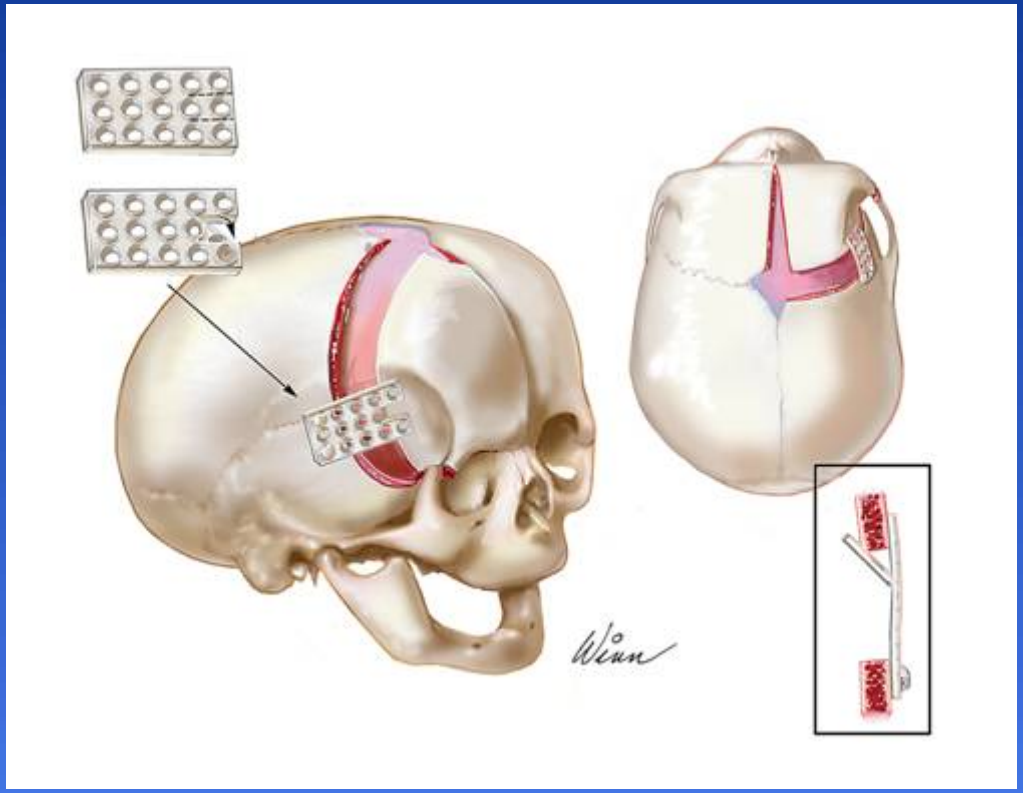
Outfracture of Right Fronto-orbital Segment and Stabilization



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Mesh Design

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3 Month Old with Right Coronal Synostosis

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3 Month Old with Right Coronal Synostosis

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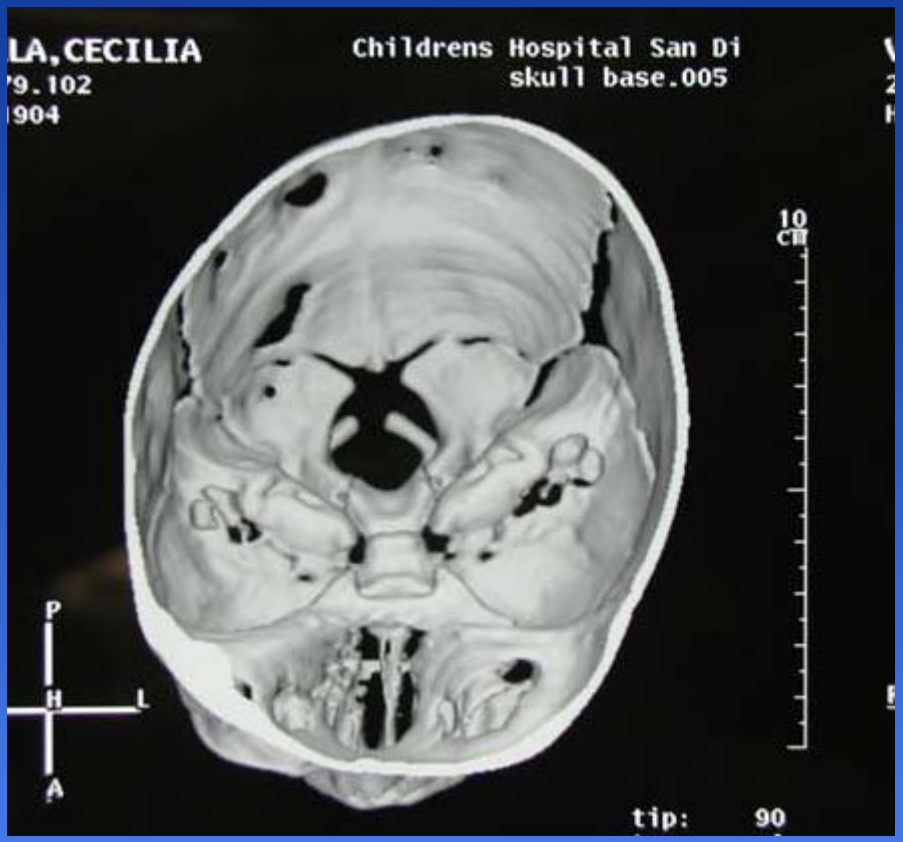
3 Month Old with Right Coronal Synostosis



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Intraoperative Planning

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Upper Eyelid Incision and Exposure

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Subgaleal Exposure

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Rongeur to Start Coronal Strip Craniectomy, Completed with Scissors

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Before and 6 Weeks Postop

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Before and 6 Weeks Postop

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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

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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

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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

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Discharge

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

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Discharge

- Your child will be given oral pain medications and antibiotics and you will be 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

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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

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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

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Thank You

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