

Endoscopic craniostomy repair is a procedure offered at St. Louis Children's Hospital for patients that have been diagnosed with craniostomy and is rapidly replacing the open technique. This innovative treatment offers many advantages to the patient and family over open craniostomy repair. In addition to offering a significantly shorter recovery time, the endoscopic craniostomy repair is less invasive, resulting in smaller scars, less discomfort and swelling and shorter hospitalizations.

CRANIOSYNOSTOSIS

Craniosynostosis is the abnormal fusion of one or more of the growth plates between the bones of the skull. The most frequent type of fusion is sagittal synostosis. This fusion of the suture running along the midline causes problems with normal brain and skull growth. Further, it causes the skull to become abnormally elongated, causing a highly deformed appearance, and may increase pressure inside of the head. Metopic synostosis involves the suture at the center of the forehead, resulting in a pinched, triangular forehead shape (trigonocephaly). Coronal synostosis involves the suture between the frontal and parietal bones and results in significant deformity of the forehead, brow and orbits.

OPEN TREATMENT

The open treatment for craniostomy involves removing the deformed bone in a surgery during the first year of life, then reshaping and replacing the bone. This requires an incision over the top of the head from ear to ear, removing the bone, and reshaping and securing it with dissolving plates and screws. It normally requires a blood transfusion, and a 3-5 day hospital stay with an overnight stay in the pediatric intensive care unit.



ENDOSCOPIC CRANIOSYNOSTOSIS REPAIR

This innovative procedure for the treatment of some types of craniostomy has been successfully performed on over 100 patients at St. Louis Children's Hospital. Using a team approach to the procedure, surgeons introduce an endoscope through one or two small incisions measuring about 1.5 inches each at the top of the head. A segment of bone is removed near the fused bone and in a few other places, to release the fusion. No plating or reshaping is performed. Instead, in the first week after surgery, a custom molding helmet is made and the patient wears it until about one year of age.

This procedure provides numerous advantages:

- Decreased operative time (1.5 hours or less vs. about 5 hours)
- Decreased blood loss with usually no need for a blood transfusion
- Shortened hospital stay: patients generally go home the day after surgery
- Significantly reduced scars
- Greatly reduced discomfort and swelling

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ONE PATIENT'S STORY

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One look at Landon Snethen, and you can tell there's a lot going on in that head of his. Landon is a happy, busy 1-year-old boy, but when he was only 3 weeks old, his family had real concerns.

"His head was long and skinny instead of round," says his mother, Brooke Burnett. "It just kept changing shape and changing shape, and I was getting really scared."

A CT scan was performed on Landon, and he was referred to St. Louis Children's Hospital. The doctors agreed, "He has craniosynostosis, and we have good surgical options to correct it."

Craniosynostosis refers to premature fusion of one or more of the joints between the bone plates of the skull. Fusion of the midline suture can cause pressure, deformity, and interference with normal brain and skull growth.

"They had scheduled the procedure for around Thanksgiving," Brooke Burnett says, "but his head was changing so much. So we called and made an appointment to come in before the surgery." The timing of that call was important.

The doctors were getting ready to introduce a less invasive way to treat craniosynostosis. In endoscopic craniosynostosis repair, two small incisions are made at the top of the head, and segments of the bone are removed to release the fusion without plating or reshaping the skull. Unlike open craniosynostosis repair, the endoscopic surgery can often be performed without a blood transfusion, and can significantly reduce scarring and swelling in the patient. It looked as though Landon Snethen might be the first candidate for this new procedure.



BEFORE

AFTER

Landon turned out to be the third patient to receive the endoscopic treatment.

The hardest part for his mother was handing him over to the doctors. After that, it was easy. "They called me and let me know every step of the procedure. When it was over, Landon was better immediately. His head was more round. I was so excited, I called my mom and said, 'You've got to see how he looks!'"

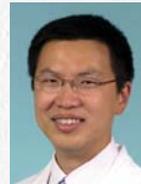
Landon is now a year out from surgery and no longer needs to wear the helmet that was part of his follow-up care. He is doing very well with a good cosmetic outcome.

Brooke Burnett wears a smile. "I am very, very grateful," she says. "When you have people to support you and reassure you that they know what they're doing, it will be OK. It was OK!"

HOW TO MAKE A REFERRAL

To make a referral please call 800.678.4357. For consultation and confirmation of a medical diagnosis, please contact us directly by phone or email.

ABOUT THE SURGEONS



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Dr. Smyth is a board-certified pediatric neurosurgeon and Fellow in the American College of Surgeons who specializes in epilepsy, craniosynostosis and radiosurgery. He also treats children with neurosurgical disorders including brain tumors, congenital diseases, hydrocephalus, spasticity, tuberous sclerosis, cortical dysplasia, myelomeningocele, Chiari malformation, arteriovenous malformations, spina bifida and tethered cord, and spinal and cranial trauma.

